MINNESOTA WILDLAND/URBAN

INTERFACE GUIDELINES

Draft 12/02/10

COMMUNICATIONS COORDINATION SAFETY

Working Draft – 12/02/10

Minnesota Wildland/Urban Interface Guidelines

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Introduction and Purpose

The purpose of these Guidelines are to provide information and some management tools that fire departments and wildland fire agencies can use to be more effective in fighting wildland and wildland/urban interface fires. The wildland/urban interface is a zone where human-made improvements intermix with wildland fuels. This includes housing subdivisions in pine plantations, the single cabin in remote forests, farms with grasslands up to the buildings, homes around a nature park in the city, etc.

These Guidelines were developed after several large wildland/urban interface fires that occurred in the northern Twin Cities metro area. Due to some misunderstandings and the desire to have a more coordinated response to wildland/urban interface fires, a task force composed of fire chiefs from the north metro fire departments and wildland fire agency personnel was formed and met over a two year period to resolve issues and develop these Guidelines. The goals of the task force are that the Guidelines will remain as a working draft, will be updated as new information or procedures are implemented, and that these Guidelines be distributed statewide.

Although these Guidelines were developed to resolve some issues in the north metro area and some of the examples are specific to the north metro, efforts where made to ensure that the Guidelines can be applied statewide. It is recognized that many of the out-state fire departments and the local wildland fire agencies already have a good working relationship and may be applying many of the principles in the "Minnesota Wildland/Urban Interface Guidelines."

Stages of Wildland and Wildland/Urban Interface Fires

Initial Attack – The initial response to the fire by a fire department and/or the local wildland fire agency and may include normal mutual aid departments and/or wildland firefighting aircraft. Successful initial attack controls the fire in the first day of operations. The initial attack unified incident commanders would likely remain in charge throughout the incident.

Extended Attack – Occurs when the wildland fire is not or is likely not to be controlled in the first day of operations and/or fire suppression is complicated by high losses, the need for evacuation, the need for a large number of firefighting resources, or other complicating factors. Command should be transferred to a more experienced incident commanders or the initial attack incident commanders, if qualified, must "pull back" from directing fire suppression tactics to develop strategies and plans to deal with the entire incident and prepare for the next operating period. Operations section chiefs should be appointed to direct tactical operations. It works best to have an operations person from the wildland fire agency and the fire department working together to direct firefighting operations. Unified command should be established if it was not established in the initial attack phase. Evaluate if other jurisdictions or agencies should be included in the unified command.

Project Fire – A large fire, a fire with complicating factors, or a complex of a number of smaller fires that will not be controlled within a couple of days and will require more resources than available locally. This can include wildland/urban interface fires that threaten many structures or wildland fires that will require many days of extensive mop-up or overhaul. An incident management team should be ordered to manage a project fire or other large scale incidents if, maintaining management by the local units, would prevent them from carrying out normal initial responses or places undue financial or staffing pressures on the local fire department or wildland fire agency. The incident management team incident commander will likely form a unified command with local officials. (See organization charts on pages 9 & 10.)

Transition – The process and period of time when the response changes from one stage of attack to another, such as from initial attack to extended attack. Transitions are a dangerous period of time. Extra effort must be made to ensure that all firefighters are aware of the situation and briefed on any changes to the strategy or tactics. It is necessary that the incident commander being replaced must

provide a through briefing to the incoming IC and should remain on the incident to handle operations or act as an assistant to the new incident commander.

Unified Command - The organizational structure shown in this plan will be used on all wildland/urban interface fires in the state of Minnesota. This structure includes forming a unified command organization on all wildland/urban interface fires. At the initial phase of the fire, the Unified Command would include the local wildland fire agency Incident Commander and local Fire Chief. As the fire builds, additional personal may be added to this unified command structure, such as, the local sheriff or deputy sheriff, police chief or deputy, and fire chief or officer from any additional fire department jurisdiction into which the fire has burned. All those in the Unified Command shall be "joined at the hip" and will be planning all strategy and tactics for the incident. Once a fire has reached the extended attack phase, the Unified Command should appoint an Operations Chief to continue directing firefighting operations. The operations section will answer to the Unified Command organization. The Unified Command and the Operations Section need to be established early in the incident, to ensure that all activities can be accomplish.

Overlapping Jurisdictions- On wildland fires, there are overlapping jurisdictions. Both the Fire Chief and the wildland fire agency officials have jurisdiction on wildland fires. Unified command serves the needs of these overlapping jurisdictions and responsibilities.

Fire Chiefs Authority - MUFC 104.1.1; (IFC 104.11) General. Chief at scene of fire or other emergency involving the protection of life or property shall have the authority to direct such operation as necessary to extinguish or control any fire, perform any rescue operation, investigate the existence of suspected or reported fires, gas leaks, or other hazardous conditions or situations or of taking any other action necessary in the reasonable performance of duty. In the exercise of such power, the chief is authorized to prohibit any person, vehicle, vessel or thing from approaching the scene and is authorized to remove or cause to be removed or kept away from the scene any vehicle, vessel or thing which could impede or interfere with the operation of the fire department and in the judgment of the chief, any person not actually and usefully employed in the extinguishing of such fire or in the preservation of property in the vicinity thereof.

Authority of State (DNR) Forest Officers. (MN. Stat. 88.10) Subd. 1. General authority. Under the direction of the commissioner, forest officers are charged with preventing and extinguishing wildfires in their respective districts and the performance of such other duties as may be required by the commissioner. They may arrest without warrant any person found violating any provisions of DNR statutes.

All authorized state forest officers, fire wardens, conservation officers, smoke chasers, fire supervisors or individuals legally employed as firefighters, may in the performance of their duties of fire fighting go onto the property of any person, company, or corporation and in so doing may set backfires, dig or plow trenches, cut timber for clearing fire lines, dig water holes, remove fence wires to provide access to the fire or carry on all other customary activities necessary for the fighting of wildfires without incurring a liability to anyone, except for damages arising out of willful or gross negligence.

Incident Types

Incidents may be typed in order to make decisions about resource requirements. Incident types are based on the following five levels of complexity.

Type 5	§ The incident can be handled with one or two single resources with up to six personnel. § Command and General Staff positions (other than the Incident Commander) are not activated. § No written Incident Action Plan (IAP) is required. § The incident is contained within the first operational period and often within an hour to a few hours after resources arrive on scene. § Examples include a vehicle fire, an injured person, or a police traffic stop.
Type 4	§ Command staff and general staff functions are activated only if needed. § Several resources are required to mitigate the incident. § The incident is usually limited to one operational period in the control phase. § The agency administrator may have briefings, and ensure the complexity analysis and delegation of authority are updated. § No written Incident Action Plan (IAP) is required but a documented operational briefing will be completed for all incoming resources. § The role of the agency administrator includes operational plans including objectives and priorities.
Type 3	§ When capabilities exceed initial attack, the appropriate ICS positions should be added to match the complexity of the incident. § Some or all of the Command and General Staff positions may be activated, as well as Division/Group Supervisor and/or Unit Leader level positions. § A Type 3 Incident Management Team (IMT) or incident command organization manages initial action incidents with a significant number of resources, an extended attack incident until containment/control is achieved, or an expanding incident until transition to a Type 1 or 2 team. § The incident may extend into multiple operational periods. § A written IAP may be required for each operational period.
Type 2	§ This type of incident extends beyond the capabilities for local control and is expected to go into multiple operational periods. A Type 2 incident may require the response of resources out of area, including regional and/or national resources, to effectively manage the operations, command, and general staffing. § Most or all of the Command and General Staff positions are filled. § A written IAP is required for each operational period. § Many of the functional units are needed and staffed. § Operations personnel normally do not exceed 200 per operational period and total incident personnel do not exceed 500 (guidelines only). § The agency administrator is responsible for the incident complexity analysis, agency administrator briefings, and the written delegation of authority.
Type 1	§ This type of incident is the most complex, requiring national resources to safely and effectively manage and operate. § All Command and General Staff positions are activated. § Operations personnel often exceed 500 per operational period and total personnel will usually exceed 1,000. § Branches need to be established. § The agency administrator will have briefings, and ensure that the complexity analysis and delegation of authority are updated. § Use of resource advisors at the incident base is recommended. § There is a high impact on the local jurisdiction, requiring additional staff for office administrative and support functions

(Source: U.S. Fire Administration)

[See attached Organizational Charts for additional information]

Purpose

To coordinate unified fire suppression response to urban wildfire interface areas

Intent

- Increase Safety
- Increase Efficiencies
- Coordinate local fire and community resources with MNICS[11] air and ground resources

Components of Wildfire Event that Warrant a Structured Incident Command

- ICS (Incident Command System) should be used on every incident, regardless of size or type
- Extended suppression phase of wildfire incident
- Fire department mutual aid required for large incidents
- Resource intensive
- Multi-agency support required for large events
- Potential for incident to extend for a large number of days
- High or Extreme fire danger indices

Incident Management

Incident Management will be coordinated by using the National Incident Management System (NIMS.)

The National Incident Management System has been used and applied by agencies in a number of ways, but this document will outline the standard for managing a large wildfire in an urban interface area or region.

The command function is incident determined. During a single jurisdiction event the incident command organization should be established by the local fire jurisdiction. A unified command structure or system shall be established for all incidents.

As the incident increases in size and intensity involving a larger number of local fire departments and other agencies, the wildland fire agency may provide an extended attack Incident Commander who will help manage and coordinate the response to the situation. (See attached incident management organizational chart).

It should be noted that both the local fire departments and the wildland fire agency have responsibilities for wildfire suppression. The DNR, Division of Forestry's jurisdiction extends statewide on state and private lands. Federal wildland fire agencies have jurisdiction on Federal lands managed by their agency.

[1] MNICS stands for the Minnesota Incident Command System, an organization for incident response with members from the MN DNR Forestry, U.S. Forest Service, U.S. Fish & Wildlife Service, BIA, National Parks Service, and MN HSEM.

Strategic Planning

The Incident Commanders within the unified command system should do the strategic planning for an incident and develop a single set of incident objectives that will be used by all incident personnel. The unified command will include a Chief Fire Officer or designee, wildland fire agencies designee, and a local police or sheriff representative. The unified command staff will be located at one site.

Tactical Planning

When a MNICS Incident Management Team is working on an incident, the MNICS Operations Chief and the local Fire Chief or designee shall conduct tactical planning and implementation cooperatively. Note that for all incidents there will be one Lead Operations Chief and one Deputy Operations Chief as decided between the two representatives conducting the tactical planning. The two operations officers shall always be in communications with each other.

Operations

See the attached enclosed list of terminology to be used for all wildfire incidents.

Geographic divisions and functional group supervisors of the incident shall be identified and should continue to communicate with each other.

All communications shall be conducted on assigned frequencies as determined by the Incident Commander. The wildland fire agencies and fire departments, through regional associations or mutual aid associations should have pre-arranged list of available frequencies that could be used during the wildfire incident.

All air operations shall be conducted using the guidelines enclosed with this packet.

All vehicles used for wildfire suppression are encouraged to use identification with the appropriate numbers and letters on top of the vehicles so that air support can identify what vehicles are involved on the scene. (See examples included with this packet).

Local fire departments or districts shall have a large number of current jurisdiction maps available at all times.

Project Fires or other Large Incidents

When a wildland or wildland/urban interface fire is likely to exceed the resources available locally, a MNICS Interagency Incident Management Team should be ordered. (See "Minnesota Incident Management Team" information on page 20, "Team Support" and briefing forms on pages in the Appendix A.) Early recognition of the need for an Incident Management Team will save time and money.

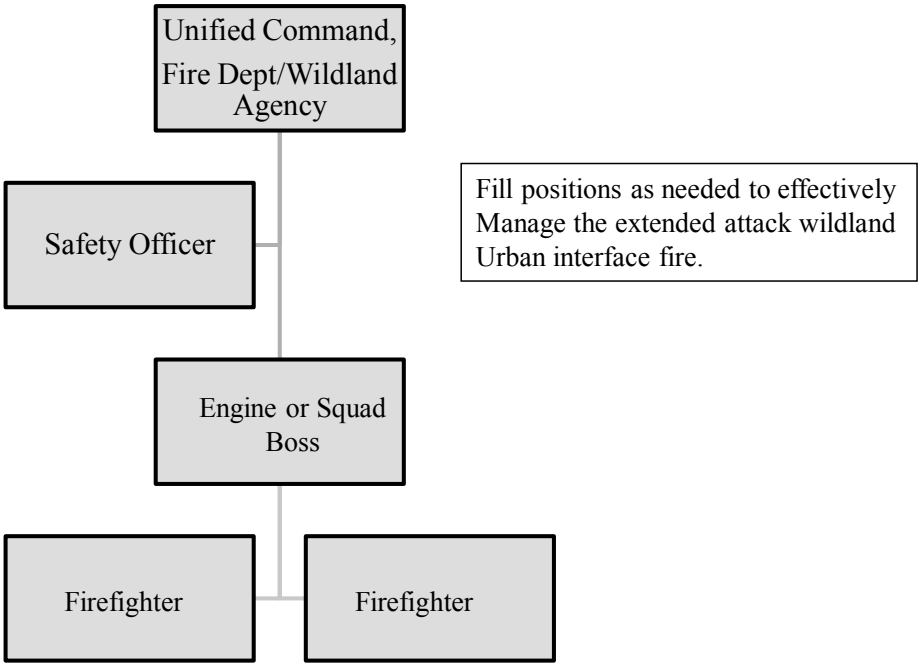
MNICS Incident Management Teams may be requested through:

1. local wildland fire agency's dispatch centers (preferred method)
2. Minnesota State Duty Officer [Phone # 800-422-0798 or 651-649-5451 (metro)].

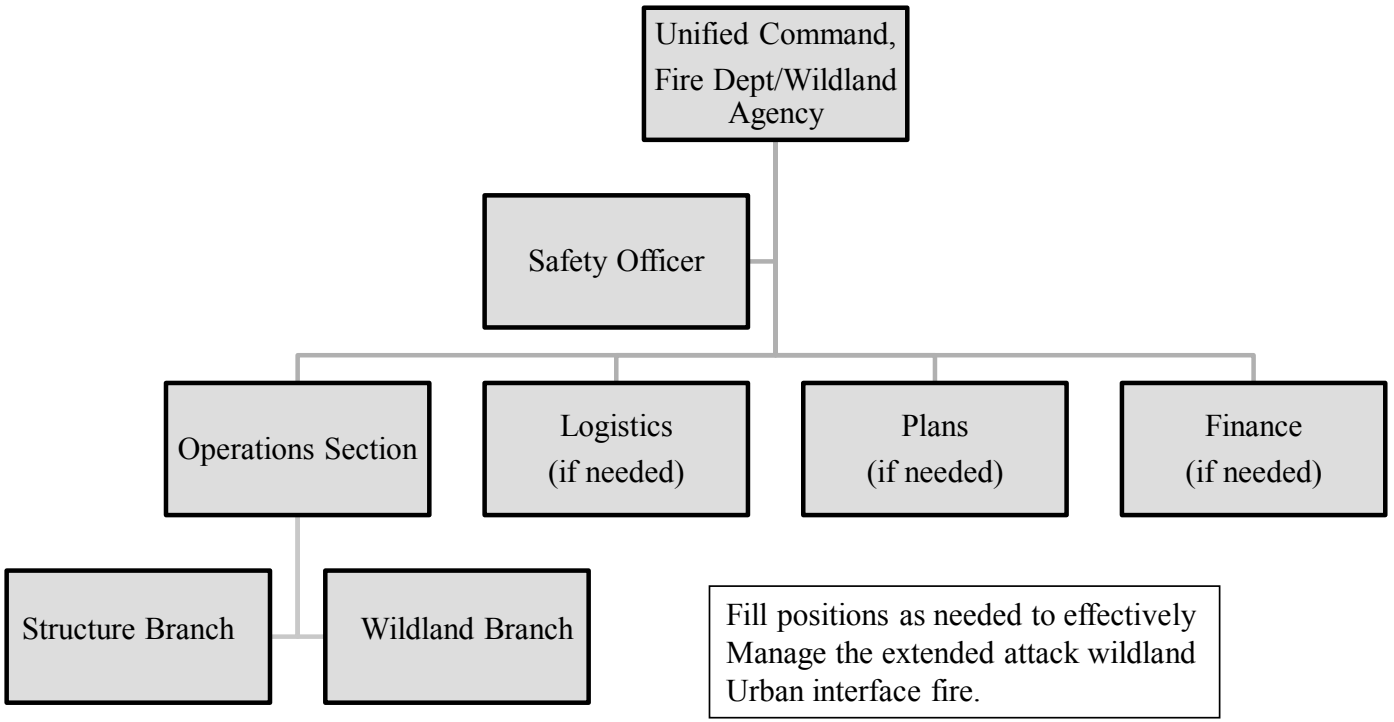
On wildland or wildland/urban interface fires, there are no costs to the fire department or local governments.

Examples of Unified Command Structures for Wildland/Urban Interface Fires

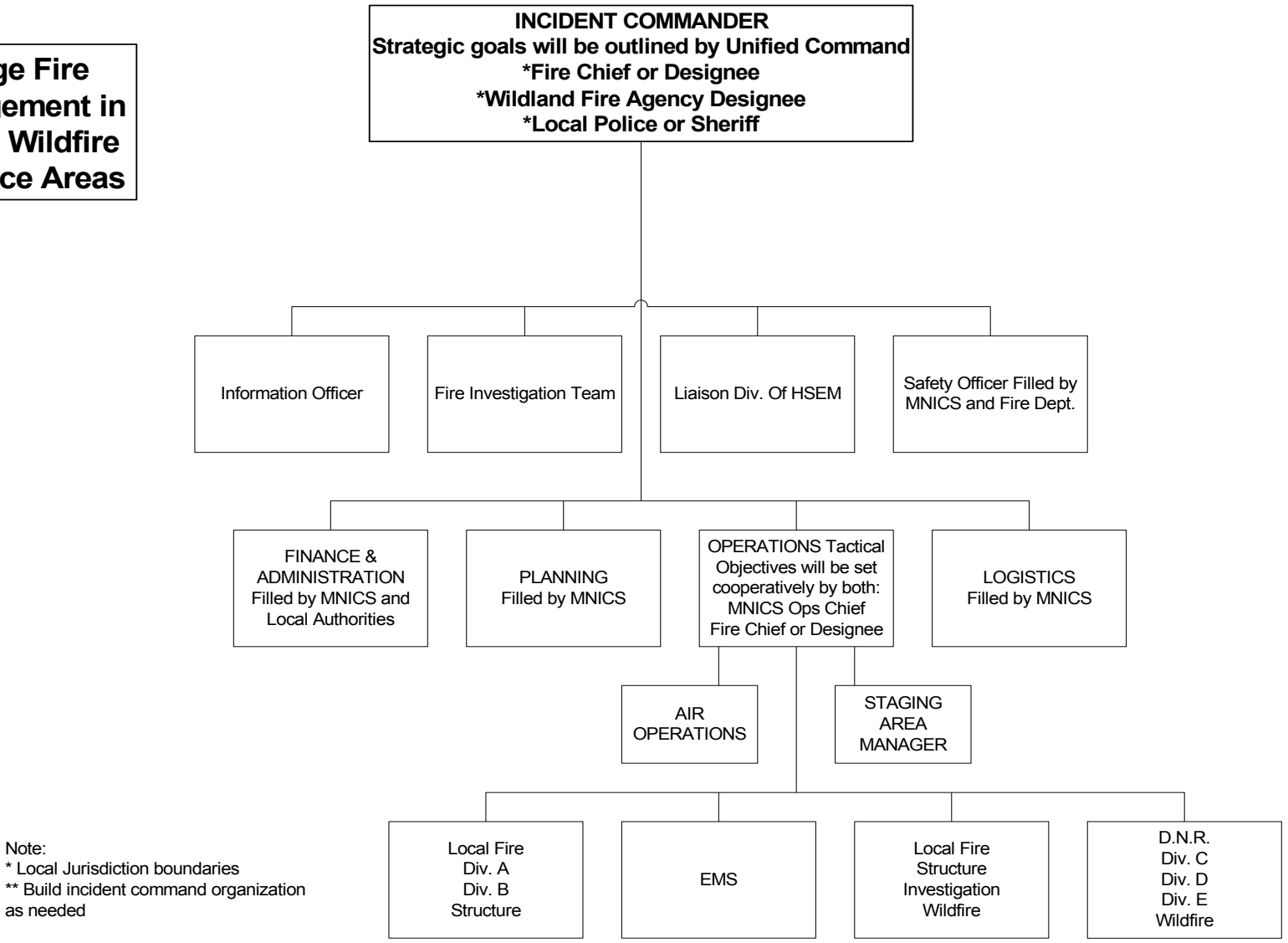
Initial Attack Organization



Extended Attack Organization



Large Fire Management in Urban Wildfire Interface Areas



Note:
* Local Jurisdiction boundaries
** Build incident command organization as needed

Delegation of Authority:

An incident management team, whether it is the MNICS type 2 IMT or the Minnesota All-Hazard type 3 IMT will require a Delegation of Authority or a Request for Assistance, signed by a person that has the authority to commit their agency to costs. On wildland fires, the Delegation of Authority would be signed by a manager in the DNR Forestry organization. For all-hazard events, it would likely be the mayor, city manager, or the fire chief if he or she has been delegated the authority.

Example of Request for Assistance form:

LOCAL JURISDICTION REQUEST
FOR ASSISTANCE
for the
MNICS INCIDENT MANAGEMENT TEAM

I, _____ as the responsible
(Name of person having local authority)

Authority for _____, do hereby request
(Local Jurisdiction)

_____, as the MNICS Incident Commander,
(Team Incident Commander)

to do the following assignments during the Incident: (Tasks of support that the local jurisdiction authorizes the team to do and any restriction under which the team shall operate.)

Authorizing Signatures:

Local Authority: _____

Team IC: _____

Date and Time: _____

Expiration Date (if any): _____

Communications Network for Reporting Local Fire Conditions

Each local jurisdiction is encouraged to work with their wildland fire agency to establish a network of communications for reporting local fire conditions

- The use of faxes and e-mails is encouraged in order to provide current and reliable information
- A phone calling "tree" could be established and used to communicate extreme fire conditions in the region
- A wildland fire agency contact person should be assigned to gather and disseminate all wildland fire related information
- Local or regional communication centers could page fire departments with fire information and available wildland fire resources
- Each communications center should have direct contact with local wildland fire agency staff, using a pager or cellular phones
- Check D.N.R. web site (www.state.mn.us/forestry/fire/) or other web sites recommended by your wildland fire agency for current information on weather, fire conditions, fire numbers and size, and aircraft status.

Radio Frequencies for Wildfire Suppression Only

System Capabilities vary with each agency, but as a whole, there is only limited equipment capable of operating on multi-agency frequencies in operation now.

Fire departments and wildland fire agencies are encouraged to grant authorization to use each other's radio frequencies when working together on wildland fires. All of the wildland fire agencies have Statewide Fire Mutual Aid, 154.295 mhz, programmed in their radios, however, they may not always be monitoring this frequency.

Minnesota DNR – Forestry System

All mobile and handheld radios are 240 channel wide/narrowband analog synthesized radios. MNICS frequencies and other interagency frequencies have been programmed to facilitate interagency communication.

MIFC has two Communications trailers that may be used on any incidents. The radio cache consists of 300 king programmable handheld radios and 100 king mobile radios with 15 groups, 16 channels with scanning capability; 4 Daniels command repeaters - (C1 & C2) along with 2 spare units set up with national fire frequencies; two communications trailer and 2 crank-up towers. These radio kits are available by contacting MIFC Dispatch. If communications is not set up or operational on an incident, resources should not be deployed.

The State of Minnesota also has built out the 800 Mhz system in the Metro, Rochester, St. Cloud and other outstate areas as they change over to the 800 Mhz format. To keep in contact with the various local Fire Departments and other county agencies, the Fire Center has procured a small cache (24) of these portables for use. We will be using the Motorola model XTS-2500 portables to work with any of the entities that have migrated onto this system.

MINNESOTA DNR FORESTRY RADIO FREQUENCY LISTING

Use/Locations		Receive	Tone	Transmit	Tone
	Tactical 1 {W.B.}	151.475		151.475	
	Air-to-Ground	151.340*		151.340	
	Tac 2/MNICS	170.475*		170.475	
	Fire Mutual Aid {W.B.}	154.295		154.295	
	Statewide	151.415*	103.5	151.415	103.5
Bemidji/Bagley Simplex		151.265*	136.5	151.265	136.5
	Bagley Rpt	151.265*	136.5	159.270	136.5
	Jugglar Lake Rpt	151.265*	136.5	159.270	103.5
	Leech Lake Rpt	151.265*	136.5	159.270	192.8
	Trail Rpt	151.265*	136.5	159.270	146.2
Warroad Simplex		151.385*	127.3	151.385	127.3
	Lake Bronson Rpt	151.385*	127.3	159.435	146.2
	Roosevelt Rpt (Warroad)	151.385*	127.3	159.435	103.5
	Grygla Rpt	151.385*	127.3	159.435	156.7
	Wannaska Rpt	151.385*	127.3	159.435	118.8
	Middle River	151.385*	127.3	159.435	127.3

Use/Locations		Receive	Tone	Transmit	Tone
Baudette/Blackduck Simplex		151.325*	127.3	151.325	127.3
	Kelliher Rpt	151.325*	127.3	159.315	127.3
	Roosevelt Rpt (Baudette)	151.325*	127.3	159.315	146.2
	Border Rpt (Baudette)	151.325*	127.3	159.315	82.5
	Blackduck Rpt	151.325*	127.3	159.315	71.9
	Northhome Rpt	151.325*	127.3	159.315	118.8
Park Rapids/DL Simplex		151.385*	136.5	151.385	136.5
	Wolf Lake Rpt	151.385*	136.5	159.435	136.5
	Leech Lake Rpt	151.385*	136.5	159.435	210.7
	Eagle Lake Rpt	151.385*	136.5	159.435	107.2
Cloquet Simplex		154.430*	103.5	154.430	103.5
	Arrowhead Rpt	154.430*	103.5	159.3675	167.9
	Meadowlands Rpt	154.430*	103.5	159.3675	110.9
	Lost Lake Rpt	154.430*	103.5	159.3675	103.5
	Mahtowa Rpt	154.430*	103.5	159.3675	82.5
Two Harbors Simplex		151.175*	103.5	151.175	103.5
	Bogus Lake Rpt	151.175*	103.5	159.465	94.8
	Isabella Rpt	151.175*	103.5	159.465	136.5
	Poplar Rpt	151.175*	103.5	159.465	156.7
	Devil Fish Rpt	151.175*	103.5	159.465	123.0
	Wales Rpt	151.175*	103.5	159.465	141.3
Little Fork Simplex		151.175*	127.3	151.175	127.3
	Little Fork Rpt	151.175*	127.3	159.465	127.3
	Birchdale Rpt	151.175*	127.3	159.465	110.9
Orr/Tower Simplex		151.265*	103.5	151.265	103.5
	Gheen Rpt	151.265*	103.5	159.270	210.7
	Sullivan Bay Rpt	151.265*	103.5	159.270	127.3
	Ely Rpt	151.265*	103.5	159.270	156.7
	Soudan	151.265*	103.5	159.270	118.8
	Giants Ridge	151.265*	103.5	159.270	82.5
Hibbing/Eveleth Simplex		151.325*	103.5	151.325	103.5
	Side Lake Rpt	151.325*	103.5	159.315	103.5
	Virginia Rpt	151.325*	103.5	159.315	94.8
	Nashwauk Rpt	151.325*	103.5	159.315	136.5
	Shaw Rpt	151.325*	103.5	159.315	167.9
Grand Rapids/Effie Simplex		151.385*	110.9	151.385	110.9
	Effie Rpt	151.385*	110.9	159.435	167.9
	Blueberry Hill Rpt	151.385*	110.9	159.435	110.9
	Nashwauk Rpt	151.385*	110.9	159.435	100.0
	Max Rpt	151.385*	110.9	159.435	141.3
	Northome Rpt	151.385*	110.9	159.435	127.3
Backus Simplex		151.175*	146.2	151.175	146.2
	Leader Rpt	151.175*	146.2	159.465	146.2
	Longville Rpt	151.175*	146.2	159.465	100.0
Aitkin Simplex		151.265*	110.9	151.265	110.9
	Quadna Rpt	151.265*	110.9	159.270	110.9
	Emily Rpt	151.265*	110.9	159.270	94.8
	Borden Lake Rpt	151.265*	110.9	159.270	123.0
Sandstone Simplex		151.385*	146.2	151.385	146.2

Use/Locations		Receive	Tone	Transmit	Tone
	Askov Rpt	151.385*	146.2	159.435	94.8
	Seavey	151.385*	146.2	159.435	162.2
Cambridge Simplex		151.325*	146.2	151.325	146.2
	Kimbal Rpt	151.325*	146.2	159.315	114.8
	Shafer Rpt	151.325*	146.2	159.315	100.0
	Arden Hills Rpt	151.325*	146.2	159.315	156.7
Rochester Simplex		151.265*	127.3	151.265	127.3
	Lake City Rpt	151.265*	127.3	159.270	117.8
	Preston Rpt	151.265*	127.3	159.270	141.3
	Dresbach Rpt	151.265*	127.3	159.270	162.2
	Alma Rpt	151.265*	127.3	159.270	100.0
Little Falls Simplex		151.400*	156.7	151.400	156.7
	Milaca Rpt	151.400*	156.7	159.375	131.8
	Onamia Rpt	151.400*	156.7	159.375	192.8
	Lincoln Rpt	151.400*	156.7	159.375	151.4
	Gilman Rpt	151.400*	156.7	159.375	162.2
	Woodland Rpt	151.400*	156.7	159.375	110.9
MIFC Fire Air Net		171.475*	open	171.475	open
	Quadna Rpt	171.475*	open	172.375	110.9
	Eveleth Rpt	171.475*	open	172.375	103.5
	Northhome Rpt	171.475*	open	172.375	127.3
	Carlos-Avery	171.475*	open	171.475	100.0
	Buffalo Rpt	171.475*	open	172.375	100.0
Nationwide Interop Frequencies					
	V-TAC 1 **(NB)**	151.1375*	156.7	151.1375	156.7
	V-TAC 2 **(NB)**	154.4525*	156.7	154.4525	156.7
	V-CALL **(NB)**	155.7525*	156.7	155.7525	156.7
	V-TAC 3 **(NB)**	158.7375*	156.7	158.7375	156.7
	V-TAC 4 **(NB)**	159.4725*	156.7	159.4725	156.7
MN Metro Interop Frequencies					
	Met-Tac A (Wideband)	159.345	156.7	153.755	156.7
	Met-Tac P (Wideband)	151.445	156.7	153.815	156.7

*Denotes narrow band status

Note: (1) Contact your local DNR representative to confirm approved frequencies in your area.

(2) The DNR form "Request and Authorization For Use of Other Radio Frequency" shall be completed and approved prior to the use of any DNR frequency. (See Appendix for Examples of the DNR radio frequency authorization forms)

(3) Appropriate training shall be completed prior to final authorization.

(4) Appropriate permission shall be granted for wildland fire agencies to use fire department frequencies.

ARMER Radio System

Since many of the counties are going to the ARMER radio system, DNR Forestry has programmed the Inter-Ops channels into their VHF radios and is purchasing 800 mhz radio for the initial attack engines.

Contact your local wildland fire agency to get authorization to use their frequencies.

Local Resources and, Equipment for Wildfires

All fire departments are encouraged to develop a complete list of local resources and equipment used for the suppression of wildfires

Examples of needed information:

- Appropriate phone numbers
- List of available fire apparatus
- Communications resources
- Portable toilets
- Local police and sheriff resources
- Available cellular phones
- Housing for firefighters
- Portable generators
- Local contractors with special equipment
- Flat tire repairs
- Incident command identification vests
- Nearby, hospitals/Ambulance service
- Landing areas for helicopters (operations and medical)
- Update fire mutual aid agreements
- Wildland fire agency local resources
- Local support agencies, Salvation Army
- Food resources for firefighters and others
- Addresses for churches and schools
- Water sources for suppression (ground, air)
- Drinking water
- Portable lights if needed
- Local transportation (buses)
- Fuel for vehicles (diesel and gas)
- Local EMS resources
- News media information- phone numbers

Other information that may be needed:

(See Detailed Local Wildfire Emergency Plan Template in Appendix B.)

Local Maps for Wildfire Control

- It is strongly suggested that all fire departments and other fire agencies have a large number of current maps available at all times
- The maps should include coverage of your entire fire district or area
- A supply of current County maps is also a good idea
- If possible create a list of GPS (Global Positioning System) locations for water supply locations such as dry hydrants and drafting sites
- Contact local wildland fire agency representatives to help with GPS coordinates and locations
- Some may want to create a map of high hazard areas of facilities to have available for the Incident Commander
- Remember that current maps and other information will be needed if the incident is to be brought under control with the minimum amount of damage and destruction

Fire Department Cooperative Fire Protection Agreements

All of the wildland fire agencies have their own version of a "Fire Department Cooperative Fire Protection Agreement." (Examples of the DNR's "Fire Department Cooperative Fire Protection Agreement" and the "Suggested Rate Table for Minnesota Fire Departments" are in Appendix A.)

Fire Departments are encouraged to enter into an Agreement with all of the wildland fire agencies that are near their fire protection district and that they may work with on wildland fires.

The Cooperative agreement allow the wildland agencies to pay fire departments for authorized wildland fire suppression, sets payment rates, and spells out special conditions.

Roof Top Fire Department Identification

Roof top identification of fire department fire engines can be an important safety tool in wildland fire suppression. On many wildland fires, especially large fires or wildland/urban interface fires, there are aircraft working for the wildland fire agency over the fire. Roof top identification can help aerial personnel identify and contact a particular engine to give directions or to warn them when they are in a dangerous location and advise them on the best escape route.

Example of the system developed for Anoka County Fire Departments.

Fire Department	Roof Top	Fire Department	Roof Top
Andover	A	Fridley	F
Anoka Champlin	AC	Ham Lake	HL
Bethel	B	Lexington	LX
Centennial	C	Linwood	LN
Columbia Heights	CH	Oak Grove	OG
Coon Rapids	CR	Ramsey	R
East Bethel	EB	SBM	SBM
Forest Lake	FL		
St Francis	SF		

Note: All letters and numbers should be of contrasting color to the roof top color of the vehicle. If the vehicle does not have a roof, the hood could be lettered. The letters should be about 15 inches in height or whatever fits the roof. Grass trucks and tankers should be lettered first. As local funds are available, rescue trucks, Chief s vehicles and others could be completed.

The following letters should be used along with the unit number.

G - Grass Truck
T - Tanker
E - Engine
U - Utility
R - Rescue
C - Chief s Vehicle
L or **A** - Ladder or Aerial Truck

The following is an example of this roof top fire department identification:

AC - G11

(Anoka Champlin Grass #11)

Wildland Firefighting Aircraft

Through the wildland fire agencies, there are a number of wildland firefighting aircraft available during normal spring and fall fire seasons and at other times when there is a likelihood of wildland fires. The types of aircraft available are:

- § Wildfire detection planes (small fixed wing air craft)
- § Helicopters with water scooping buckets and helitack crews (light & medium helicopters)
- § Wildfire retardant air tankers (P-3 Orions, etc.)
- § Single engine air tankers (SEATs) and water scooping SEATs (Fire Boss)
- § Water scooping air tankers (CL-215s)
- § Air attack platforms (aircraft with a Air Tactical Group Supervisor to direct air operations)

For further descriptions, see information in Appendix A of these Guidelines.

Aircraft Dispatch Procedures:

Firefighting aircraft may be requested through your local wildland fire agency, the local DNR forestry areas, through the County dispatch or the State Duty Officer.

When requesting wildland firefighting aircraft, provide the following information:

1. Type of aircraft needed (best done in conciliation with your wildland fire agency):
2. Requesting person:
3. Requesting agency:
4. Location: Legal description (section, township, range or GPS coordinates) and general location (distance and direction from nearest town, and landmarks easily determined from the air):

5. Ground contact: Name _____
   Radio Frequency_____
6. Fire size:
7. Fuel type:
8. Values threatened (homes, structures, natural resources, etc.):
9. Other aircraft & hazards (power lines, towers, smoke, etc.):
10. Nearest water source for helicopters or water scooping air tankers:

What Fire Departments Can Do to Assist the Helicopter Operation

- Provide good dispatch directions
- Communicate on Statewide Fire Mutual Aid (154.295)
- Inform pilot of any known hazards
    a) Other Aircraft
    b) Power Lines
    c) Towers
    d) Cables
    e) Etc.
- Assist in crowd control
- Keep all personnel out of helicopter operation area inform pilot or helicopter manager of good landing spots
    a) Dust Free
    b) Debris Free
    c) Limited Ground or Road Access
    d) Area Close to Proximity of Fire
- Inform pilot or helicopter manager of any good water sources nearby
- Set up a portable drop tank as a water source if a source is not available within 3 miles.
- Contact your local wildland fire agency officials each spring to exchange new information and maintain open communication

Water Scooping Aircraft – CL-215 and FireBoss

The lake used as a water source should be a minimum of one mile long, free of obstructions with a confirmed depth of at least seven feet. The scooping path does not have to be straight, as the aircraft is somewhat maneuverable while scooping. Factors such as wind, elevation, and surrounding terrain will have a bearing on the suitability of the water source. Less than a full load can be scooped on slightly smaller lakes. The CL-215 and CL-415 scoop at 80 knots and are on the water for about 15 seconds, covering a distance of approximately 2,000 feet.

Common Wildfire Definitions

Aerial Ladder – A power-operated ladder mounted on a special truck chassis. Also hook and ladder truck, ladder truck.

Aerial Observer – A person specifically assigned to discover, locate and report forest fires from a detection aircraft and to observe and describe conditions concerning detected fires.

Air Tanker – A fixed wing aircraft equipped to drop suppressants or retardants on a forest fire, also bomber, retardant plane.

Air Attack – A fire control operation involving the use of aircraft to drop suppressants or retardants with the objective of suppressing or retarding the spread of forest fires.

Air Tactical Group Supervisor – A person responsible for directing the coordination of more than one group of air tankers in an air attack operation.

Bombardier – See J-5

Bomber – See air tanker

Brush Rig – See slip on

Bunker Gear – See Personal Protective Clothing

Class "A" Foam – Foam intended for the use on Class "A" or woody fuels, made from hydrocarbon based surfactants lacking the strong filming properties of Class "B" foam but possessing excellent wetting properties.

Company – Any piece of equipment having a full complement of personnel.

Detection Plane – See Detection Aircraft

Detection Aircraft – An aircraft used for the purpose of discovering, locating, and reporting forest fires.

Division – That organization level having responsibility for operations within a defined geographical area. See group and sector.

Dozer Company – Any dozer with a minimum complement of two persons.

Drop Tank – A portable tank used to store water.

Engine – Any ground vehicle providing specified levels of pumping, water, and hose capacity, but with less than the specified level of personnel.

Engine Company – Any ground vehicle providing specified levels of pumping, water, hose capacity, and personnel.

Engine Boss – A wildfire term used for an engine company officer.

Federal Excess Property Program (FEPP) – The program whereby federal excess equipment is loaned to State wildfire agencies and their cooperators. The acronym is sometimes applied to the equipment itself.

Fire Command – See Incident Command

Fire Plow – A heavy-duty plow of either the share or disc type designed solely for constructing fire lines or firebreaks, commonly mounted on or towed behind dozers or crawler tractors.

F.M.A. – The acronym for the statewide fire mutual aid frequency. 154.295

Foam – The aerated solution created by forcing air into, or entraining air in a water solution containing a foam concentrate by means of suitably designed equipment or by cascading it through the air at a high velocity.

Fold A Tank – See Portable Tank

Food and Water – See Rehabilitation

Gamma Goat – An articulated off-road engine, usually Federal excess property. (F.E.P.P.)

Goat – See Gamma Goat

Grass Rig – See slip on.

Group – The organizational level having responsibility for a specific function. Also see division and sector.

Helicopter Manager – A firefighter trained in the tactical and logistical use of helicopters for fire suppression.

Hook and Ladder Truck – See Aerial Truck

Incident Commander – The individual responsible for the management of all incident operations. Also see fire command.

J-5 – A tracked low, ground pressure engine manufactured by Bombardier. Larger sizes are designated J-7, J-8, and J-9. Marsh Master and Nodwell also manufacture tracked engines.

Ladder Truck – See Aerial truck

Lead Plane – An aircraft carrying the person in charge of air attack operations over a wildfire. May also lead the air tankers on each drop on the fire line.

Marsh Master – A tracked, low ground pressure engine.

Nodwell – A tracked, low ground pressure engine

Patrol Unit – Any light mobile unit having limited pumping and water capacity. See slip on.

Personal Protective Clothing – Full protective clothing for structural firefighting consisting of a helmet, protective hood, protective coat, protective pants, gloves, safety shoes or boots, eye protection, hearing protection, self contained breathing apparatus, and a personal alert safety system.

Personal Protective Clothing (Wildfires) – Full protective equipment for wild land firefighting consists of a helmet, fire resistant shirt and trousers, unlined leather gloves, 8-inch tall leather laced boots, eye protection, hearing protection, and a fire shelter, which meet NFPA 1977.

Port-A-Tank – A portable tank used to store water.

P.P.E. – Personal Protective Equipment

Pumper – See Engine

Rehabilitation – At a structural fire incident, the organizational unit where firefighters rest and get food and water. During a wildfire incident, the actions involved in repairing wildfire and wildfire suppression caused environmental damages.

Retardant Plane – See Air Tanker

S.E.A.T. – Single engine air tanker

Sector – An organizational level responsible for a specific geographic part of an incident or a specified function of an incident. Also see division and group.

Skid Unit – See slip on unit.

Slip-On unit – A self contained unit consisting of a water tank, fire pump and hose designed for quick loading on conventional trucks. Also commonly used to refer to the resulting engine when loaded into the truck.

Spotter Plane – See Detection Aircraft

Statewide D.N.R. Radio Frequency – 151.415 Mhz., Tone 103.5 Mhz.

Statewide Fire Mutual Aid – 154.295 Mhz.

Tanker – See Water Tender

Tractor Plow – See Fire Plow

Turnout Gear – See Personal Protective Clothing

Water Tender – Any ground vehicle capable of transporting specified quantities of water.

Wildland fire agency – Federal or State agency with responsibility and jurisdiction to provide wildland fire protection. Includes the U.S. Forest Service, MN DNR Forestry, National Park Service, U. S. Fish & Wildlife Service, Bureau of Indian Affairs and Tribal wildland fire organizations.

Acknowledgement

July 1, 2002

Thank you to all the people who spent many hours developing the "Minnesota Wildland/Urban Interface Guidelines". Your dedication and commitment has helped make this a useable set of guidelines.

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Dick Phinney - Anoka/Chaplin Fire Chief

Terry Burtson - Ham Lake Fire Chief

Gary Sigfirinius - Forest Lake Fire Chief

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or visit the website at: www.mndnr.gov/grants/ruralfire/resources.html

APPENDIX A

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MINNESOTA INCIDENT MANAGEMENT TEAM

Minnesota Incident Command System (MNICS) was originally established in 1984, as a multiagency coordination group to support wildland fire suppression, prevention, and training for all
wildland agencies in Minnesota. Members of the MNICS organization are: U.S.D.A. Forest Service;
Minnesota Department of Natural Resources, Division of Forestry; U.S.D.I.; National Park Service;
U.S. Fish and Wildlife Service; Bureau of Indian Affairs; Minnesota Department of Public Safety,
Division of Emergency Management; and Minnesota State Fire Chiefs' Association (ex officio
member).

What is a MNICS Incident Management Team?

There are three MNICS Incident Management Teams in Minnesota. These multi-agency teams were
formed to manage large/complex wildland fires that would be beyond the local unit's ability to manage or would prevent them from being able to respond to any further fire activity. The teams can be used to assist local jurisdictions in all hazard incident management, and have been successfully deployed on floods, tornadoes, and search and rescue events in Minnesota. The teams are made up of highly trained and experienced management professionals, who have been trained to national standards, to manage complex, long term (3 – 30+ days) incidents.

What can the team do for my jurisdiction?

On wildland fires, the Team can manage large fires or a group of smaller persistent fires, which allows the local wildland agency and fire departments to concentrate more on normal initial attack activities. On incidents other than wildland fires, **the MNICS Incident Management Team is there to support local authorities, not to take command.** The Team will assist with incident management and response, under the direction and control of the local jurisdiction. The team is a modular organization that can expand or contract its organizational structure and staffing based on incident needs and the local jurisdiction's desire. Some of the things the team can do is to

provide help in managing the response operations, provide aircraft support, assist in planning, assist in acquiring and tracking resources and personnel, provide logistical support, provide for incident personnel needs, and help track incident costs.

Who does the teamwork for and who pays?

On wildland fires, the team works for the local State or Federal wildland fire agency and that agency
pays the costs. Coordination will be made with the local fire departments or the fire chief (or his/her
designee) and will be incorporated into the team as one of the unified incident commanders.
On incidents other than wildland fire, the team works under the controls, directions, and restrictions of the requesting local jurisdiction. Cost of deploying the team and the team incident assessment would not be charged to the local jurisdiction. If it is decided that the local jurisdiction would like the team to continue assistance, cost of the team may be covered under a FEMA disaster declaration, State Emergency funds, or by the local requesting jurisdiction. The team will assist in finding alternative funding for the team. The team will confer with the local jurisdiction of any costs they would be liable for before the costs are incurred.

How long does it take to get a team?

Team members normally have kit and personal bags packed and will usually begin traveling within an hour. Depending on incident location, team members should begin arriving in 2 to 6 hours, with most, if not all members, being on site and working within 12 hours.

How do I request a team?

The MNICS Incident Management Team can be ordered through the Minnesota Duty Officer at: 1-
800-422-0798, or 651-649-5451, TDD 1800-627-3529 or 612-297-5353.
On wildland fires, the Team can be ordered through or by the local wildland fire agency.

What happens when a team arrives on the scene?

When a team first arrives, they will check in with the local authority in charge. On wildland fires, the
team will receive a briefing and begin organizing for transfer of command. On non-wildland fire
incidents, the team will need some time to evaluate the incident, determine how they can help, and
discuss it with the local authorities. A Request for Assistance (Delegation of Authority) form will be

completed by the local authority with assistance from the team. This form will establish what the local authorities want the team to do, who the team reports to, and what authority is given to the team. This request for assistance form will be reviewed daily with local authorities and can be modified at any time by the local requesting jurisdiction.

MNICS Team Components

Team Incident Commander: Is the point of contact for the local authorities and coordinates the activities of the team. Where appropriate, the team incident commander will form a unified command with an incident commander from the local jurisdiction. On non-wildland fires, the MNICS team IC will usually fill the role as a team leader, not as incident commander of the incident.

Emergency Services Liaison: Coordinates with other agencies and jurisdictions that may be affected by the incident, whether or not they are directly involved with the response.

Operations Section: Organizes, coordinates and directs tactical incident response, including aircraft support.

Planning Section: Evaluates current situation, tracks incident resources, obtains forecast information, and develops an incident action plan.

Logistics Section: Orders all personnel, resources and supplies needed. Provides supplies, facilities, services and support needed by incident personnel.

Communications Unit: Establishes and manages incident communication systems. Can provide systems and frequencies to get incident communications off local networks.

Finance/Administration Section: Tracks and documents financial costs.
Twenty-two team members are initially deployed on wildland fires. Team size is adjusted according to the size of the incident. Size of the team on non-wildland fire incidents would depend on the tasks the local jurisdiction assigned to the team.

Example of Request for Assistance form:

LOCAL JURISDICTION REQUEST
FOR ASSISTANCE
for the
MNICS INCIDENT MANAGEMENT TEAM

I, _____ as the responsible
(Name of person having local authority)

Authority for _____, do hereby request
(Local Jurisdiction)

_____, as the MNICS Incident Commander,
(Team Incident Commander)

to do the following assignments during the Incident: (Tasks of support that the local jurisdiction authorizes the team to do and any restriction under which the team shall operate.)

_____

_____

_____

_____

_____

_____

_____

_____

Authorizing Signatures:
Local Authority: _____
Team IC: _____
Date and Time: _____
Expiration Date (if any): _____

"Support Items" for Home Agency when Hosting an Incident Management Team

A. Purpose

These are guidelines to facilitate the orderly transfer of incident responsibilities from the hosting unit to the Incident Management Team. This is a checklist of information and date the receiving unit needs to provide the Incident Management Team either in writing or orally.

B. Items To Be Considered By The Hosting Unit Prior To Arrival Of Incident Management Team And Assignment Of Responsibility

1. Prepare Delegation of Authority (See examples).
2. Obtain necessary information for agency administrator briefing.
3. Federal Agency will prepare a Wildland Fire Situation Analysis (WFSA) or a Wildland Fire Decision Support System (WFDSS), for a fire incident (Fireline Handbook 12).
4. Establish dispatching procedures.
5. Determine possible incident camp location.
6. The 100-Person Base Unit Kit: which includes the Radio Module Kit (NFES 2067 and 6060 in the Eastern Region Fire Equipment Catalog) and the Mobile Cache Kit (Item #6088) are automatically dispatched with the Incident Management Team. For basic description and contents see Fire Equipment Catalog. Consider ordering any other basic support items that may be needed for the incident. NOTE: If 100-person Base Unit is canceled, you have also canceled the Radio Module Kit (NFES 6060), so re-order it.
7. Order or make ample supply of topographic maps, base maps, etc.
8. Determine transportation needs of Incident Management Team. (From ordering unit to incident and on incident).
9. Determine agency administrator briefing time and location and obtain necessary information for agency administrator briefing (see Section C below).
10. See procedure for placing resource orders identified in MNICS Mobilization Plan, section 23.1.
11. Begin to assemble finance information.
12. Local unit will supply a status/check-in recorder and RADO to the Incident Management Team.

C. Prepare For Two Briefings

There should be two briefings of the incoming Incident Management Team. The first briefing should be by the Agency Administrator at the site away from the incident. The second briefing should be by the local Incident Commander at the incident site. The transition period of take-over will depend upon the complexity of the incident, expertise of local incident team, and/or other problems.

1. Agency Administrator Briefing (by Fire Chief, County Sheriff, County Emergency Management Director, DNR Area Forester, etc.)

   To be held as soon as possible after arrival of all General Staff members of the Incident Management Team. The following are the more important items to be discussed: Use format on page 16 as a guide for information needed. You should complete as much of this form as possible for presentation to the Incident Management Team during the Agency Administrator briefing.

Make 10 copies for the team. If you don't understand some blanks, go on to the next and complete as much as you can.

2. Local Incident Commander Briefing

   Use format on page **Error! Bookmark not defined.** as a guide for information needed. If time permits, start filling them out. Make 10 copies for the Team. If you don't understand some blanks, go on to the next item and complete as much as you can. Also fill out an ICS form 201, Incident Briefing form, and make 10 copies for the Team.

Agency Administrator's Briefing to Incoming IMT

Incident Name
Approx. Size @ Date Time
Location
Date of Start
Current IC
Overhead and Suppression Resources Currently on Incident
Fire Behavior Considerations
Weather Conditions / Forecast
Fuel Types
Topography
Command Considerations
General Fire Situation / Other Incidents in Area
Delegation of Authority
Agency Administrator's Representative
Resource Advisor assigned to incident
Values to be protected
Political considerations
Social/economic considerations
Health and welfare considerations

Desired local participation in fire team organization
Unified Command (in place or contemplated)
News media relations / PIO assigned
Other Agencies on incident
Land status
Cooperative agreements relevant to incident
Condition of organization on rest of unit
Capability of unit to support team
Training opportunities/policy on use of trainees
Team will assume command: Date: Time:
Transition and Closeout Plan
Law Enforcement/Ongoing Investigations
Safety Considerations
Accidents/near misses on incident to date
Status of accident investigations/reports
Utility Corridors
Areas of known or potential hazards
Firefighter safety considerations
Public safety considerations
Evacuation plan

Critical incident stress management procedures
Medical treatment facilities/procedures
Operations Considerations
Priorities for fire management
Are structures threatened?
Equipment currently assigned to fire
Tactics used to date and success
Fire weather forecasting services/fire weather station(s) data availability
Mopup standards
Initial attack responsibilities
Air Operations
Aircraft assigned to the incident
Effectiveness
Hazards
Air Space Restrictions
Airports, Heliports, Helispots
Suppression Policies
Temporary Flight Restriction (TFR) assigned?
Planning Considerations
Unusual fire behavior and fire history in area of fire
Legal considerations (investigations in process)
Availability of aerial photos and maps

Agency needs for release of presently assigned resources
Incident Status Summary (ICS-209) reporting requirements
Personnel now on incident (organization)
Firefighter rest and rehabilitation policy
Fire suppression rehabilitation policy
Demobilization procedures
Logistics Considerations
ICP location
Incident staging area
Incident transportation plan
Incident support organization
Resources ordered
Ordering system to be used
Catering services/feeding procedures
Security considerations/local law enforcement assistance
Radio system(s) in use/ordered
Telephone
Electronic (Computers)
Expanded Dispatch
Medical/burn facilities

Medivac procedures
Finance Considerations
Fiscal considerations/limitations or constraints
Cost to date
Cost sharing agreements in effect
Procedure established for T&A transmittals
Claims to date
Potential for claims

Local Incident Commander Briefing

The Incident Briefing, ICS-201 form provides the basis for the local incident commander to brief the incoming team.

Briefing Information

Forms Available or Attached: ☐ ICS 201 ☐ ICS 215 ☐ ICS 207 ☐ ICS 220 ☐ ICS 209	Other Attachments: ☐ Map of Fire ☐ Aerial Photos ☐ Weather Forecast
Fire Start Date:	
Time:	
Fire Cause:	
Fuels Ahead of Fire:	
Fuels at Fire:	
Fire Behavior:	
Fire Spread:	
Natural Barriers:	
Anchor Points:	
Perimeter Secured, Control/Mitigation Efforts Taken, and Containment Status:	
Life, Improvements, Resources and Environmental Issues:	
Weather Forecast:	

	Established	Possible
ICP:	☐	☐
Base:	☐	☐
Camp(s):	☐	☐
Staging Area(s):	☐	☐

Copy Machine Available ☐ Yes ☐ No

Safety Issues: EMS in Place: ☐ Yes ☐ No

Air Operations Effectiveness to Date:

Air Related Issues and Restrictions:

Hazards (Aircraft and People):

Access from Base to Line:

Personnel and Equipment on Incident (Status and Condition):

Personnel and Equipment Ordered:

Cooperating and Assisting Agencies on Scene:

Helibase/Helispot Location:

Crash Fire Protection at Helibase:

Medivac Arrangement:

Communication System in Use:
☐ Radio ☐ Telephone ☐ Cell Phone

Water Availability:

Review of Existing Plans for Control in Effect; Copy of Approved Wildfire Decision Support System.
Smoke Conditions:
Local Political Issues:
Damage Assessment Needs:
Security Problems:

NA-02194A-02

REQUEST AND AUTHORIZATION FOR USE OF DNR RADIO FREQUENCY

Permission is requested to use the following DNR radio frequencies during joint operations for communications as listed below. All operations shall be in compliance with FCC Rules and Regulations. Any unauthorized operations shall be grounds for revocation of this authorization.

Requesting Agency	Address, City, State, Zip Code

DNR CALL SIGN: KA 6951

DNR Frequencies-

TRANSMIT FREQUENCY	TONE	RECEIVE FREQUENCY	TONE	LOCATION/USE

NUMBER OF RADIOS: VEHICULAR_____ PORTABLES_____

The requesting agency agrees that this authorization will be for official communications and that a copy shall be kept in each vehicle where these frequencies will be used.

Authorized Signature for Requesting Agency	Title	Date

The State of Minnesota, Department of Natural Resources, under provisions of 47CFR90.421, authorizes the use of the above frequency(s) licensed to the Department under call sign KA 6951 for mobile radios. This Authorization must accompany any request to install DNR frequencies in a mobile radio.

Department of Natural Resources Approval

Area	Date
Region	Date
Division	Date

DISTRIBUTION: Original-Applicant, Copies-Area Office, Regional Office, St. Paul (appropriate division program manager)

NA-02194B-02

REQUEST AND AUTHORIZATION FOR USE OF OTHER AGENCY RADIO FREQUENCY

Permission is requested to use the following other agency radio frequencies during joint operations for communications as listed below. All operations shall be in compliance with FCC Rules and Regulations. Any unauthorized operations shall be grounds for revocation of this authorization.

Other Agency	Address, City, State, Zip Code

Other Agency Call Sign: _____

Other Agency Frequencies-

TRANSMIT FREQUENCY	TONE	RECEIVE FREQUENCY	TONE	LOCATION/USE

NUMBER OF DNR RADIOS: VEHICULAR_____ PORTABLES_____

The above named other agency, under provisions of 47CFR90.421, authorizes the use of the above frequency(s) licensed to it for mobile radios. This authorization must accompany any request to install these frequencies in a DNR mobile radio.

Authorized Signature for Other Agency	Title	Date

The DNR agrees that this authorization will be for official communications and that a copy shall be kept in each DNR vehicle where these frequencies will be used. Authorization is given to install the above mobile frequencies licensed to the other agency in DNR mobiles and portables.

Department of Natural Resources Approval

Area	Date
Region	**Date**
Division	**Date**

DISTRIBUTION: Original-Applicant, Copies-Area Office, Regional Office, St. Paul (appropriate division program manager)

DNR Air Resources

Air Detection

Helicopter with water bucket

CL-215 Air Tanker (water)

Air Tanker (fire retardant)

'FireBoss' Air Tanker (water)

Single Engine Air Tanker-SEAT
(fire retardant)

Single Engine Air Tanker (SEAT)
INFORMATION FOR INCIDENT COMMANDERS

Aircraft Info:

SEAT's are stationed at Princeton and Bemidji during periods of fire danger.

SEAT's deliver 800 gallons of long-term fire retardant, foam, or water, and cruise at approximately 180 miles per hour.

SEAT's are capable of splitting each planeload of retardant into several different drops. Each drop can be at a different coverage level. This allows fire managers to treat different areas of a fire or to efficiently attack fire lines with irregular shapes.

Dispatch Procedures:
SEAT's may be requested through the local DNR forestry areas or through the County dispatch and the State Duty Officer.

When requesting the SEAT, provide the following information:

1. Requesting person
2. Requesting agency
3. Location: Legal description / general location
4. Ground contact: Name _____ Frequency _____
5. Fire size
6. Fuel type
7. Values threatened
8. Other aircraft & hazards / power lines

Operations and Tactics:
SEAT's are normally dispatched with an Air Tactical Group Supervisor (Air Attack) aircraft. Communication from the ground will be with the Air Attack rather than directly with the SEAT. Air Attack can also advise the IC regarding tactics and aircraft capabilities.

SEAT's are an excellent initial attack resource. Request the SEAT early in the incident. **Do not view the aircraft as a "last resort" when other efforts have failed.**

When a wildfire bums into fuel that has been treated with fire retardant, flame lengths will drop as the fire tries to bum through the line. That is the time to follow up with ground forces to complete the suppression work.

Safety:

Falling fire retardant can injure firefighters. To avoid injuries, take the following steps:

1. Move firefighters and vehicles at least 200 feet from the drop zone.
2. Stay clear of snags. Move away 1 1/2 times the height of tallest snag.
3. Ensure no civilians are in or near the drop zone.
4. Watch for rolling material if drop is made up slope of you.

5. Maintain control and communication with firefighters at all times.
6. Watch your footing. Foam and retardant are slippery.
7. Maintain communication with Air Attack.

The SEAT will not drop if people or vehicles are seen near the drop zone.
Safety Procedures If Caught In A Drop Zone:

1. Lie on the ground with your head towards the approaching aircraft.
2. Fasten the hardhat chinstrap.
3. Tools should be held - extended and downhill.

PROCEDURES AND GUIDELINES FOR FIRE DEPARTMENTS WORKING WITH MN-DNR HELICOPTERS

Availability:

Helicopters are available through the MN-DNR for fire suppression *during* the wildland "Fire Season". A good rule of thumb for "availability" is: If conditions are such that wildland fires are difficult to control or *high* in number, helicopters are probably available for fire suppression. This period is normally in the spring when the snow leaves until "green up" and again in the fall after heavy frosts until snowfall.

Locations of Helicopters:

Each spring, 8 helicopters (7 DNR and I BIA) are pre-positioned for fire suppression within the State. Locations include: Brainerd, Bemidji Sandstone, Princeton, Hibbing, Hill City, Cloquet and Red Lake. As fire conditions worsen, more helicopters are added. 15 helicopters were positioned around the State in 1998.

Dispatching Procedures:

Helicopters are available by contacting your local area DNR Forestry office (Phone: _____) or if for some reason the local office cannot be reached, then the Minnesota Interagency Fire Center (phone 218-327-4582) should be contacted. Ask your dispatcher to keep these phone numbers *on* hand.

How Long Does it Take:

This, of course, depends upon how far the helicopter must travel. Once dispatched, it takes approximately 1 minute to travel 2 miles. An example might be an officer in Duluth requests a helicopter, Cloquet DNR helicopter is dispatched, 22 mad miles from Cloquet to Duluth = approximately 11 minutes travel time to Duluth via the helicopter. At the time of the request, the fire department should get an idea of the helicopter's estimated time of arrival (ETA).

Dispatch Information:

Provide information that may be useful if priorities for dispatch must be established: ie., homes or buildings endangered, peat ignition possible, plantations threatened, smoke causing hazards, etc.

Provide township, range, and section if available.

Give miles and direction from nearest town.

Mention any landmarks, which are easily determined from the air.

Relay any information about other aircraft or flight hazards.

For Federal aircraft dispatching procedures, check with your local Federal wildland fire agency.

Communication Procedures:

Helicopters will arrive on the scene using the local DNR frequency where appropriate. The Statewide Fire Mutual Aid 154.295 *NM* frequency will be used if there are no DNR forestry contacts available on the fire. In addition, a helicopter manager (in orange shirt) will arrive with the helicopter. The Manager will get together on the ground with the officer in Charge. The helicopter Manager will then relay all pertinent messages to the pilot on a number of different frequencies.

Chain of Command:

The helicopter is an additional tool. The fire remains within the jurisdiction of the Officer in Charge. The Helicopter Manager (orange shirt) is responsible for the helicopter operations, but not the fire. The helicopter is there to assist, not take over!

Helicopter Costs:

Costs range from $300.00/hour to $625.00/hour. These are DNR costs which are normally billed to the party responsible for causing the fire. Under most circumstances, helicopters are free to the fire departments.

Helicopter Capabilities:

The helicopter comes complete with the pilot, fuel truck and driver, helicopter manager, two firefighters, and a 110-gallon bucket, which can deliver thousands of gallons per hour to the fire with pinpoint accuracy.

Line Safety Considerations:

As the helicopter approaches the drop area, all personnel should back off from the drop area, approximately 50 ft. Once the drop is complete, fire personnel should return to the line to keep the. fire from flaring back up. Under no circumstances should personnel be immediately under the helicopter

Ground Safety Considerations:

1. Keep all personnel 50' or more from any helicopter while it is running.
2. Approach or depart a helicopter in full view of the pilot.
3. Keep landing areas free of all personnel, cargo, and loose items.
4. Always approach or depart downhill.
5. Keep head and tools low.
6. Keep a tight grip on loose articles.
7. Secure an area to land.

What Fire Departments Can Do to Assist the Helicopter Operations

- Provide good dispatch directions
- Communicate on Statewide Fire Mutual Aid (154.295)
- Inform pilot of any known hazards
  - Other Aircraft
  - Power Lines
  - Towers

- Cables
- Etc.

- Assist in crowd control
- Keep all personnel out of helicopter operation area
- Inform pilot or helicopter manager of good landing spots
  - Dust Free
  - Debris Free
  - Limited Ground or Road Access
  - Area Close to Proximity of Fire

- Inform pilot or helicopter manager of any good water sources nearby

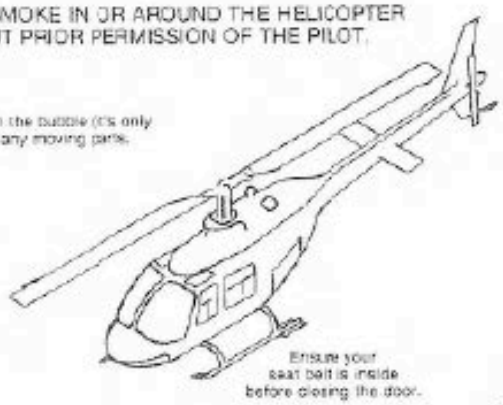
- Set up a portable drop tank if a good water source is not available within 3 miles.

- Contact your local DNR Forestry officials each spring to exchange new information and maintain open communication

BE ALERT AROUND THE HELICOPTER

DON'T SMOKE IN OR AROUND THE HELICOPTER WITHOUT PRIOR PERMISSION OF THE PILOT.

Don't touch the bubble (it's only plastic), or any moving parts.

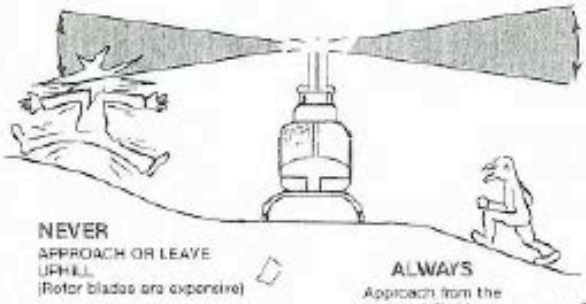


Ensure your seat belt is inside before closing the door.

PROTECT YOURSELF

1. FASTEN SEATBELT on entering helicopter and leave it done up until the pilot signals to get out.
2. ASK THE PILOT about emergency exits and escape procedures.
3. DRESS for the operating environment.
4. KEEP WELL CLEAR of landing areas when the helicopter is landing or taking off, especially with external loads.
5. SHIELD YOUR EYES near a helicopter when it is landing or taking off.

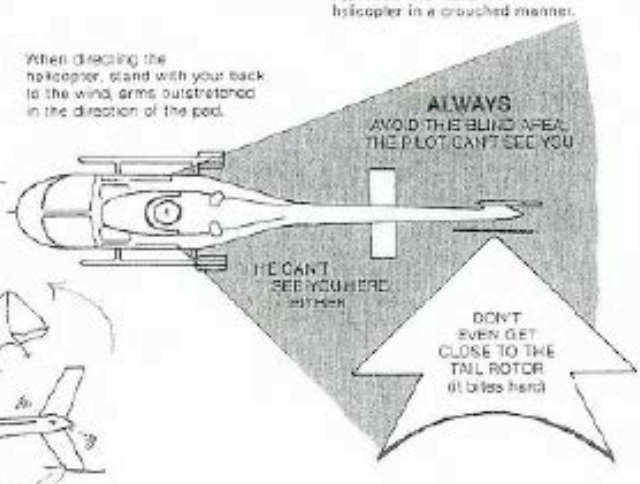
Approach and leave the helicopter in a crouched manner.



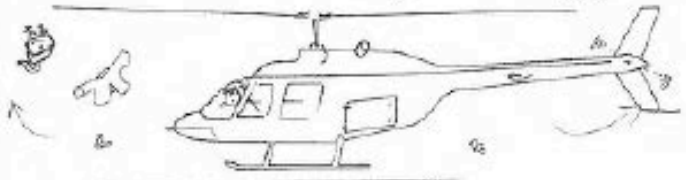
NEVER
APPROACH OR LEAVE UPHILL
(Rotor blades are expensive)

ALWAYS
Approach from the downhill side.

When directing the helicopter, stand with your back to the wind, arms outstretched in the direction of the pad.



KEEP THE LANDING AREA CLEAN
The helicopter downwash will lift and move an amazing variety of things.



DON'T SLAM THE DOORS but close them gently and don't let them swing in the wind.

NEVER throw any object in the vicinity of the helicopter.

Carry tools and other long objects horizontally below waist level, not upright or over the shoulder.

Hold on to your hat. Don't make campfires near the pad.
– she makes great winds.

FIGHT FIRE SAFELY & AGGRESSIVELY WITH THE HELICOPTER

As the helicopter approaches the fire, the Incident Commander should communicate with the Helicopter Manager, via radio, giving the pilot and crew a briefing, to include:

1. Current fire activity
2. Specific assignment and objectives
3. Other firefighting resources on site
4. Known flight hazards (power lines, snags,etc.)

After the crew is on the ground and the bucket has been deployed, the helitack crew will most often work on the fire line in conjunction with the helicopter. All personnel who are engaged in direct attack with a helicopter should clear the line and walk a minimum of 50' perpendicular to the line as the helicopter approaches with a full bucket. As soon as the drop has been made, personnel should check overhead for falling snags or widowmakers, then walk directly back to the line to continue reinforcing the line.

When the helicopter arrives on the scene, the crew will perform a reconnaissance flight prior to setting down. During this flight they will locate the dip site, a landing area suitable for the fuel truck, and observe fire activity so they can be most effective on the fire. They will report any significant activity to the Incident Commander.

When the helicopter crew selects a landing site for refueling and/or loading personnel they seek a site that has good road access and s relatively close to the fire. A conflict sometimes develops when on-lookers get too close for their own safety. Sometimes one of the helitack crew will remain at this landing area to secure the area. If you are asked to secure a helicopter landing area, our standard is a 75' diameter safety circle around the landing pad. Keep all unauthorized personnel and equipment out of this area!

USE OF WATER SCOOPING AIRCRAFT

A. AVAILABILITY

1. United States - Currently, Water Scooping Aircraft (Canadair CL-215) are owned by and located in the states Of Minnesota and North Carolina. Besides working in their home states, it is likely that these aircraft will be encountered elsewhere in the U.S. under contract or on a CWN basis where water sources are conducive to operations,

2. Canada -Canadair CL-415 and CL-215 scoopers are widely used in Canada, especially from Quebec west to Alberta. States that border Canada may have border agreements such as the Great Lakes Compact that outline procedures for the sharing of resources on fires within a specified distance of the border. There may also be provisions for extended use of Canadian Airtankers in the U.S. when needed and if available. ATGS=s *should* obtain a briefing on these agreements or procedures when assigned.

B. OPERATIONS

1. Airport Requirements - A 5,000 foot hard surface runway is the standard requirement. Fueling and oiling needs are similar to other air tankers with the CL-215 requiring 100 octane low lead and the CL-415 Jet A. Normally, Class A foam is injected into the loads to increase the effectiveness of the drop. A supply of foam (3-55 gallon drum capacity per fuel cycle) and the necessary equipment for handling it and pumping or loading the concentrate on the aircraft should be anticipated.

2. Scooping- As part of the size-up, the ATGS should scout the area for possible water sources. The pickup lake or water source should be a minimum of one mile long, free of obstructions with a confirmed depth of at least seven feet. The scooping path does not have to be straight, as the aircraft is somewhat maneuverable while scooping. Factors such as wind, elevation, and surrounding terrain will have a bearing on the suitability of the water source. Less than a full load can be scooped on slightly smaller lakes. The CL-215 and CL-415 scoop at 80 kts and are on the water for about 15 seconds, covering a distance of approximately 2,000 feet.

3. Foam Use – After pickup, foam can be injected into the load at a concentration of 0.3% up to 3% in some models. Useful concentrations typically range from 0. 3 % to 1.0%. A typical method in using foam is to attack a hot fire with straight water or a wet foam (0.3%) and after knockdown, follow up with a dripping (0.5%) or dry (0.6-1.0%) foam. Foam concentrations greater than 0.6% are prone to drift. The aeration of the foam is affected by water temperature. A slightly higher concentration may be needed for cold water and adjustments downward may be necessary for extremely warm water. When using foam, provide for two rinse loads of water prior to departing the fire.

4. Drop Information

a) Configuration - The Canadair CL-215 has two compartments totaling 1400 gallons, while the CL-415 has four compartments totaling 1600 gallons. The load can be dropped salvo, in trail, or split into separate drops. A salvo load is about 280' long and 65' wide. Trail drop is about 400' x 40'.

b) Drop Height - Drop height ranges from 100'- 150', depending on factors such as foam vs. straight water and direction of run (into wind vs. downwind).

c) Clearance - When dropping directly in the vicinity of ground crews, personnel should be moved at least 200' to the side. When drops are made 1000' or more in advance of the crews, no clearance is necessary, except to confirm on one is on the line.

d) Circuits/ Turnaround Times - The natural layout of the typical circuit (flight pattern) is oval, with a pickup into the wind and a downwind drop on the fire. This is the most common and efficient circuit and preferred by most pilots. When suitable water sources are located near the fire drop area, a 90-second turn time is not uncommon. Rule of thumb for the CL-215 turnaround time in this circuit is for every mile of distance - lake to fire, is one minute in time plus two minutes scooping (e.g. 5 miles to the fire from the lake is a 7 mile turn). Turnaround time for the CL-415 is not as easy to calculate. Typical times are: I mile - 3 minutes, 3 miles - 4 minutes, 6 miles – 6 minutes, 10 miles - 9 minutes, and 15 miles - 12 minutes. If fire intensity or other reasons indicate a need for drops into the wind or crosswind, then a U-shaped circuit or a Figure 8 will be necessary. Turnaround time will be slightly longer.

e) Duration - Average fuel cycle is about 4 hours. A quick turn from a close lake can shorten the cycle to 3.5 hours due to increased fuel demand.

f) **Initial Attack** - Scoopers are best suited as an initial attack tool. These aircraft are most effective when they are dispatched to reach the fire at the earliest sages of burning. The scooper is capable of placing a large volume of fire suppressants (water, foam) and is best suited for direct attack. The use of these resources should not be delayed while waiting for the arrival of ground resources. Consideration should be given to committing these resources to new fires or spotting areas of existing fires, rather than holding them for extended attack.

g) **Direct Attack** - Scoopers are designed to efficiently load and deliver large volumes of fire suppressants (water, foam) and are therefore best suited for direct attack. Like other air resources, they are most effective when worked closely with ground resources. Drops are made directly on the fire=s edge, usually half-in/half-out. High intensity fire may require drops to be made into the wind.

h) **Parallel Attack** - In the event ground resources are delayed or drops are advancing faster than the crews, a parallel attack is effective. Drops should be placed parallel to the fire =s edge at a distance governed by the rate of spread and the progression rate of ground resources. The ATGS should consider an increase in foam proportion to a dripping (.5%) or dry foam (.6-8%). If the fire does not reach the drops in 30-45 minutes, reinforcement drops should be planned on. If progress by ground crews is too slow, retardant maybe a better option, with foam and water used for knockdown and cooling the line.

i) **Indirect Attack** - While some scooping aircraft are configured with the ability to be loaded with retardant at a tanker base, they are not designed to

efficiently deliver and effectively drop retardant. Therefore, their capabilities at indirect attack are limited. (The State of Minnesota is not going to carry retardant in their CL-2 15 Scoopers.) Narrow, wind-driven fires can be successfully attacked indirectly using foam drops, taking advantage of light fuels or fuel breaks. CL-215's and CL-415's are effective in supporting indirect tactics when used to reinforce retardant or other control lines, hot spotting, and knockdown of slopovers and spot fires.

C. SUPERVISION

j) Environmental Considerations - Foam use is not recommended within 300' of lakes and streams. In steep drainages or sensitive areas, check local agency policy on foam use. ATGS personnel should be aware that when scooping during foam operations, it is possible that some residual foam may flush out of the vent/overflow. While very diluted, some foam maybe visible on the water for a short time. Insensitive areas or areas of heavy population, it may be a consideration to use straight water, again, depending on local agency policy.

Traditionally water-scooping aircraft do not require close supervision. If the scooper aircraft is used in the initial attack mode they will arrive at the fire well ahead of ground. Local coordination with ground personnel is important due to frequent drops (quick turns). Depending on the complexity of the incident, the ATGS should consider the need for additional supervision in the form of another ATGS, ATCO, or HLCO as appropriate.

1. Communications - Generally speaking, communications with scooping tankers are not much different the conventional air tankers with respect to target description, clearing the line, and drop evaluations, etc Instructions on whether or not to inject foam and at what percent should be given prior to the pickup. During the scooping operation, including approach and departure from the lake, communications with the tanker should cease to allow the crew to concentrate on the pickup. The tanker will call when up or off the water, which will signify to the ATGS that it's okay to talk. Target description/instructions can be given at this time unless the crew is unfamiliar and not in view of the fire. On long turnarounds, request the tanker to give a one-mile final call and give your target description at that time. Confirm the line is clear, make the drop, and after the drop: evaluate the load. Instructions for the next load can be given at this time if appropriate. Otherwise, wait until the tanker is up for the next target description. That is a typical circuit.

2. Separation - Once in the circuit on the fire, CL-215's and CL415s work 500 feet AGL and lower.

a) Separation of Scoopers in the Circuit - If two tankers are working the same circuit, *which is* very common, the ATGS can choose to A daisy chain@ the two tankers (one is on the lake while the other drops) or they can be worked in tandem where one leads the other. Generally on a quick turn it works best to daisy chain the two, while on longer turns it is more efficient and requires less supervision to work the two together rather tight. This also allows ground resources more time between drops to work the fine. The same holds true for four tankers in a circuit. Be advised, CL-215's and CL415s can work in the same circuit, however the CL415's are faster and will overtake the 215's on the circuit. If possible, keep separate.

b) Integrating with Other Aircraft - CI-215/415 Scooping Tankers can be successfully integrated into the suppression and logistical missions of other aircraft. The most common and simple method is to assign different aircraft types to separate parts of the fire, for example, scoopers on the right flank and helicopters on the left or conventional tankers building retardant line on the right flank and scoopers on the left. The ATGS must, however, be conscious of the circuit or flight pattern of the scoopers in relation to the assignments of other aircraft. Often a helicopter daisy chain can be entirely inside of the tanker circuit and not be a factor.

Sequencing of aircraft can be very efficient and often is necessary but requires close supervision. If there is a need for another aircraft to work the same area as the scooper for a short time, such as a sling load, personnel drop, or a quick recon for example, simply have the tanker extend the circuit. If the interruption will be sustained either orbit the tanker or reassign. Sustained bucket operations in the same target area as the scoopers are usually not advised, except for very long turnaround times. CL-215/415 airtankers can support conventional airtankers by sequencing them in between retardant drops to cool the fire in advance of the retardant or to assist in holding the fire as it approaches the retardant.

Other aircraft that need to pass through the circuit should be vertically separated 500' above the tankers (1000' AGL) if it fits with their mission.

3. Canadian Tankers -On fires near the Canadian -U.S. border, a Canadian Air Attack Group maybe dispatched to a U.S. fire. Normally this group includes two scooping tankers and a Bird Dog. On board the Bird Dog is an Air Attack officer, very similar to an ATGS. Typically on a "quick strike" across the border, the Bird Dog would assume control of the airspace and work the fire until/unless an ATGS is present. When a U.S. ATGS is on scene, the ATGS has overall responsibility for the airspace and directing air resources. The Bird Dog while on scene is in charge of directing the Canadian Air Tanker operations much like an ATCO under the supervision of the ATGS. The ATGS will be responsible for the direction of all U.S. resources. Refer to policies of the local agency or your home agency with regard to utilization of Canadian air resources.

Terminology *

This is a short list of terms relating to the use of the scooping airtankers used by Canadian Air Attack officers. Some of the terms are common to the U.S. and a few are slightly different.

Bombing Circuit Terminology:

Circuit - flight route taken by scooping air tanker from the water source to the fire and return.

Typical Circuit - oval or rectangular flight route that is defined by an >into the wind= pickup on the lake and a downward drop on the fire.

U-shaped Circuit - a flight route resembling a AU@ that is defined by an >into the wind= pickup on the lake and an ”into the wind” drop on the fire.

Figure-8 Circuit - an intersecting flight route in the shape of an A8@ that is defined by an >into the wind= pickup on the lake and can accommodate either a crosswind drop on the head or an >into the wind= drop elsewhere on the fire.

Basel, - the leg of the bombing circuit immediately proceeding and perpendicular to the final leg (base leg for pickup or base leg for the drop).

Final Leg - the last leg of the bombing circuit direct to the target or the lake.

Bomb Run or Run - flight path of the tanker to the target.

Target Description Terminology:

Tie-In - connect the drop to a specific reference point or anchor point.

Tag On - connect the tail end of the drop to a given point.

Extend - tag on and lengthen the line in a specific direction.

Lap On - cover a previous drop entirely or to one side or the other. Reinforce.

Lap on Left/Right -cover a previous load to the left or right to widen the drop pattern, usually about a 1/3 overlap.
Roll U - connect the head end of the drop to a given point.

Half On /Half Off - half the load on the fire, half on unburned fuel, half & half or half in/half out.

Span - distance equal to one wingspan of the tanker being used.
String Drop - trail drop

Train Drop - trail drop

Bulls Eye - load was placed exactly where requested.

Head End of Drop - where the load first hits the ground.

Tail End of Drop - where the last of the load hits the ground.

Other Terminology

Bird Dog - ATGS platform except Bird Dog combines low-level lead-ins when deemed necessary with an orbit and direct method.

Orbit and Direct - method of supervision where Bird Dog is above the fire in a right hand pattern and gives verbal targets and direction to airtankers as opposed to providing low level lead-ins.

Lead In - same as a lead.

Inspection Run - same as a low pass or dry run.

Dummy Run - same as a >show me=.

Hold - Canadians may use this term for Ago around - do not drop@ as well as orbit outside the incident airspace.

Stay - may also be used to instruct a tanker to proceed to a designated location and await instruction. Hold & orbit.

Reload - load and return,

Period of Alert - duty day or duty time.

Minnesota Department of Natural Resources
Division of Forestry and the _____Fire Department
Cooperative Fire Protection Agreement

THIS COOPERATIVE FIRE PROTECTION AGREEMENT, is made and entered into by and between the State of Minnesota acting by and through the Commissioner of the Department of Natural Resources, hereinafter referred to as the "DNR" and the _____ Fire Department, hereinafter referred to as the "Fire Department," as authorized by M.S. 88.11 subd. 1, 89.01 subd. 4, and 90.041 subd 1.

I. PURPOSE

The purpose of this Cooperative Fire Protection Agreement is to cooperate in the prevention and suppression of wildland fires as authorized under M.S. 88.04. Assistance will only be provided when requested, when resources are available, and can be committed without diminishing either party's ability to protect its own jurisdiction.

II. STATEMENT OF MUTUAL BENEFITS AND INTERESTS

The DNR, *Division of Forestry*, is responsible for the prevention and suppression of wildland fire within the state. The Fire Department is responsible to prevent and extinguish all unwanted fires within its fire protection area.

It is mutually advantageous and in the public's interest for the parties to this instrument to coordinate and assist in each other's efforts in prevention, detection, and suppression of wildland fires and to cooperate in fire hazard reduction in and adjacent to areas of mutual responsibility.

III. THE FIRE DEPARTMENT SHALL:

1. Provide fully staffed and equipped fire fighting resources, when available for wildland fire suppression, as listed on the attached rate schedule.
2. Indemnify, save and hold the State, its representatives and employees, harmless from any and all claims or causes of action, including all attorneys' fees incurred by the State, arising from the performance of this Agreement by the Fire Department or Fire Department's employees, agents or subcontractors. This clause shall not be construed to bar any legal remedies the Fire Department may have for the State's failure to fulfill its obligations pursuant to this Agreement.
3. Assume full responsibility, including legally required insurance and Workers' Compensation for all Fire Department personnel provided under this agreement.
4. Respond to all calls for wildland fires within the Fire Department's fire protection area when requested by the DNR.
5. Respond to additional wildland fire calls outside the Fire Department's fire protection area at the request of the DNR and at the discretion of the Fire Chief.
6. Submit a report to the DNR within 24 hours of any wildland fire on which the Fire Department takes independent action. Reporting can be in the form a DNR Fire Report Card, fax, e-mail, fire report form, DNR wildland fire invoice form, or other written communication that provides the same information as the Fire Report Card.

7. **Submit an invoice to the DNR within 30 days of an incident for which the fire department is requesting reimbursement. Invoices beyond 30 days may not be honored.**
8. Stay with all wildland fires until out, or released by a DNR incident commander, or until called to another incident within the Fire Department's protection area, provided the wildland fire is considered safely contained.
9. Be committed to protection of lives and buildings as its first consideration.
10. Through the Fire Department officers, determine its capabilities and assume final decision authority on commitment of its vehicles and personnel into any area of operation that is requested by DNR personnel.
11. Furnish all tools, equipment, supplies, fuels, and lubricants, except for those items furnished by the DNR, as stated in this Agreement.
12. Assist the DNR with distribution of fire prevention materials and wildland fire prevention presentations.
13. Bill the DNR for wildland fire runs at the agreed upon rate per run. When additional resources are requested by DNR Forestry, *beyond the first 2 hours (the "run")* hourly rates for specific requested equipment, as described in the attached Rate Schedule, will apply. **Invoices must be submitted within thirty (30) days of the fire(s).**

IV. THE DNR SHALL:

1. Respond with specialized equipment for wildfire response, when possible, at the request of the Fire Chief or designate. This equipment includes, but is not limited to dozers, all terrain tracked vehicles, engines and aircraft.
2. Investigate violations of the burning laws of the State. (M.S. 88.01 to 88.22 and 88.75) This includes billing the responsible party for all wildland fire suppression costs of the DNR, and the Fire Department if the DNR pays the Fire Department for responding to the fire.
3. Assist the Fire Department in obtaining Federal Excess Property, specialized equipment, or grants for improving their firefighting capabilities.
4. Assist the Fire Department with procuring and distributing fire prevention materials.
5. Provide wildland fire suppression training to the Fire Department as workload permits.
6. Reimburse the Fire Department for wildland fire runs, according to the terms of this agreement.
7. Make reasonable effort to release the Fire Department as soon as possible to ensure that the Fire Department is available for other emergency response calls.

V. REIMBURSEMENT POLICIES:

1. Lower rates may be negotiated for extended use at the Fire Department's discretion.
2. When the Fire Department is dispatched through its normal dispatch procedures, and not specifically requested by the DNR, the Fire Department shall only bill for a Wildland fire run. *(A Wildland Fire Run is described as the fire department's response to a wildland fire that takes up to two (2) hours to suppress.)*
3. For hourly billing of *equipment requested by DNR Forestry, after the wildland fire run (first 2 hours)*, time will be rounded to the nearest half hour. Billable time should begin when the Fire Department leaves its station and continue until it returns to its station. Time spent refurbishing and readying equipment for the next call shall not be included as billable time.
4. The fire chief and local DNR forester may discuss charges that are in question prior to submitting a final invoice for payment.
5. If the Fire Department is released by the DNR before the Fire Department has taken any

suppression action on the fire, the Fire Department shall not submit a bill for the run.

6. Attached rates shall be reviewed annually and may be changed with signature of the parties to this Agreement, or their successors in position.

This Agreement is effective on the date of the last signature and is to continue in force for five (5) years or until terminated by either party giving thirty (30) days written notice to the other. Both parties should review this Agreement annually.

Fire Department:

/s/ _____ Date: _____

Title: _____

State of Minnesota
Department of Natural Resources:

/s/ _____ Date: _____
Area Forester

Fire Department Cooperative Agreement Rate Schedule

ITEM DESCRIPTION *(include NWCG type, make, model, year, serial number and special features, such as 4X4,CAF or foam proportioners)*	NUMBER OF PERSONNEL W/ EQUIPMENT	WORK RATE		* STANDBY RATE	
		a. rate (includes personnel)	b. per unit (hour, etc.)	a. rate*	b. unit (hour, etc.)
a.					
b.					
c.					
d.					
e.					
f.					
i. Additional Requested firefighters	Each		Per hour per firefighter	Same as work rate	Per hour per firefighter

*Standby rates shall be equal to ½ of the work rate, and shall apply only if equipment and personnel are ordered by the DNR to be staged and available for immediate action.

Special Rates:

a. Run charge of $350.00 per Run, for up to 2 hour response. After two hours, equipment or personnel requested by the DNR will be charged at the rates in the above Rate Schedule. .

The above rates have been agreed upon by:

_____Fire Department _____ DNR Area

/s/_____ Date: _____
Area Forester

/s/_____ Date: _____
Fire Chief

/s/ _____ Date: _____ Regional Forest Manager (if required)

Effective **2010 & 2011**

Suggested Rates for Minnesota Fire Department Equipment & Personnel Under Agreement with the Minnesota Department of Natural Resources, Division of Forestry

Suggested Fire Department Equipment Rates		
Type of Equipment	**# of Crew Members**	**Equipment Rate/Hour**
STANDARD RUN	**as needed**	**$350 for up to 2 hours**
Engine Type 1	**4**	**$200-300**
Engine Type 2	**3**	**$150-200**
Engine Type 3	**3**	**$125-150**
Engine Type 4	**3**	**$100-150**
Engine Type 5	**3**	**$90-125**
Engine Type 6	**2**	**$80-100**
Engine Type 7	**2**	**$50-80**
Water Tender Type 1	**2**	**$125-200**
Water Tender Type 2	**2**	**$100-175**
Water Tender Type 3	**2**	**$75-150**
Water Tender Type 4	**2**	**$75-100**
Fire Fighters	**1**	**FF3 rate or similar**

Low end of rates are the base rate. Higher than base rates should be justified by newer apparatus with more that base capabilities, such as Class A foam proportioning systems, CAF systems, all wheel drive, etc. Fuel furnished by Fire Department. Federal Excess Property vehicles should charged at a rate between ½ of the higher rate up to the low rate, depending on additional equipment and capabilities.

Departure from the above rates requires Regional Forest Manager approval.

Minimum Standards for Engine Types							
Components	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Pump Capacity (GPM) at rated pressure (psi)	1000+150	250+150	150250	50100	50100	30100	10100
Tank Capacity (Gal.)	400+	400+	500+	750+	400-750	150-400	50-200
Hose, 2 ½" (feet)	1200	1000	-	-	-	-	-
Hose, 1 ½" (feet)	400	500	500	300	300	300	-
*Hose, 1" (feet)	-	-	500	30	3	3	20

				0	00	00	0
Ladder (feet)	48’	48’	-	-	-	-	-
Heavy Stream (GPM)	500	-	-	-	-	-	-
Personnel (minimum #)	4	3	2	2	2	2	2
Minimum Standards for Water Tenders							
Pump, GPM	300	200	200	--			
Tank Cap., Gallons	500 0+	250 0+	100 0+	≤1 000			
Personnel (minimum #)	2	2	2	2			

* Not necessary to meet minimum requirement for 1” hose, unless contracting to go outside of home area, as a wildland engine on a wildland incident or assignment where National Wildfire Coordinating Group (NWCG) standards are required.

Payment for Mutual Aid Responses

Since the main purpose of the Cooperative Agreement is to cover fires within a fire department protection area, the ”per run” rate does not apply to mutual aid fire department resources. Mutual aid requests from a fire department or automatic mutual aid calls are under the fire departments local mutual aid agreements. The DNR is under no obligation to pay for mutual aid resources ordered by a fire department or through automatic mutual aid calls. However, mutual aid resources **may** be compensated at the “per hour” rate for each piece of equipment that the DNR Forester agrees was needed and approves payment, not necessarily for every resource sent.

Firewise in Minnesota

Larry Himanga
Coordinator
MN DNR – Forestry
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Defensible Space

Creating a defensible space around your house can enable your home to survive a wildfire. This defensible space is an area of reduced fuels between your home and the untouched wildland.

The photos below show the difference between being unsafe and being Firewise. Can you spot the changes?

Creating a defensible space zones

Step 1

- Assessing your Property
  - Do you border wildland?
  - Is there a substantial amount of tall vegetation crowed in around your home?
  - Do tree limbs extend over your home?
  - Do you have a woodpile in close proximity to your home?
  - Do you have any fuel tanks nearby?
  - Have you used native vegetation in your landscaping?
  - Does your property's driveway provide access to your home for firefighters?
- For more information on assessing your property

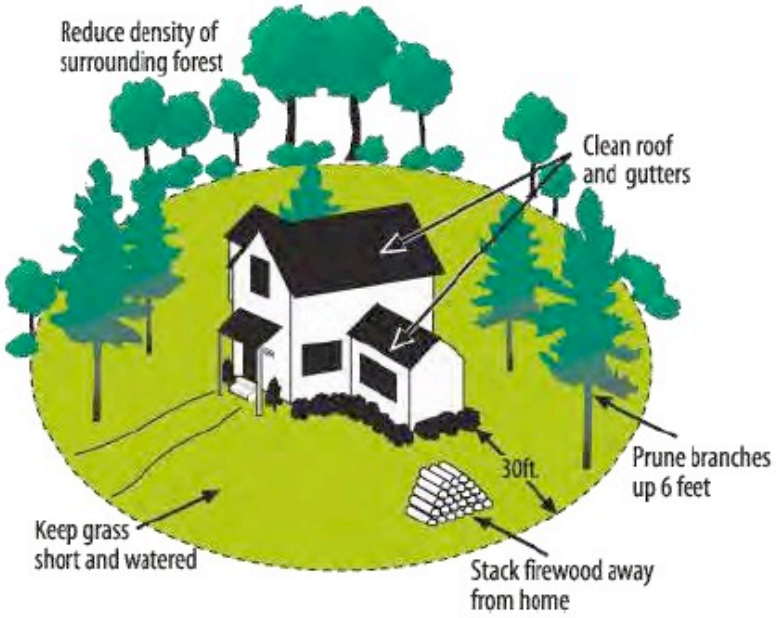
Step 2

- Creating defensible space by dividing your property into three zones:

1. **Intensive Zone** is the area of maximum modification and treatment. It consists of a 30 foot radiu around all structures in which a majority of the flammable vegetation is reduced.
2. **Extensive Zone** is an area of fuel reduction. This zone is 70 to 100 feet from the extend to 200 feet or more from the structure.
3. **General Management Zone** is an area of traditional forest management and is of no particular size. It extends from the edge of your defensible space to your property boundaries.

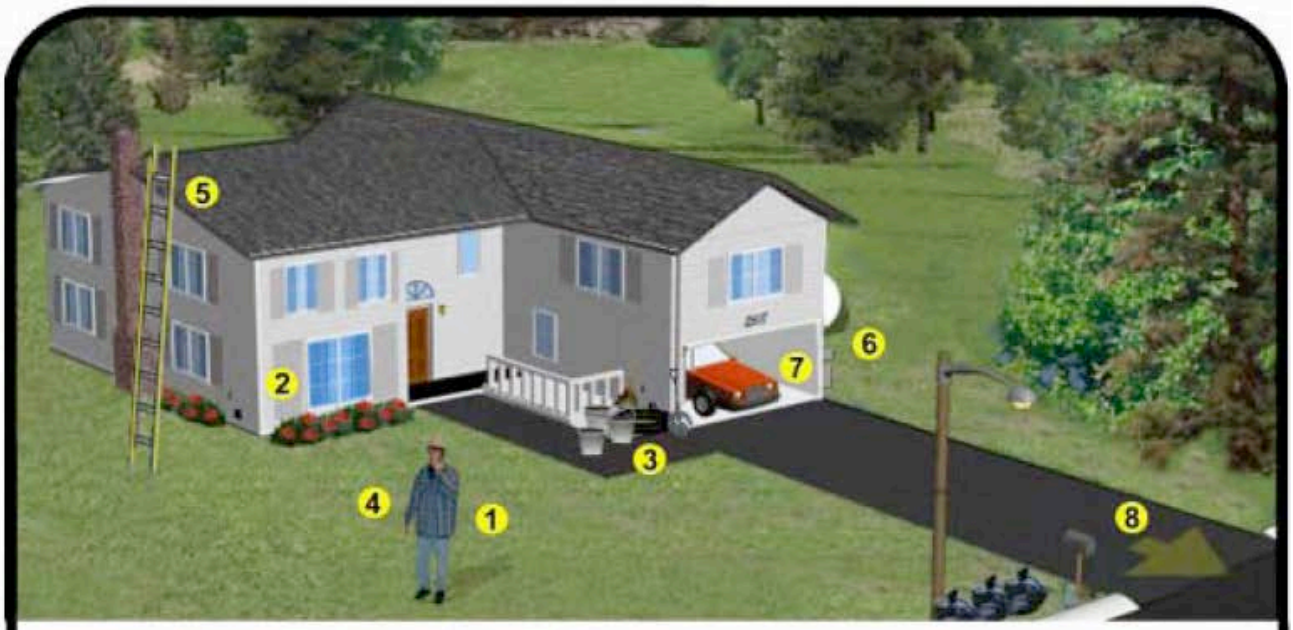
Step 3

- Maintenance of your defensible spaces otherwise risk losing the benefits of the Firewise protection.



More Information on Creating a survivable space.

- Creating a Firewise Property PDF
- Firewise homeowner's kit
- Measuring the Fire Hazard of Your Rural or Forest Home
- 50 things you can do to protect your home PDF
- 25 Tips to Make Your Home Firewise PDF



WILDFIRE APPROACHING CHECKLIST

1) CALL FOR HELP. Use a cell phone if your electrical power has been interrupted.

2) CLOSE ALL ENTRANCES, WINDOWS AND OTHER OPENINGS. This includes doors, garage doors, windows, vents and any other entrances to your residence or garage. Close shutters, heavy drapes, Venetian blinds or other window coverings. This action is recommended to prevent sparks from blowing inside your house and igniting there.

3) HAVE TOOLS & WATER ACCESSIBLE. Have a shovel, rake and long water hose accessible. Fill buckets and other bulk containers with water.

4) DRESS TO PROTECT YOURSELF. Wear cotton/woolen clothing including long pants, a long-sleeved shirt, gloves and a handkerchief to protect your face.

5) WET DOWN THE ROOF. If your roof is combustible, wet it down with a hose. Place the ladder you use for this task on the side of the roof opposite the fire.

6) TURN OFF RESIDENTIAL FUEL. If you use natural gas or butane, turn it off at the tank or the meter.

7) PREPARE THE AUTOMOBILES. Back as many vehicles as possible into the garage. Then close the garage door. In the event you evacuate, close the garage door behind you as you leave. If you do not have a garage or if the garage is full, park vehicles so they are heading in the direction of the evacuation route.

8) EVACUATE THE FAMILY. If evacuation becomes necessary, take your family and pets to a safe location.

Find more Firewise tips at our website. **www.firewise.org**

APPENDIX B

CONTENTS

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(Name of local) AREA

EMERGENCY PLAN
and
OPERATING GUIDELINES

for

WILDLAND and
WILDLAND/URBAN INTERFACE FIRES

(date of revision)

INTRODUCTION:

This major incident pre-plan is a cooperative effort between DNR - Forestry and the _____ Fire Department. The _____ area is susceptible to wildfire, and given the concentrations of people and structures in certain locations, a major wildfire could be a disaster. This plan has been tailored to deal with a rural-urban interface wildfire situation but the command and organizational structure could be used to manage any disaster. The intent of this plan is to establish some basic procedures and structures that will minimize confusion when an incident threatens the _____ Community. Fire incidents will be managed under a Unified Command involving the DNR and local Fire Department Resources.

IMPLEMENTATION:

The decision to use the operating guidelines in this plan will be made by the initial attack incident commander(s). At this time an incident command post will be designated and a unified command between DNR and the fire department will be established. This could be a temporary command post such as a fire department or DNR vehicle or one of the established locations identified in the plan. If additional resources are needed a staging area and staging area manager will be chosen to receive any incoming resources that are not being put to work directly on the fire. The unified command will then decide where and how these resources will be utilized on the fire. Additional resources will only be ordered by the unified command or their designee.

BASIC RADIO PLAN:

Once the plan is activated, the DNR IC will operate on a DNR Tactical Frequency, and the _____ FD Fire Chief will operate on the Fire Mutual Aid frequency. (The fire department dispatching frequency should not be use for operations.) MN Statewide Emergency Frequency (MNSEF) will be used for law enforcement liaison, preferably through a DNR Conservation Officer. Working channels for fire department and DNR teams will be designated as the need develops.

ROLES OF LOCAL RESPONDERS:

During an extended major incident, local emergency personnel -- both DNR and VFD Bmay be shunted into positions other than fire suppression. People familiar with local roads, fuel types, and hazard areas, may be better employed in evacuation operations, as guides to incoming mutual aid units, as field observers and scouts, or as staging managers. Flexibility of roles is critical.

POTENTIAL RESPONDERS:

It's to be expected that this plan could engage the following agencies:

(List all likely agencies that could be involve with a major incident, such as, DNR Forestry, fire departments, first responders, mutual aid fire departments, U.S. Forest Service, MN Conservation Officers, county sheriff, police departments, ambulances, rescue squads, power companies, Red Cross, Salvation Army, public works departments, etc.)

EVACUATION:

Law enforcement personnel would be the best people to conduct an evacuation, but responding units could be involved. Activation of this plan would probably entail some level of evacuation, and local media (primarily radio stations) would be contacted to spread the word to the public. Based on current and expected fire location and behavior, the Unified Command would specify areas to be evacuated and routes to be followed. This information would be transmitted to responding units and the _____ DNR dispatch, _____ Fire Department Dispach, and the _____ Sheriff's Dispatch Center so they could phone local radio and TV stations.

EMS OPERATIONS

(List ambulance services, first responders, and hospitals that would be utilized.)

AIR OPERATIONS

Air operations will be under the direct control of the DNR. If a helibase is needed the following locations could be used as a helibase.

(List possible helibase locations, location of nearest airtanker base, air resources normally available, contact names and phone numbers.)

( ) AREA

OVERVIEW:

(A general description of the area. Describe type of residencies, general geographic and topographic features, major road systems and any other characteristic of the community the may help incoming responders. This overview should be limited to less that half a page.)

(map symbols, other than those noted, may be used)

Potential Staging s / ICP Locations: Indicated by Green Circles on Map.

- (List potential staging areas and Incident Command Post (ICP) locations.)
- (Staging areas should have easy access with room to park large equipment.)
- (ICP locations should have a building with electricity and phone lines available. There should be room for parking and room to expand. Examples would be DNR office sites, fire halls, town halls, community centers, schools (when not in session), etc.)

Safe Zones and Evacuation Route: Indicated by Yellow Circles on Map.

- (List safety zones and evacuation routes. Examples might include schools, churches, community centers, gravel pits, etc.)
- (List pre-determined evacuation centers for victims. These may be identified in city or county emergency plans.)

Water Sources for Engines and Tenders: Indicated by Blue Circles on Map.

- (List potential water sources, such as:)
- (Hydrant)
- (Dry hydrants)
- (Lake & river accesses)
- (Tanks)
- (Industrial sources, etc.)

Special Problems / Hazard Zones: Indicated by Pink Circles on Map.

Limited access / egress to the following areas:

- (List areas, neighborhoods, facilities, businesses, etc. that have limited access for emergency response equipment.)

Special Problems:

- (List facilities that may be present special problems, such as hazardous material, high flammability, or institutions such as nursing homes, schools, prisons, etc.)

Aviation Hazards:

- (List hazards to aviation resources, such as towers, high voltage power lines, military low level flight paths, etc.)

General Wildland Fuel Characteristics:

- (List wildland fuel types and some characteristics that present problems, examples.)
- (Lowland grass and brush - flashy fuels, high rates of spread, spot fires, soft ground,)
- (Lowland conifers - difficult access, possible crown fires,)
- (Upland grass fields – flashy fuels, high rates of spread, spotting, may be soft ground,)
- (Upland conifer (Jackpine / Norway Pine)
- (flashy fuels, intense heat, possible crown fires, difficult access, difficult mop-up, snags falling)
- (etc.)

TELEPHONE DIRECTORY

(Modify for local use)

LOCAL GOVERNMENT OFFICES & PERSONNEL		
OFFICE OR PERSONNEL	**TYPE OF #**	**PHONE #**
General Information – (city or township hall)	Office	
	Fax	
Local Public Officials		
(List names and phone numbers)		
Fire Chief – (Name)	Fire Hall	
	Work	
	Home	
	Cell	
Assistant Chief – (Name)	Work	
	Home	
	Cell	
Other Fire Department Contacts – (List names & #s)		
Public Works Department	Office	
	Fax	
Supervisor – (Name)	Work	
	Home	
	Cell	
Other Local Offices – (List as appropriate)		

MEDICAL

FACILITY	TYPE OF #	PHONE #
(List Hospitals, with address)	General Info	
	Emergency Rm	
(List Burn Centers)		
(List Clinics, with address)		
(List Ambulance services)		
(List Medical Helicopter services)		
911 Dispatch Center		

LAW ENFORCEMENT

OFFICE	TYPE OF #	PHONE #
Sheriff's Department	Office	
	Fax	
Police Department	Office	
	Fax	
State Patrol		
MN DNR Conservation Officers		

TELEPHONE DIRECTORY

DNR Forestry (& other wildland fire agencies)		
DNR FORESTRY	**TYPE OF #**	**PHONE #**
(Office, with address)	Office	
	Fax	
	Pager	
(List personnel)	Work	
	Home	
	Cell	
	Pager	
Minnesota Interagency Fire Center (MIFC) Grand Rapids	General	218-327-4436
	Fax	218-327-4527
MIFC – Dispatch Center	Dispatch	218-327-4558
	Fax	218-327-4528
OTHER WILDLAND AGENCIES		
(List other wildland agencies, i.e., USFS, BIA, etc. as appropriate for your area)		

UTILITIES		
OFFICE	**TYPE OF #**	**PHONE #**
ROADS & BRIDGES		
MN DOT (Location)		
(County Road and/or city street department)		
POWER COMPANIES		
(List electric power companies)		
Natural Gas or Petroleum Pipe Lines		
Telephone Company		

TELEPHONE DIRECTORY

MEDIA CONTACTS		
OFFICE	**TYPE OF #**	**PHONE #**
RADIO STATIONS		
(List)		

TELEVISION STATIONS		
(List)		
NEWS PAPERS		
(List)		
FIRE INFORMATION OFFICERS		
(List FD, DNR, USFS, etc. trained as FIOs or PIOs		

BUSINESSES

TYPE	EMERGENCY #	PHONE #
FOOD		
(List)		
LODGING		
(List)		
FUEL		
(List)		
LOCAL BUSINESSES AND FACILITIES THAT MAY BE AFFECTED BY AN INCIDENT		
(List)		

MAPS

(Add local maps with map features.)