

**National Multi-Agency Coordinating Group
(NMAC)
Strategic Plan
For
Wildland Fire Radio Communications**

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**NMAC Strategic Plan
For
Wildland Fire Radio Communications**

SIGNATURE PAGE

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Date

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Date

The National Multi-Agency Coordinating Group (NMAC) activated an Area Command (AC) Team to take the Fire and Aviation Safety Team (FAST) report of August 15, 2005 and create short-term recommendations and a long-term strategic plan for NMAC to address the issues.

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EXECUTIVE SUMMARY

As a result of increasing reports of communications issues reported through the SAFENET system, the National Multi-Agency Coordinating Group (NMAC) chartered a Fire and Aviation Safety Team (FAST) to more closely examine the emerging issues regarding radio communications on incidents. The FAST was tasked to validate and elaborate on some of the problems being reported and bring their findings to NMAC on August 15th, 2005.

The Fast Report highlighted three areas: narrowband versus wideband conflicts; users incorrectly using their radios; and poorly maintained radios. While Federal agencies were mandated to transition to narrowband after the first of the year many radio’s were not properly changed to narrowband and were still operating in wideband. This caused problems throughout the nation with radios and repeaters not receiving each other in fire initial attack and other times. It was especially noticeable in air to ground communications with aircraft in wideband mode and ground forces in narrow band. Similar issues arose when firefighters were issued radios without instructions on their use. They simply did not know what mode they were operating in. Another major finding was the lack of maintenance that had been done to radios in the field. Narrowbanding requires frequent tuning and other maintenance check to ensure that they remain with in tight tolerances.

An Area Command Team was asked to develop a Strategic Plan providing short and long term solutions, such as, raising awareness of the issues, indicators and consequences of the conversion, additional training and/or certification for radio technicians and users, and initiating a comprehensive radio communications strategy for all wildland firefighting cooperators including federal, state and local fire departments

and private contractors. The recommendations provided will improve firefighter safety by facilitating enhanced user knowledge and a reliable, functional radio system.

Even though there are challenges in the different radio technologies, firefighters have maintained situational awareness, followed risk management practices and continue to provide for firefighter and public safety. No firefighter injuries have been linked to these issues surrounding radio communications. The issues generally focus on programming, training and maintenance of radios and radio systems.

BACKGROUND

Congress mandated a restructuring of the Federal Radio Frequency Spectrum requiring Federal Agencies to transition to narrowband FM frequencies by January 1, 2005. In some cases this transition to narrowband frequencies requires extensive conversion or replacement of radio equipment. In other cases, firefighters must be thoroughly trained in the operation of new equipment and how the narrowband and wideband radios can work compatibly.

State, local, and cooperating agencies are not required to transition until 2013, though many have implemented or started the transition process. The transition of the cooperators is a critical component of overall wildland fire response. The difference in narrowband standards between federal and non-federal cooperators responding to wildland fire makes communication more difficult.

The FAST gathered information from over 70 sources including personnel on wildfire incidents, dispatch centers and the National Interagency Incident Communications Division (NIICD) at the National Interagency Fire Center. The FAST findings validated radio communication problems on incidents. These problems included inadequate radio training for firefighters, equipment conflicts and maintenance issues. NMAC decided immediate action was necessary given the safety implications of inconsistent radio communications on incidents.

NMAC activated an Area Command Team to review the FAST finding and create short-term recommendations and a long-term strategic plan for NMAC to address the issues. Area Command Teams are experienced and skilled in working with complex issues, have a working knowledge of the incident management system, are intimate with the various partners and contractors involved in fire management, and can create “big picture” practical recommendations that could be implemented by all the federal, state, and local agencies and organizations involved.

The transition to narrowband radio systems has impacted the wildland fire community and their ability to work together on an interagency basis to fight wildfires. Each agency is currently planning executing and funding the transition independently. This has created inconsistent radio communications on incidents requiring immediate action due to the safety implications.

The conflicts identified have a direct effect on all Wildland fire agencies including Federal, state, tribal and local governments. Therefore, all research, solutions and guidance will involve all agencies involved in Wildland fire operations.

The narrowband conflicts identified directly effect the wildfire firefighting core commitment to safety within the principals of LCES. The resolution of these issues is critical for firefighter safety so radios used in wildland firefighting operations are compatible.

PROBLEM STATEMENT

In implementing the federally mandated conversion to a narrowband radio system, conflicts surfaced during fire season because of the technological differences between the narrowband and wideband systems which disrupted radio communications. The root causes of these issues were found to be in training, maintenance and information sharing.

Contributing to the problems were the policy, organization, oversight and management of fire line communications. Direction and oversight for actions such as; protocols for maintenance, purchasing standards, qualifications for radio maintenance personnel and equipment for radio maintenance personnel varied by location and agency.

The absence of National policy and leadership leaves a void in determining the future of wildland fire line communications.

GOALS

The primary goal for all the actions displayed in this plan is to provide for firefighter and public safety. This overarching goal is broken down into supporting goals below and specific actions within this plan.

To increase firefighter awareness of the narrowband incompatibility, programming, maintenance and mitigation measures which improves firefighter safety by facilitating a reliable, functional radio system.

To increase agency management awareness of communication issues surrounding the federal conversion to narrowband radio.

To develop National Interagency policy, leadership and direction for fire line communications. It is essential all cooperators from are included in the development of national policy.

OBJECTIVES

Short Term:

Increase the understanding of affected parties (see listing page 14) regarding narrowband/wideband issues to know capabilities of radios being used, indicators to recognize problems and ways to temporarily mitigate the problems.

Increase understanding and professional development training regarding radio issues to ensure proficiency of radio technicians in all Wildland fire agencies to improve radio communications.

These short term actions are those that will be completed or at least initiated by the Area Command Team prior to their release. These actions may be initiated without meeting all training standards; however these actions are necessary to improve firefighter safety and efficiency.

Long Term:

These objectives, although similar to the short term objectives are different in detail, scope and application. Long term objectives are designed for much more permanent resolutions and will require oversight and leadership at the national level.

- Increase the understanding of key stakeholders and target audiences regarding issues to ensure proper maintenance and upgrades.
- Increase understanding, and professional development training, regarding radio issues to ensure proficiency of radio technicians in all Wildland fire agencies to improve radio communications.
- Provide key stakeholders involved in Wildland firefighting with a single comprehensive strategy and a process to report and provide oversight for radio communications issues.
- Define the level of radio coverage, from a risk management standpoint, that would be acceptable by all key Wildland fire stakeholders.

ISSUE IDENTIFICATION UPON WHICH ACTIONS WERE BASED

In order to implement the strategic plan, several short and long-term actions must be employed. These actions are described in brief in the action plan and in detail in the appendix.

Some of these actions are independent, the Area Command Team set preliminary priorities based on the overall goal of improving firefighter safety.

Consistent Issues Identified:

- User Centered
 - At times radios were issued with little or no training for firefighters. This occurred at most levels of most organization
 - Employees were unaware or uninformed of the national federal mandate to use narrowband radios.

- Technical Centered
 - At times radios were put in service without operator's manuals or reference materials to enable maintenance or programming
 - Battery life was often less than expected for some models.
 - Wideband radios may not be compatible with narrowband equipment. This is dependent upon tuning, maintenance and other factors.
 - Most radios in service are not maintained by the NIFC radio shop. These radios are maintained by local radio technicians which could be either contract or agency. There is no standard protocol for this maintenance.
 - Few interagency radio maintenance facilities exist.
 - Existing narrowband capable equipment being used by wildland fire agencies is not being properly programmed tuned or maintained to meet specifications or tolerances required in the narrowband mode in all cases.
 - The alternatives for cross-banding, mixed mode operations need to be explored. For instance, a "gateway" device can be used that can allow different radio modes to communicate.

- Management Centered
 - ISO/CIO may not fully understand radio communication needs of Fire & Aviation Management. Recommendations or solutions will need to have the support of the ISO (Information Services Organization) CIO (Chief Information Officer) in order to be implemented.
 - There are numerous affected user populations, all of which have different needs, objectives and issues. Highlighted among these are some commonalities such as training and educating users, maintenance and replacement of equipment, addressing narrowband effects, communicating and coordinating with cooperators, and reliability and usability.
 - Wildland fire radio communications are not always compatible with radio communications established by other Departments and agencies such as the Department of Homeland Security that involves structure fire cooperators being funded to move to the 800 frequencies and trunking..
 - There is no tracking process in place to determine what the current conversion status for other agencies and states that have firefighting or fire management responsibilities such as FEMA, Department of Defense, State agencies and local fire response agencies.
 - Management oversight of radio training and maintenance is inconsistent.
 - There is currently no process for recertifying, or updating individuals trained in incident communication positions (i.e. COML, COMT, etc.) on the new narrowband system. As a result, inadequate knowledge or

unfamiliarity with the new system could cause communication issues on an incident.

- Individuals who have been through training in communication positions prior to the implementation of narrowband are being sent to assignments not being aware of the incompatibility issues surrounding the new system. As a result, they are unable to effectively perform their job duties.

SHORT TERM ACTION PLAN

Due Date	Activity	Purpose	Who Responsible	Completed
August 22	Validate FAST issues by conducting spot surveys	To expand survey relevancy nationally.	AC Team 4	August 22
August 22	Review communication issues discovered through the SAFENET and SAFECOM's system's	To validate and categorize issues presented by FAST	AC Team 4	August 22
August 23	Develop a Safety Advisory	To educate wildland fire community of potential issues	AC Team 4	August 24
August 24	Narrowband Talking Points	For public affairs to use to simplify explaining comm. issues	AC Team 4	August 24
August 25	Aviation Technical Alert regarding narrowbanding	Educate aviators about the narrowband issues	AC Team 4	August 25
August 28	Develop Strategic Communications Plan	Provide guidance for implementing recommendations	AC Team 4	August 30
August 28	Develop narrowband incompatibility/alternate communications pocket card	To raise firefighter awareness of indicators of comm. problems & other methods of comm..	AC Team 4 & NIFC support	August 28
August 28	Examine & document agency policies concerning communication requirements	Determine level of radio coverage needed	AC Team 4	August 28
August 28	Revisions of ICS Forms	Update forms to reflect comm. changes	AC Team 4	August 28
August 30	Review existing NASF & NFPA surveys.	Evaluate radio compliance of local and rural fire departments	AC Team 4	August 28
August 29	Develop a state forestry agency radio communication survey	Evaluate status of narrowband transition in state forestry agencies	AC Team 4	August 28
Sept. 1	Develop protocols to evaluate compatibility & programming capability	To provide consistency with all end users	AC Team 4	August 28

Sept. 1	Develop protocols to determine band conflicts	To help end users assess issues and trouble shoot	AC Team 4	August 29
Sept. 1	Develop process for disseminating information to all end users about radio issues & providing a feedback mechanism	To help improve continuity and information flow between all wildland partners	AC Team 4	August 28
Sept. 1	Develop a training outline	To improve end user understanding & knowledge of narrowbanding	AC Team 4	August 30

LONG TERM ACTION PLAN

Recommended Priorities	Name	Activity	Purpose	Lead
1	Fire Season 2005 Field Training	Fire season 2005 field training	Provide training to fire line personnel prior to the end of the 2005 fire season	Agencies NIICD
2	Interagency Communications Working Group	Establish or reenergize an interagency working group to oversee communications issues and take place of NWCG Working Group for Communications	Provide more knowledge of end user abilities, needs, etc.	NWCG
3	Annual Electronic Equipment Inspections and Testing Protocol	Develop protocols for annual inspection/software upgrade by radio technician and protocol to set standards for radio technical support. Additionally develop protocols for periodic end user radio inspections to determine the need for maintenance (tuning, band conflict, etc.)	To provide guidance to the radio technical and user community to ensure radios are properly maintained and compliant with most recent changes update.	Agencies
4	List of Narrowband Compatible Radios	Develop an equipment list of radios that are narrow band capable	A guide to help radio techs on narrowband radios	NIICD
5	Radio Problem Reporting System	Develop protocols & Implement a system for end user support, reporting problems & technical assistance	Improve communications between cooperators	NWCG WT
6	Annual Communications Refresher	Develop an e-learn/web based program to allow users and annual refresher/cert for radio operators	To educate radio operators on latest technology changes	NWCG
7	Radio Technical Support	Develop protocol to set standards for radio technical support (training, kits, etc.) Review & clarify ICS positions related to communications for relevancy	Ensure radio techs have proper equipment, tools and knowledge needed for all radio tech support. Review qualifications	NWCG WT

			system to determine if changes are needed	
8	Distribution of Safety Alerts	Develop protocols to distribute technical, user alerts & safety information	Help get the word out about issues regarding radio	NMAC
9	Workload Analysis	Review current workload capacity of maintenance, training & mgmt. (purchase & replacement) of radio system to determine level of support.	Determine future radio support needs for all end users	Agencies
10	Radio Management Hierarchy	Identify & display radio management hierarchy for planning, purchase, mgmt, training and inter/intra agency coordination.	Identify appropriate managers and individuals to contact for radio information	Agencies
11	Coordination with Fire Departments	Continue and improve coordination with fire departments	Ensure adequate communications	NMAC/NFAEB/W FLC/Agencies
12	State Forestry Survey	Conduct survey of State forestry Agencies produced by the Area Command Team	Evaluate status of narrowband transition and interoperability issues in state forestry agencies	NWCG
13	Fireline Communications of the Future	Develop and research the full range of fireline communications with the goal of identifying challenges and providing solutions	Set direction for the future of fireline communications considering all users, Federal, State & Local	NMAC/NFAEB/W FLC or other national oversight group to assign to an ad hoc committee
14	Standard Contract Language	Develop standard contract language for all engine and crew contracts	Ensure contract resources have proper radio communications equipment	Agencies/NMAC

15	Incident Radio Coverage	Develop standards for adequate radio coverage on incidents	Ensure adequate and reasonable radio coverage on incidents	NWCG WT
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EVALUATION and MONITORING

Existing systems are adequate to provide monitoring and evaluation. These systems include the SAFENET and SAFECOM systems, FAST deployment and reports, ASTAT deployment and reports and field visits by fire management leadership at all levels of all agencies.

Additional evaluation may be required by the communications plan in appendix A. NMAC should consider activating teams to review implementation and determine effectiveness of the actions set forth in this document. On site visits, review of web sites and personal observations should be employed,

AFFECTED PARTIES

Primary Wildland Fire Agencies:

- U.S. Forest Service
- Bureau of Land Management
- National Park Service
- Bureau of Indian Affairs
- U.S. Fish and Wildlife Service
- State Forestry Agencies
- Local Fire Response Entities

Secondary Federal Wildland Fire Agencies:

- Federal Emergency Management Agency
- Department of Homeland Security
- Department of Defense
- U.S. Coast Guard
- U.S. Fire Administration

Secondary Wildland Fire Agencies:

- National Fire Protection Association
- National Guard
- Other State Agencies

Private Contractors

APPENDICES

Appendix A
Communications and Outreach Plan

Appendix B
Briefing Papers

Appendix C
Field Reports
FAST Preliminary
Northern Rockies ASTAT Report
Great Basin ASAT Report

Appendix D
SAFECOM and SAFENET

Appendix E
ICS Forms

Appendix F
Sample Survey

Appendix G
6 minutes for Safety

Appendix H
Safety Bulletins, Test, and Video