Initial Impressions Report

Appropriate Management Response

Northern Rockies 2007

Lessons recorded by an Information Collection Team
Report by the Wildland Fire Lessons Learned Center
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Introduction

The Wildland Fire Lessons Learned Center (LLC) serves as a resource for the entire wildland fire community, performing its work by identifying, collecting and disseminating knowledge that might otherwise remain isolated to individuals or small groups. One way in which the LLC gathers and disseminates knowledge is by sending Information Collection Teams (ICT) to the field.

This initial impressions report describes and documents lessons learned, effective practices, training recommendations and unresolved issues of concern pertaining to appropriate management response (AMR) that existed at the time this report was written. The LLC can best serve the fire community by getting these initial impressions before AMR subject matter experts (SMEs) and the people responsible for AMR policy, so that they may consider the information provided, and address those issues requiring their attention. Some issues may already be on the agenda of these experts, while others may not. However, the first priority of the Center is to get information into the hands of people that make policy, conduct training, and lead people. The LLC will undertake additional collection efforts related to AMR in the future to further develop the themes, issues, and trends contained in this initial impressions report. The AMR experts to develop the next LLC information collection plan pertaining to AMR.

AMR in the Northern Rockies 2007

The information collection team traveled to southwestern Montana during a fire season in which the Northern Rockies Coordinating Group (NRCG) was aggressively implementing a planned AMR strategy. Several large and long-duration fires and complexes of fires were actively burning, numerous Incident Management Teams (IMT) were managing fires, the Northern Rockies Multi-agency Coordination Group (NRMAC) was activated and setting priorities, and they were supported by an Area Command Team (ACT).

The information collection team focused its efforts on the Sawmill Complex on the Lolo National Forest, the Rombo Mountain fire on the Bitterroot National Forest, as well as the Rat Creek and Pattengail fires on the Beaverhead-Deerlodge National Forest. Interviewees included personnel associated with these incidents as well as members of the ACT and NRMAC who were focused more broadly, as well as personnel associated with the Fool Creek and Ahorn fires in central Montana. The Lessons Learned Center staff thanks the district and forest personnel, members of incident management teams, area command team and MAC, and all the other people we interviewed for sharing their lessons and experiences. The knowledge they shared will undoubtedly help others working to implement AMR in their organizations.

The ICT reported on topics that these people were willing to share and those that information collection team members were able to observe first-hand. The information collection team was not assigned to these incidents to facilitate after-action-reviews (AAR). Instead, team members reported on what they learned through inquiry and observation, with the intent of surfacing issues and spurring continued work in the future, both by the agencies and by the Lessons Learned Center. A statement of work and the Center's information collection team protocols guided the assignment. Beyond a focus on areas identified in the statement of work, it was not the responsibility, role or right of information collection team members to pre-determine what the

issues were. If the issue arose in the course of the Team's assignment, and could be corroborated, either by further inquiry or on closer examination, they reported on it.

Moving Ahead

Learning organizations succeed because people at all organizational levels share information and learn from their experience. Within this context, this report can serve as a vehicle for learning from experience, capturing and spreading knowledge, sharing information, and purposefully modifying both policy and action on the ground to reflect the insight and knowledge gained by reviewing the 2007 AMR experience in the Northern Rockies. It is our intent that this report will draw attention to valuable lessons, practices, and issues and spur continued work in the future that will help sustain success and avoid repeated mistakes. As one considers the information contained in this report, the authors encourage the reader to do so in the context of the four major aspects of AMR; pre-planning, assessment, implementation, and follow-up.

Methodology, Assumptions and Limitations

Information Collection Teams

An Information Collection Team (ICT) includes two to six members, including a team leader. ICTs gather data and make observations regarding issues identified by the Lessons Learned Center (LLC) in consultation with SMEs. Issues may pertain to policies, processes, tactics, techniques, or procedures; and the Center uses the data collected by the ICT to inform and update agency administrators, incident commanders, incident management teams, and other fire management personnel via various knowledge products. The LLC also shares information with training managers, developers and instructors to help assure that agency training reflects the current reality of practices and conditions in the field.

An Information Collection Plan, sometimes supplemented by a Statement of Work, guides the team's assignment and conduct. ICTs are not dispatched to evaluate, review or assess performance. ICT members observe field operations and interview people to collect information that may be of value to others, with the intent of helping fire management personnel avoid recurrent mistakes and reproduce success. The information collected by the Team or the knowledge products developed by the Center may become a catalyst for policy change. However, identifying lessons learned, effective practices, innovative ways of overcoming challenges, and knowledge gaps must remain the sole focus of an ICT.

Information Collection Methods

ICTs dispatched by the Wildland Fire Lessons Learned Center employ a mix of two methods of data collection; one being inquiry, the other being observation. Inquiry essentially involves formal interviews of incident personnel. The process of observation blends observation by ICT members with follow-up questions posed to incident personnel to seek feedback on the team members' impressions.

ICT members are dispassionate observers, not reviewers or evaluators, critics or cheerleaders. Our job is to identify lessons learned, potentially effective practices, innovative ways of overcoming challenges, and knowledge gaps.

The observations, conclusions and recommendations reported here were primarily derived from a five-day ICT effort in Southwest Montana in 2007. The information collection team members were:

Mike DeGrosky, CEO, The Guidance Group, Inc.
Brenna MacDowell, Editorial Assistant, Wildland Fire Lessons Learned Center
Helen Smith, Ecologist, Missoula Fire Sciences Lab – RMRS

Assumptions and Limitations of This Report

The impressions reported here do not address a single operation. Instead, the incidents that the ICT addressed served as examples and an opportunity to contact a number of fire personnel at central locations. Consequently, the themes, lessons learned, training recommendations and unresolved issues reported here represent a combination of elements both unique to these

particular incidents, as well as those which may be generalized across the AMR work environment.

The report describes initial impressions of AMR implementation; and is not intended as a comprehensive, definitive assessment of the state of the discipline. In addition, some of the issues identified here have been known to those working in the AMR community for some time, but appear in this report because they remain unresolved.

This document reports on lessons learned, effective practices and unresolved issues. Sometimes the report describes a topic as both a lesson learned and an effective practice or a lesson learned and an unresolved issue, because the lesson learned was that someone implemented a practice that worked or that they faced an issue that remains unresolved.

Confidentiality

The conversations that information collection team members have with interviewees are strictly confidential. Team members inform anyone contacted of their commitment to confidentiality, and respect the privacy of the individuals they contact. The Lessons Learned Center does not identify people by name, unit or other identifier in final notes or in the combined and condensed final report. The Center is interested in the "what," not the "who," and information collection team members will not attribute individual comments to the person interviewed. Consequently, from time-to-time, team members observe events or learn of information that cannot be reported-on given the Team's purpose, approach to confidentiality, and the sideboards of its involvement in the incident. The Lessons Learned Center does not release interview notes to others outside of our teams, including other teams, supervisors or managers.

Themes from the AMR ICT Assignment

Over the course of the assignment, nine major themes emerged.

Theme 1: **Confusion and lack of understanding currently hinder the implementation of appropriate management response (AMR.)**

The AMR concept has been left open to too much interpretation, and describing AMR as something new confuses people. Consequently, large and important segments of both federal and non-federal agencies seem to lack an understanding of the AMR concept. Some people mistakenly equate AMR with either wildland fire use or point protection and people are confused about the relationship between AMR and initial attack.

People contacted by the information collection team believed that describing AMR as new, or as a significant policy change, had confused agency personnel, interagency partners, and the public. Most were of the opinion that AMR really was not new, and repeatedly expressed the opinion that all that had changed was that they were now doing AMR deliberately rather than out of necessity.

Theme 2: **Apparently, at high levels, AMR has interagency support**.

Still, it is very clear that not all state and local government cooperators are "on the same page" with their federal counterparts, primarily the Forest Service, when it comes to AMR.

Theme 3: **Patience is key.**

Firefighters and IMTs faced extreme conditions and extreme fire behavior in the Northern Rockies during the 2007 fire season. Facing these conditions, agency administrators and fire managers adopted a strategy of staying patient and letting fires spread to fuel type and other condition changes where firefighters could engage the fire more safely and effectively - a mindset in which one must accept that the appropriate response may be different than getting out there and aggressively trying to put the fire out.

Theme 4: **Be prepared, your public may, or may not, be ready for AMR.**

Whether the public is "ready" for AMR or understands AMR varies from place to place and community to community. A number of people contacted by the information collection team believed that the public was coming around to the AMR idea. However, others felt that the public was not quite ready for AMR, and that the agencies had not sufficiently made their case to the public.

Theme 5: **It is critical to remain flexible and adaptable.**

The AMR concept requires fire management personnel to think far ahead, anticipate resource needs, and manage those resources flexibly as dictated by changing needs; both on the incident they are managing as well as on other fires. Experienced fire managers and line officers observed that they couldn't make the AMR concept work without people who could manage resources flexibly.

Theme 6: **Analysis is the key to AMR**.

Judging from the 2007 experience in the Northern Rockies, it appears clear that analysis represents a critical concept and the key to successful AMR implementation. It was very plain that people believed that the use of long-term analysts, long-term analysis, and long-term implementation plans represented major successes of the 2007 experience in the Northern Rockies.

Theme 7: **The Forest Service role in structure protection is in flux**.

The Forest Service change in its policy during fire season caused considerable consternation among its own employees, interagency partners and communities. The current policy remains poorly understood.

Theme 8: **A shift toward AMR has implications for incident management teams**.

The 2007 experience in the Northern Rockies raised questions and concerns in the minds of fire managers and agency administrators. Questions arose about the preparation and performance of individual teams, about the fundamental system by which the NWCG configures and develops IMTs, and about how the National Interagency Coordination Center (NICC) and geographic area coordination centers (GACC) assign teams.

Theme 9: **Agencies are not ready for full AMR implementation**.

On the whole, the people interviewed seem to feel that, conceptually, implementing AMR was appropriate, that this year's effort in the Northern Rockies had been a bold and successful step out into AMR, guided by a strategy that the agencies aggressively stuck to. However it also remains clear that the federal agencies are not ready for full, national implementation, and that many unresolved issues remain.

AMR Lessons Learned

LESSONS LEARNED: THE APPROPRIATENESS OF AMR

"I finally figured out that these fires are where they were going to be no matter what we did, and that we can save a lot of money." – District FMO

"We are not necessarily doing anything different but our fires are larger." – District Engine Foreman

The Appropriateness of AMR Depends On Your Perspective

On the whole, the people interviewed seem to feel that, conceptually, the implementation of appropriate management response (AMR) was appropriate, that they were doing the right thing, and that this year's effort had been successful and produced the results it should have. Senior Forest Service personnel appear to believe that they have successfully initiated and demonstrated a policy change that achieves results that the Office of Management and Budget (OMB), the Government Accountability Office (GAO) and other oversight organizations have been demanding of the agency.

Several experienced fire managers believe that the Northern Rockies effort in 2007 represented a full, bold step out into AMR, guided by a strategy that the agencies aggressively stuck to. View this strategy at: *The Northern Rockies AMR Strategy* *or* http://www.wildfirelessons.net/documents/Northern_Rockies_AMR_Strategy.pdf

However, one must not get the impression that everyone in the Northern Rockies cheerfully supports the purposeful emphasis on AMR. As discussed elsewhere in this report, AMR has its skeptics, even within the Forest Service, the agency moving most aggressively to implement the concept. Some wariness arises from the fact that many people are of the opinion that, practically, AMR represented little change from what they had been doing for some time and that they never regarded their response as inappropriate. However, even those expressing that perspective articulated support for the concept of making the fullest possible range of fire response options available to management and deliberately choosing from among them.

Some agency employees, particularly those working in operational capacities on local units, regard management's emphasis on AMR with skepticism and cynicism. However, even those skeptics recounted examples of how they had recently responded to a fire in a way that may have been viewed unfavorably or regarded as simply unacceptable in the past. For example a local unit that chose to patrol a remote fire from the air, and eventually declare it out from the air, without ever building a foot of fireline.

Whether people viewed AMR as something new or not, those contacted by the information collection team seem to agree that their co-workers in the field are at least aware of, and thinking about AMR as described by management and that they are striving to understand management's desired direction; and implement that direction.

Several people contacted by the information collection team cited common success factors as they described the 2007 AMR implementation in the Northern Rockies. Despite large,

aggressive fires, no one had been seriously injured; few structures had been lost; and fires were revisiting fire dependent ecosystems from which it had been excluded for decades.

While not universal, AMR seems to enjoy wide-ranging internal support in the agencies implementing the concept, most notably the Forest Service. However, outside the federal agencies implementing AMR, cooperators from state and local government question the appropriateness of AMR outright, and their attitude seems to range from dubious to openly hostile. Unfortunately, as one senior Forest Service official observed, if AMR doesn't happen in an interagency manner, it won't work. This represents a significant challenge for the advocates of the AMR concept, and is discussed elsewhere in this report.

Conditions Dictate What Response Is Appropriate

In 2007, the number, size, and intensity of fires combined with the unavailability of resources, drove many decisions about what response fire managers deemed appropriate. In reality, fire managers could not have taken full suppression action on many fires had they wanted to. In addition, land management plans frequently allowed only a very narrow range of alternatives to choose from.

Firefighter safety concerns, such as extreme fire behavior, numerous snags, lack of readily available anchor points, and inadequate safety zones often drove response decisions and the public seems, for the most part, to have understood and accepted this reasoning. However, one must remember that the appropriate response may differ by time and place on the same incident.

Because fire managers faced few options, point protection strategies, a focus on the wildland-urban interface, and patient approaches that encouraged engaging the fire at advantageous fuel type changes received full and sincere tests.

AMR Varies By Time and Place

What is appropriate on one day under certain conditions may prove inappropriate on the next day when conditions change. A tactic may prove appropriate on one side of the river, but completely unacceptable on the other side.

LESSONS LEARNED: AMR MISUNDERSTOOD INTERNALLY

"I have been to three different meetings on AMR and came away with three different ideas of what it is." – District Engine Foreman

Agency Personnel Are Confused By "AMR"

The information collection team found a nearly bi-polar understanding of appropriate management response (AMR) among agency personnel. Some agency administrators and fire management personnel, typically those higher in the organization, understand the concept and their responsibilities in implementing management's direction. Conversely, a number of people contacted by the information collection team stated, flatly that "people don't know what AMR is"

and misconceptions abound. For a number of people, the biggest lesson they learned regarding AMR was that they and their co-workers needed to learn a lot more about AMR.

Even among agency personnel who seemed to have an average grasp of the AMR concept, confusion was evident by how people weaved in and out of competing understandings of the AMR concept. While people commonly expressed that their district, forest, or team understood AMR and had a good grasp on it, it was also common to hear the same people say something along the lines of "This was a fire that AMR was appropriate on."

Some people described a feeling of making it up as they went along, because, despite thoughtful, written guidance provided, determining what that guidance meant "on the ground" remained difficult.

People Are Confused by Describing AMR as Something New

Many people contacted by the information collection team believed that describing AMR as something new or as a significant policy change had confused agency personnel and the public. For example, one experienced supervisor described being to three informational meetings about AMR, and coming away with three different ideas of what AMR was. Most were of the opinion that AMR really was not new, and some went so far as to say that agency management had unnecessarily re-invented the wheel and confused their people. While the NRCG AMR strategy clearly states that AMR is not new, and that it builds on what agencies have successfully done in the past, agency personnel evidently came away with a durable impression that management regarded AMR as new.

Agency personnel repeatedly expressed the opinion that all that had changed was that they were now doing AMR deliberately rather than out of necessity. Others felt that they were being asked to do what they had been doing for several years, but being asked to call it something new, and that particular perception caused some bewilderment.

The AMR Concept Has Been Left Open to Interpretation

Apparently, people frequently hear their supervisors and others in positions of authority express the opinion that "This is a good AMR fire." This, of course, confused those who thought they knew that all fires were AMR fires and that, for every fire, the agency would always choose a response that was appropriate.
As one experienced fire manager put it, "The idea should not be that we are now going to do AMR, it should be that every fire has an AMR." Explanations that seemed useful included:

- We don't "do" AMR: Every fire has an AMR
- AMR includes the full range of responses possible: from full suppression to free-burning fire
- AMR does not start when a fire exceeds initial attack: where appropriate, full suppression is the AMR
- AMR involves making conscious decisions about what response to make

The Northern Rockies Coordinating Group (NRCG) strategy articulates each of these ideas, but evidently agency personnel articulated competing interpretations with sufficient frequency and influence to confuse key personnel.

Key Players Don't Seem To "Get It"

Large and important segments of both federal and non-federal agencies seem to lack an understanding of the AMR concept. From the limited perspective of this assessment, it appears that incident management teams (IMT) and key fire suppression resources, such as Interagency Hotshot Crews (IHC) seem to have the hardest time.

While IMTs from within the Northern Rockies geographic area seemed well prepared to carry out their responsibilities, owing to pre-season preparation, other IMTs seemed to struggle to grasp the direction of line officers. Line officers and their representatives expressed frustration that IMTs were inappropriately focused on full suppression, wanted to employ large-scale burnout operations when they were unsuitable, and lacked the overall patience necessary to employ a strategy effective for the ecosystem.

This should come as no great surprise. Tactically and operationally, with the exception of Fire Use Management Teams, the agencies have trained IMTs to implement full suppression strategies. Some IMTs have been frustrated by the need for point protection and other strategies, and have experienced AMR as a "disconnect" from what they have been trained to do very well.

Fire Management Officers (FMO) reported a need to provide extensive supervision to IMTs in order to ensure that they were "checking" the fire's progress, as directed, rather than taking more aggressive suppression measures. FMOs also expressed irritation with IMTs that seemed to lack the flexibility and adaptability needed to move back and forth from point protection, direct attack and other modes as the situation dictated.

However, providing in-briefings for IMTs seemed to present a particular challenge, and one that people mentioned frequently. Several people conceded that IMT troubles resulted, at least in part, from weaknesses in letters of delegation and in-briefings they provided. Experienced line officers and line officer representatives expressed the view that an in-briefing for an incident demanding less than full suppression must clearly emphasize the rationale for the chosen management response (such as unsafe conditions, the need to produce resource benefits, or the desire to contain costs) as well as what the unit would consider unacceptable.

Other fire managers report that they struggled with crews, both from their own agency as well as contract resources. The issue is not hard to understand either; fundamentally, they want to fight fire. Again, this should come as no great surprise. Agencies and their contractors have primarily attracted people to fire crews who are motivated by, and trained for, full suppression tactics and strategies. Like IMTs, some tactical resources have experienced AMR as a "disconnect" from what they have been trained to do at a high level of performance.

Understanding and Accepting the Concept Will Take Time

Considering the long history of fire suppression in U.S. natural resource agencies and among their state and local government partners, one must understand why people are confused and expect that this confusion will take time to dissipate. The Northern Region of the Forest Service has gained a great deal of experience during the 2007 fire season and has a strategy that should help them achieve their goals for AMR within three years, barring serious complications. Agencies, particularly large agencies with a national presence, must recognize the implementing AMR represents a multi-year, transformational process.

What Is "Appropriate" Is Situational and Contextual

What is "appropriate" can, and frequently does, change during the life of an incident. An AMR mindset requires people to begin evaluating the agency's response from the initial attack and continuing to do so throughout the incident. Not all fire managers, line officers, or incident commanders understand this.

Views of AMR Vary Among Agency Managers

It is quite clear that agency managers from around the country have a variable understanding of AMR, and the variability may be, in part, geographic. In other words, people's understanding of AMR seems to vary by where they come from and what path to AMR they are following in their home region.

Some People Mistakenly Equate AMR With Point Protection

It is apparent that some people equate AMR with "point protection." While AMR may not be new, widespread point protection represents a recent innovation, and some fire personnel understand AMR as being solely about point protection. Some teams have zealously adopted point protection to the exclusion of other strategies. Consequently, line officers are finding that their IMT were so focused on point protection that they missed opportunities to control the fire.

Some People Mistakenly Equate AMR With Wildland Fire Use

It is quite clear that AMR implementation was complicated by the perception of many people, both within and outside the fire agencies, that AMR is essentially a way of describing wildland fire use (WFU). According to some agency fire managers, this is particularly true of Type I IMTs. According to some operations personnel at local units, this is particularly true of their line officers. As mentioned elsewhere, while AMR is inclusive of a continuum of possible responses, ranging from WFU to full suppression, too many people have focused on the WFU end of that continuum and managing fire for resource benefit.

Some have suggested that, in the Northern Rockies, the simultaneous emphasis on AMR and expanded WFU may have contributed substantially to the misperception that AMR is all about WFU, suggesting that an agency can implement too much change at once. However, it should be noted that others reject that assertion.

There is a Need to Clean-up the Vocabulary and Terminology

Many people believe that both the quantity and the nature of the terminology surrounding AMR overcomplicate the concept and represent a challenge to its implementation.

First and foremost, numerous people contacted by the information collection team contend that the agencies should abandon the AMR term altogether. A common perspective was that "AMR" leads people to think that the agencies are doing their work much differently, which they really are not. People expressing this opinion also believe that the agencies must talk, not about "AMR" but about how they manage fires across the spectrum of possible responses, and that they are not going to "romp and stomp" on every fire because of safety concerns, cost considerations, and the positive aspects of fire.

Similarly, people contend that simpler ways to describe the concept, other than the current use of "AMR," probably exist. Interesting alternatives included "the response with the best probability of success and the lowest possibility of error," "the right resources, at the right place and time" and "doing the right thing and keeping people safe."

People also expressed their belief that the Forest Service and other agencies can dispense with the "fire use" term because the AMR concept encompasses it, and the distinction is unnecessary.

Finally, some fire managers express the opinion that their agencies need to rethink the terms they use with the public. For example, instead of "fighting fires" or "suppressing fires" perhaps agency personnel should use the term "managing fires."

Agency Personnel Must Unify on an AMR for a Given Fire

Agency personnel need to be unified on what constitutes the AMR for a given fire. This is particularly true (and particularly problematic) when multiple units have responsibility or jurisdiction for lands involved in the incident and the number of decision-makers and other players that need to be "on the same page" increases substantially.

Drop Distinctions and Unify Fire Policy for "One Kind of Fire"

Numerous people contacted by the information collection team pointed out that both language and policy distinctions present barriers to relatively smooth AMR implementation. As mentioned elsewhere, theoretically AMR represents an umbrella under which the entire continuum of management responses to fire lies. However, that continuum continues to mix strategy and tactics (full suppression, point protection, contain, confine, control) and terms intended to distinguish different types of fire operations (suppression or wildland fire use).

Many people believe that the success of the AMR concept depends on a unified fire policy that results in "one kind of fire" or a philosophy that "fire is fire" and eliminates the unhelpful distinctions. Most detrimental to the AMR concept is the policy distinction between "suppression fires" and WFU.

Several people contacted by the information collection team recounted examples where suppression fires and WFU fires burning in the same vicinity were likely to grow together, a

situation in which federal fire policy requires that managers declare both “suppression fires” and manage them as such. At the bottom line, what is needed is an integrated fire policy that strips away awkward distinctions and allows fire managers to manage both to achieve resource benefit and to minimize economic and social loss simultaneously on the same incident.

The Justification for AMR Can Be the Hardest Part

Several people interviewed by the information collection team found that they had struggled to explain *why* their agency had implemented AMR, and an obvious lack of unity within agencies explains much of that difficulty. For example, the information collection team heard that AMR is both “about resource benefits” and “not about resource benefits,” “about cost containment” and “not about or justified by cost containment.” While nearly everyone agreed that AMR was about firefighter safety, some people thought AMR was only about firefighter safety; a perspective rejected by others.

Those who opposed justifying AMR by the resource benefits it can produce believe that both AMR and WFU advocates can overplay the benefits of fire. The most critical of these persons suggest that other agency personnel promote a “fire is always natural and always good” message without recognition that fire also produces severe impacts on threatened and endangered species whose population may already be depressed; severe human health impacts from smoke; and negative consequences for standing timber, plantations, the viewshed, recreational assets, and local economies. One experienced fire manager suggests describing the AMR concept primarily as checking, directing, and delaying the fire. He suggests avoiding the value judgments that tend to complicate matters.

The Fire Environment Has Exceeded Agency Capability

According to several experienced fire managers and agency administrators, success requires recognition that the fire environment has exceeded the capability of agencies; and that agencies will, inevitably, experience large, long duration fires. What agencies must grapple with is how they will manage these fires. U.S. fire agencies belong to a culture that has long assumed that their personnel would put all fires out as immediately as possible. It seems to be proving difficult for agency personnel to admit, that under current circumstances, they cannot. Required, is a shift to a mind-set in which fire managers understand that they can’t put a given fire out, but that they can manage it and keep it from damaging private property until Mother Nature puts it out.

This shift will prove challenging because firefighters, like all humans, are creatures of habit who cling to the familiar and comfortable.

Fire personnel need to know that their agency supports going in the direction that they are being asked to go. For example, in mid-July 2007, agency administrators in the Northern Rockies sent out direction to local agency administrators instructing them to avoid having people work in fuel types with high resistance to control under volatile conditions; offering as an alternative, to back-off and work in fuels types where agency personnel could be effective and risks to their safety minimized. Once agency administrators had communicated this intent, people began to accept that they could back away from dangerous areas and work where their personnel would be safe and their efforts effective.

Firefighters Are Confused By the Relationship Between AMR and Initial Attack

At the "pointy end of the spear", fire operations personnel at local units have found that management's emphasis on AMR has confused them about the relationship between AMR, initial attack (IA) and their responsibilities, as they understand them. The concerns are numerous. First and foremost, local unit IA forces express concern that management's emphasis on AMR threatens to make their IA responsibilities unclear.

IA firefighters have many questions. Do they order what they need for an honest and effective IA? Do they give "their all" on IA and only step-back if and when the fire escapes IA? What is their role when no fire plan is in-place? What is their role when a fire plan is in-place? How do you avoid creating a situation where managers fudge and second-guess tactical decisions on IA?

Generally speaking, local units have found it easy to make the call to back-off when their IA was not successful, but much more difficult when IA or extended attack might succeed with additional resources, time and/or effort. One must recall that the initial attack success rate in the Northern Rockies Geographic Area is 97% (for all agencies), and that a high IA success rate saves a lot of money.

A Little Information and Education Goes a Long Way

It appears clear that, while not without its challenges, the Northern Region of the Forest Service and, to a lesser extent, the Northern Rockies Coordinating Group (NRCG) has achieved considerable success. It is also clear that the agency elements most successful in the AMR environment were those that were best prepared, in advance, to operate in that environment. The Northern Region of the Forest Service established both Foundational Doctrine and an AMR strategy to guide its efforts. These guiding documents, and efforts to brief agency personnel on them, appear to have contributed to the success that was achieved.

One Forest Supervisor described the value of informing people early on, and cited a meeting in which Regional Office personnel briefed Forest personnel during the winter. Still, this meeting produced understandable concern on the part of District Rangers, and the Forest Supervisor noted the need for follow-up, specifically the need to remind people that AMR is the toolbox and that wildland fire use is just one tool in the toolbox.

While not implemented centrally, but by individual agencies, the NRCG worked toward consistency by providing information on AMR via a document focused on the role of the local fire management plan and emphasizing the flexibility that a given fire plan might offer, given agency policy and the unit's land management plan. The NRCG tried to encourage fire managers to consider the options they might have when managing their fires, within their agency's structure and policy.

Fire personnel contacted by the information collection team stressed the need for continued communication, preparation, and clarification. For example, in 2007 both the Northern Rockies and Great Basin Geographic Coordination Centers hosted AMR training for all their incident commanders. However, much was learned during the 2007 fire season, and the knowledge gained needs to be shared. Agency management needs to be very clear in its communication about what AMR is, why the agency believes it is necessary, and how it works on the ground.

Agency managers must understand that the need for internal communication and education is widespread and can go a long way toward improving external communication about AMR. Public affairs personnel represent a particularly important segment of the agency workforce that must understand the concept. Management must also understand that not all agency personnel, including some IMTs and IHCs, are on-board with agency direction, and that those personnel communicate with other agency personnel and the public.

Internal Understanding Fosters External Support

Throughout the interviews, it became quite obvious that internal understanding (within agencies), the public's comprehension, and support by interagency partners are all inter-related. The better agency personnel understand the concept of AMR, the better they can inform, educate, and develop the cooperation of their interagency partners and the public they serve.

Falling Back to the Comfortable

During the 2007 experience in the Northern Rockies, agency personnel found leading people toward AMR challenging. Some people believed that they were engaging in strategies and tactics only out of necessity brought on by conditions, but were not naturally inclined to implement AMR. Most challenging was the fact that as resources became available, some people were prone, even anxious, to "fall back" to the familiar full perimeter control strategy. This was true even when pursuing a strategy other than perimeter control was originally justified by values at risk, cost considerations, or, most often, to mitigate firefighter safety concerns.

LESSONS LEARNED: AMR MISUNDERSTOOD BY PARTNERS

"Unless this is done interagency with all partners on board, it will not work" – Regional Fire Director

Not All State and Local Cooperators Are On-Board

Ostensibly, at high levels, appropriate management response (AMR) has interagency support. For example, the Northern Rockies Coordinating Group (NRCG) seems to have stood together and takes the perspective that AMR can work for everybody because each agency can base their response decisions on their individual policy and plans.

Still, it is very clear that not all state and local government cooperators are "on the same page" with their federal counterparts, primarily the Forest Service, when it comes to AMR. This represents a particularly serious problem in places where multi-jurisdictional incidents and interagency operations are the norm. While the reasons for the disengagement between agencies remain unclear, Forest Service personnel tend to attribute this fact to a lack of understanding on the part of their interagency partners. Forest Service personnel have suggested that a lack of understanding might stem from a tendency to construe AMR with "let burn." That seems plausible considering that the public and even some Forest Service personnel seem to maintain the same confusion.

However, one must also accept that state and local government agencies typically operate under enabling legislation that differs significantly from that of federal agencies. State and local personnel may know or perceive that a federal agency's chosen response conflicts with their agency policy or state statute. Regardless of the cause, it was clear in 2007 that not all cooperating agencies were cooperating well when it came to AMR, and this represents an important concern. As mentioned earlier, one Forest Service official stated, "If AMR isn't interagency, it isn't going to work" and that is likely an accurate assessment. In many jurisdictions, if AMR doesn't work in an interagency context, it won't work at all.

As a consequence of differences between agencies, at least one IMT received conflicting direction from agencies responsible for multi-jurisdictional incidents. While one must expect that an IMT would be required to adjust their tactics to address varying resource needs by land ownership, fundamental philosophical differences present much more of a challenge.

"Appropriate" Depends on One's Perspective

Many large incidents involve multiple agencies and often those agencies have different legal mandates and policy directives. Consequently, there will be cases when a response that is appropriate for one agency is not appropriate for another. When this occurs, the responsible agencies must consider the full range of responses available to them and in what combinations they may be employed, engage in dialogue, look for common ground that satisfies the mandates of all players, and seek consensus on the appropriate response.

AMR Can Be Used As a "Wedge Issue"

Personnel from partner agencies can both misunderstand and misconstrue the AMR concept in ways that confuse and antagonize the public. On occasion people will use or create controversy around AMR as a wedge issue, to make themselves look good at the expense of the Forest Service. Obviously this represents a situation that does not serve the public or the cause of interagency cooperation very well, and there exists an obvious need for the Forest Service and its partners to engage in serious dialogue to move beyond relationships that lack professional respect and courtesy.

Despite Difficulties, Keep Interagency Partners Engaged

Experienced agency administrators emphasized the need to involve interagency partners early in the incident and keep them engaged and involved throughout the incident. This can prove difficult, because problems will occur, and fixing those problems often requires a lot of work. However, keeping interagency partners engaged, informed and involved has proven essential to success.

LESSONS LEARNED: AMR AND COST CONTAINMENT

"There was a focus on cost containment which may be the big change" – Forest Supervisor

"Overall, we kept costs down by not using as many resources as we would have if we'd been going for perimeter control" – FUMA

"AMR is not a means of keeping costs down" – District Ranger

AMR May (or May Not) Contain Fire Suppression Costs

People contacted by the information collection team expressed a range of views regarding the relationship between appropriate management response (AMR) and cost containment. Some people were adamant that AMR had little to do with cost containment and probably did not contain overall suppression costs.

Others felt that fires that were managed with less than full perimeter control ended up costing about the same amount as they would have had they pursued full perimeter control. People expressing this perspective generally believed that the trade-off between less aggressive management action, incident duration, and fire size produce "a wash" cost-wise. Others saw cost containment as a side benefit of AMR, resulting in wise use of taxpayer's money.

It appears that people expected dramatic, obvious cost savings. Several experienced fire managers and ICs report being convinced that they saved money, but that these savings are simply not as obvious as people had expected.

Whether a larger fire at the same overall cost was a good thing or a bad thing depended on whether the person viewed the situation as "acres treated" or as "acres lost." In addition, several people believe that under the conditions of 2007, most major fires would have grown to the same size whether fire agencies had attempted full perimeter control or not.

Given these perspectives, some people are comfortable viewing cost containment in terms of cost per acre. While fire managers justified most management response decisions based on fire conditions, resource shortages, firefighter safety concerns and existing land management plans; several people interviewed by the information collection team believe that they kept fire suppression costs down compared to full perimeter control strategies, particularly when considered on a per acre cost.

For example, one agency official expressed the view that their 20,000-acre, $2.5 million fire represented a very low cost per acre that could not have been achieved under a perimeter control strategy.

However, it remains quite likely that the agencies lack the data and analysis to definitively know whether the AMR concept makes economic sense or not.

LESSONS LEARNED: PREPARING PERSONNEL FOR AMR

"Continue the communications about AMR because there is still confusion. Management needs to be clear – different teams don't buy into all the concepts, and Type I teams seem to think this is WFU. This will be a multi-year process. – FUMA

The Prepared Are Most Likely to Succeed

It was quite evident that success at implementing appropriate management response (AMR) requires people who have been well prepared. Also apparent was that line officers and fire management officers on local units must lay the foundation for AMR long before fire season.

The Northern Region of the Forest Service made a dedicated pre-season effort with the intent of discussing AMR at a sufficient level of detail to bring key personnel to a common level of understanding. In addition, the Region's "Foundational Doctrine and Guiding Principles" and the AMR strategies of both the Region and the NRCG provided specific, written direction. These efforts appear to have been fundamentally important in the Northern Rockies in 2007, and it is very clear that those who were best prepared were most likely to succeed at implementing management's direction.

In the final analysis, having a clear vision for where an agency is going and providing clear direction and objectives proves enormously valuable.

Agency Administrators and Their Key Staff Must Be Prepared

While some people feel that AMR is not "new," implementing AMR in the Northern Rockies left people with the perception that much was new and different. Agency administrators and their key staff needed to be well informed and prepared to lead the effort. To do so, they needed to be aware of, well in advance, the options they had for fire response. Ideally, for most agency administrators, the AMR concept would involve implementing plans already made and improving on them.

Foundational Doctrine Helps

Successful AMR implementation requires agency personnel to accept unconventional thinking beyond traditional approaches. Some people contacted by the information collection team found that both the Foundational Doctrine Guiding Fire Suppression in the U.S. Forest Service and the Northern Region's Foundational Doctrine and Guiding Principles aided them in shifting their thinking. In addition, they did not think they could not have succeeded without the guidance of doctrine.

Written Guidance Important, But Must Communicate Directly

As discussed elsewhere in this report, people found that various forms of written guidance including foundational doctrine, regional and geographic area AMR strategy, and long-term implementation plans contributed to their success. Conversely, people also described written

guidance they had received as being excessive and overly complicated. Written guidance must communicate as clearly and directly as possible.

Written AMR Guidance Must Be Communicated In a Timely Fashion

As discussed elsewhere in this report, people found that various forms of written guidance including the geographic area AMR strategy contributed to their success. However, management only released the final version of the strategy in late July, after many key personnel were fully engaged in fire season and other field activities. Consequently, people had not had time to fully absorb important guidance into their mind-set and operations. Written guidance must communicate in as timely manner as possible.

Agree In Advance

Agency officials in the Northern Rockies found it critical to have people agree on how they would be doing business in advance. Though some people believe that AMR is not new, it at least represents a change in focus as agencies shift toward fire management rather than fire suppression.

Agency Personnel Can and Must Learn From Their Experience

Several people involved in the 2007 Northern Rockies experience believe strongly that their agencies, and others, must learn from their experience. Those involved must describe both their successes and their challenges so that others may share their knowledge. This will help lay the foundation for continued AMR success in 2008 and beyond. Some have suggested that the Wildland Fire Lessons Learned Center would naturally play a role in facilitating this knowledge sharing.

LESSONS LEARNED: FLEXIBILITY, ADAPTABILITY & PATIENCE

"AMR requires we act very flexibly and smart enough to know when you need your resources. This won't work without people who are not flexible." – District Ranger

"We need to continue to get the message out about patience. These events are going to take many days or weeks and we need to let the fire come to us, not us going to it." – FUMA

It is Critical to Remain Flexible and Adaptable

The appropriate management response (AMR) concept requires fire management personnel to think far ahead, anticipate resource needs, and manage these resources flexibly as dictated by changing needs; both on the incident they are managing as well as the needs of other fires. Experienced fire managers and line officers observed that they couldn't make the AMR concept work without people who could flexibly manage resources.

One line officer described a situation in which his unit shifted equipment important to their operations from his unit's fire to another, higher priority, fire on an adjacent forest and then received those resources back when they were no longer needed on the other incident. During

this time, the sending unit shifted to checking and slowing actions. This represents a scenario repeated over and over again around the Northern Rockies in 2007, and the involved personnel note the need to make adjustments as one goes, stay very flexible, and base tactical decisions on the conditions and resources at hand. They add that, in the AMR environment, one must consider the incident's duration when making decisions, and that long duration events will likely require many, fairly major resource decisions. Fire managers must be prepared to quickly gear-up and gear-down resources and logistical support facilities repeatedly over the life of a long duration incident.

Long-term Implementation Plans Are Must Remain Flexible

Incident management personnel pointed-out the risk of treating long-term implementation plans as static documents, and some found that Type I IMTs, and even multi-agency coordinating groups (MAC), tended to drift that way. In reality, long-term implementation plans on long duration events may require modification many times and incident personnel must remain flexible and adaptable. .

Some experienced fire managers described a philosophy in which a fire organization must be more than flexible, fluidly monitoring and evaluating the situation, providing feedback, updating situation awareness, learning from what the fire is doing and making adjustments based on this learning. Under this philosophy, while the fire organization establishes a long-term implementation plan, they do not set that plan in stone, but remain flexible.

Patience Is Key

No messages came across more loud and clear than the need for patience and the difficulty experienced in encouraging people to remain patient. Firefighters and IMTs faced extreme conditions and extreme fire behavior in the Northern Rockies during the 2007 fire season. Facing these conditions, agency administrators and fire managers adopted a strategy of staying patient and letting fires spread to fuel type and other condition changes where firefighters could engage the fire more safely and effectively.

Agency administrators and fire managers based in the Northern Rockies were still committed to the patience strategy well into the season, and had even come to believe that patience was paramount. They described a mindset in which one must accept that the appropriate response may be different than getting out there and aggressively trying to put the fire out. Consequently, fires that agencies used to contain at 100 acres may spread to 1,000 acres or 10,000 acres until the fire reaches a fuel type change where firefighters can effectively engage. Accepting this approach requires a shift in mindset, and a shift that is proving difficult for some key players as well as members of the public.

Most Northern Rockies personnel contacted by the information collection team, regardless of their position or perspective, expressed some frustration over the readiness and willingness of both incident management teams (IMT) and tactical resources assigned to their fires to exercise the degree of patience required. Much of the frustration was aimed at teams and tactical resources that had come from other regions of the country. However, this perspective is certainly not universally true, and people even expressed skepticism about the willingness of their own unit personnel to make this shift. In the final analysis, encouraging patience proves

very hard when you are trying to influence people who simply want to get out there and put out a fire.

One Operations Section Chief (OSC) illustrated the patience issue well. On one incident, the fire was backing downhill toward a road. The fire angled uphill away from the road, and a hotshot crew wanted to "square it up." The Fire Behavior Analyst (FBAN) sat down with the hotshot crew and explained that every time they burned out to square the fire up, they moved the fire perimeter closer to the contingency line and values at risk. According to this experienced firefighter, the agencies need to shift the paradigm of their people from what he describes as "the old firefighter mentality" of "you have to go do something" to one in which line firefighters accept observing the fire and using a few strategic bucket drops or other delaying actions as necessary to keep the fire from getting to values at risk.

The agencies have work to do when it comes to teaching the need for patience and the idea of letting the fire come to them. This remains true even though firefighter safety issues often justify the need for patience. After decades of training firefighters to fight fire aggressively, this change in perspective will take time and produce some discomfort. Consequently, agency personnel will need to be patient, not only with the fire, but with one another as well.

The "Patience" Message Must Be Communicated to Tactical Resources

There are fire personnel who wonder whether their agency had adequately communicated the patience message down the line, and whether they would have had fewer issues if this message had been more fully communicated. One local agency administrator suggested that her agency should make a concerted effort to interview tactical personnel to find out what they were told, what message was conveyed to them, and how. The question is whether the IC passed-on the patience message to the OSC, whether the OSC conveyed it to the Division Supervisor (DIVS), and the DIVS relayed it to the engines, crews, modules, and other tactical resources. It has been suggested that this might present an interesting effort for the Wildland Lessons Learned Center.

Patience Enables Learning About Fire Behavior

A local agency administrator, from a unit with over 30 years of successful experience in wilderness fire, observed that his personnel have benefited immensely from their experience watching fires. Based on this experience, his personnel can often predict what a fire will do on a given piece of ground. This experienced line officer observed "If you put out a fire in two weeks, you've learned how to put out a fire in two weeks, but by observing fire behavior, you learn how fires are going to burn."

An experienced fire manager reinforced this perspective by observing that experience on a fire use team helps people gain patience, pointing out that fire use teams are much more patient. Consequently, they have observed much more free-burning fire and learned from this experience.

LESSONS LEARNED: TACTICAL ADJUSMENTS

"Conditions on the ground dictate tactics, not AMR. Tactical adjustments were driven by fire behavior and the dryness of fuels. AMR is driven by conditions" – District FMO.

"AMR has everything to do with tactics. AMR is the combination or set of tactics you will use – the mix of tactics you employ to achieve your strategic objectives" – Area Commander

Need For Tactical Adjustment Depends on Your Perspective

The information collection team asked what tactical adjustments needed to be made to implement appropriate management response (AMR.) The answers to that question reflect varied perspectives. From one perspective, AMR requires no tactical adjustment; conditions on the ground including fire behavior and fuel dryness dictated tactics and drove AMR (not vice versa.) From another perspective, AMR is, indeed, all about tactics; specifically the mix of tactics one employs to achieve strategic objectives. Many people, regardless of their perspective, cited ways in which tacticians are looking at things a little differently and adjusting their tactics these days.

Adjusting Existing Tactics

While some would argue that they have made no technical adjustments, others point out that point protection strategies require unconventional approaches to conventional tactics such as anchoring and flanking. For example, rather than anchoring from a traditional anchor point at the heel of the fire, a crew may be anchoring from a constructed safety zone.

Several people reported having good success using small squads (vs. 20-person crews) to conduct slowing and checking actions on large fires with few resources. When this tactic was employed, local units were able to take effective action with limited personnel and a helicopter or two. In one case a squad of smokejumpers, part of the initial attack, served as an effective ad-hoc incident management team (IMT) until the local unit was able to receive additional resources including a Type 2 IMT. The Type 3 IMT down the road helped the smokejumpers out with finance and logistics.

Checking, Directing and Delaying

Several experienced fire managers expressed the view that fire suppression tactics will increasingly shift toward checking, directing, and delaying the fire, and that the fire community must get accustomed to these terms and concepts.

Long-term Implementation Plans Will Drive Many Tactical Adjustments

As described elsewhere in this report, many people believe that every incident with potential to become a long duration event will, and should, be guided by a long-term implementation plan. Consequently, having a Long-term Analyst (LTAN) or the skills of analysis and the savvy to use predictive models on an IMT, becomes a tactical necessity. One associated tactical adjustment is to prepare a long-term plan and have the team build their action plan around it.

In addition, people need to be "out ahead of the fire" (in a temporal sense), thinking two weeks down the road, and considering the values at risk, carrying out structure assessments, making plans for protection, etc. To provide effective analysis, fire managers need high quality intelligence.

Fire Use Modules Can Be an Effective Resource on Suppression Fires

On one incident, the local unit staffed the fire with a fire use module to monitor it and assure the public that the agency was actively managing the incident. During this period, the fire use module not only re-assured local residents, but proved effective at constructing small sections of handline.

Use a Criterion Based Dispatch System

Local unit initial attack (IA) forces and their supervisors express concern that management's emphasis on AMR threatens to make their IA responsibilities unclear. For example, an IA dispatch center might dispatch engines to a fire, but the initial attack forces do not know whether to suppress the fire or not. Given the conditions in 2007, most local units had defaulted to full suppression action as an initial response. However, one way to address this concern in the future is to provide IA dispatch centers with a criteria based system and criteria based "run cards" for making go/no-go decisions based on fire location and local conditions.

Along this line, one fire management officer (FMO) described his unit's efforts to prepare their IA resources for the day's responses. Describing the agency's traditional approach, this FMO said, "We don't allow our seasonal workforce to make many decisions, except for "put the fire out. Beyond the safety factor they don't have a lot of choices." In an effort to change this situation, at the start of each day the unit decided whether or not WFU was an option on that day.

Use "Management Action Points" but Avoid Prescription

Nearly everyone contacted by the information collection team agreed that they assured that their long-term implementation plans were implemented through the use of "management action points" (MAP) - though they do not universally like this term. However, they also learned by experience to avoid management actions that are too prescriptive. Avoid using the MAP as a "cookbook." An effective MAP starts by instructing the IMT to assess conditions first, consider the intent, and then take management actions that make sense in light of the conditions.

Point Protection as an Alternative to Full Perimeter Control

Of all the tactical adjustments made during 2007, the use of point protection strategies seems to represent the biggest and most common tactical modification. Fire managers are increasingly applying tactics developed for wildland fire use to suppression incidents. One is point protection, in which the fire organization tries not to control the perimeter of the fire, but instead controls various points on the fire that require attention within a planned strategy.

One OSC illustrated the issue and a strategy for addressing it when he recounted a discussion he had with a night Division Supervisor (DIVS) who had expressed frustration expressed by the resources assigned to him. Essentially, the DIVS assigned resources wanted to be doing more,

but they were assigned to point protection responsibilities. The OSC explained the IMT's objectives on the fire, those being safety, structure protection, resource values, and public information. He also explained their role as the eyes in a monitoring and early warning system and described how they were helping the team meet its objectives for the incident in a reasonably cost effective matter. The Operations Section Chief (OSC) felt he had succeeded in showing the DIVS that their resources were accomplishing the incident objectives despite a non-traditional, unconventional approach.

Not Every Fire Needs a Line Around It

The entire fire suppression system has revolved around line construction. Operational milestones are containment, control, and calling a fire "out." Fire status is reported as "percent contained." Consequently, as agencies shift to an approach that accepts and encourages less than full perimeter control, people will need to accept the idea that not every fire has to have a line around it, for people to consider themselves successful. Sometimes a fire will require a perimeter line, and full perimeter control will represent success. Other times, agency administrators will measure success by the fact that no one got hurt; and that they minimized impact to private property, contained costs and/or did something that was right for the resource.

This change will require that people can feel comfortable with open line and uncontained fire. One agency administrator illustrated this philosophy by pointing out that they had closed-out with their IMT when the map showed one black line (indicating completed fireline), and people found that acceptable. Previously, the agency administrator and their key staff would have expected a black line all the way around the fire.

Obviously, accepting open fire perimeter requires fire managers and line officers to accept more risk than they did in the past. There exists a perception, both inside and outside agencies, that the Forest Service was taking incredible and/or uninformed risks because they had large areas of open fire perimeter when they could experience dry cold fronts, associated high winds, and the potential for large fire growth. However, several people interviewed by the information collection team believe that, in the future, they must assume risk and learn to live with it. This environment will demand much more attention to risk assessment and management.

Key Resources Are In Demand and Must Be Shared

Many people expressed the opinion that point protection strategies made better use of resources. However, they also observed that point protection strategies cause more demand for key resources, particularly mobile resources. Consequently, the system must have plans in place for using the minimal number of resources necessary and keeping critical resources available for higher priority incidents. This philosophy demands the sharing of resources among incidents, as was evidenced by unprecedented resource sharing during the 2007 Northern Rockies experience. It is most important to note that local units, individual incidents and zones (not coordination centers, Area Command or multi-agency coordinating [MAC groups]) initiated much of this resource sharing; and this represented a very notable shift in thinking. This "neighborhood" approach is not demanded by the AMR concept, but did facilitate the implementation of AMR in the Northern Rockies and proved critical to success.

In this environment, incidents will also order resources when they need them and cut them loose when they do not. While this approach offers potential cost savings, shifting gears in this

way will take some getting used to and people will struggle with it for a while. For example, in 2007 fire managers found that when things slowed down and resources became available, IMTs were sorely tempted to "squirrel away" the resources they wanted.

We Need to Learn to Use Aviation Assets Effectively

Despite perennial debate over the appropriate use of aviation assets and their associated costs, agency personnel point out that, in their opinion, their agencies still have not learned to use their aviation assets effectively. For example, according to one Forest Service official, "Using retardant or water on flame lengths over ten feet in height should be outlawed." This experienced fire manager went on to say that aviation assets should be focused on initial and extended attack. This philosophy would mean that aviation assets would generally not be used on large fires, and that large fire strategy and tactics would not be oriented to aviation.

Aviation resources can run-up fire suppression costs rapidly, and some fire managers found that communicating priorities to air attack supervisors proves difficult in the AMR environment, because these priorities can require much finer distinctions than in the more traditional fire suppression environment. This seems to present a particular problem when a relief air attack supervisor arrives on a fire using a strategy requiring less than full perimeter control from a perimeter control incident.

In an example of adjusting aviation tactics in the AMR environment, one FMO described using helicopter water drops to check the fire on north slopes and help "walk the fire down" the slope. This tactic stalled the fire, and it took a month to work its way down the slope.

Return to Night Operations

Firefighters and fire managers who have been around awhile criticize the loss of night operations, pointing out that perceived dangers of fighting fire at night have exposed more operations and more firefighters to extreme fire behavior during the day. Perhaps what is needed is a return to night operations and backing off during the day.

Examine and Develop New Tactics

A need exists to examine tactics that have developed ad-hoc in the AMR environment. For example, how does the conventional firefighting approach (to anchor and flank) apply to point protection? Some firefighters remain uncomfortable with point protection, citing both safety and effectiveness concerns. Applying point protection in a complex situation presents a challenge for firefighters, and requires them to think in a more sophisticated way than they have in the past.

In another example, a few people contacted by the information collection team mentioned that, during the 2007 Northern Rockies fire season, they found it necessary to have people out ahead of the fire's head to check the fire's spread. One line officer noted that this tactic was employed only after very vigilant, very careful risk analysis and risk management. Obviously, to embrace tactics that involve attacking a fire's head and letting the flanks go, runs counter to much of the conventional thinking on firefighter safety and requires a re-examination of current, conventional thinking.

Allow IA Forces to Make Decisions and Do Their Job

During the 2007 fire season in the Northern Rockies, some experiences suggested that centralized decision-making by the MAC, Area Command Team or others was occurring. For example, one FMO reported that when he challenged an IMT on their reluctance to alter tactics when conditions had changed, reported that the IMT had indicated that someone from the Area Command Team (ACT) or MAC had told them not to go direct. This experienced fire manager expressed the view, shared by others that the ACT and MAC should not be in a position to micromanage tactics.

LESSONS LEARNED: LONG TERM ANALYSIS AND LONG TERM PLANNING

"These long term plans are very helpful. Having LTANs and FBANs come out and look at the fire helps because they have the time to put the information into a pile and to organize it. Every team that comes in gets a copy of the long-term plan. This is a great communication tool. It also helps us with the public because we can show them where and what is happening and what we are getting ready to do" – District Ranger.

Analysis Key to AMR

Judging from the 2007 experience in the Northern Rockies, it appears clear that analysis represents a critical concept and the key to successful appropriate management response (AMR) implementation. Many people contacted by the information collection team mentioned long-term analysis as one of the fundamentals of their AMR success. As one experienced fire manager described it, the idea is to have a system that is "robust in analysis" and uses that analysis to choose from the entire range of possible tactical responses.

Key Concept: Long-term Analysis and Implementation Plans

It was very clear that people believed that the use of long-term analysts, long-term analysis, and long-term implementation plans represented major successes of the 2007 experience in the Northern Rockies.

As an example of the importance to AMR that people place on analysis, one agency administrator talked of a decision to order an analyst before ordering a team when an early season fire escaped initial attack. In that case, the analysis resulted in a decision to restrict perimeter growth and let the weather do the rest.

Several people contacted by the information collection team expressed the view that every incident with potential to become a long-term event requires a long-term implementation plan capable of guiding the incident for days, weeks, or months. Experienced fire managers pointed out that for long-term implementation plans to achieve their potential, the Wildland Fire Situation Analysis (WFSA), the delegation of authority and the plan must be well aligned. One Forest Service official observed that U.S. wildland fire agencies did not need long-term implementation plans prior to the 1980s, because a fire lasting a week or two was considered a relatively long fire and most were extinguished by rain.

Others advocate a return to pre-attack planning, establishing the framework of long-term implementation plans in advance and developing them collaboratively with communities, both in communities where agencies intend to put fires out and for areas in which agencies intend to allow fires to grow and continue in duration.

Long-term Analysis Teams Showed Their Value

In 2007, the Northern Rockies MAC (NRMAC) established a system by which they dispatched teams of long-term analysts (LTAN) and fire behavior analysts (FBAN) to provide planning and decision support to local units when they experienced an escaped fire. These teams, dedicated to long-term analysis, were able to collect and assemble data, organize it, ask key questions of local personnel and prepare the plan without distraction or competing responsibilities. Afterward, any team that came in received a copy of the long-term plan as a starting point. Several agency administrators cited plans developed by these teams as key communication tools that helped them to brief not only their assigned Incident management teams (IMT), but also the public.

The NRMAC system depended on getting long-term planning teams out on the ground as soon as possible once someone at the local unit had determined the potential for the fire to become a long-term event. In addition, a "service center" group in Missoula that was able to provide a fully developed long-term implementation plan in 3-5 days supported these teams in the field.

Agency fire personnel were so positive about the long-term implementation plans, long-term planning teams and the support group, that several believed they should become a standard operating procedure. Several people expressed the point of view that decision support products, including advanced modeling and graphical support, represent the best value provided by the centralized support group and supporting service center.

A New Fire Analysis Process Is Needed

Several people contacted by the information collection team noted a fairly fundamental disconnect between long-term implementation plans, which proved valuable, and the required WFSA process, which proved less so. Despite the fact that agency personnel express considerable dissatisfaction with the WFSA process, it remains mandatory.

The long-term implementation plans employed during the 2007 fire season had more in common with the Wildland Fire Implementation Plan (WFIP) process, particularly Stage 3. In fact, many people see the WFIP process as more valuable than WFSA, particularly given the move toward longer duration events.

However, neither seems to offer a complete process, and what is needed is a single fire situation analysis process that replaces both WFIP and WFSA. This is the intent of the new Wildland Fire Decision Support System (WFDS). However, the resulting process must remain relatively simple and focused on the essentials and a collaborative approach.

A Long-term Plan Can Facilitate Interagency Cooperation

Agency administrators on one National Forest described a situation in which the long-term implementation plan provided the foundation for effective interagency cooperation and support. The long-term plan not only enabled fire managers and the assigned IMTs to meet the expectations of the agency administrator, but also enabled the agency to work closely and effectively with the local volunteer departments. Because a long-term plan existed, there was never any question from the fire departments about why the agency was not out there aggressively chasing the fire, but focusing, instead, on wildland-urban interface (WUI) protection.

Involved personnel found that the long-term implementation plan put the Forest, the volunteer fire departments, and the IMT on the same team. When Forest personnel put the long-term implementation plan, with management action points, together they integrated population protection and evacuation plans developed by agency personnel and their fire department partners working very closely together. In this way, agency partners had a lot to say about what should happen under different circumstances, and everyone knew the plan and understood the objectives. It is important to note, that relationships must be built before there is "smoke in the air" for this to work.

Use Long-term Analysis Team and Type 3 IMT Together

Several experienced fire management personnel mentioned how well their operations ran once they brought in a long-term analysis and planning team, but stayed with a Type 3 organization to manage the incident. These persons believe that the decision support afforded by a long-term implementation plan, combined with the efficiencies of a Type 3 IMT proved very cost effective.

A Need for a New IMT Planning Cycle

It appeared that IMTs struggled to mesh long-term implementation plans with the traditional, 24-hour planning cycle employed by teams. What appears to be needed is a continuous planning process for all incident management functions that aligns long-established planning needs with the long-term planning concept. One experienced IC suggested a planning concept that uses the long-term implementation plan as a base, overlaying the fire's current perimeter, and then using Management Action Points (MAP) as the focal point of each planning meeting. Using such a process, the IMT can plan to implement actions at a particular MAP or justify why they are not taking those actions because of mitigating factors such as the lateness of season or changes in fire behavior. The IC suggesting this approach described how his team developed a table to document his team's evaluations and decisions.

Long-term Implementation Plans Can Seem Wishful

The long-term planning concept seemed effective, but some personnel involved in the 2007 effort in the Northern Rockies also call for continued thinking about the practice. Most notably, while they found the practice valuable, they had also seen plans that they felt were somewhat wishful and unrealistic. They expressed concern about the number of variables that could

negatively impact the plan, most notably how weather dependent long-term implementation plans are. For example, some local government officials noted that, with major fires going all over the region, a widespread wind event could create a situation where every incident in the region was suddenly and simultaneously looking for the resources to implement management actions called for in long-term implementation plans.

Long-term Planning Teams May Need To Stay Around Longer

Several agency administrators and fire managers, while very appreciative of the long-term analysis and planning teams, felt that, perhaps, they needed to remain in-place at a given incident for a little longer. Most importantly, they felt that the long-range analysis and planning teams need to work with incoming IMTs to assure that the plan, the delegation of authority, and the IMT are all in sync. In addition, some local agency administrators and fire managers would have liked the analysis and planning teams to spend a little more time bringing their plans to a more complete state.

Other agency administrators and personnel from local units found good success when the long-term analysis and planning team, IMT, and local resources maximized the extent to which they worked collaboratively when developing long-term implementation plans.

Long-term Implementation Plans Are Living Documents

Several people contacted by the information collection team pointed-out that long-term implementation plans are living documents, requiring constant evaluation, monitoring and updating; and reported that some IMTs did not seem to understand the long-term implementation plan, treating it as if it was set in stone and could not be changed.

Caution: Information Overload Ahead

Everyone the information collection team contacted appeared generally favorable about the role of long-term planning. However, some IMT personnel also caution against information overload and point out that a long-term plan can also be too much of a good thing.

For example, one IMT reported that they arrived at their in-briefing to be given four 3-ring binders containing the long-term implementation plans for the two fires they were to manage. While the IMT did all they could to understand the plans, the IMT felt that the information was simply too much to absorb as they also tried to get their operation up and running. They felt that the information could be broken down into a more readable format, feared that their team would miss important details buried in a thick document, and would have preferred a summary and bullet statements. Long-term implementation plans need to be simplified and made more concise.

Some Modeling Tools Are Experimental

It appeared that modeling tools were made operational in 2007 while still experimental. Needed is a concerted effort to continue updating and validating the available modeling technology that showed promise in 2007. IMTs need to better understand these tools, and once they are

updated and validated, staff of the Missoula Fire Sciences Lab should attend IMT spring meetings to familiarize IMT members with the technology. Ideally, an IMT would be able to order the analysis products they needed as soon as the team was ordered and before leaving their home units.

People Valued Some Modeling Tools More Than Others

Several experienced fire managers mentioned that they found some modeling/decision support tools more valuable than others. It seemed that most found FARSITE and the Rare Event Assessment Program (RERAP) useful and that both worked well for them. However, several people expressed disappointment with FS Pro and RAVAR, most notably FS Pro. In the case of FS Pro, people acknowledged it as being technologically impressive, with a big "wow" factor but of too little practical value. As one agency administrator and experienced fire manager said of FS Pro, "It is academically fascinating but it is difficult to use and there are only a few people who know how to read the maps produced by FS Pro."

On the other hand, a few people described an application where the use of FS Pro, in combination with Google Earth, showed some potential.

Need to Clean Up and Unify Long-Term Planning Terminology

There exists a need to adopt one set of universal terms for long-term planning. "Management Action Points" (MAP) provide an effective example. One IMT from outside the Northern Rockies described how their team was very familiar with the term "trigger point," which has been in use for a number of years. One member of the team had been to a fire in California in 2007, where the term "decision point" was in use. The team arrived in the Northern Rockies where they were confronted with "management action points," that were much like "decision points."

LESSONS LEARNED: COORDINATION AND SUPPORT SYSTEMS NOT READY

"There's a need for a new attitude and new policies for the contracting people. Their attitude is 'we don't do Type 3'. We couldn't get land use agreements or support for our Type 3 team, those people are out of step" – District FMO

It is apparent that agency fire coordination and support systems are unprepared to support the shift to the AMR concept. Weaknesses exist in resource ordering and status tracking, information technology (IT) and IT support, contracting and purchasing, fire situation analysis, predictive and decision-support tools, as well as cache support.

Business Management Computer Systems

Fire agencies depend on complex systems, including the Resource Order and Status System (ROSS) and ISuite, and these systems were designed to support traditional, conventional (full suppression) fire operations. Consequently, these systems impeded incident management operations, particularly those of small and/or ad-hoc incident management teams that might have a person or two with training on ISuite or ROSS. The situation was exacerbated by the Forest Service's decision to migrate its computer systems during fire season, particularly since IMT members lacked the time to complete the required four- hour migration process. Several

people interviewed by the information collection team believed strongly that the dependence on IT demands that incident management teams at all levels will need either dedicated or contracted IT support.

Resource Ordering and Status Tracking

The ROSS needs to be modified to improve information management. The AMR operating environment requires a more flexible, mobile resource concept, and the ability to expand and contract operations often and quickly as well as the ability to facilitate the movement of resources between incidents. Agency personnel described numerous difficulties in receiving the resources they needed, particularly fire use management teams and fire use modules. Since ROSS represents the heart of the resource ordering and tracking system, it must keep pace with the changing operating environment.

Fire Situation Analysis

Numerous people indicated that the Wildland Fire Situation Analysis System (WFSA) was proving inadequate for decision support prior to the AMR shift, and is proving even less capable to support decisions in the AMR operating environment. At the bottom line, if fire agencies are to continue using the WFSA process, the WFSA will need substantial improvement to keep pace with the AMR concept and long-term planning processes.

The agencies have prepared too few people, and inadequately prepared those who have received training, to complete a WFSA. WFSA users particularly struggle to document their decision logic.

Contracting and Purchasing

As discussed elsewhere in this report, one can see two trends developing commensurate with AMR implementation, and both have implications for the contracting and purchasing functions supporting Forest Service fire operations.

First, it is apparent that, due to incident duration and the need to move resources between fires, incidents will expand and contract often, and more teams will transition in and transition out during the life of the incident. Unfortunately, the contracting system and agency contracting personnel have become accustomed to a single team mobilizing once, setting-up camp once and demobilizing once; and are unprepared to support long duration incidents with many transitions.

Second, it also seems clear that there will be increasing use of Type 3 IMTs in the future. However, the contracting and purchasing functions of the U.S. Forest Service seem somewhat uncomfortable with Type 3 teams and very unaware of their expanding role. The system and the people in it seem unacquainted with Type 3 teams as anything other than people who come in to mop-up for the local unit. Consequently, during the 2007 fire season, some purchasing and contracting specialists proved uncooperative when requested to support Type 3 IMTS. Members of FUMTs have previously identified the same lack of cooperation as an issue inhibiting the smooth management of wildland fire use events. At the bottom line, purchasing and contracting personnel must give a Type 3 IMT managing an incident the same priority they would give a Type 1 or 2 IMT managing the same incident.

Some people interviewed by the information collection team called for reconfiguration of national contracts. These persons see the coming need for small caterers and small shower units to support 50-100 persons long-term. These same personnel call for radio and computer kits that are scaled to support multiple Type 3 incidents, in sufficient quantity, for long duration.

Predictive and Decision Support Tools

As discussed elsewhere in this report, it appears obvious that analysis represents a concept critical to AMR implementation, and that a system robust in analysis is desirable. Given that, predictive and decision support tools will prove key to AMR success. While people contacted by the information collection team generally gave the long-term analysis efforts good marks, some also called for better long-term planning tools.

Experienced fire managers seem to believe that FARSITE and RERAP work well as long as the team includes trained individuals. Some feel that predictive and decision support tools must better integrate values at risk. The most critical of these fire managers raised two issues. First they feel that agency decision-makers are developing MAPs incautiously, based on experimental predictive tools rendering low probability outputs. As discussed elsewhere, some were particularly critical of FSPro, found its outputs to be of dubious value, and feel that their agencies must re-assess its mandated use.

Cache Support

The cache system became critically short of key supplies and equipment, particularly those required for structure protection like structure wrap, sprinklers, pumps and hose. Given the large number of long-duration fires, these resources were not demobilized and put back into the system as had been done traditionally. For example, one agency administrator mentioned that at one point they had about 100 Mark 3 pumps out on his forest. At the bottom line, resources are staying in place for a long time and the caches will have to adjust to this trend.

Make Resources (Including IMTs) More Mobile

To have the right resources at the right places at the right times, there exists a need to create a highly skilled and very mobile workforce. As discussed elsewhere in this report, the need for high mobility includes IMTs. Such a workforce will be, necessarily, cross-functional and able to perform many aspects of the fire management job. As one agency official put it, “The days of overpowering the fire are over, and we need a workforce that does this work with that understanding.”

LESSONS LEARNED: US FOREST SERVICE STUCTURE PROTECTION POLICY

The Forest Service Role in Structure Protection is in Flux

"We have to know whether or not the Forest Service is going to do structure protection, and it should be written in policy. The County does not own a single piece of firefighting equipment. All of the equipment belongs to the districts. So, structure protection is the biggest issue" – County Fire Warden.

"Our work with our partners is unresolved. There are some legal and financial obligations here. If you have a WFU event, if that fire comes out onto private land, we have full responsibility for it. If we have wildfire that we decide we will not or cannot contain, and it comes out on private land, the county shares the cost and responsibility with the Forest Service. This policy will make life more complicated. – Deputy Forest Supervisor

The Forest Service announced a change in its policy regarding its role and responsibility in protecting private structures during the 2007 fire season, a move that caused a fair amount of consternation among its own employees, interagency partners and communities. The information collection team found a diversity of opinions among the people they interviewed both regarding interpretation of the policy memo and regarding their support for changing the Forest Service's role and responsibilities. However, in the end two schools of thought were evident; those who supported a diminished structure protection role for the Forest Service and those who find the policy change a bit unrealistic and naive.

Those who support a reduced role for the Forest Service believe that, historically, the agency overstepped its role in structure protection; that people live in fire dependent ecosystems by choice, and that structure protection is the responsibility of homeowners and/or local government. Some people coming from this perspective believe that the Forest Service should never give the public expectations that they can keep their house from burning down because they really cannot.

Conversely, other fire management personnel, including internal critics, found the Forest Service policy change precipitous and ill timed. In addition, they believe that the Forest Service does have a role commensurate with their training, equipment and capabilities.

No Forest Service personnel interviewed advocate accepting the responsibility of either property owners or local government, and all seem to support a focus on the personal responsibility of property owners. However, several people pointed-out that serious questions remain about the Forest Service's responsibility, both legally and morally, when a fire that the agency has intentionally allowed to spread burns down someone's house on private property. The question is, "Should I have to protect myself from the management actions of the Forest Service?

Some state and local government partners argue that the Forest Service policy treats fire suppression and structure protection as if they are the same issue when they are not. In addition, state and local cooperators contend that the Forest Service's structure protection policy is in violation of the six-party master agreement in place in the Northern Rockies.

It must be noted, that even when local government fire departments and other agencies can take a substantial role in structure protection, the traditional, conventional approach to involving them no longer works in many locations. In the past, federal and state fire agencies had

counted-on, even expected, local fire departments to make long-term commitments – sometimes planning to have staffed rural fire district fire engines on-site for weeks at a time. Given the declining availability of volunteer firefighters, wildland fire agencies can no longer count on this approach and must find more creative ways of integrating local government firefighters into their operations (such as having them dispatched when the fire reaches designated MAPs and releasing them as soon as possible.) In addition, federal and state agencies must realize that they will face, as was the case on at least one incident in 2007, fire threats to communities in areas lacking formal fire authorities (such as a rural fire district.) In these cases, structure protection responsibilities may fall to local government agencies other than a fire department, if any. Finally, while agency policy apparently intends to shift the burden of structure protection to local government, agencies must note that structure protection may be far beyond the financial, human resources, or physical capacities of many rural counties, fire departments, or other entities.

LESSONS LEARNED: INCIDENT MANAGEMENT TEAMS (IMT)

"I think we need to reconfigure teams to make them more flexible and give them a more adaptive structure. Perhaps core command and general staff with large pools of other positions. – District FMO

A shift toward appropriate management response (AMR) has implications for incident management teams (IMT). The 2007 experience in the Northern Rockies raised questions and concerns in the minds of both fire managers and agency administrators. Questions arose about the preparation and performance of individual teams, about the fundamental system by which the National Wildfire Coordinating Group (NWCG) configures and develops IMTs, and about how the National Interagency Coordination Center (NICC) and geographic area coordination centers (GACC) assign teams.

IMTs Not Equally Capable of Working in the AMR Environment

Nearly every agency administrator and fire manager contacted by the information collection team recounted some frustration about working with IMTs and getting them to understand the desired management response and resulting strategy. Often, involved personnel observed that they had struggled with IMTs that had come from outside the region, and that those teams lacked sufficient understanding of both local conditions and management's direction underlying response decisions.

However, while teams from other regions posed a challenge, some agency administrators were quick to point out that teams, and individual team members, from the Northern Rockies have similarly struggled to operate in the AMR environment. It is quite possible that any team will struggle along a learning curve before becoming adept at managing fires in the new environment. Some experienced agency administrators suggest that IMTs struggle to define and envision their success in this environment and lack a model of success in the AMR world.

It May Be Time to Reconsider the Configuration of Teams

The configuration of IMTs was much on the mind of agency administrators and fire managers. Many found current, conventional Type 1 and Type 2 IMT configurations incompatible with their needs to manage fires in the AMR operating environment. Some suggested that the distinctions between types of teams have become less meaningful. The information collection team

repeatedly heard that Type 1 teams came in too large and had to be asked to downsize. Consequently, local units ordered fire use management teams (FUMT) in an effort to avoid larger Type 1 or Type 2 IMTs.

One fire manager cited an example where using a FUMT seems to have worked very well, since the FUMT essentially came as a short Type 2 IMT. However, FUMTs represent no panacea. First of all, there exists only a relatively small number of FUMT and they remained in short supply throughout the 2007 fire season in the Northern Rockies. In addition, while using FUMTs as "short" Type 2 IMTs has appeal, they can actually prove too short. As the incident cited above evolved, the team had to order additional personnel to supplement their team, highlighting the need to be able to complement all short teams at the unit or subunit levels with either local personnel or other single resources. This seemed particularly true in the Logistics function. Finally, point protection strategies, have become common and often depend on airpower. Consequently, FUMT or other short teams need access to people with experience in the point protection strategy and aviation.

In some cases, the coordination system did work with some local agency administrators to arrange smaller teams, in response to local needs, but the system is not currently organized to consistently work this way.

It appeared, from the 2007 Northern Rockies experience, that future fire operations will require fewer resources massed in one place for long periods and that, over long duration events, local units will expand and contract resource levels numerous times. Consequently, local agency administrators and their key staff have noted the need to have the appropriately sized organization in place at any given time, requiring flexibility. One fire manager illustrated the difficulties, observing that a Type 2 IMT, ordered relatively late in the season, would arrive with 46 people, far too many for the scale of the operation. Whether it is a matter of configuration or practice, many people believe that both Type 1 and Type 2 IMTs must operate more flexibly and be prepared ramp up and ramp down their operations and staffing quickly. Ultimately, many people believe that the National Wildfire Coordinating Group (NWCG) and National Incident Coordination Center (NICC) must figure out how to make IMTs more mobile and flexible, and that the NWCG, who maintain responsibility for IMT standards, must consider developing the ability to divide IMTs up into smaller, independent units.

Some people believe that the solution lies in a pool approach to IMTs that the system has avoided until now. Some critics of this approach cite the team cohesion of standing teams as a reason to avoid a more "pooled" approach. However, advocates of this approach counter that agencies need to shift to a rapid team-building model that will require people with personalities and skills that enable them to walk into a situation and build teamwork, cohesion and effective relationships. Some go so far as to suggest that, if a person cannot do this, they may be in the wrong line of work.

The perceived need to re-configure IMTs coincides with the fact that the pool of available IMT members is shrinking and that the agencies are struggling to fill team positions. When combined with a trend toward asking local units to manage very large fires for very long periods of time, one begins to see a serious strategic problem developing. AMR, as currently envisioned, will require more resources, available in more places, for longer periods of time: all during a period when fire management resources are actually declining in number and availability. These trends support the idea that the NWCG needs to assess the IMT system and consider fundamental changes.

Type 3 IMTs Will Be In Demand

Several agency administrators and fire managers expressed satisfaction with the performance of Type 3 IMTs, and some expressed their preference for small, flexible, cross-functional Type 3 IMTs over the larger and more specialized Type 1 and 2 IMTS. It appears obvious, judging from the attitudes of local agency administrators that Type 3 IMTs will be in demand in the future. However, systems for organizing and assigning Type 3 teams vary widely across the nation, and agency administrators fear that their agencies do not yet understand the necessity of for Type 3 IMTs in the AMR environment.

One experienced fire management officer (FMO) illustrated how the IMT system might work in the future. This FMO's unit successfully integrated the long-term planning concept and a Type 3 organization to manage a complex of three fires for two weeks. The agency knew when they would transition from their Type 3 organization to a Type 2 IMT, and the long-term implementation plan identified certain events that would trigger the call for a Type 2 IMT. This FMO believes that their unit avoided substantial suppression costs this way.

Understanding and Implementing AMR Takes Work

Experienced Incident Commanders (IC) recognize that they face a serious AMR learning curve. They also point out that a unified view of AMR, and how it works, would go a long way toward helping them along this learning curve. In addition, one team is considering developing the long-term planning skills of a couple of team members who would review long-term implementation plans for the incident and distribute needed information to team members so that the IMT can avoid "re-inventing the wheel" each time.

In-briefing Teams Proved Challenging

In 2007, the Northern Rockies concept approach to large fires often involved a patient approach and letting fires come to the firefighters where they could work in conditions in which they would be safe and effective. As mentioned elsewhere in this report, agency administrators and their key staffers reported struggling to consistently brief incoming teams in ways that their assigned IMT was able to apply that approach and produce the results they wanted. Agency administrators, who succeeded at briefing their incoming teams, felt that they did a good job of communicating their plan and why they were doing what they were; and used their science-based decision support tools well.

Consider Managing Fires under a Zone MAC Concept

Some agency personnel suggest instituting a system by which geographic multi-agency coordinating (MAC) groups would establish Zone MAC groups and assign resources to them. Zone MACs would allocate resources to individual incidents.

Incident Commander Assessed Need for IMT

In one situation, agency administrators were struggling to decide whether to order an IMT or not. The IC for the available team came to the incident and, working with local unit personnel,

assessed the need for his team. The local unit appreciated this consultation and advice and felt that this represented an effective practice.

Long-term Events Require a New IMT Planning Process

As mentioned elsewhere in this report, on long duration fires, the long-term planning process does not translate well into a 24-hour planning cycle and the daily action plans commonly employed by IMTs. The Northern Rockies IMTs did some pre-season work to adjust their planning process but, overall, IMTs are still trying, with considerable difficulty, to squeeze long-term implementation plans into a daily incident action plan.

LESSONS LEARNED: PUBLIC OUTREACH

"We have a long way to go with the public and need to bring them along by telling them we're going to have long seasons, we're not going to be able to romp and stomp on every fire, and that our strategies are based on safety and other aspects of fire." – Deputy Forest Supervisor

Be Prepared, Your Public May Not Be Ready for AMR

As discussed elsewhere in this report, whether the public is "ready" for appropriate management response (AMR) or understands AMR varies from place to place and community to community. A number of people contacted by the information collection team believed that the public was coming around to the AMR idea, and some even described very successful public relations efforts. In at least one case, agency personnel regarded the 2007 fires as public relations opportunities and teachable moments that had produced positive public outreach results.

Some agency personnel observed that citizens are beginning to learn to live with fire, and one local agency administrator told how one resident recently told her that although they had heard the "living with fire" message for four or five years, they now understood it. Some agency administrators observed that the public was also starting to understand their agency's approach; that they may not like it, but that they were beginning to realize that there is only so much the agency can do under the conditions that existed in 2007.

However, more people felt that the public was not quite ready for AMR, and that the agencies had not sufficiently made their case to the public. Experienced agency administrators report that they struggled with citizens who did not understand why the Forest Service was not putting fires out, and wondered why the agency was not using all the resources at their disposal. These same line officers believe that, in addition, the average citizen does not understand the risks that firefighters face. Agency administrators who had these experiences believe that the Forest Service, and other agencies, must go a long way regarding public understanding. Some have suggested that they hope that, with time, fires will become less catastrophic and produce less smoke. As reported elsewhere in this document, smoke represents a big issue and a significant irritant, for the public.

The experience with the public seems to vary dramatically by the nature of the community, even between communities affected by the same incident. It was quite obvious that the public's comprehension, internal agency understanding, and support by interagency partners are all

closely related. The better agency personnel understand the concept of AMR, the better they can inform, educate, and develop the cooperation of their partners and the public they serve.

Incident Response Can Serve As Outreach Opportunity

In several cases, agency administrators and key staff described public outreach on 2007 fire incidents as very successful, during which they built their relationships with their communities. On at least one incident, the agency used the situation as an opportunity to train citizens to protect their homes and property.

The involved personnel found that through considerable public involvement they were able to empower community members to help themselves; give them meaningful work to do to protect their own property, and channel their energy. Once community members recognized that the Forest Service and the interagency system lacked resources, they began to accept the idea that they and local government also bore some responsibility.

In one case, the local unit put a premium on public involvement, and this was met with cooperation. In that case, agency personnel and their interagency partners worked to make their two public meetings per week not just informational, but also educational. Involved personnel reported that the effort produced the side benefit of bringing the community considerably closer together. The local agency administrator and key personnel report that they witnessed a transformation of attitudes, as citizens, who were feeling assaulted by an event over which they had little control, began to relax as agency personnel counseled them on weather, fire behavior, and home protection.

Several people mentioned that agency personnel must take the time to explain to citizens that, though they may not see an influx of resources that they may have seen in the past, that resources will be available when needed. In one case, local citizens saw this concept work when a new fire emerged, and an IMT and resources arrived quickly.

In the final analysis, agency personnel learned that communication with the public proved key. Incidents reported holding two and three public meetings per week per incident to explain to affected communities what was happening. Local units learned that they would likely need to augment their local public affairs capacity whenever they have a long-term incident. A “public affairs squad” approach worked well in at least one circumstance.

Personnel involved in one incident requiring extensive public outreach reported that Liaison Officers assigned to the IMTs had proved very beneficial.

Line Officers and Key Staff Should Become Directly Involved

People contacted by the information collection team recounted examples of public outreach efforts that succeeded because agency administrators and their key staff involved themselves directly and intensively. In one case, either the AFMO or FMO attended public meetings held at least every other day at different locations throughout the drainage affected by the fire. Both the District Ranger and the Forest Supervisor maintained high visibility in this community effort as well, by attending community events and touring the fire area.

Communicate Your Actions and Your Justification Clearly

As agencies, primarily the Forest Service, implemented AMR in the Northern Rockies in 2007, the public observed fire organizations expanding and contracting their operations; moving resources in and out as dictated by the situation. Most often, this was not something that the public had observed before and challenged their expectations for how the Forest Service would operate. Agency personnel must be prepared to explain to the public why they are reducing resources on a given fire and do a much better job of explanation than "Well, it is our new way of doing business and it's called AMR." Explanations such as these confuse people and ultimately require much more explanation to the public.

Communicate With Unity

Too often, agency personnel fail to communicate with unity. One line officer described how one IMT's Operations Section Chief described the local unit's chosen management response in a public meeting. He simply said, "They won't let us get in there." Another line officer, mentioned a public affairs officer who could not adequately communicate WFU, but did communicate that "We can do whatever you, the public, wants us to do with this." Mixed messages such as these overcomplicate the implementation of management's direction regarding AMR.

The Link to Resource Benefit Depends on Your Perspective

Internal agency debates about the benefits of fire are apparent and present a barrier to smooth AMR implementation. Some agency personnel believe strongly that their agency needs to stress, to the public, the benefits of fire when used in appropriate places and in appropriate ways. As reported elsewhere in this report, other agency personnel perceive that AMR and wildland fire use (WFU) advocates can overplay the benefits of fire, and that agencies must guard against communicating a "fire is always natural and always good" message without recognition that fire also produces severe impacts on resources, values-at-risk and society. One experienced fire manager suggests describing AMR, not with value judgments, but primarily as checking, directing, and delaying the fire.

The Link to Cost Containment Depends on Your Perspective

As described elsewhere in this report, an obvious lack of unity on the justifications of AMR exists within agencies. For example, the information collection team heard differing opinions about whether AMR is justified by cost containment. In reality, the Forest Service, and other agencies, likely lack the data to yet know whether AMR decisions in the Northern Rockies in 2007 were justified by cost. However, agency personnel already seem to have split into two camps on this issue. Some believe firmly that the AMR approach was clearly justified by cost containment and that the public should be told so. Others believe that cost containment does not justify AMR decisions made in 2007 and that their agency should not sell AMR to the public as a cost-savings approach. Disagreement over the link between cost containment and AMR has the potential to present mixed messages to the public in a way that overcomplicates the implementation of management's direction regarding the concept.

Intensive, Local Public Outreach Efforts Are Required

There exists a need to improve public understanding and support for the AMR concept. While a centralized regional or national effort will help, in reality, many local efforts will be necessary because fires impact individual, unique communities; local government officials are very influential and must be informed; and because wildland-urban interface residents turn over constantly. Several people expressed the opinion that agency personnel must talk with communities, not just when fire strikes, but when no smoke is in the air, and that doing so will likely make or break the objective of implementing AMR. View at The Northern Rockies AMR Communication Plan or http://www.wildfirelessons.net/documents/Northern_Rockies_AMR_Communications_Plan.pdf

Key messages will likely include:

- We *manage* fires.
- It's not that we are doing nothing on the fire, but that we are managing it safely and effectively.
- Sometimes we will allow the fire to burn, and this is why.
- Sometimes we will use a point protection strategy and not put a line around the whole fire, and this is why.
- Selecting an AMR is, at least in part, about spending the taxpayers' money effectively.
- Selecting an AMR is often about firefighter safety.
- When selecting an AMR we consider our probability of success.

Use Videotape and Photographs to Show People the Fire

Many fires, about which we will want to communicate with the public, will be in places where the public cannot readily see them. Use videotape and photographs when communicating with the public about fires they have not or cannot see well. The public will understand the situation, and you can gain their support, much more quickly when they can understand the fire conditions, the landscape, and implications for firefighter safety (such as an absence of adequate safety zones.)

Tell the Public the Truth

While it sounds obvious, experienced fire personnel stressed that agency representatives must tell the public the truth. As one District employee said, "They have a big fire in the backyard and they need to know it." One IMT videotaped a remote fire outside a community. While this technique proved valuable and enabled the community to see the fire from the firefighters' perspective, they also taped relatively benign portions of the fire, with the intent of comforting people. Later, the local unit shifted gears and showed video footage of the fire blowing up. According to a person that was there, the room went silent when community members saw the

twelve-minute “scary” version. However, the people attending that meeting seemed to genuinely appreciate the honest information. The lesson was not to sugar coat information to the public – tell them exactly what the fire is doing, what you are doing, and why. Honesty is important.

Re-think Terms Used With the Public

Several people contacted by the information collection team felt that their agency needed to re-think the terms that they use with the public; particularly suggesting that perhaps agencies should describe their work as “managing fires” versus “fighting fires” or “suppressing fires.”

InciWeb Is a Valuable Tool (When It Works)

People report that InciWeb provided an excellent and valuable tool for keeping the public informed. On the other hand, in at least one case, the local unit and IMT had encouraged citizens to use InciWeb to stay informed about the fire when they were out of town, and then InciWeb went down at various times peak times during the fire season. InciWeb can provide a very valuable public information tool, but must be very reliable.

LESSONS LEARNED: SMOKE AND AIR QUALITY

“We don’t know how to deal with the smoke issue. I Hope that over time, with more fire on the ground, we’ll have fewer big plumes.” – Forest Supervisor

Long-Duration Fires Worsen Smoke Impacts on the Public

The longer citizens have to endure forest fire smoke and breathe it, the worse the impacts of smoke get and the less tolerant citizens become. In some communities impacted by fire, residents lose patience because now summer is bad with wildfire smoke and winter is bad because of valley inversions. Basically, the public gets tired of the smoke, and smoke is attracting the attention of environmental quality regulators. Any AMR strategy must include specific guidance on smoke management, as the Northern Rockies Coordinating Group (NRCG) strategy does.

Effective Practices

"It's an effective practice to use a Fire Use Management Team or a short Type II team on long-term suppression fires. Type II teams need to be willing to come short" – Forest Supervisor

Fire managers, agency administrators and incident management teams developed a number of effective practices during the 2007 Northern Rockies fire experience.

Focus On Risk Assessment and Management

The Area Command Team (ACT) supporting the Northern Rockies effort used a risk assessment process that examined values at risk, the hazards threatening those values, and the probability that the hazards would negatively impact those values. They use this risk assessment concept to orient all that they do and to prioritize resource allocations based on probability of success and capabilities. The ACT prioritized resource allocation both between incidents (as done traditionally) and between individual management action points (MAP.) Over time, the ACT prioritized between individual MAPs to the greatest extent possible.

Communicate Ahead of the Season

Several experienced personnel described an emphasis on communicating and collaborating ahead of the season, focusing on their planned (and appropriate) response for fire starts in certain locations under possible conditions.

Maximize Dialogue and Communication When Making Decisions

One experienced line officer and fire manager found a collaborative dialogue effective when preparing a Wildland Fire Situation Analysis (WFSA.) Citing a successful experience, he described how the District Ranger, District FMO and other key district personnel fully engaged in collaborative discussion within 24 hours of the incident's start.

Other agency administrators and fire managers reinforced this point, often citing the need to have the right people present at key decision points. Often, those right people are not necessarily fire suppression oriented, but those who have good thinking skills and who are willing to take calculated risks.

Maximize Dialogue and Collaboration on the IMT

Effective IMTs reported that they emphasized having all members of the command and general staff at the table working on the same thing together. At least one IMT believed that they succeeded in the appropriate management response (AMR) environment because operations and fire behavior personnel worked closely together.

Maximize Dialogue Between Line Officer, IMT and Community

Communication is essential to establishing an effective relationship between the local unit, the assigned IMT, and affected communities. Communicating internally as well as externally with communities, letting the communities know what we can do and what we cannot do, an spending a lot of time with the teams is very important. This line officer spent most of the summer going from fire to fire just "checking in." Line officers also report attending IMT planning meetings to reinforce their intent and talk about costs, desired approach and other matters of importance.

Have a Proactive and Adaptable Plan

Proactive plans contributed to the success of fire organizations in the Northern Rockies during the 2007 fire season. Generally these plans allowed fire personnel to both anticipate what they would do when fires reached certain points and provided a basis for adaptive decision-making when events did not transpire as planned or anticipated. Nearly all people citing this effective practice mentioned that they considered their plan adaptable and that they could change it as circumstances dictated.

Use Management Action Points (MAP)

Though people express differing opinions on what to call them in the long-term, nearly everyone contacted by the information collection team recognized the value of the establishing "management action points" (trigger points, decision points, etc.) as triggers for mobilizing IMT, ordering resources, prompting evacuations and structure protection, converting WFU fires to suppression, and other decisions.

Point Protection

Point protection, protecting high-value sites and areas near the fire's edge, proved itself as a valuable tactical option. While some agency administrators and their fire staffs found that some IMTs over-used point protection (or continued to use it when no longer appropriate), many people found it an effective tactical approach, particularly for containing fire suppression costs and mitigating firefighter safety concerns.

IC Evaluation Prior to IMT Deployment

One local unit reported success at having the Incident Commander (IC) of the available incident management team (IMT) come to the incident and evaluate the need for his team and/or the elements of his team that the unit might need.

Maximize Relationship with Local Government Cooperators

Several agency administrators and key fire personnel reported that their success was tied to their ability to build effective working relationships with their local government cooperators including local fire departments and county commissioners. In one case, the Forest Service

invited county personnel to participate in the Wildland Fire Situation Analysis (WFSA) training. Several people mentioned that they had developed an effective working relationship with local fire departments and that this had contributed to their ability to obtain structure protection resources and expert assistance.

Augment Behind Key Personnel

Several units pulled-in additional line officers (such as district rangers and forest supervisors) to augment local personnel. Some shadowed local counterparts as learning opportunities. Some came to help their local counterpart with public affairs. Others served as coaches to local personnel, and others just lent an extra hand.

Get Your Cost Share Agreement Done

Cost sharing agreements present a perennial sore spot between federal agencies and their state counterparts as well as a constant issue in regard to cost containment. Consequently, several line officers recommend having updated cost sharing agreements in-place.

Long-term Planning/Long-term Analysis Teams

As discussed elsewhere in this report, judging from the 2007 experience in the Northern Rockies, it appears clear that analysis represents a critical concept and a key to successful appropriate management response (AMR) implementation. Most people interviewed by the information collection team found long-term implementation plans very important to their success both internally and externally.

Long-term implementation plans and the planning process identify areas of concern out ahead of the fire and use modeling and decision support tools to reduce the uncertainty brought about by big fires, with enormous amounts of open line, threatening communities at risk.

Considering this experience, it appears likely that guiding long-duration fire events with a long-term implementation plan will likely become standard operating procedure. Some effective practices associated with the preparation of long-term implementation plans include:

- Focusing on why the fire organization should take certain actions, clearly describing the intent and purpose of the plan.
- Using mobile long-term planning teams made up of three to four specialists (a combination of long-term analysts and fire behavior analysts) who move from emerging incident to emerging incident, assisting local units in preparing long-term implementation plans.
- Using a long-term planning team as well as members of the IMT and local unit personnel to jointly develop the long-term implementation plan.
- Using FARSITE and the Rare Event Assessment Program (RERAP) modeling/decision-support tools when developing long-term implementation plans.

- Using a “service center” type of group to support the long-term planning teams working in the field. In 2007, such a support group working in Missoula was able to develop and distribute a long-term implementation plan in 3-5 days.

- Using FS Pro in combination with Google Earth as a visual aid to demonstrate the location of management action points, correlate them to the 80% probability range maps, and show where tactical operations were planned or occurring.

- Keeping long-term planning teams on-site for more than the customary three days to allow them to spend a little more time on the plan, particularly conducting additional fire behavior analysis, involving local personnel in establishing MAPs, polishing the plan a bit more, and helping to assure that strategy and tactics align with the long-term implementation plan.

- Employing processes and planning elements associated with (Wildland Fire Implementation Plan (WFIP) Stage 3 - normally associated with Wildland Fire Use (WFU) for suppression events. In the Northern Rockies a number of the concepts being used come from WFU, and WFU planning essentially provides both the format and content of long-term implementation plans, because currently the agencies do not comprehensively teach long-term planning or provide a format for doing so.

- Treating the long-term plan as a dynamic document to be continuously evaluated, monitored and adapted by the IMT. One experienced IC and fire manager described a process in which the team used the long-term plan as the basis of their plan, overlaying the current fire perimeter, and orienting their daily planning discussion around the MAPs to either implement the MAPs or justify why they were not taking the prescribed actions. This team updated a table after each planning meeting, to document their evaluation and decisions. Another experienced Incident Commander and fire manager recommends re-visiting the long-term implementation plan at least every two weeks.

Long-term implementation Plans Implemented by Type 3 IMT

Several agency administrators and key fire staff reported good success with developing a long-term implementation plan and turning it over to a Type 3 IMT for implementation. Most notably, these persons described the potential of this practice to contain fire costs.

Area Command and MAC

During the 2007 fire season in the Northern Rockies, the Northern Rockies Coordinating Group (NRCG) used an Area Command Team somewhat unconventionally to good effect. The area command helped the Northern Rockies Multi-agency Coordinating Group (NRMAC) to prioritize and allocate resources and generally think about how to improve MAC processes.

Structure Triage

On one incident, though local government agencies took responsibility for structure protection, the Forest Service had completed structure triage, which the local government agencies found very useful. When the County took on the structure protection task they found that the Forest

Service had triaged about 150 residences, and documented their associated risks. Involved personnel recommend this approach and feel the practice should be widespread.

Bring In a Structure Protection Specialist

A dedicated structure protection specialist (whether working for the local unit, interagency partner, or IMT) can prove very valuable, not only to directly protect structures, but to help raise awareness in the community and to educate citizens.

Construct Temporary Water Storage Structures

On one long-duration fire threatening structures art the wildland-urban interface, the local government agency accepting responsibility for structure protection found good success building temporary water storage facilities made of hay bales and large tarps. These water storage facilities ranged in size from 6,000 to 13,000 gallons with a 40 x 40 foot tarp; creating a 30 x 30 foot finished pond holding 10,500 gallons. Two persons can construct such a structure in 4 to 6 hours.

Build and Store Structure Protection Kits in Advance

On one long-duration fire threatening structures at the wildland-urban interface, the local government agency accepting responsibility for structure protection found good success preparing structure protection kits. These kits enabled two people to prepare a 2,000 square foot structure in one hour. Each kit cost about $1000. See "Parts List" by clicking on link or going to www.wildfirelessons.net/documents/Parts_List_For_Structure_Protection_Kit.doc

However, they also found that rounding- up material to create structure protection kits during an active fire season (when vendors ands caches were out of stock) presented a real challenge. Consequently, they strongly recommend having kits prepared and on-hand.

Using a Water Curtain Approach to Structure Protection

On one long-duration fire threatening structures at the wildland-urban interface, the local government agency accepting responsibility for structure protection found good success with a unique approach to protecting structures. Using this method, pierced hoses are attached to the structure to create a water curtain effect. This method can also be used in combination with tarps used to cover the entire structure, holding the water on the structure. Click here to see photos and descriptions or go to: http://www.wildfirelessons.net/documents/Using_a_Water_Curtain_Approach_to_Structure_Protection.doc

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Establish Management Action Points as Continuous Lines

Several people reported that they had started the 2007 fire season employing management action points (MAP) as, just that, single points on the map, but evolved during the season to establishing MAPs as continuous lines, which worked much better. For example, an early

season long-term implementation plan might denote a MAP as a labeled dot on a map. Obviously, this could cause fire personnel confusion. Did the fire need to impact that exact point on the map to trigger the corresponding management actions? By the end of the season, a continuous line denoting the entire range of locations where the fire's approach would trigger the same management action would describe typical MAP.

Keep Communities Informed on How MAPs Work

Fire organizations employed MAPs extensively during the 2007 fire season in the Northern Rockies, and used them to inform the public with good success. However, they also found that without full information, on what MAPS mean and how they work, citizens get nervous as they saw the fire approaching the MAP. Without understanding the MAP concept, lay people saw the fire's approach to a MAP as a signal of something bad having happened, and the stress level of the community rose. Consequently, successful operations kept affected communities informed by meeting at least twice per week, and using these opportunities to explain the significance of MAPS pertinent to the community. This improved the understanding of local citizens and enabled them to achieve a degree of comfort with the fire situation.

Fully Integrate Local Government

Both local government officials and some of their federal counterparts contacted by the information collection team stressed the importance of fully integrating (beyond keeping informed or involving as needed) local government into planning and operations, particularly when wildland-urban interface (WUI) issues exist. Aspects in which local government should be integrated include:

Structure Protection - including the possibility of local government agencies taking the lead on structure protection when possible.

Community Liaison - including local government personnel performing as liaison officers on IMTs.

Local Government - Having local government present and fully involved in community meetings and public affairs.

Using Fire Use and Fuels Modules as Suppression Resources

Some fire managers found that they were able to effectively use fire use and fuels modules as effective fire suppression resources on long-duration incidents, particularly when conventional suppression resources were in short supply. In one case, the local unit used a fire use module to maintain a high public profile, complete a structure protection plan, and carry out limited, but high impact suppression actions on an incident without other resources. Involved personnel reported that this tactic assured local citizens that the agency was taking action, rather than letting the fire burn.

High Visibility Involvement of Line Officers and Key Staff

Several agency administrators, key fire staff personnel and ICs reported that their public affairs efforts succeeded in large part because of the high visibility involvement of line officers and their key staff members. In one situation, either the Assistant Fire Management Officer (AFMO) or Fire Management officer (FMO) attended public meetings held at least every other day at different locations around the fire area. The District Ranger also remained highly visible and engaged, as did the Forest Supervisor. The involved personnel agreed that they all needed to be "on the same page" and that agreeing on expectations and guidelines proved very valuable.

Regular Coordination Calls

One national forest conducted nightly conference calls involving the Forest Supervisor, Forest FMO, Administrative Officer and all the FMOs and AFMOs from across the Forest. The purpose of the nightly conference call was to assure that everyone was unified in their understanding of the situation, their resources, and cost containment issues.

Prioritize Resources by MAP

In 2007, personnel working in the NRMAC and Area Command came to realize the need to prioritize resource allocation, not only by incident, but also between individual MAPs on incidents.

Use Incident Objectives to Demonstrate Success

Fireline supervisors found that tactical resources struggled to define their success and understand what success they were having in the AMR operating environment. Some operational supervisors found that returning to the incident objectives, and deliberately, systematically evaluating how well they were achieving those objectives, provided a basis for gauging success.

Take the Time to Communicate

Supervisors of tactical resources, such as engine crews, found that their personnel struggled to understand their role and define their success in the AMR operating environment. Successful supervisors report spending a lot of time with their people sharing copies of the Northern Rockies AMR strategy. Still, even these supervisors report that, while one can explain how AMR works, most of their people did not truly understand until they could show them how it worked.

Inform the Public and Tell Them the Truth.

As discussed elsewhere in this report, experienced fire personnel stressed the need to keep the public well informed and to tell the citizens the truth. According to one Operations Section Chief (OSC), “They have a big fire in the backyard and they need to know it.”

Videotape Remote Fires and Remote Portions of Fires

As described elsewhere in this report, fire organizations have had good success videotaping remote fires and remote portions of fires and using the videotapes to inform the public. While showing people the video, they told the public what they were doing and why, described the fire situation honestly, showing both the positive aspects of the fire situation as well as the negative, and explained firefighter safety issues.

Make Decisions and Manage Incidents with Local Personnel

In the Northern Rockies in 2007, resources, including IMTs, were in short supply, and local units made many decisions and took countless actions that IMTs would have traditionally managed. Faced with these situations, local units discovered something unexpected; that not only did it work out, but that they often found the local control, decision-making and action preferable.

For example, on one fire complex, District personnel staffed the fires for two weeks before feeling the need to call for an IMT. Involved personnel reported that, if this had been a single fire, they would have continued to manage the situation with District personnel, finding that the District operation was low cost, effective and safe. A local agency administrator on another incident reiterated the desire to retain local control when he pointed-out that standing teams have a hard time avoiding their tendency to overdue suppression when they’re called in, simply because they are accustomed to a strategy requiring them to “anchor, flank, and spank,” even when that is not the AMR.

Use Processes Associated with WFU

Local units that use WFU often know before making decisions where they are at in the fire year, what their fire danger indices are telling them, and the options they have in various locations. Some agency administrators, that felt they made effective AMR decisions in the Northern Rockies in 2007, describe using similar processes and a similar decision framework that they used for WFU to guide suppression response decisions.

Allow IA Forces to Make Decisions and Do Their Job

Several fire managers and operational supervisors stressed that AMR does not require, and should not encourage, line officers to second-guess the tactics of their personnel during initial attack (such as ordering helicopters or retardant drops.) Nor should they assume that requested resources are not available. These personnel counsel that that fire personnel must be left to order the resources they need and allow the dispatch, coordination and MAC system to do its work, including setting resource priorities. Local unit forces need to be able to show, and

document, that they made their best effort in initial attack, and to be able to stand before the public and explain their actions.

Pay Close Attention to an Effective Letter of Delegation

Agency administrators, their staffs and ICs agreed that letters of delegation must be clear, but too frequently, are not. Agency administrators decried the overuse of point protection; desire to conduct large-scale burnouts, and resistance to allowing fires to remain patient until the fire reached a fuel type break. However, in each case, the same agency administrators acknowledged that their in-briefing and letter of delegation was deficient. In-briefings for IMTs must do a good job of articulating leader's intent.

AMR Training Recommendations

"We need to implement AMR in the whole fire training system – begin with basic, introductory courses and work AMR through the whole system" – MAC Group member

"We need to increase training on all aspects of AMR at all levels, not beginning at the 400 level. It should be taught at the 100 level to make it a cultural shift in the community. It should also be put out there to line officers and our other internal skeptics" – Forest FMO.

Be Judicious, Careful and Economical with Training

There are those agency personnel who strongly recommend "no new training" associated with appropriate management response (AMR.) Others caution to keep any new training minimal. Most cite the heavy training and certification load that exists now. Most point-out that NWCG and Forest Service training and certification requirements already present a significant hindrance. However, it appears clear that there exists a need for some training if the Forest Service and other agencies are to succeed with AMR implementation. Consequently, the Forest Service and other agencies must employ training solutions judiciously and economically.

Create a Single, Common Understanding of AMR

It remains quite clear that there exists a need to create a single, common understanding of what AMR is, how it works, and its implications. Given the interdisciplinary participation of agency employees and the interdisciplinary ramifications of AMR to their agencies, many agency personnel require at least some formal AMR training; and that training must extend far beyond "red-carded" personnel and the IQCS system. Needed is a relatively brief, standardized, and very widespread program; effectively a national "all-hands" meeting. Some people contacted by the information collection team advocated for a single-day effort to brief everyone on the essentials and give them a few scenarios in which they choose appropriate management response.

Whether conducted in an interdisciplinary approach, or in more discipline-specific groups, this training should take in (at the very least) all fire management and public affairs personnel, local agency administrators (line officers), front-line public contact staff, and all members of the command and general staff of IMTs.

Train People to Make AMR Work on the Ground

As discussed elsewhere in this report, the Northern Region of the Forest Service and the Northern Rockies Coordinating Group (NRCG) prepared, distributed well-crafted AMR strategy documents and communication plans and briefed people on them. However, despite these efforts, apparently one significant gap remained in that people felt they lacked practical, operational level guidance to help them implement AMR at the ground level. Operations personnel need training to reinforce the concept of tactical flexibility and help them understand the practical ramifications of topics such as resource sharing, point protection, wildland fire use (WFU) as a tactic, the relationship between initial attack (IA) and AMR, the relationship between direct attack and point protection, and communicating the AMR concept to the public.

Essentially, both local unit personnel (from firefighter to FMO) and operations resources (firefighter to Operations Section Chief) need consistent preparation and guidance that helps them to do their jobs, as do fire prevention and public affairs personnel. People need to know how to manage long duration events and/or contribute to events being managed over the long-term (whether suppression or WFU), but it appears that relatively few people actually have these skills now.

Some personnel advocate separate training to provide a dedicated focus and assure that the training does not lose key AMR principles. However, given the current training and certification pressures already described, it seems that comprehensive inclusion in the National Wildfire Coordinating Group (NWCG) fire training curriculum (at all levels from 100 through 500) may represent a more practical approach.

Essentially, trainers and trainees should be working with AMR decisions and long-duration events throughout the NWCG fire training curriculum. Obviously, this strategy requires a complete overhaul of the NWCG training curriculum. However, it must be noted that this refurbishing must occur through some new mechanism other than the traditional NWCG Training Working Team system.

Adapting the NWCG training system to "make sense" in an operating environment that includes the AMR concept represents an immediate, pressing need; and current mechanisms have proven far too slow and unresponsive to address such an urgent and critical need.

Incident Commanders and Their Teams

As was evidenced by the 2007 experience in the Northern Rockies, incident management teams (IMT) currently represent key players that can make or break the appropriate management response (AMR) implementation effort. Consequently, there exists a need to continue mandatory AMR orientation briefings for all Incident Commanders (IC) and the command and general staffs at the national level.

These briefings must produce, among ICs and their key staff, a common understanding of what AMR really is, how it works, and the implications for IMT planning and activities. Those conducting these briefings must emphasize AMR as a concept enabling the full range of tactical responses and defeat the perception of AMR as wildland fire use (WFU) or "let burn." IMTs could lead the implementation of AMR if properly informed and prepared.

Perhaps this training should be developed by, conducted by, or at least focus on ICs and Fire Use Managers who have seen success across the spectrum ranging from full perimeter fire suppression to WFU.

Enhance Existing IMT Training

As already mentioned, incident management teams (IMT) currently represent key players that can make or break the AMR implementation effort. Consequently, there exists a need to enhance existing IMT training, specifically:

- Include scenarios focused on employing the right resources in the right place and the right time in both the S-420 and S-520 training

- Train IMT members on long-term implementation planning, essentially to conduct the Wildland Fire Implementation Plan (WFIP) Stage III. Long-term incidents put a lot of responsibility on Operations Section Chiefs (OSC); add management action plans to the OSC training.

- Include scenario-based exercises into IC Type 3 training that emphasizes flexibility, adaptability and dealing with multiple transitions.

Fire Management Leadership Training Curriculum

Revise the Fire Management Leadership training curriculum for agency administrators. This training, at all levels, must develop a common understanding of AMR and its implications among line officers, discuss the essential relationship between land management plans and AMR, and focus on relationships, creative problem solving and consensus building when working in an interagency environment.

The Fire Management Leadership training curriculum must discuss AMR in a sufficient level of detail and in very definite terms. The training should prepare agency administrators to evaluate response alternatives and choose from among them, and topics should include the essentials of AMR and tactical flexibility and in-depth discussion of risk and the consequences of failure.

Develop and Use Case Studies

The Forest Service has now successfully managed a number of incidents within the AMR concept. Good examples include, but are certainly not limited to, the Ahorn, Pattengail, Rat Creek, Rombo Mountain, Sawmill Complex incidents. Develop case studies and use those case studies to train agency personnel. Case studies might use predictive and decision support products and involve people who were actually engaged in the fire to work with students.

Develop and Use TDGS and Staff Rides

The Forest Service has now successfully managed a number of incidents within the AMR concept. Good examples include, but are certainly not limited to, the Ahorn, Pattengail, Rat Creek, Rombo Mountain, Sawmill Complex incidents. Develop tactical decision games (TDGS) and staff rides and use those exercises to train agency personnel. Include and involve FMOs (both forest and district), rangers and forest supervisors, among others.

Use Shadow Assignments for Learning

In recent years, the Northern and Southwest Regions of the U.S. Forest Service have been exchanging personnel to augment organizations during their respective fire seasons. Involved personnel have suggested an expansion of this effort to involve more line officers, enabling them to gain valuable experience. Shadowing and mentoring assignments provide excellent opportunities, not only for people to gain priceless experience, but to use human resources

wisely and flexibly to supplement fire organizations in times of peak activity and need, and to afford local personnel the opportunity to take a few days off.

A shadowing program could prove very effective for agency administrators/line officers. An agency will want to select its mentors carefully, and recent retirees might effectively serve as additional mentors as necessary.

Regional Workshops Can Work

Agencies have had some success with regionalized workshops addressing AMR, and the Northern Region of the Forest Service is currently planning for a one week training session, conducted once per year, where the focus will be on managing a long duration fire, both WFU or suppression. Obviously, regional workshops can work if the agency has the personnel time and resources to make it succeed. Those planning and conducting regional workshops must take care to assure that their workshops are consistent with the national "big picture."

ISuite Training Must Be Current

People contacted by the information collection team expressed much frustration related to ISuite. Local unit personnel who had managed long-term incidents expressed the greatest frustrations. The biggest issue was that the changes had been made to the ISuite program, but the ISuite training curriculum had not kept people current on their skills. There seems to be a need to better manage the frequency, quality, and timing of changes to this program that has become central to fire management.

Changes must occur less frequently, systems need to be better tested before being released for operational use, changes can not occur just prior (or during) fire season, and ISuite training needs to be expanded beyond one day.

Do a Better Job of Teaching Unified Command

Very large, long duration fires will almost always have an interagency operations component and will often cross-jurisdictional boundaries, requiring unified command. However, recent experiences have exposed weaknesses in the capacity for agencies to operate under unified command. The NWCG fire training curriculum needs to do a better job of teaching unified command principles.

Forest Service Structure Protection Policy

All Forest Service personnel need one, clear and consistent understanding of the agency's policy on structure protection. Consequently, all key fire personnel and line officers need to be trained on what their responsibilities are regarding structure protection.

Using Short Teams

As described elsewhere in this report, Type 3 IMTs and other "short teams" will play a larger role in the future. Consequently, some training on "how to be an effective short team member" may be appropriate. Of particular importance would be a discussion of how short teams will work well with other teams, if they are tasked to work together.

Long-term Planning and Long-term Planning Teams

Long term planning and the capacity to create long-term implementation plans represent elements critical to successful AMR implementation. Consequently, some experienced fire managers contend that the NWCG needs to develop an entirely new curriculum focused on long-term planning, the societal, political, and economic issues associated with long-duration fire, as well as the role and function of long-term planning teams. In addition there exists a need to train and qualify far more long-term Analysts (LTAN) and Fire Behavior Analysts (FBAN.)

Transfer/predictive and Decision-support Tools

During the 2007 fire season in the Northern Rockies, a fair number of people found themselves behind on the learning curve associated with predictive and decision-support tools that appear to be critical to effective long-term planning; such as WFIS, FSPro, RAVAR and FARSITE. There exists a need to comprehensively and systematically transfer these tools to fire personnel who will use them, particularly members of IMTs.

Unresolved Issues

"We are confusing people across the board – internally as well as externally. Don't rollout with "AMR" in the public arena – drop the name and just tell people what we're doing and why." – Deputy Forest Supervisor

Not Ready For Full Implementation

The U.S. Forest Service is likely not quite ready for full appropriate management response (AMR) implementation, primarily because its personnel, its cooperators and the citizens it serves lack a common understanding of the concept and have not accepted it. On a national scale, the agency lacks common direction and guidance. At the bottom line, some people do not understand AMR because they do not yet want to.

Interagency Partners

It is quite clear that work with interagency partners constitutes a set of unresolved issues including legal, financial, jurisdictional, private property, structure protection, and cross-boundary issues. Interagency partners and the public have received mixed messages regarding AMR and have come to important conclusions from their uneven understanding. There exists a need for dedicated, intensive discussion between the U.S. Forest Service and its interagency partners prior to the 2008 fire season. It is certainly possible that the U.S. Forest Service and its partners are closer together on the basic concept that one might expect, but that communication represents the real problem.

A Unified Fire Policy

Federal fire policy represents a significant barrier to smooth implementation of the AMR concept. Many personnel interviewed by the information collection team called for a truly unified federal fire policy as well as a one that removes unhelpful distinctions between kinds of fires. One highly experienced fire manager described the current situation well when he said, "We don't manage by objective; we manage by fire type." Many fire managers and line officers believe that "fire is fire" and that federal fire policy should remove distinctions between suppression fires and wildland fire use; resulting in "one kind of fire."

Most people contacted by the information collection team advocated a shift away from the policy that requires federal fire agencies to designate a given fire as either a suppression fire or wildland fire use, citing their belief that this policy robs them of flexibility and too often interferes with sensible decision-making. Along these same lines, agency fire managers also believe that federal fire agencies must stop conveying a "good fire/bad fire" message. One experienced line officer believes that his agency must be able to convey the potential benefits of even person-caused fires.

Relationship Between AMR and Land Management Plans

An agency's AMR should be based on the local unit's land management and fire management plans and their agency policies, and people need to understand and explore their land management plan to appropriately manage each incident. However, agency personnel are finding that, in many cases, AMR and fire management strategies and their intended outcomes inadequately considered in the land management plan. Consequently, the local unit lacks a foundation for AMR decisions.

Cost Containment

As described elsewhere in this report, AMR may, or may not, contain fire suppression costs. However, it remains quite likely that the agencies lack the data and analysis to definitively know whether the AMR concept may be justified in economic terms or not.

Budgets and Targets

Currently, the U.S. Forest Service is unable to take credit for fuels reduction caused by unplanned wildfires or wildland fire use events. For example, in 2007, the Rombo Mountain Fire burned three planned prescribed fire units and met the objectives that the planned prescribed burns would have achieved. However, the Forest cannot count those units as acres treated.

In addition, when a forest has a full suppression fire and brings in a Burned Area Rehabilitation (BAER) team, the BAER team has funds to clear trails and fix bridges impacted by the fire. When the Forest manages a fire as WFU, no such funds are available. Consequently, a unit with an extensive trail system and an extensive WFU program not only does not get credit for acres treated, they add to their workload without receiving additional funds – a kind of budget "triple whammy."

Systems Unprepared to Support AMR

It is apparent that agency fire coordination and support systems are unprepared to support the shift to the AMR concept. Weaknesses exist in resource ordering and status tracking, information technology (IT) and IT support, contracting and purchasing, fire situation analysis, predictive and decision-support tools, as well as cache support. Contracting and purchasing are particularly problematic.

In This Together?

Some U.S. Forest Service personnel at the district level report feeling as if they were somewhat on their own, questioned whether their entire forest took ownership for fire incidents, and perceived a lack of support. Some line officers perceive a great deal of risk associated with AMR, believe that management (and others) are asking them to elect to take risk, and remain reluctant to take-on that perceived risk.

Given the current work climate present in the agency, there are those who wonder whether their forest will be there to back them when an AMR decision works out poorly. Those expressing these points of view agree that the Forest must engage and involve itself throughout a long duration fire. On the other hand, successful AMR implementation will require people to assess and assume risk, manage that risk, and live with their decisions.

Integrating the AMR Concept into the IA Dispatch System

As reported elsewhere in this report, given the conditions in 2007, most local units had defaulted to full suppression action as an initial response. However, local unit IA forces and their supervisors still express concern that management's emphasis on AMR threatens to make their IA responsibilities unclear, particularly because the AMR concept has not adequately penetrated the dispatch system, such as providing IA dispatch centers with a criteria based dispatch system.

Decision Support Model

Numerous questions arose about the Wildland Fire Decision Support System (WFDS). Some wondered whether it was written. Others felt as if it had been pushed out to the field before people really understood it and that it was being Beta tested on actual incidents.

The "AMR" Term

As described elsewhere in this report, many people believe that both the quantity and the nature of the terminology surrounding AMR overcomplicate the concept, and numerous people contacted by the information collection team contend that the agencies should abandon the AMR term altogether. A common perspective was that "AMR" leads people to think that the agencies are doing their work much differently, which they really are not. In addition, people contend that simpler ways to describe the concept, other than the current use of "AMR," probably exist.

The "Management Action Point" Term

As described elsewhere in this report, many people believe that both the quantity and the nature of the terminology surrounding AMR overcomplicate the concept, and several people contacted by the information collection team contend that the agencies should reconsider the "management action point/MAP" terms. Alternate terms are in use including trigger point.

Smoke and Air Quality

As described in this report, the longer citizens have to endure forest fire smoke, the worse the impacts of smoke get and the less tolerant citizens become. Consequently, smoke and air quality represent a big issue, not only with the public, but also with environmental quality regulatory agencies.

Structure Protection

Structure protection presented one of the most substantial sets of unresolved issues encountered by the information collection team. As described elsewhere in this report, the Forest Service announced a change in its policy regarding its role and responsibility in protecting private structures during the 2007 fire season, a move causing significant concern among its own employees, interagency partners and communities.

The information collection team found diverse opinions among the people they interviewed both regarding interpretation of the policy memo and regarding their support for changing the Forest Service's role and responsibilities. Some people clearly support a diminished structure protection role for the Forest Service and have adopted a firm position that the Forest Service should be out of the structure protection business. Others find the policy change precipitous, poorly timed, a bit unrealistic, and that the policy change made life more complicated.

Actual events on the ground reflected the same diversity. On several incidents, Forest Service personnel engaged in direct structure protection responsibilities including wrapping structures, installing sprinkler systems, and directly defending buildings from approaching fire. On other incidents, Forest Service personnel declined to engage in structure protection, citing their new policy direction. In some cases, both responses occurred on the same forest or district.

Several people pointed-out that serious questions remain about the Forest Service's responsibility, both legally and morally, when a fire, that the agency has intentionally allowed to spread, burns down someone's house on private property. Some state and local government partners argue that the Forest Service policy treats fire suppression and structure protection as if they are the same issue when they are not. In addition, state and local cooperators in the Northern Rockies contend that the Forest Service's structure protection policy is in violation of the six party master agreement.

It must be noted, that even when local government fire departments and other agencies can take a substantial role in structure protection, the traditional, conventional approach to involving them no longer works in many locations. Finally, while the Forest Service intends to shift the burden of structure protection to local government and citizens, agencies must note that structure protection may lie well beyond the capacity of many rural counties, fire departments, or other entities.

Obviously, there are many issues to be resolved. However, at a minimum, interagency cooperators must know what the Forest Service role in structure protection will be and it official policy should convey that responsibility.

Tactically, agency personnel have struggled to reconcile structure protection and point protection and some tactical resources have expressed discomfort about protecting structures via point protection. However, this issue seems to reflect confusion associated with both concepts.

Public Understanding of Firefighter Safety

Agencies frequently justify AMR decisions as being necessary to mitigate firefighter safety concerns. However, several experienced fire managers pointed out that the public must first understand firefighter safety to understand that justification; and that the general public remains relatively uninformed about firefighter safety.

IMTs and Configuration of IMTs

As noted elsewhere in this report, a shift toward AMR has implications for incident management teams (IMT), and the 2007 experience in the Northern Rockies raised questions about the preparation and performance of individual teams, about the fundamental system by which the NWCG configures and develops IMTs, and about how the National Interagency Coordination Center (NICC) and geographic area coordination centers (GACC) assign teams.

First of all, agency administrators found that IMTs were not equally capable of working in the AMR environment; a situation that may be rectified with training and other preparation. However, it may be time to reassess the configuration of teams and the basic team system, and the configuration of IMTs was much on the mind of agency administrators and fire managers. Many found current, conventional Type 1 and Type 2 IMT configurations incompatible with their needs to manage fires in the AMR operating environment.

The perceived need to re-configure IMTs coincides with the fact that the pool of available IMT members is shrinking and that the agencies are struggling to fill team positions. When combined with a trend toward asking local units to manage very large fires for very long periods of time, one begins to see a serious strategic problem developing. AMR, as currently envisioned, will require more resources, available in more places, for longer periods of time: all during a period when fire management resources are actually declining in number and availability.

ICS/IMT Planning Cycle

As mentioned elsewhere in this report, on long duration fires, the long-term planning process does not translate well into a 24-hour planning cycle and daily action plan commonly employed by IMTs. The Northern Rockies IMTs did some pre-season work to adjust their planning process but, overall, IMTs are still trying, with considerable difficulty, to squeeze long-term implementation plans into a daily incident action plan.

Common Understanding and Basic Acceptance by Workforce

As described elsewhere in this report, agency personnel are confused by “AMR” and the confusion contributes to a less than universal acceptance of management’s shift in emphasis toward the concept. A number of people contacted by the information collection team stated, flatly that “people don’t know what AMR is” and misconceptions abound. One fundamental issue is that, at their core, fire management personnel need to feel just as successful using a point protection strategy or managing a WFU event as they have in their traditional full suppression role.

People Find Written Guidance Overwhelming

As discussed elsewhere in this report, people felt that various forms of written guidance including foundational doctrine, regional and geographic area AMR strategies and long-term implementation plans contributed to their success. However, others described written guidance they had received as being excessive and overly complicated. Written guidance must communicate as clearly and directly as possible. As one person at a local unit put it, "Maybe get rid of four of the six pages about AMR that have been written up."

Terminology

As reported elsewhere in this report, many people believe that both the quantity and the nature of the terminology surrounding AMR overcomplicate the concept and represent a serious challenge to its implementation. For example, people expressed their belief that the Forest Service and other agencies can dispense with the "fire use" term because the AMR concept encompasses it, and the distinction is unnecessary. In addition, fire managers express the opinion that their agencies need to rethink the terms they use with the public. For example, instead of "fighting fires" or "suppressing fires" perhaps agency personnel should use the term "managing fires"

Effective Practice: Share Successes

The wider fire community would benefit by learning from the AMR successes of the 2007 fire season in the Northern Rockies. Involved personnel and agencies need to formally share these successes and several people contacted by the information collection team mentioned that the Wildland Fire Lessons Learned Center represents the appropriate mechanism for doing so.

Transfer of Predictive Modeling Tools

As described in this report long-term planning seems essential to managing large, long-term incidents, and predictive modeling and decision support tools seem essential to long-term planning. However, people are expressing a number of concerns about those tools, most notably that the people expected to use them and their products know too little about them and how to make them work effectively. There exists a large need to effectively transfer these technologies to the field in ways that allow practitioners to practically and efficiently put them to use.

Public Affairs Personnel

Several people contacted by the information collection team expressed dissatisfaction with agency public affairs personnel and their ability to convey the AMR concept to the public. Two agency administrators who said, "We may need people who are more knowledgeable about fire management informing the public", best illustrate the core concern. One FMO was more direct, wondering why his agency puts non-fire personnel into key public information positions.

Summary and Conclusion

"We need to assign somebody to take the results of these interviews on the road to these meetings (Regional leadership team meetings, IMT meetings. Forest Leadership team meetings) to make sure we talk about the results." – Deputy Forest Supervisor

This initial impressions report identifies lessons learned, effective practices, and unresolved issues that generally fall within nine broad themes. First of all, confusion and lack of understanding currently hinder the implementation of appropriate management response (AMR). Second, it appears that, at high levels, AMR has interagency support, but it is very clear that not all state and local government cooperators are "on the same page" with their federal counterparts regarding AMR.

When it comes to implementing AMR on the ground, patience is key. In 2007, fire managers, agency administrators, incident management teams and firefighters adopted a strategy of staying patient and letting fires spread to fuel type and other condition changes where firefighters could engage the fire more safely and effectively. This required a significant change in mindset for many people.

A fourth theme pertains to public understanding and support. Whether the public is ready for AMR, or even understands AMR, varies from place to place and community to community.

It also seems clear that successfully implementing AMR requires people to remain flexible and adaptable. Experienced fire managers and line officers observed that they couldn't make the AMR concept work without people who could manage circumstances and resources flexibly.

It appears clear that analysis represents a critical concept and the key to successful AMR implementation. The use of long-term analysts, long-term analysis, and long-term implementation plans represented major successes of the 2007 experience in the Northern Rockies.

A seventh theme relates to the U.S. Forest Service's role in structure protection. The change in Forest Service policy during fire season caused considerable consternation among its own employees, interagency partners and communities, and the current policy remains poorly understood. It appears that Forest Service structure protection policy may have direct implications for the success of the AMR concept.

A shift toward AMR has implications for incident management teams, and the 2007 experience in the Northern Rockies raised important questions and concerns about incident management team preparation, the system of teams, and team assignment.
Finally, it appears that fire agencies are not ready for full AMR implementation. On the whole, the people interviewed seem to feel that, conceptually, implementing AMR was appropriate, that this year's effort in the Northern Rockies had been a bold and successful step out into AMR, guided by a strategy that the agencies aggressively stuck to. However it also remains clear that the federal agencies are not ready for full, national implementation, and that many unresolved issues remain.

The authors wish to reiterate that the purpose of this report is neither to criticize or promote, but to describe and document lessons learned, effective practices, training recommendations and

unresolved issues pertaining to appropriate management response (AMR) that existed at the time this report was written. The Wildland Fire Lessons Learned Center can best serve the fire community by getting these initial impressions before AMR subject matter experts (SMEs) and the people responsible for AMR policy, so that they may consider the information provided here, and address the elements of this report requiring their attention.

Some issues, identified in this report, may already be on the radar, while others may not. However, the first priority of the Center is to get information into the hands of the people that make policy, conduct training, and lead people, because nearly all the content of this report pertains to either, the pre-planning, assessment, implementation, or follow-up aspects of AMR.

This report can help the wildland fire community learn from experience, capture and spread knowledge, share information, and purposefully modify both policy and action on the ground in ways that reflect the experience of those who managed fires in the Northern Rockies in 2007. The LLC intends to carry out additional collection efforts related to AMR in the future to further develop the themes, issues, and trends contained in this initial impressions report.