MNICS Wildland/Urban Interface Guidelines

COMMUNICATIONS COORDINATION SAFETY

11/14/2022

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Introduction and Purpose

The purpose of these Guidelines is 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.

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 maybe be transferred to a more experienced incident commanders or to a type 3 organization. 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 when the response changes from one stage of attack to another, such as from initial attack to extended attack. Transitions are a dangerous period. 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 - 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 firefighting 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 Level	Description
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 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 span multiple operational periods. A Type 2 incident may require response of resources out of area, including regional and national resources, to effectively manage the operations, command, and general staffing. • Most or all 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 manage and operate safely and effectively. • All Command and General Staff positions are activated. • Operations personnel often exceed 500 per operational period and total personnel usually exceeds 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)

Managing Wildfires in Wildland/Urban Interface Area Guidelines

[*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 many 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 Department of Natural Resources, U.S. Forest Service, U.S. Fish & Wildlife Service, Bureau of Indian Affairs, National Park Service, MN Fire Chiefs Association and MN HSEM - Homeland Security Emergency Management

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 with jurisdictional authority, wildland fire agencies designee, and a local police or sheriff representative. The unified command staff will be located at one site.

Tactical Planning

When an Incident Management Team is working on an incident, the 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, an Incident Management Team should be ordered. (See "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:

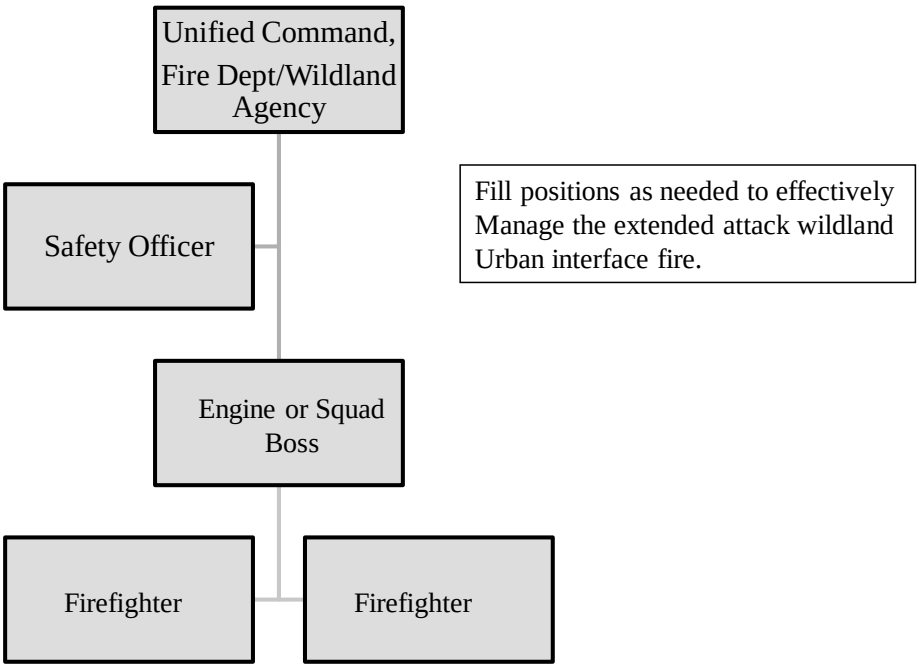
1. local wildland fire agency's dispatch centers (preferred method)
2. **Minnesota State Duty Officer [Phone # 800-422-0798 or 651-649-5451 (metro)].**

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

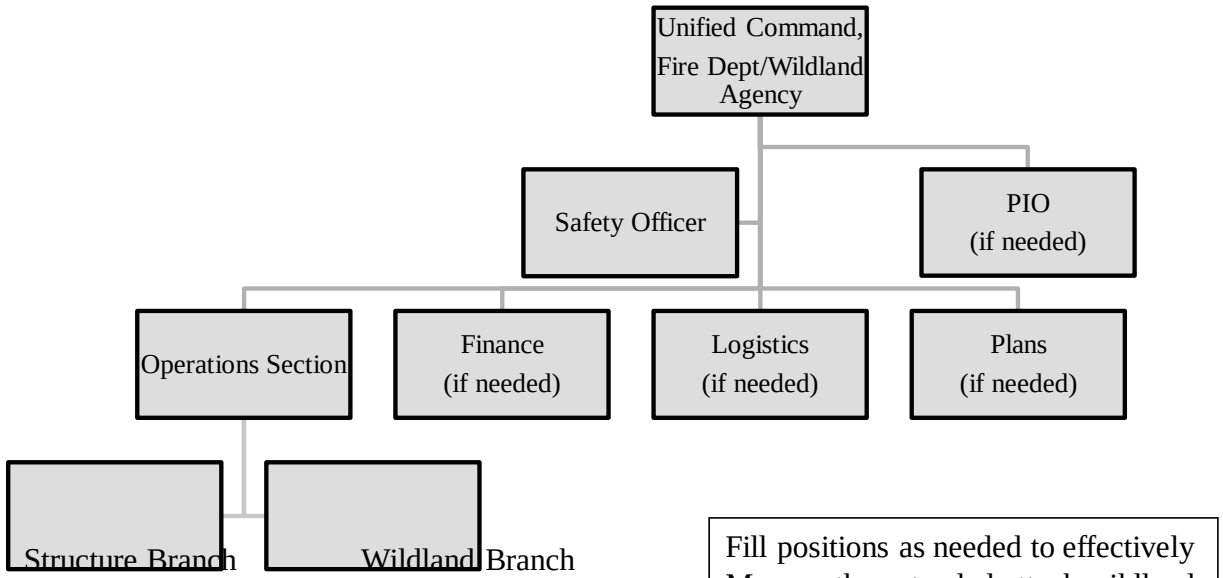
Organizational Charts

Examples of Unified Command Structures for Wildland/Urban Interface Fires

Initial Attack Organization

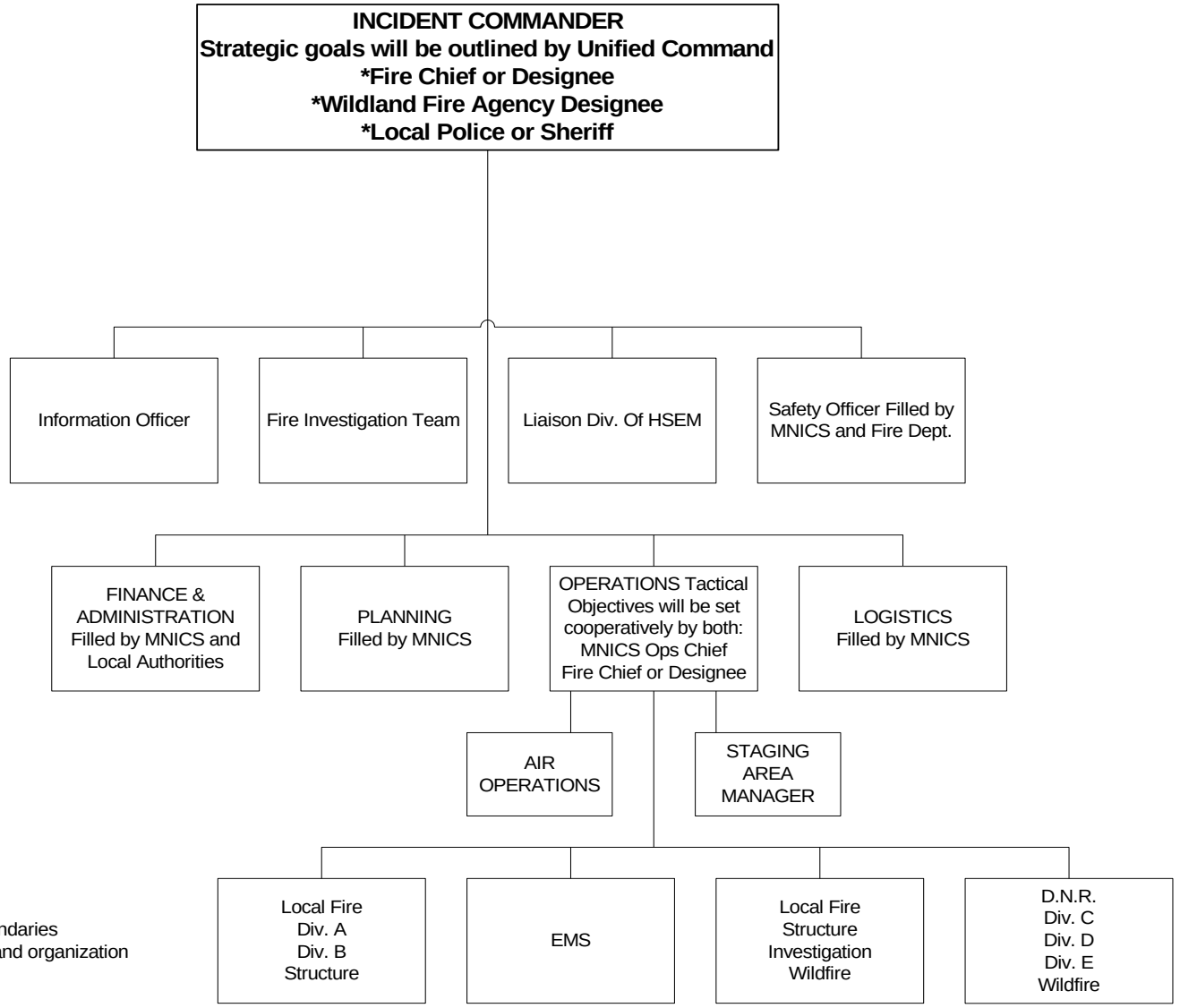


Extended Attack Organization



Fill positions as needed to effectively Manage the extended attack wildland Urban interface fire.

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 a Type 3 IMT, 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 make decisions regarding tactics, incident costs, objectives and strategies. On wildland fires, the Delegation of Authority would be signed by a line officer, Area Forest Supervisor, etc. of the wildland agency in whose jurisdiction the fire is located in. For all-hazard events, it would likely be the County Sheriff, Emergency Management Director, Mayor, etc. in whose jurisdiction the incident is located in.

Example of Request for Assistance form:

LOCAL JURISDICTION REQUEST

FOR ASSISTANCE

For the

INCIDENT MANAGEMENT TEAM

I, _____ as the responsible

(Name of person having local authority)

Authority for _____, do hereby request

(Local Jurisdiction)

_____, as the 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 e-mail is encouraged in order to provide current and reliable information
- ☑ 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 wildland dispatch center should have direct contact with local fire departments. Check the DNR website (www.state.mn.us/forestry/fire/) or Minnesota Incident Command system website (https://mnics.org/wpress) or other websites recommended by your wildland fire agency for current information on weather, fire conditions, fire restrictions, fire numbers and size, and aircraft status.

Radio Frequencies for Wildfire Suppression Only

Fire departments and wildland fire agencies are encouraged to grant authorization to use each other's radio frequencies. All wildland fire agencies have VFire, 154.295 MHz, programmed in their radios.

Since 2012 ALL radio frequencies used in the U.S. (VHF) are in the narrowband mode – this means everyone must operate in the narrowband mode. The ONLY exception is a few of the "Paging" channels still in use along with the NOA weather channels. The Canadians can & do remain in the wideband mode – they do not follow the FCC rules/regulations implemented by the U.S. Our radios can operate in the modes they use when needed – wideband).

All Interagency Radio Frequencies can be found on the MNICS Mob Guide

https://mnics.org/wpress/wp-content/uploads/2023/02/MNICS-2023-Mobilization-Guide.pdf

All mobile and handheld radios are 400 channel, wide/narrowband digital 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 325 king programmable handheld radios and 100 king mobile radios with 25 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 are 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 Statewide. To keep in contact with the various local Fire Departments and other county agencies, the Fire Center has procured a small cache (58) of these portables for use. In addition to these, all DNR areas' have an 800 MHz radio in responding trucks as well as the IC and local DNR office dispatch to use. We use the Motorola model XTS-2500 & APX - 4000, RELM KNGP 800 portables to work with any of the entities that have migrated onto this system.

*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 have migrated to the ARMER radio system, MNICS Agencies have programmed the Inter-Ops channels into their VHF radios and have acquired 800 MHz radios for their 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
- ☑ Housing for firefighters
- ☑ Portable generators/ light plants
- ☑ Local contractors with special equipment
- ☑ Auto services
- ☑ News media information- phone numbers
- ☑ Local hospitals
- ☑ Helicopter Landing Zones (LZ's)
- ☑ Current mutual aid agreements
- ☑ Contracts for local fire resources
- ☑ Local support agencies, Salvation Army
- ☑ Food resources for firefighters and others
- ☑ Dry hydrants/water sources
- ☑ Local transportation (buses)
- ☑ Local EMS resources

Local Maps Needed to Control the Incident:

- County maps
- Aviation Hazard maps (radio towers, airports, etc.
- Water sources
- Staging areas
- WUI Risk Assessments
- Etc.

Fire Department Cooperative Fire Protection Agreements

All 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 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 aviation resources identify and contact any specific 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.

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

T - Tender

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 several 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 aircraft (small, fixed wing)
- Helicopters with buckets and helitack crews (light & medium helicopters)
- Wildfire retardant air tankers (P-3 Orion's, etc.)
- Single engine air tankers (SEATs)
- Water scooping air tankers (Fire Boss, CL-415, etc.)
- Air attack platforms (aircraft with an 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 dispatch, 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 _____
6. Radio Frequency_____
7. Fire size:
8. Fuel type:
9. Values threatened (homes, structures, natural resources, etc.):
10. Other aircraft & hazards (power lines, towers, smoke, etc.):
11. 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) 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)
    d) Area close to the fire location
- ☑ Inform pilot or helicopter manager of potential water sources nearby
- ☑ Consider portable drop tanks as water sources if natural water sources are not readily available within a reasonable distance from the fire.
- ☑ Contact your local wildland fire agency officials each spring to exchange new information and maintain open communication

Water Scooping Aircraft – CL-415 and Fire Boss

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-415 scoop at 80 knots and are on the water for about 15 seconds, covering approximately 2,000 feet.

Common Wildfire Definitions

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

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 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.

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

Fire Command – See Incident Command

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.

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

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.

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.

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

Personal Protective Equipment – Full structure 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 Equipment (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.

S.E.A.T. – Single engine air tanker

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.

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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 Type 3 Incident Management Teams in Minnesota. These interagency teams were formed to manage emerging Type 3 wildland fires and all hazard incidents. Ordering a team allows local fire management units to maintain focus on initial attack fire response. Teams may also be used to assist with all hazard incident management and team members bring experience responding to floods, tornadoes, and search and rescue events in Minnesota.

How can a MNICS Incident Management Team help? On wildland fires, an Incident Management Team can manage a single fire or a group of smaller persistent fires. On all hazard incidents, a MNICS Incident Management Team is there to support local authorities, not to take command. The team is a modular organization that can expand or contract its organizational structure. A team can assist by providing help in managing the incident 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 Incident Management Team report to and who pays? On wildland fires, the team works for the local State or Federal wildland fire agency and that agency pays the costs. If the incident is multi-jurisdictional, the incident may be organized with unified incident commanders. On all hazard incidents, the team works for the requesting agency. If it is decided that the local agency would like the team to assist, cost of the team may be covered under a FEMA disaster declaration, State Emergency funds, or by the local requesting agency. All costs will be coordinated and approved.

How long does it take for an Incident Management Team to mobilize? Team members have a set rotation and availability schedule. The team currently available will be rostered and prepared for immediate response to local state incidents. Actual reporting date and time will be coordinated by the Incident Commander and requesting unit.

How do I request an Incident Management 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. For wildland fires, the Team can be ordered by the local wildland fire agency.

What happens when an Incident Management Team arrives?

When a team arrives, they will check in with the local agency in charge of the incident. On wildland fires, the team will receive an in briefing and begin organizing for transfer of command. On an all-hazard assignment, the team coordinates with the requesting unit and determine how they can support the incident. A completed Delegation of Authority will establish what the requesting unit wants the team to do, who the team reports to, and what authority is given to the team. This will be reviewed daily and can be modified at any time.

MNICS Team Components

Team Incident Commander: Is the point of contact for the requesting unit and coordinates the activities of the team including situations requiring unified command with other local responding agencies. On non-wildland fires, the Incident Commander may fill the role as a team leader.

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

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

Logistics: 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.

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

Type 2 Incident Management Teams

If the incident complexity analysis indicates a Type 2 Incident Management Team is needed, a request can be made through the local unit to request one. We have Type 2 Incident Management Teams available within Eastern Area that can respond to any type of incident within Minnesota.

Request for Assistance (Delegation of Authority)

**Example format*

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): _____

A Local Jurisdiction request form is also available in the MNICS Mob Guide at:

http://mnics.org/wpress/wp-content/uploads/2019/02/MNICS-2019-Mobilization-Guide.pdf

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

A. Purpose:

B. 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.

C. 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. Complete complexity analysis.
5. Determine possible incident camp location.
6. Order or make ample supply of topographic maps, base maps, etc.
7. Determine transportation needs of Incident Management Team (from ordering unit to incident and on incident).
8. Prepare a list of resources on scene and a list of resources ordered but no yet arrived.
9. Begin to assemble finance information.
10. Local unit will supply a status/check-in recorder and radio operator to the Incident Management Team.

D. Prepare for Two Briefings

There should be two briefings of the incoming Incident Management Team. The first briefing should be by the Agency Administrator. The second briefing should be by the local Incident Commander. The transition period of the incident will be agreed upon by the agency administrator and the incident management team.

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 25 as a guide for information needed. You should complete as much of this form as possible before presentation to the Incident Management Team during the Agency Administrator briefing. Make ten copies for the team. If you don't understand some blanks go on the next and complete as much as you can.
2. Local Incident Commander Briefing
   Use format on page 30 as a guide for information needed. If time permits, start filling them out. Make ten 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 ten 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

Command Considerations
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:
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
Mop-up 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

Logistics Considerations
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 209

Other Attachments:

- ☐ Map of Fire
- ☐ ICS 220
- ☐ 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 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:

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:

Request and Authorization for Use of DNR Radio Frequency Form

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/Division	Address, City, State, Zip Code

DNR CALL SIGN: KA 6951

DNR Frequencies or 800 Mhz T/G's

TRANSMIT FREQUENCY Or Talkgroup	TONE Or T/G ID	RECEIVE FREQUENCY Or Talkgroup	TONE Or T/G ID	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)

Request and Authorization for Use of Other Agency or Division Radio Frequency

NA-02194B-02

REQUEST AND AUTHORIZATION FOR USE OF OTHER AGENCY/Division RADIO FREQUENCY

Permission is requested to use the following other agency radio frequencies or talkgroups 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/Talkgroups

Talkgroup or Transmit Freq	TONE Or ID	Talkgroup or Receive Frequency	TONE Or ID	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)

Wildland Firefighting Aircraft

Through the wildland fire agencies, there are several 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 to assist with wildfires are:

- Wildfire detection planes (small fixed wing aircraft)
- Helicopters with water scooping buckets and helitack crews (Light, Medium & Heavy Helicopters)
- Wildfire retardant air tankers (BAe 146, C-130, etc.)
- Single engine air tankers (SEATs)
- Water scooping air tankers (Fire Boss, CL-415, CL-215)
- Air attack platforms. Aircraft with an Air Tactical Group Supervisor (Air Attack) to coordinate airspace and assist with tactical air operations.

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 cooperation with your wildland fire agency):
2. Requesting person:
3. Requesting agency:
4. Location: General location (distance and direction from nearest town, and landmarks easily determined from the air)Legal description and/or Section, Township, Range or GPS coordinates:
5. Ground contact: Name _____
   *Radio Frequency – 800MHz or VHF-FM_____
6. Fire size:
7. Fuel type:
8. Values threatened (homes, structures, natural resources, etc.):
9. Other aircraft & hazards (power lines, towers, smoke, etc.):

*Flight crews are equipped with 800MHz radios and can patch the proper talkgroup if necessary.

Primary tactical aircraft communications are done using VHF-FM frequencies, so ensure that unified command is established.

See Communications section p. 12-14 for more information.

Additional information on aircraft can be found in Chapter 50 of the MNICS Mobilization Guide and the next three pages of this document.

Working with Aviation Resources in the Wildland/Urban Interface

Aviation resources working in the Wildland/Urban Interface (WUI) face increased and unique hazards. It is important that all resources are able to identify and communicate these hazards to maintain the highest level of safety.

Hazards:

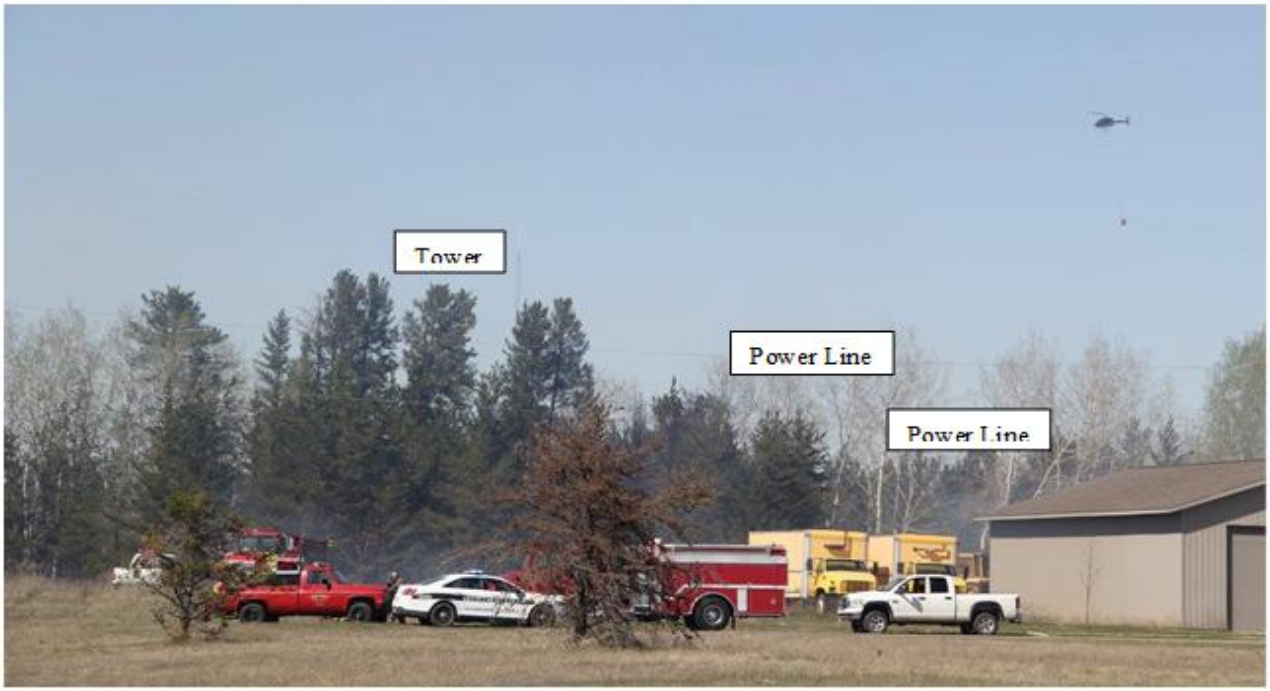
- Wires
- Towers
- Public/curious on-lookers
- Increased likelihood of UAS (Drone) occurrence
- Sense of urgency
- Multiple Agencies

Mitigation:

- Communication: Ensure all personnel have clear communication
- Dedicate an Air/Ground VHF-FM channel
- Create a Unified Command
- Coordinate tactics between all ground agencies and aviation resources
- Proper, timely and safe clearing of drop areas
- Give clear honest feedback. Are the drops being effective?

DO NOT assume pilots or flight crews see you or hazards.

It is important for ground resources to identify and communicate all hazards to flight crews.



Aviation Benefits to Ground Firefighters

Incident Commanders can rely on Air Attack (Air Tactical Group Supervisor) to coordinate with them and provide support by directing airtankers and helicopters to critical areas of the fire for retardant and water drops. Air Attack and/or Helicopter Managers can also provide a big picture view of the fire to relay information to ground firefighters on fire spread, effectiveness of tactics, safety zones and escape routes and to coordinate medivac operations if needed.

Airplanes and helicopters are critical tools in managing wildland fire. They allow fast response to fires, assisting wildland agencies in reducing the potential loss of life and property. Missions include:

- Aerial supervision
- Locating fires, access, escape routes and safety zones
- Increase situational awareness (reconnaissance/intelligence gathering)
- Dropping fire suppressants and fire retardants
- Delivering firefighters and supplies
- Mapping
- Medical evacuations
- Arsonist apprehension

Aviation assets do not extinguish wildfires but create a safer, cooler working environment for ground resources. Suppressants and retardants are most effective when followed up with ground resources.

Due to the abundance of water in Minnesota, bucket equipped helicopters and water scooping fixed wing aircraft can be very effective for initial attack, keeping fires small and manageable. Aggressive aerial suppression can reduce the cost and time commitment of extended attack. Water scooping aircraft may be most effective when operating in pairs, especially when fires are more than 5 miles from a water source.

Retardant aircraft, from Single Engine Airtankers (SEATs) to Very Large Airtankers (VLATs) can operate from a variety of permanent and temporary tanker bases in Minnesota.

Remember:

- Fire suppression aircraft are most effective in the initial attack or early phase of the fire.
- Call for aircraft early, they can be canceled if not needed.
- Personnel and equipment must clear the drop zone when airtankers are inbound.



Aerial Suppression Tactics

- "Initial Attack" aircraft are most effective in the early phases of the fire.
- Call for aircraft early, they can be canceled if not needed.
- MIFC will prioritize requests by "Life, Property and Resources"
- Suppressants and retardants are most effective when followed up with ground resources.

Principles that apply to ground operations also apply to air operations. Strategies are based on values at risk and resource management objectives. Tactics are based on fuel type, fire intensity, rate of spread, resource availability, and estimated line production rate.

Aerial Fire Suppression Strategies – There are four general suppression strategies:

- Direct attack – Drops on the flanking fire or across the head of the fire.
- Indirect attack – Pre-treatment of fuels that are away from the main fire.
- Parallel attack – Generally parallel to and within a hundred feet of the fire perimeter, used when needed for better coordination with ground resources.
- Point Protection – Placement of suppressants directly on or adjacent to targets (structures) that are immediately threatened by wildfire.

Aerial Fire Suppression Tactics

The Air Attack / Helicopter Manager will implement tactical decisions based on objectives developed by incident command personnel.

A common aerial suppression tactic, especially in helicopter operations, is "anchor, flank and pinch", in conjunction with ground resources.

- **"Anchor"** means to find a suitable natural (or person-made) defensible line in the terrain which the fire is unlikely to jump, from which to start building a containment line.
- **"Flank"** means to continue building containment line from the anchor point to the head.
- **"Pinch"** means to turn the corner between the flank and head fire as the final phase in fire containment.

Another common aerial suppression tactic, especially in air tanker operations, is to attack the head fire directly, then follow up on the flanks in conjunction with ground resources.



Aerial Fire Suppression Aircraft in Minnesota Helicopters

	Type III	Type II	Type I
				
Water Dropping Capacity (gals)	100 (Intermediate*-144)	300	700
Foam Capabilities	N/A	N/A	Injection System
Retardant Capabilities	Heli-Well	Heli-Well	Heli-Well
Tank / Bucket System	Bucket	Bucket / Belly Tank	Bucket / Belly Tank
Passenger Seats	4-8 (Intermediate*-minimum 5)	9-14	N/A
Useful Load (Lbs.)	1,200	2,500	5,000
Type of Fuel	Jet A	Jet A	Jet A
Typical Fuel Cycle	1.5 – 2.0 hours	1.5 – 2.0 hours	1.5 – 2.0 hours
Wind Limitations <500 AGL	30 mph – Gusts 15+	40 mph – Gusts 15+	40 mph – Gusts 15+
Examples	206L3, 206B3, 206L1, 500D Intermediate* - 206L4, 407, AS350 B2, AS350 B3	205A1++, 212 HP, 212, S-58T, UH-1H	S-64, S-61, Boeing 234 & 107, K-Max

* Intermediate Helicopters are high performance Type III Helicopters, designated by MN DNR Forestry.

Helicopter Operations Safety

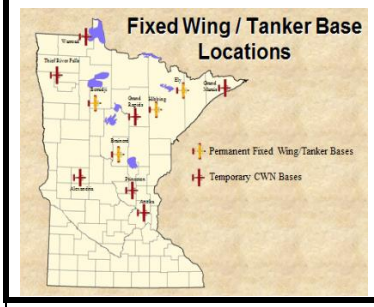
Buffers around the drop zone must be maintained to provide a safe working environment for ground personnel.

These minimum standards should be followed:

- 50’ laterally for personnel & equipment
- 100’ in front of or behind personnel & equipment in grass/brush fuel types or canopied equipment in timber fuel types
- 1½ times the canopy height in front of or behind unprotected personnel in timber fuel types.

Aerial Fire Suppression Aircraft in Minnesota

Water Scoopers

	Fire Boss	CL-215	CL-415
			
Water Dropping Capacity	799 Gal	1,400 Gal	1,600 Gal
Foam Capabilities	24 loads – Maximum	20 Loads	N/A (Current Contract)
Gel Capabilities	Load at Tanker Base	N/A	N/A
Retardant Capabilities	Load at Tanker Base	N/A	N/A
Drop Height	60-100 ft. above canopy	100-200' above Canopy	100-200' above Canopy
Load Release	Two Clamshell Doors – Computer Controlled Constant Flow – Salvo, String, or Split Drops – Coverage Level 1-6	Two Doors –Computer Controlled, Single Operation, Sequence or Salvo	Four Doors – Computer Controlled, Single Operation, Sequence or Salvo
Type of Fuel	Jet A	100LL	Jet A
Fuel Burn/hour	600 lbs./90 gal	1000lbs/225 gal.	1500lbs/350 gal.
Min Runway Length	3,000 gravel	5,000 feet	3,500 feet
Water Scooping Distance (Touch down to lift off)	2,000 feet	2,000 feet	2,000 feet
Total Pickup distance to clear 50 ft. obstacle	5,668 feet	5,280 feet	4,400 feet
Min. Scooping Water Depth	4 ft.	8 ft	8 ft
Headwind Limitations	40 mph	None	None
Crosswind	20 knots	22 knots	22 knots
Fuel Cycle	3 hours	4 hours	4 hours
Normal Cruise Speed	140 knots	150 knots	170 knots
Max. Cruise Speed	155 knots	164 knots	187 knots

Tanker Operations Safety

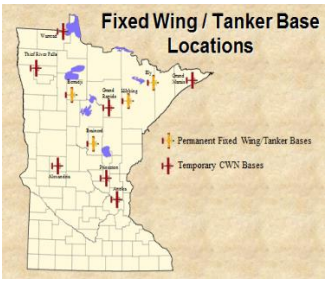
Tanker operations are potentially dangerous. The entire load can be released in seconds. From drop heights of 100-200 feet, this force can have a devastating effect on tree crowns and shallow rooted tree species. It is essential that all line personnel stay clear of the drop zones.

Buffers around the drop zone must be maintained to provide a safe working environment for ground personnel.

These minimum standards should be followed:

- 200' laterally for personnel & equipment
- 300' in front of or behind canopied equipment
- 500' in front of or behind unprotected personnel

Aerial Fire Suppression Aircraft in Minnesota
Land-Based Tankers

	SEAT	Large Air Tankers	Very Large Air Tankers (VLAT)
			
Water Dropping Capacity (Gals)	*799*	Type I – ≥ 3,000 Type II – 1,800-2,999 *Type III – 800-1,799*	*10,000+ Gallons*
Gel Capabilities	*Load at Tanker Base*	*Load at Tanker Base*	*Load at Tanker Base*
Retardant Capabilities	*Load at Tanker Base*	*Load at Tanker Base*	*Load at Tanker Base*
Drop Height	*60-100 ft. above canopy*	*100-200' above Canopy*	*100-200' above Canopy*
Load Release	*Two Clamshell Doors – Computer Controlled Constant Flow – Salvo, String, or Split Drops – Coverage Level 1-6*	*Four Doors –Computer Controlled, Sequence or Salvo Coverage Level 1-6*	*Four Doors – Computer Controlled, Sequence or Salvo Coverage Level 1-6*
Type of Fuel	*Jet A*	*Jet A*	*Jet A*
Fuel Burn/hour	*600 lbs./90 gal*	*6700 lbs./1000 gal.*	*18,090 lbs./2700 gal.*
Min Runway Length	*3,000 gravel*	*5,000 feet*	*6,000 feet*
Headwind Limitations	*40 mph*	*None*	*None*
Crosswind	*20 knots*	*22 knots*	*22 knots*
Fuel Cycle	*3 hours*	*4 hours*	*4 hours*
Normal Cruise Speed	*140 knots*	*350 knots*	*380 knots*
Max. Cruise Speed	*155 knots*	*400 knots*	*560 knots*
Examples	*Air Tractor 802*	*Type I – C-130 MAFFS, BAe 146 Type II – P2V*	*DC-10*

Tanker Operations Safety

Tanker operations are potentially dangerous. The entire load can be released in seconds. From drop heights of 100-200 feet, this force can have a devastating effect on tree crowns and shallow rooted tree species. It is essential that all line personnel stay clear of the drop zones.

Buffers around the drop zone must be maintained to provide a safe working environment for ground personnel.

These minimum standards should be followed:

- *200' laterally for personnel & equipment*
- *300' in front of or behind canopied equipment*

500' in front of or behind unprotected personnel

UNMANNED AIRCRAFT SYSTEMS (UAS) GUIDANCE

FOR WILDLAND FIREFIGHTERS

We will likely be seeing increased recreational, government and commercial use of UAS in the future. Conflicts could occur if UAS are operating in the vicinity of a wildfire.

Pilots must work in an already unfriendly environment, given the aerial hazards (powerlines, trees, towers), smoke, and windy conditions they encounter when they operate within 500' of the ground. An additional hazard that could cause an accident is a UAS that be operating in the same airspace.

UAS operations should remain clear of and not interfere with manned aircraft operations; and to not be careless or reckless since UAS operators could be fined for endangering people or other aircraft.

Wildland fire agencies are hoping to create a culture of UAS operators that will recognize the hazard that is created when they operate over wildfires. **The goal is to obtain an area free of non-emergency aircraft, including UAS, within a 5-mile radius of wildfires.**

We are requesting the cooperation of all firefighters on the fire scene as they look up, look down and look around**. If you see or are made aware of a UAS operating on a wildfire, please take the following action**:

1. Contact the IC with the description and location of the UAS
2. If there are or could be fire suppression aircraft on the fire:
    - The IC should immediately contact the ATGS or Helicopter Manager.

- The suppression aircraft will immediately disengage from their missions until it is confirmed that the UAS is no longer airborne and a threat.
- The IC should contact the Area Dispatcher to notify them of the UAS with its description and location.
- The Area Dispatcher should contact the MIFC Air Desk to notify them of the UAS so the aviation dispatcher can ensure all airborne suppression aircraft are notified of the UAS.
- The Area Dispatcher should contact local law enforcement for assistance in locating the operator of the UAS and grounding the unit so the airspace can be made safe.

3. After the UAS is confirmed to no longer be airborne and a threat, the IC should make the appropriate contacts with the Air Attack, Helicopter Manager and the Area Dispatcher so aerial suppression activities can be resumed.

- The Area Dispatcher will contact the Air Desk with an update on the status of the airspace.

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 an 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 preceding 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

Agreement Number: (YY RAN FDID#)

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. 88.04 subd. 4; 88.11 subd. 1; and 89.01 subd. 4

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 firefighting 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 if the fire was not reported timely to the DNR.
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.

   (Delete options that are not used.)
8. **(Optional**) Replace or reimburse the Fire Department for the cost of Class A firefighting foam used on wildland fires, with final approval of the DNR Forester.
9. **(Optional)** Loan wildland firefighting tools, as available, to the Fire Department.

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

Cooperative Fire Protection Agreement between the Fire Department and Minnesota DNR Division of Forestry

ITEM DESCRIPTION	NUMBER OF PERSONNEL W/ EQUIPMENT	WORK RATE		*STAND BY RATE	
(include NWCG type, make, model, year, serial number and special features, such as 4X4, CAF or foam proportioners)		a. rate (includes personnel)	b. per unit (hour, etc.)		
a.					
b.					
c.					
d.					
e.					
f.					
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:

Run charge of $500.00 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)

Suggested Equipment Standards and Hourly Rates for Fire Departments with an agreement with Minnesota DNR Division of Forestry

After the first two-hour rate has expired, needed equipment will be placed on an hourly rate. Equipment standard and rates include personnel; fuel will be furnished by the Fire Department. The rate will be reduced by 10% for Engines and Water Tenders older than 25 years.

Engines

	Structure Engines		Wildland Engines				
COMPONENTS	1	2	3	4	5	6	7
Pump Rating							
Min. Flow (GPM)	1000	500	150	50	50	50	10
At rated pressure (PSI)	150	150	250	100	100	100	100
Tank Capacity (Gallon)	300	300	500	750	400	150	50
Hose 2 ½" (Feet)	1200	1000					
Hose 1 ½" (Feet)	500	500	1000	300	300	300	
Hose 1" (Feet)			500	300	300	300	200
Personnel	4	3	3	2	2	2	2
Equipment Rate /Hour	$275	$200	$185	$165	$140	$125	$85

**Engines equipped with Compressed Air Foam Systems will be paid an additional $20 an hour if CAFS is used on the incident.*

Water Tenders

	Water Tender Types				
Requirements	Support			Tactical	
COMPONENTS	S1	S2	S3	T1	T2
Tank Capacity (Gallons)	4000	2500	1000	2000	1000
Pump Minimum Flow (GPM)*	300	200	200	250	250
@ Rated Pressure (PSI)	50	50	50	150	150
Max Refill times (Min.)	30	20	15	-	-
Pump & Roll	-	-	-	yes	yes
Personnel	1	1	1	2	2
Equipment Rate /Hour	$200	$160	$140	$230	$190

*Portable Pump Acceptable with tenders

* Water tenders come with folding tanks

Additional Firefighters use a rate of $15.00/hr

Wildland Urban Interface Fire Operations

- Structure protection is inherently dangerous because it can involve indirect attack
- Good wildland urban firefighting takes place when the right strategy and tactics are developed
- Protect the lives of civilians and firefighters, save property that can be saved, conserve resources

DO NOT commit to stay and protect a structure unless a safety zone for firefighters and equipment has been identified at the structure during size-up and triage. **Move to the nearest safety zone, let the fire front pass, and return as soon as conditions allow.**

Fire Behavior Prediction

- Base all actions on current and expected fire behavior
- An estimate must be made of the approaching fire intensity to determine if there is an adequate safety zone and time available for protection before the fire arrives. Due to the dynamic nature of fire behavior, intensity estimates are difficult to make with absolute certainty. It is imperative that firefighters consider the worst case and build contingency actions into their plan to compensate for the unexpected.

Structure Size-up

Site Considerations:

- Adequate ingress and egress routes for responding resources
- Adequate safety zone based on predicted fire behavior
- Adequate lookout, escape routes, and communication capability
- Adequate defensible space based on surrounding wildland vegetation
- Avoid narrow canyons, mid-slope with fire below, and narrow ridges near chimneys/saddles
- Avoid structures that appears 'junk yard like' with considerable flammable/easily ignitable materials such as old construction wood, trash, and piles of brush
- Avoid locating your engine between the structure and the fire

Tactical Challenges and Hazards

Firefighters with a safety zone can safely defend structures w/ some challenges.

- Narrow roads, unknown bridge limits, and septic tank locations
- Ornamental plants and combustible debris next to structure
- Wooden siding and/or wooden roofing materials
- Open vents, eaves, decks, and other ember traps
- Fuel tanks and hazardous materials
- Powerlines
- Property owners that remain on-site
- Limited water source. Don't bet your crew's lives on a hose line.
- Heavy fuels will generate higher BTUs and greater flame lengths

An important consideration is the amount of clearance where the flaming front will impact you

- In some cases 10 feet will be adequate (backing fire).
- In other cases 40-50 feet will be adequate. In some cases 100-200 feet will not be adequate (wind driven, crown fire, structure in full alignment).

Structure Triage

Defensible – Prep and Hold:

- Determining Factor: Safety Zone present
- Size-up: Structure has some tactical challenges
- Tactics: Firefighters needed onsite to implement structure protection tactics during fire front contact

Defensible – Standalone:

- Determining Factor: Safety Zone present
- Size-up: Structure has very few tactical challenges
- Tactics: Firefighters may not need to be directly assigned to protect structure because it's not likely to ignite during initial fire front contact. However, no structure in the path of a wildfire is completely without need of protection. Patrol is needed following the passage of fire front.

Non-Defensible – Prep and Leave:

- Determining Factor: NO Safety Zone present
- Size-up: Structure has some tactical challenges
- Tactics: Firefighters not able to commit to stay and protect structure. If time allows, rapid mitigation measures may be performed. Set action point for a safe retreat. *Remember, pre-incident mitigation is the responsibility of the homeowner*. Patrol following the passage of fire front will be needed.

Non-Defensible – Rescue Drive-By:

- Determining Factor: NO Safety Zone present
- Size-up: Structure has significant challenges
- Tactics: When firefighters are unable to commit to stay and protect structure, and IF time allows, check to ensure people are not present in the threatened structure (especially children, elderly, and invalid). Set action point for a safe retreat. Patrol following the passage of fire front will be needed.

Structure Protection Tactics

Rapid mitigation measures:

- Remove small combustibles immediately next to structure
- Close windows and doors, including garage (leave unlocked)
- Clean area around fuel tank and shut off tank
- Charge garden hoses
- Apply foam or gel products if available

Equipment and water use

- Mark entrance to indicate a staffed location if it is not obvious
- Charge hose lines. Long hose lays are not recommended.
- Keep 100 gallons of water in reserve
- Identify a backup water source and hazards (like powerlines)

Patrol following the fire front

- Return as soon as conditions allow safe access to structures
- Take suppression actions within your capability
- Call for assistance if needed