

**COMMAND AND CONTROL
WORK GROUP**



**A REPORT TO THE FIRE PROGRAM
ASSESSMENT TEAM - DECEMBER 2009**



Membership

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INTRODUCTION

This report represents the culmination of work done by the Command and Control Working group. The working group used the fire landscapes concept provided by the Stratification working group as the foundation for providing the recommendations set forth in the report. One of the major undertakings of the group was the development of a mathematical model to equate fire landscapes for the distribution of equipment and personnel. The working group made every attempt to be objective and let the data drive the group towards conclusions. The working group did not utilize the existing intensive, extensive or cooperative area protection classifications but rather used “organized DNR protection and Cooperative fire protection classifications”. Careful attention has been given to a variety of sources, which included the Fire Department Advisory Council, Fire Department Survey, Café Courts, Staff Surveys, Cooperative Fire Study, and other historical documents such as the previous fire study.

Items Assessed

- ~ Staffing standards by protection or stratification level
- ~ Staffing and specific action guides
- ~ Division of Forestry’s role and our partner’s role and capabilities for providing protection services by stratification level
- ~ Policies and procedures for movement of personnel and equipment on a statewide basis
- ~ Role and staffing of Madison Command Center
- ~ Role and procedures for Regional Fire Coordination
- ~ Number and configuration of Incident Management Teams including all risk
- ~ Organized protection boundaries, fire response unit boundaries, Area boundary special circumstances

COMMAND AND CONTROL WORK GROUP CHARGE

The Command and Control Work Group was charged to fully consider, investigate and determine the best methods available to:

- ~ provide alternatives to and recommend a methodology to determine fire staffing
- ~ determine the appropriate role of DNR partners in wildland fire suppression
- ~ determine the most efficient methods for mobilization and movement of fire suppression resources across the state
- ~ explain how alternate services can be provided given changes to what can be invested at different levels of stratification

OBJECTIVES

The Command and Control Work Group were guided by the following objectives:

1. Identify a staffing and standards methodology for the different stratification levels of forest fire protection.
2. Determine the optimal permanent staffing needs by stratification level - linked to the equipment allocation recommendations from the Suppression working group.
3. Determine an appropriate staffing and specific action guide for daily use, based on fire danger. Consider appropriate use of CFFDRS (Canadian Forest Fire Danger Rating System) and NFDRS (National Fire Danger Rating System).

4. Determine the Division of Forestry's role and the optimal role for partners in providing forest fire protection services in each stratification level. This will include defining the Fire Department's role by stratification level and also the recommended role and relationship with agencies such as the U.S. Forest Service, Menominee Tribal Enterprises, and U.S. Fish and Wildlife Service.
5. Review, revise, and develop any necessary policies and procedures to move personnel and equipment statewide for short durations as required by fire conditions or activity.
6. Determine the appropriate role and staffing of the Madison Command Center. Recommend any needed improvements. Identify the most effective method for Regional Fire Coordination and the relationship to Central Office staff and the Command Center.
7. Determine the appropriate number and configuration of Incident Management Teams for local, regional, and statewide use. Include all risk incidents.
8. Recommend any changes needed for existing organized protection boundaries, fire response unit boundaries, and any unique Area boundary special circumstances.

SUMMARY OF RECOMMENDATIONS

The Command and Control Work Group proposes the following recommendations for consideration by the Fire Program Assessment Team:

Staffing & Standards Methodology

1. Adopt the fire landscape concept as the basis for stratification
2. Adopt the allocation method as the mechanism to allocate resources across fire landscapes

Optimal Permanent Staffing Needs

1. Allocate the following number of forester-rangers and forestry technicians into the corresponding fire landscapes according to the table below:

Fire Landscape	# Positions Allocated		Total Positions Allocated (combined)
	Forester-Ranger	Forest Technician	
1	1	0	1
2	1	0	1
3	5	3	8
4	12	23	35
5	1	1	2
6	3	2	5
7	5	7	12
8	10	10	20
9	5	7	12
10	1	0	1
11	1	0	1
12	0.5	0	0.5
13	3	3	6
14	2.5	2	4.5
15	7	14	21
16	2	2	4
Total	60	74	134

** Note - There are currently 135 forester-rangers and forestry technicians working in all fire landscapes with DNR fire protection.

Staffing and Specific Action Guide

1. Adopt the Canadian Forest Fire Danger Rating System (CFFDRS) as the basis to determine fire staffing and preparedness levels in Wisconsin
2. Invest the time necessary to complete development of the staffing guide
3. Invest the time necessary to develop the infrastructure that supports the CFFDRS / NFDRS platform for field implementation by the 2011 spring fire season.
4. Continue to support and utilize the NFDRS platform for decision making and analysis.

Partnership Roles – Division of Forestry and Fire Department

1. Maintain
 - ~ wildland fire expertise
 - ~ shared (DNR and VFD) initial fire attack responsibilities
 - ~ continued use of tractor-plows as the primary wildland fire suppression tool
 - ~ a fully funded Forest Fire Protection Grant program for Wisconsin FD's
 - ~ wildland fire training for WI FD's
2. Investigate the use of the National Fire Incident Reporting System (NFIRS) to report wildland fires occurring in the Co-Op Fire Protection Areas
3. Develop the use of FD's to conduct school-based wildland fire prevention programs
4. Explore with cooperating federal agencies ways to support each other's wildland fire programs

Madison Command Center and Regional Fire Coordination

1. Maintain the present Madison Command Center; update equipment and technology as future advances occur
2. Staff the Command Center on an 'as needed' basis with existing Central Office Forestry staff similar to what is presently occurring.
3. Update the Forestry Operations Handbook; Chapters 50-20, 50-21 and 50-30
4. Consolidate Chapter 5120-20 of the Fire Management Handbook and Chapter 50-30 of the Forestry Operations Handbook
5. Support sharing and pre-positioning of resources across respective fire boundaries (Fire Response Units, Areas, and Regions).
6. Continue to utilize the Regional Forestry Leader to be Regional Fire Coordinator and the main point of contact for the Central Office and Command Center (when activated).
7. Continue to support the concept of "closest resource" for strong and efficient wildfire initial attack.
8. Continue the sharing of daily operations plans between fire managers.

Incident Management Teams

1. Maintain nine (9) rapid-response Incident Management Teams (IMT's) in each area to respond to wildland fire incidents; maintain the capability to establish an operational command structure within two hours of dispatch.
2. Modify the current IMT structure according to the following criteria:
 - ~ establish nine core "Type 3"IMT (10-15 members)
 - ~ maintain a minimum of four regional expanded team (10-15 members)
3. Charge the Fire Working Group with identifying Core and Expanded team membership. Core team membership needs to be adequate as not to fall behind the power curve on an incident.
4. Continue to be opportunistic in utilizing partners as IMT members.

Duty Officer

1. Establish a 24-7 regional forestry duty officer. Responsibilities may include:

- ~ on-call when the ground is not snow covered
- ~ Regional forestry leader would be responsible for scheduling forestry duty officer
- ~ evaluating and determining appropriate response and documenting action
- ~ serve as the designated contact for Co-Op fire suppression requests
- ~ serve as a regional contact for all-risk response requests

Administrative Boundaries / Jurisdictions

1. Maintain existing area and dispatch group boundaries
2. Reduce DNR fire protection in FL10 by eliminating fire response units (FRUs). FRU boundaries from adjacent fire landscapes can be expanded to cover DNR fire protection areas inside FL10.

- DISCUSSION -

Staffing and Standards Methodology

Objective

Identify a staffing and standards methodology. This involves the determination of response level, response time, response area and risk in the response area and fire behavior.

Analysis

Currently, the state is divided into three fire protection categories – intensive, extensive and cooperative areas. In both the Intensive and Extensive areas, the Division of Forestry maintains an organized protection presence with complete forest fire suppression responsibilities. In the Cooperative area, the Division of Forestry does not have an organized presence; Volunteer Fire Departments (VFD's) carry out fire suppression with assistance from DNR upon request.

The Stratification Work Group was charged with developing stratification levels for wildfire protection across the state, the results of which produced a map depicting 16 fire landscapes in Wisconsin. The Command & Control Work Group utilized this concept as the foundation to develop a resource allocation methodology. Briefly, each fire landscape was analyzed in relation to the inputs that define each of them, and their geographic proximity to the other landscapes. These inputs or attributes were utilized to develop a mathematical formula – in conjunction with the Suppression Work Group – to effectively determine a basis for resource allocation across each fire landscape

Current Conditions

Equipment and personnel adjustments were made in these areas based on the 1990's fire study under the premise of the areas being a pine area or a hardwood area. Each pine area was allocated two tractor plows and one type 6/7 engine. The hardwood areas were allocated one tractor plow and one type 6/7. These allocations were based on a township classification, assigning each town a protection level between one and five, with a value of one being the highest level of protection.

Components Considered

The working group utilized the fire landscapes provided by the Stratification Work Group. Each landscape was analyzed in relation to the inputs that determined the landscape and its relation to the other landscapes. These inputs or attributes were utilized to develop a mathematical formula – in conjunction with the Suppression Work Group – to effectively determine a basis for resource allocation across each fire landscape. The formula incorporated the following factors:

- ~ area of a fire landscape
- ~ fire risk in that area
- ~ area and risk a tractor plow could cover
- ~ flame length coefficient

The formula did not incorporate any current allocations or coverage levels. It was determined that this would bias the formula by using current standards. This bias would be introduced because the assumption would be that the current state is correct. For that reason, only data from the fire landscape stratification was utilized.

The mathematical formula utilizes attributes of the area of the fire landscape and the sum, which is analogous to the risk in a fire landscape. The formula was developed using the tractor-plow because they are the unique piece of equipment that is not readily held in the private sector, or by any other government agencies in Wisconsin.

A desired response time for a tractor-plow was developed by defining a travel area (coverage) for a 30 minute response time. The assumption used was that the piece of equipment could respond to any point in that area within thirty minutes. This is roughly the equivalent of a 400 square mile area.

The mean Sum of all fire landscapes was applied to the thirty-minute response area to determine the risk and area a tractor could protect. This became the average risk circle factor (Factor). The raw allocation formula then became the Area of a fire landscape multiplied by the Mean risk of that fire landscape, and then divided by the average circle factor. The equation is displayed accordingly:

$$\text{(Area*Mean)/ Factor} = \text{Raw \# Tractor-Plow to be allocated into a fire landscape}$$

It was then determined that a factor depicting fire behavior be applied to the fire landscape as a measure of 'appropriateness' of a tractor-plow in that landscape. In other words, is a tractor-plow the right piece of equipment in all landscapes? Thus, the flame length coefficient was developed by applying the Scott and Burgan 40 fuel model to the fire landscapes in conjunction with the LANDFIRE national project.

It is noted that the stratification group chose not to utilize this model in their process. It was felt by the stratification group that at the pixel level resolution that they were working at this model had some discrepancies in the data and where some fuel models were assigned. However, when applied to the landscape level resolution these pixel level data discrepancies were muted. It is also noted in LANDFIRE literature that it is not a model that should be used at the micro scale, but should be used at a landscape scale resolution to support strategic vegetation, fire and fuels management planning. In short, a way to view these differences is to envision a checkerboard. The stratification group is concerned about the red and black squares. For this model, the command and control group is only concerned about the board itself and the value of the "checks" but not as important as to where they lie on the board.

The model assumes the following:

A fire environment of high to very high was simulated with conditions trending toward a droughty environment.

The model inputs were a condition of temperature (75 degrees F), relative humidity (24%) and mid flame wind speed (8 mph), dry fuel moisture of 3%,4% and 5% representing 1, 10, and 100 hour fuel classes respectively, a 30% herbaceous fuel moisture content and 60% woody fuel moisture content.

Under these conditions, the model was able to generate an average flame length by fire landscape, which was then divided by 4 (ft) since this represents the threshold where suppressing a fire transitions from hand tools to mechanized equipment. This then became the flame length coefficient. A distinct coefficient was applied to each landscape based on the Scott and Burgan fuel model flame length model; this coefficient was then multiplied by the raw tractor-plow allocation by each fire landscape to determine the desired number of tractor-plows in a fire landscape. The equation is displayed accordingly:

$$\text{\{(Area*Mean)/ Factor\}*flame coefficient} = \text{Desired Tractor-Plow}$$

This result is defined as the minimum threshold capacity in a fire landscape. For example, if a single unit were reduced from a fire landscape where few units were allocated, that fire landscape would fall below its capacity to suppress forest fires. Or alternatively, that particular landscape is at its maximum suppression capacity. The mix of resources in that landscape is unable to take on any additional risk or area.

For allocating Type 6/7 engines, an initial attack package was determined for each fire landscape. In general, this consisted of a Type 6/7 engine, one or two tractor-plows and a volunteer fire department. The IA package was determined jointly in an ICS-215 exercise with the Suppression Work Group. The result of this exercise culminated with the opinion based largely on professional judgment and experience of what would comprise a desired initial attack package within a given fire landscape. The number of Type 6/7 engines would then be a function of the tractor allocation plus the IA package.

For example, if a particular fire landscape was identified to have an initial attack package of 1 Type 6/7 engine and 2 tractor plows, and that landscape was allocated 10 tractor plows through the formula, then 5 Type 6/7 engines would be allocated. The final allocation of resources into a fire landscape is also be tempered by the following considerations:

- ~ Extended attack / project fire needs
- ~ Fire department density and resources
- ~ Fire occurrence (historical)
- ~ Improvements
- ~ Forest patch size / continuity

Recommendation(s)

1. Adopt the allocation formula as the basis to effectively determine the allocation of tractor-plows across each fire landscape. Staffing allocation would be a function of the tractor-plow allocation.

Change in Investment (w/additional resources)

Using the formula applied to fire landscapes allows the fire manager to identify priority areas and areas where coverage is at minimum thresholds or at its maximum suppression capacity. With expanded resources, they could be targeted to those landscapes at minimum threshold.

Resources could also be targeted to landscapes where there is not currently an organized suppression presence. This would be in the form of Co-Op expansion.

Change in Investment (w/fewer resources)

Utilize the formula to reduce resources in those landscapes where there is the capacity to reduce. Apply priority to those landscapes currently above the minimum threshold capacity.

Optimal Permanent Staffing Needs

Objective

Determine the optimal permanent staffing needs by stratification level linked to the equipment allocation recommendations from the Suppression Work Group

Analysis

The work group utilized the fire landscapes provided by the Stratification Work Group as a basis to determine staffing needs for a given fire landscape described above. Other factors influencing the placement of personnel and resources within a given landscape included fire risk, fire behavior, tractor-plow response time, the amount of "risk" a tractor-plow can effectively protect in a fire landscape, shape of fire response units, fire occurrence, extended attack situations in fire landscapes, fire department density and fire department resources. Based on these criteria, forester-rangers and forestry technicians were allocated into the 16 fire landscapes.

Current Conditions

The State of Wisconsin is stratified into three levels of forest fire protection. These are the DNR intensive forest fire protection area, the DNR extensive forest fire protection area, and the Cooperative forest fire protection area. Division of Forestry fire personnel and equipment are concentrated in the intensive and extensive forest fire protection areas because the possibility of forest fires impacting life, property, and natural resources are highest there. The Division does not maintain fire personnel or equipment in the Co-Op fire protection area. However, one permanent statewide fire co-op specialist is devoted to providing wildland fire expertise to fire departments and local units of government. In addition, LTE funding is available to assist with providing wildland fire training to fire departments.

Currently, the intensive and extensive forest fire protection areas are divided into 56 fire response units. The amount of equipment and personnel assigned to the fire response unit depends on the level of risk to life, property, and natural resources.

Components Considered

The Stratification Work Group assembled data on vegetation, forest patch size, soils, and man made improvements to create 16 fire landscapes throughout Wisconsin. Essentially, the fire landscapes show the fire risk across the State.

The Command and Control and Suppression Work Groups developed a mathematical formula as a tool to help evaluate and determine equipment and personnel allocations across fire landscapes in Wisconsin. The formula is based on the following considerations:

- ~ fire risk
- ~ calculated (estimated) fire behavior within the fire landscape
- ~ tractor-plow response time
- ~ Amount of "risk" a tractor-plow can effectively protect in a landscape.
- ~ Formula assumes fire conditions of high to very high.

Development of the formula considered the tractor-plow as the basis for determining equipment allocations since it is the piece of fire suppression equipment that is exclusive to the DNR and forms the backbone of DNR fire suppression tactics. Forester-ranger and forestry technician allocation for each fire landscape is a function of tractor-plow allocation for a given fire landscape. The Command and Control Work Group chose to allocate these positions because they are tied directly to fire suppression equipment, and therefore play the major role in forest fire suppression.

The number of forester-ranger positions needed in a fire landscape is equal to the number of Type 6/7 engines allocated to a landscape. The number of Type 6/7 engines allocated to a landscape is based on the number of tractor-plows allocated to a landscape. The number of forestry technicians in a fire landscape is equal to the number of tractor-plows in a fire landscape.

The work group feels strongly that all forester-rangers and forestry technicians with fire responsibilities are essential to meeting the Division of Forestry's mission of protecting natural resources from forest fires.

To reiterate, the personnel / equipment distribution formula was used as a tool to start the evaluation process of personnel placement in the fire landscapes. The formula is not meant to be the end all solution to the question of what is the optimal equipment and personnel number for each fire landscape. It was merely a place to start an objective evaluation of personnel and equipment in the fire landscapes.

The formula alone led the work group to an initial number requiring 127 forester-rangers and forestry technicians to protect the State of Wisconsin from forest fires. Remember, the

formula only evaluates certain factors. Therefore, the work group examined the formula number of 127 FTEs across the fire landscapes and felt it was imperative to fine tune this number of personnel taking into account factors not examined by the formula. The work group felt the following factors were necessary to consider:

- ~ The formula only assumes fire conditions on a high to very high fire day. Consequently, the formula only provides the number of personnel required to protect the state from forest fires on high to very high days. The work group feels additional personnel are needed to protect Wisconsin when extreme fire days occur.
- ~ Fire occurrence was not examined in the formula because there was a lack of data in the Cooperative fire protection area. The work group feels fire occurrence data plays an important role in personnel placement.
- ~ The shape of some fire response units (FRUs) and the location of the ranger stations within these FRUs leads to increased response times to some fires. Therefore, additional personnel are necessary to preposition inside the FRU to keep response times low.
- ~ Some personnel are located in parts of Wisconsin where special risks to local resources exist. Examples would be large marshes or blocks of pine, and areas with uphill railroad grades.
- ~ The extended attack and project fire needs of the fire landscape and surrounding fire landscapes require additional personnel to protect the resource.
- ~ Fire Department density and fire department resources in the fire landscape show the need for DNR assistance with forest fire suppression.

Finally, the Command and Control Work Group used the allocation placement formula, data from the Stratification Work Group, and the factors above to develop recommendations on where and how many forester-rangers and forestry technicians should be placed in each fire landscape. This number was determined to be 134 FTE.

Low Ground units were considered and it was felt that they are specialized and surplus to the core program. A decision was made to not have dedicated FTE for those units but to have FTE trained to operate those units in the cases when needed, much like the current Montello / Wautoma examples.

Back up operators were also deemed important. Currently there is one back up operator per dispatch group. The Command and Control did not allocate any back up operator positions into the fire landscapes since most of these positions are not directly tied to a piece of equipment. It was determined that if a reduction in back up operators were to occur, the reduction would be drawn from those landscapes that have the lowest overall risk. Some back up could be expected from those units that were allocated into landscapes that were planned for landscapes that currently do not have a DNR presence (i.e 3 units from FL 11 placed in FL 4). There are also options where the back up operator may not need to be a forestry technician, but could be another forestry employee. If a back up position was to be added to the allocation mix, it would be recommended that they be added to landscapes 15, 9, 4, 7, 8. All other landscapes are too small to support the need. This would represent 5 positions.

Land ownership was considered in the allocation exercise. In FL 4, the acreage associated with FT. McCoy was removed from the calculation. The state does not have any statutory responsibility for this area. This same reasoning was applied to FL 8 in regards to the USFS land. There is USFS land in other landscapes, but it represents small fractional amounts in smaller tracts. The USFS acreage in FL 8 represents about 17% of the landscape area..

Additional information on how the equipment / personnel placement formula was derived can be found in the staffing and standards methodology section of the Command and Control Work Group report.

Recommendations

1. Allocate the following number of forester-rangers and forestry technicians to the corresponding fire landscapes accordingly (see Figure 1):

FL1

Forester-Ranger	1
Forest Technician	0

Considerations: one forester-ranger is targeted for expansion of the Cooperative fire program. Data from the Stratification Work Group, past Cooperative fire studies, and input from the Fire Department Advisory Council show a need for expansion of the Co-Op fire program in this fire landscape

FL2

Forester-Ranger	1
Forest Technician	0

Considerations: one forester-ranger is targeted for expansion of the Cooperative fire program. Data from the Stratification Work Group, past Cooperative fire studies, and input from the Fire Department Advisory Council show a need for expansion of the Co-Op fire program in this fire landscape

FL3

Forester-Ranger	5
Forest Technician	3

Considerations: personnel needed to meet the fire suppression needs of the large geographic area and the fact that this fire landscape, due to its isolation, cannot draw personnel from adjacent fire landscapes when needed during extended attack fires. One forester-ranger position is targeted for expansion of the Cooperative fire program. Data from the Stratification Work Group, past Cooperative fire studies, and input from the Fire Department Advisory Council show a need for expansion of the Co-Op fire program in this fire landscape

FL4

Forester-Ranger	12
Forest Technician	23

Considerations: forestry technicians and forester-rangers will meet the need for fighting multiple, extended attack fires in pine areas simultaneously as well as fulfilling equipment requests from adjacent Co-Op areas of FL 10, 11, and 3

FL5

Forester-Ranger	1
Forest Technician	1

Considerations: fire needs in this fire landscape can be adequately managed with personnel from adjacent fire landscapes

FL6

Forester-Ranger	3
Forest Technician	2

Considerations: personnel in this fire landscape can adequately meet the fire needs for the entire landscape, and support FL 7 when extended attack situations arise. The forester-ranger position is targeted for expansion of the Cooperative fire program. Data from the Stratification Work Group, past Cooperative fire studies, and input from the Fire

Department Advisory Council show a need for expansion of the Co-Op fire program in this fire landscape

FL7

Forester-Ranger	5
Forest Technician	7

Considerations: forester-ranger position allocated to meet extended attack needs in the fire landscape

FL8

Forester-Ranger	10
Forest Technician	10

Considerations: based on the allocation formula and the central location of this fire landscape. Personnel and resources in this landscape will make it easier to respond to requests for assistance from adjacent fire landscapes when extended attack situations occur

FL9

Forester-Ranger	5
Forest Technician	7

Considerations: based on the allocation formula; additional forester-ranger positions allocated to meet extended attack needs in this fire landscape

FL10

Forester-Ranger	1
Forest Technician	0

Considerations: forester-ranger position is targeted for expansion of the Cooperative fire program. Data from the Stratification Work Group, past Cooperative fire studies, and input from the Fire Department Advisory Council show a need for expansion of the Co-Op fire program in this fire landscape

FL11

Forester-Ranger	1
Forest Technician	0

Considerations: forester-ranger position is targeted for expansion of the Cooperative fire program. Data from the Stratification Work Group, past Cooperative fire studies, and input from the Fire Department Advisory Council show a need for expansion of the Co-Op fire program in this fire landscape. Adjacent fire landscapes have the capacity to send personnel to meet extended attack fire needs in fire landscape 11

FL12

Forester-Ranger	0.5
Forest Technician	0

Considerations: .5 forester-ranger positions targeted for expansion of the Cooperative fire program. Data from the Stratification Work Group, past Cooperative fire studies, and input from the Fire Department Advisory Council show a need for expansion of the Co-Op fire program in this fire landscape

FL13

Forester-Ranger	3
Forest Technician	3

Considerations: based on the allocation formula

FL14

Forester-Ranger	2.5
Forest Technician	2

Considerations: 0.50 forester-ranger position is targeted for expansion of the Cooperative fire program. Data from the Stratification Work Group, past Cooperative fire studies, and input from the Fire Department Advisory Council show a need for expansion of the Co-Op fire program in this fire landscape

FL15

Forester-Ranger	7
Forest Technician	14

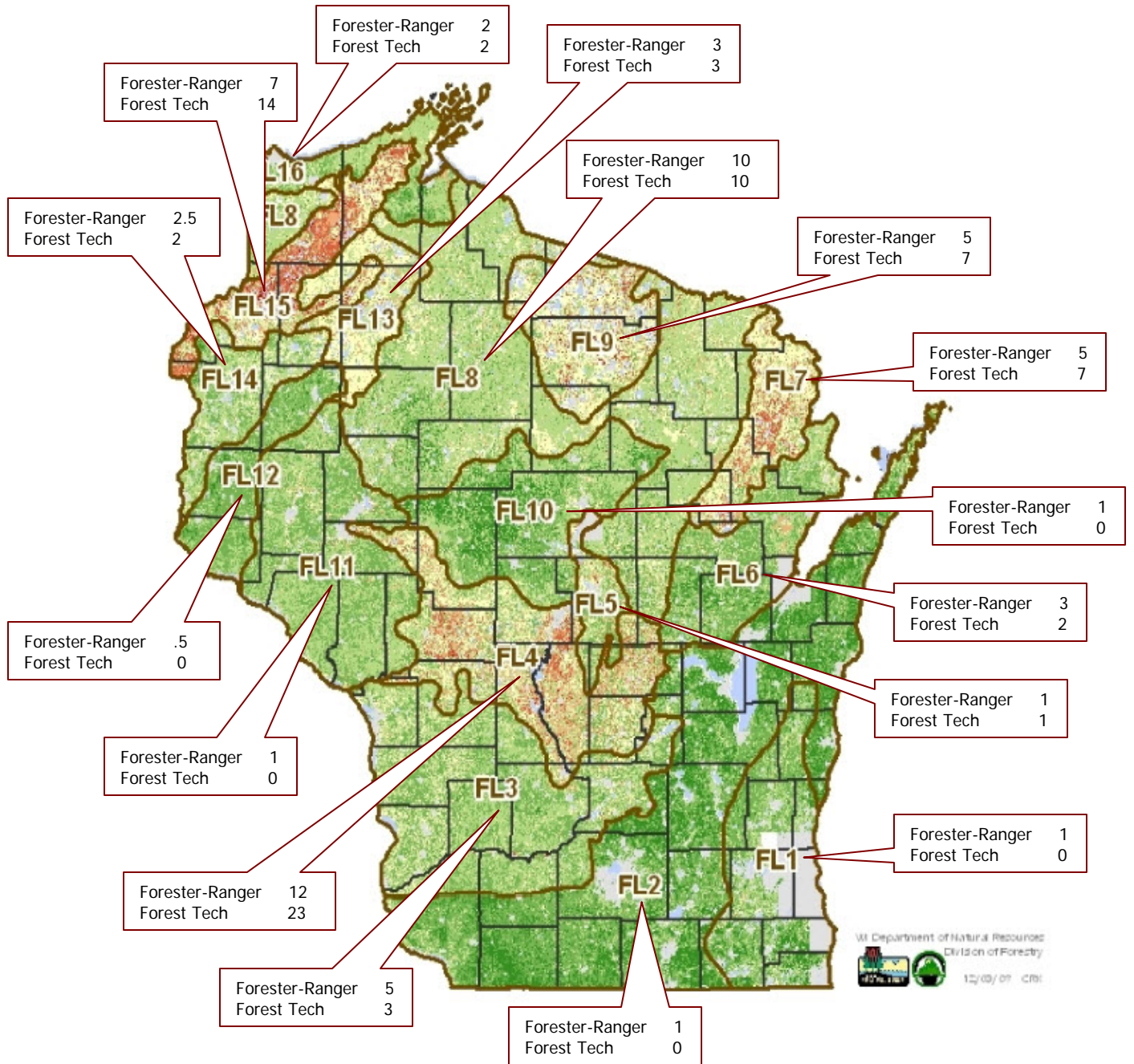
Considerations: based on the allocation formula and historical project fire occurrence in pine areas in the fire landscape

FL16

Forester-Ranger	2
Forest Technician	2

Considerations: fire needs in this fire landscape can be adequately managed with personnel and resources from adjacent fire landscapes

Figure 1: Resource Allocation by Fire Landscape



2. Allocate 7 forester ranger-positions into the following fire landscapes that make up the Cooperative fire protection areas. The 7 positions would serve the following:

~	FL14 & 12:	1 position;	4 counties
~	FL3:	1 position;	4 counties
~	FL11:	1 position;	7 counties
~	FL10:	1 position;	3 counties
~	FL2 & 6:	2 position;	17 counties
~	FL1:	1 position;	8 counties

The work group identified a need to serve and protect the Cooperative fire protection areas of the state. Data from the Stratification Work Group, past Cooperative fire studies, and input from the Fire Department Advisory Council show a need for expansion of the Co-Op fire program. The objective of the Cooperative Fire Program is to facilitate and assist the needs of townships and fire department resources to better provide adequate forest fire protection to the citizens of the State of Wisconsin in cooperative fire protection areas. A recent survey showed that local fire departments are responding to 3,430 forest fires burning 24,557 acres every year in the cooperative area.

This recommendation would improve safety, training, incident support, equipment, communications, law enforcement, fire prevention and fire suppression in cooperative fire protection areas. The recommendation establishes 7 permanent Cooperative Fire Officer positions to meet this critical unmet workload, and would serve 13.7 million acres located in 44 counties across the state with direct assistance to 527 local Fire Departments and 671 Townships.

3. FPAT evaluate how 1 FTE can best serve the fire program in the future

As noted above 135 forester-rangers and forestry technicians protect the State of Wisconsin from forest fires in landscapes where DNR fire protection exists. However, the Working Group only distributed 134 forester-rangers and forestry technicians across the fire landscapes. The remaining FTE not assigned is still valuable to the fire program. The fire program is more than fire suppression. It is pre-suppression, training of fire departments, law enforcement, forest fire prevention, and wildland urban interface work. The working group recommends the FPAT examine how this 1 FTE can best serve the fire program in the future.

Change in Investment (w/additional resources)

Overall, the top four priorities have been set for the addition of more resources. The formula allocated resources across landscapes and for the most part the working group kept the formula allocation in that landscape. If for some reason the risk in a particular landscape increased, the resources in these landscapes may not be able to meet that increased fire demand with the capacity they have in their particular landscape. If more resources were available the FL's that would require more resources to put them above their minimum capacity are: FL 13,8,5,14,16,3,11,6,10,12,1,2. After increasing capacity in those landscapes it would be then appropriate to increase resources in FL 7, 9,4,15.

Priority 1: Expand forest fire protection in Fire Landscape 14

Two-thirds of FL14 is in the Cooperative fire protection area. 50% of the landscape is forested and there is potential for a 300 to 500 acre fire to occur. Historically, from 1975 to 2008 4 large fires occurred in the landscape burning 1100 acres. However, data is not complete due to some of the area being in the Cooperative fire protection area. For these reasons, in addition to the data gathered on fuel type, flame length in that fuel type, forest patch size, and number of manmade improvements the work group recommends expanding DNR fire protection to FL14. If DNR fire personnel were added to this landscape they would be available to assist FL15, which contains the highest forest fire risk factors in the state.

Priority 2: Expand forest fire protection in Fire Landscape 3

Thirty-eight percent FL3 is in the Cooperative fire protection area. Less than half of the area is forested. However, wildland fires in this landscape have the potential to be 500-2500 acres in size primarily in tall grass fuels. Historically ('75-'08), there have been roughly 15-20 fires in the 100-499 acre size class and 3 fires in the 500-2499 acre size class. However, data is not complete due to some of the area being in Co-Op. For these reasons, in addition to the data gathered on fuel type, flame length in that fuel type, forest patch size, and number of manmade improvements the working group recommends expanding fire protection to FL3.

Priority 3: Expand forest fire protection to Fire Landscape 11

Most of FL11 is in the Cooperative fire protection area. Less than half of the landscape is forested. Generally, wildland fires will remain under 500 acres in this landscape. Historically ('75-'08), there have been a couple of fires in the 1000 acre size class. However, fire occurrence data is incomplete because the majority of this area is in the Cooperative fire protection area. For these reasons, in addition to the data gathered on fuel type, flame length in that fuel type, forest patch size, and number of manmade improvements the work group recommends expanding fire protection to FL11.

Priority 4: Add a forestry technician with fire control responsibilities and another heavy unit to DNR fire protection in Fire Landscape 3

Data from the Stratification Work Group and examination of fire occurrence and fire risk suggest a need for another forestry technician and heavy unit in DNR fire protection in FL3. The large geographic size of fire response units in fire landscape three make it difficult for a heavy unit to reach fires in an acceptable time frame. An extra heavy unit would decrease fire response times in the fire landscape. In addition, the extra forestry technician and heavy unit would provide added support to the Cooperative fire protection area of FL3.

Change in Investment (w/fewer resources)

Priority 1: Reduce DNR fire protection in Fire Landscape 10 by eliminating fire response units (FRUs) in that landscape. FRU boundaries from adjacent fire landscapes would be expanded to cover DNR fire protection areas inside fire landscape 10

Half of FL10 is currently in the Cooperative fire protection area. Agriculture is the dominant land use in this landscape. Most of the landscape is not forested. There has not been a forest fire over 499 acres in fire landscape 10 during the time period from 1975 to 2008. However, data is not complete due to some of the area being in the Cooperative fire protection area. For these reasons, in addition to the data gathered on fuel type, flame length in that fuel type, forest patch size, and number of improvements the work group recommends reducing DNR fire protection in FL10. However, the working group realizes the state's responsibility to provide fire protection to areas currently protected by DNR fire resources. Therefore, the work group recommends expanding adjacent FRU boundaries from other fire landscapes to cover existing DNR fire protection areas inside FL10.

Priority 2: Reduce DNR fire protection in Fire Landscape 6 by eliminating fire response units (FRUs) in that landscape. FRU boundaries from adjacent fire landscapes would be expanded to cover DNR fire protection areas inside Fire Landscape 6

Forty-five percent of FL6 is in the Cooperative fire protection area. A majority of this landscape is not forested primarily due to agriculture and urbanization. Generally, forest fires should remain under 500 acres in this landscape. Historically ('75-'08), no single fire has been reported over 499 acres in this landscape. However, fire occurrence data is incomplete because some of the fire landscape is in the Cooperative fire protection area. For these reasons, in addition to the data gathered on fuel type, flame length in that fuel type, forest patch size, and number of improvements the work group recommends reducing DNR fire protection in FL6. However, the work group realizes the state's responsibility to provide fire protection to areas currently protected by DNR fire resources. Therefore, the Working group recommends expanding adjacent FRU boundaries from adjacent fire landscapes to cover existing DNR fire protection areas inside FL6.

Priority 3: Reduce DNR fire protection in Fire Landscape 8 by combining some fire response units inside the landscape and expanding the boundaries of the remaining fire response units

FL8 is centrally located in the state. The central location and data gathered on fuel type, flame length in that fuel type, forest patch size, and number of improvements makes it possible for the work group to recommend combining some fire response units in the landscape. The central location of the landscape in the state allows personnel from adjacent fire landscapes and areas to assist with extended attack fire needs.

Priority 4: Reduce DNR fire protection in Fire Landscape 4 by reducing the number of personnel in some FRUs

The work group does not recommend FRU elimination in FL4 because this would increase response time in a landscape with high fire risk. However, there may be opportunities to increase efficiencies by reducing some personnel in specific FRUs. If reductions occurred the central location of the fire landscape would allow personnel from surrounding fire landscapes or areas to fill the need. Any reductions in this fire landscape should be carefully considered because of the fire risk in the pine fuel type.

Staffing and Specific Action Guide

Objective

Determine appropriate staffing and specific action guide for daily use based on fire danger; and

Consider appropriate use of CFFDRS (Canadian Forest Fire Danger Rating System) and NFDRS (National Fire Danger Rating System)

Analysis

WDNR has been using the Canadian Forest Fire Danger Rating System (CFFDRS), albeit informally for the past several years. It's use and familiarity amongst staff has been steadily growing. Developed in Canada, this system is premised on empirical data derived from recorded fire events in Canada and test fires occurring under all fire conditions in the jack pine forest type, which is common in Wisconsin.

Minnesota, Michigan, Maine and Alaska all utilize the system to some degree. Also, Minnesota, Michigan and Wisconsin have entered into a joint venture with Mesowest Utah, to develop a system that will display the Canadian codes and indices by weather reporting station across the Great Lakes. The Mesowest project is utilizing all reporting networks and is not limited to just RAWs stations. Doing so offers a greater view of conditions across the region due in part by the relative simplistic features of the Canadian Forest Fire Danger Rating System.

The State of Wisconsin has also invested considerable energy into the system. Break points for each code and index have been calculated for each weather station. These codes and indices have been interpreted and a matrix has been developed to generate a fire danger rating. The codes and indices are displayed on a web page and are applied to a fuel model to generate a fire danger rating as well as fire behavior in three fuel models: grass, hardwoods and conifers. Partnerships also have been made with the National Weather Service, which provides forecast data to allow the system to calculate forecasted conditions two days in advance. To this point this has been utilized as a supplemental tool for fire management staff to assist in the decision making process. Currently the Forest Fire Suppression Specialist located in Wisconsin Dells manages this system. There has been supplemental help in the past provided by an LTE. This LTE position performed the system maintenance and developed break-points for individual stations.

The fire danger rating matrix has yet to be published and exists as a series of codes and equations in a software package known as Weather Pro 3 that is utilized to do the calculations. The break-points in the equation have yet to be fine tuned and should be evaluated against known conditions.

Through the café staff surveys and reports from area managers there has been tremendous support for the continued utilization of the system. Most notably is its ability to trend drying patterns of fuels and its propensity to be able to correlate to the onset of crown fire behavior. There is also relevance in the overall applicability in that it was developed in an area that has similar fuel types that are experienced here in the Great Lakes states. Some of the biggest concerns expressed were believability of the “numbers”. This could be addressed by calculating the break-points by fire landscape or some other regional analysis. A unique fire danger rating determination could be created for each of these analyzed zones.

The working group further expanded on this charge and developed a **statewide preparedness level concept**. This concept applies to the coordination, utilization and movement of all suppression resources on a statewide scale to maximize efficiency and effectiveness of those suppression resources. The statewide preparedness level concept takes into consideration the “big picture” of the fire danger, fire activity, resource needs, resource availability and resource commitments. The objective of this statewide preparedness level is to communicate the fire management preparedness and actions necessary to ensure flexibility, maximum utilization and commitment of all state fire resources to meet the current and future needs of the statewide fire management program. (Table 2&3)

Current Conditions

Currently, WDNR utilizes the National Fire Danger Rating System (NFDRS) 1978 version to determine staffing and specific actions. These are published by dispatch group and are applied by analyzing climatological records for weather stations located in each respective dispatch group, and applying a fuel model to those records to determine break-points. Those break-points drive the staffing and specific actions that are to occur.

Components Considered

Safety

The WI DNR Division of Forestry (DOF) believes that safeguarding the health and welfare of our employees is of the highest priority. We believe that accident prevention is a constant shared responsibility between the Supervisor and his/her employees. Both supervisors and employees are responsible for observing, reporting, reviewing and mitigating safety related issues and concerns.

Safety should be continually emphasized and reinforced in training and daily briefings (generally done when conditions are at Moderate or above; or as fire conditions warrant). As wildfire activity and intensity increase so does the need for increased situational awareness when working on the fireline. Adherence to safety policies is important in all situations but merits special emphasis as staff work extended hours for prolonged numbers of days. It is the responsibility of everyone to ensure that safety policies and procedures are followed. Ongoing review of safety policies and procedures will occur to help identify trends, enforce safety standards, and educate others prior to accidents occurring. Daily safety briefings for all wildfire suppression staff (tailgate sessions) should include at a minimum:

- ~ Local and regional After-Action-Review (including “close calls” or “near miss”)
- ~ Predicted Weather; local and regional
- ~ Predicted Fire Behavior and Fuels Information
- ~ Communications Issues
- ~ Safety Hazards
- ~ Pertinent Daily Safety Message/Discussion

Conditions

Conditions relate directly to the “Fire Danger Ratings” generated by using the Canadian Forest Fire Danger Rating System (CFFDRS). In general terms, these provide an indication of the type of wildfire and degree of fire suppression difficulty expected for the indices assigned to each “Fire Danger Rating”. These are; Low, Moderate, High, Very High, and Extreme. WI DNR also utilizes the National Forest Fire Danger Rating System (NFDRS) to make assessments of fire danger. This system augments the CFFDRS and is another tool to use when making staffing and response decisions.

Recommendation(s)

1. Adopt the Canadian Forest Fire Danger Rating System as the basis to determine fire staffing and preparedness. Formally adopting this system will align WDNR with its’ partners in the Great Lakes Forest Fire Compact.
2. Adopt the Area Staffing Guidelines for implementation prior to the beginning of the 2011 spring fire season after the numbers have been formalized. (Table 1).

The NFDRS system will continue to be utilized for maintaining consistency, fire reporting (state and national) and awareness in the event staff are deployed to out-of-state fire assignments where CFFDRS is not utilized (e.g. western fire detail).

Considerations

To become a fully integrated system, further developmental effort is needed. These include:

Technical

Develop a reliable data-gathering platform. This could be done in conjunction with the Mesowest project or could be done by exploring the use of Local Readout Gathering Systems (LRGS) software to be able to provide a reliable data gathering platform. Much of this software exists in the public domain. The effort would be to incorporate it and program it to meet the states needs.

- ~ ‘Truth-the-numbers’ - Break-point figures should be developed by **Fire Landscape** or Dispatch Group for the fuel type most likely to cause fire suppression issues. To develop by fire landscape may pose some difficulties in that there may not be climatological data available for that landscape. This would have to be compensated for by extrapolating between existing data sets. These break-points could be applied into existing equations to develop the matrix that generates fire danger rating. Areas would also have to be identified as to the fuel type that would be used to make staffing decisions. There is recognition that during spring time conditions all fuel types would be similar.

From these numbers develop a staffing and preparedness guide. A draft of activities is included later in this document. The specific break-points and determinations would have to be added to the draft guides after they have been checked for accuracy and calibrated. The intent of the guide is to provide direction to area managers and fire management staff to determine optimal staffing levels and activities that would occur at each level. It is intended that one guide based on fire danger would provide statewide direction.

- ~ Maintenance - the system and break-point figures should be looked at in 5-10 year intervals to recalculate the break-points and determine that the activities and danger ratings are accurate and appropriate.

Training

An effort would have to be undertaken to develop a formal training package to bring field staff and area managers up to speed on the appropriate use of the individual codes and indices, and which ones to use dependant on season.

~ Timeframe - it is recommended that this be undertaken as soon as practical. Much of the infrastructure to implement it is already in place. To do the proper analysis and develop a training package it is estimated that it would require 200 hours of effort.

Table 1 AREA STAFFING GUIDELINES

	LOW	MODERATE	HIGH	VERY HIGH	EXTREME
BI (Q; Spring) ERC summer					
FFMC / ISI Matrix					
BUI / FWI Matrix summer/fall indicator					
Daily Operations Plan	No - 1 Plan may serve for extended time period	1 Daily Spring 1 Weekly non- spring	Daily	Daily	Daily
Resource Availability	No Staffing required	1 resource per fire unit to respond	Full station	Full Station type 8's, Resources available to move area to area	All Suppression resources available; resources available statewide
Riders/LTE	No	No	Yes (Spring only)	Yes	Yes
Fire Behavior forecast	No	Yes (spring only)	Yes (spring Only)	Yes	Yes
Vehicle Operations checks	Yes (if operated)	Yes (if staffed)	Yes	Yes	Yes
Detection	Citizen Reporting	Citizen reporting	Towers (Spring)	Towers (Spring) Non- spring to supplement	Towers
Aircraft	No	No; may be placed on standby if WX event expected	Initial Detection flight, available in area on ground	Flights supplemental to towers	Flights supplemental to towers, additional aircraft may be on standby
Fire Duty Readiness	No	1 per response unit if RH and Wind conditions are forecast	50% of suppression equipment per response area	All Suppression equipment	All Suppression Staff and equipment
IMT	No	No	Core (Spring)	Core/ Overhead on alert	Core/ Overhead on alert
Prepositioning	No	No	No	Yes	Yes
Heavy Dozers / Cooperators on standby	No	No	No Yes spring	Yes	Yes
Work schedule	Regular office hours	Regular office hours Spring time switch to 0900-1800	0900-1800 spring	0900-1800 spring May extend staffing hours	0900-1800 spring; Extend staffing hours
Fire Duty Officer	Yes	Yes	Yes	Yes	Yes
Burining Permits	Snow covered or regular restrictions	Unrestricted / Regular rules	Restrict daytime; if WX forecast indicate worsening conditions	Restrict / cancel	Restrict /Cancel
RX burning	Yes	Yes	Upon area approval	Suspended or conditionally approved	Suspended
Sociopolitical Considerations	Statewide or Regional events such as fishing opener or the Fourth of July; natural events such as floods or windstorms; other unexpected or unusual events that may have large scale impacts should be considered.				

Staffing and Specific Action Guide **Statewide Preparedness Levels** (Table 2 & 3)

3. Adopt a statewide preparedness level concept as a means to assist in determining both daily fire staffing needs and statewide preparedness levels. The preparedness level concept and accompanying area staffing guide provide an effective decision-making mechanism for actions to take when certain preparedness levels are attained, and allows for the efficient placement and mobilization of resources (e.g. readiness) to take place across the state.

The following pages provide the guidance, and outline the actions that could be taken to meet increasingly complex fire situations using the preparedness level concept. Much like the Area Staffing Guidelines (Table 1), additional time and resources is required for a full and thorough examination of the preparedness level concept. Here, we merely attempt to frame out how staffing and preparedness level guides might look.

Considerations

The “WDNR Preparedness and Response Guidelines” (Tables 2 & 3) represent one decision support tool available to wildfire response personnel. Daily preparedness and response decisions are to be made based on all available information and tempered with experience. Although flexible, the guidelines incorporate enough structure to offer a degree of decision support comfort to those using them for wildfire response. These guidelines should be viewed as both a checklist or reminder and a thought process for preparedness and response.

Fire Management Preparedness Levels

The Statewide Fire Preparedness Levels are meant to provide an umbrella of readiness for all WI fire suppression resources. This system recognizes the need and ability of all fire resources to be brought to bear on any fire statewide. The levels will assist fire managers better plan and prepare to better utilize the mobility and adaptability of fire suppression resources. Preparedness Levels are set through the evaluation of the many fire descriptive criteria. They are meant to provide some longer term planning and preparedness to insure the states resources remain in the most ready state to address current and developing fire concerns. Fire managers identify which Preparedness Level’s criteria best describe the areas fuels, fire activity and current and predicted resource situation. This evaluation and level setting is intended to be a central function. Since it involves utilization of resources on a statewide basis, preparedness levels are best determined by the Forest Protection Section based on input from the various fire management areas. Preparedness levels are constantly being evaluated, however it is recommended that they not be changed on a daily basis. Preparedness levels are for longer range planning and readiness and should be viewed as proactive measures and not reactive responses.

Fuels, weather data and fire occurrence data were used to identify the Preparedness Levels thresholds for fuel indices as follows. These thresholds coincide with the Wisconsin State DNR percentiles in order to have a similar preparedness level determination system throughout the State.

PL 1: 0 - 45%	PL 4: 90 - 96%
PL 2: 46 - 67%	PL 5: 97% +
PL 3: 68 - 89%	

Both the National Fire Danger Rating System (NFDRS) and the Canadian Forest Fire Danger Rating System (CFFDRS) will be utilized to identify seasonal conditions and trend large fire danger.

Preparedness Level Threshold Criteria

The following Preparedness Level Threshold Criteria consist of fuel indices, weather, resource availability, commitment, and fire activity. These criteria have been determined to be the most representative indices and conditions indicating potential fire within the state. These criteria when analyzed will prompt fire managers to develop an overall picture of current fire potential and produce a Preparedness Level. Individual criteria should not be analyzed separately as Preparedness Levels are determined through analysis of the entire fire environment. The criteria are as follows:

- Adjective Rating

NFDRS/CFFDRS index rates fire danger according to the following categories: Low, Moderate, High, Very High and Extreme. Further, fire danger is based upon the fuel and weather conditions, and is generally used for public information purposes. (Note: a decision will have to be made during development as to which index or component to use to determine staffing. The recommendation is that it be a Canadian index as the overall recommendation is to adopt the CFFDRS system to determine staffing and readiness.)

- Energy Release Component (ERC)

A fuel index related to the available energy (BTU) per unit area (sq. ft.) within the flaming front at the head of a fire. It uses the both live and dead fuel moisture content of the fuels present, and represents the potential "heat release" of a fire. ERC is a valuable evaluation tool of drought and other long-term processes.

- Burning Index (BI)

Represents the difficulty of control of a fire and is derived from a combination of Spread Component and Energy Release Component. It is related to flame length over a fire danger rating area.

- Fine Fuel Moisture Code (FFMC)

FFMC provides a relative indicator of the moisture in fine fuels. Like the 1-hour fuel moisture, it reacts directly with air temperature and relative humidity; used to indicate the ease of ignition of ignition probability.

- Duff Moisture Code (DMC)

DMC is an index of the moisture of the loosely compacted organic layers at a depth of 2-4 inches; can be used to assist in predicting the probability of lightning fires.

- Drought Code (DC)

DC measures long term dryness in the fuels. It is a longer-term index than the NFDRS 1000-hour fuel moisture in that it doesn't reflect the probability of fire occurrence by itself, but can be useful in predicting the level of mop-up needed and the consumption of large fuels. DC should be looked at in relation to peat fire starts (i.e. used as an estimator of mop-up difficulty due to deep burning fires).

- Initial Spread Index (ISI)

ISI is based on the FFMC and wind speed, and provides a relative numerical rating of the expected rate of spread similar to the NFDRS Spread Component.

- Buildup Index (BUI)

BUI is based on the DC and the DMC, and provides a relative indication of the amount of fuel available for combustion which is somewhat similar to the NFDRS Energy Release Component (ERC). BUI doesn't predict what a given day might be like, but does relate well to the dryness of the fuels.

- Fire Weather Index (FWI)

FWI combines the BUI and the ISI to give a relative numerical rating of fire intensity. Comparable the NFDRS Burning Index, FWI is an indicator of relative fire intensity or general fire behavior characteristics (e.g. surface fire, torching, crowning).

- Fire Weather

Represents the probability of ignition and fire behavior and is an influence on fuel conditions.

- Fire Activity

Represents the amount of fires occurring and the effects and impacts on suppression capabilities for initial attack; IMT on stand by and fire size class are indicators of fire activity.

- Resource Commitment

The current resources committed situation in the state. This includes resources committed to local prescribed fire activities, other local or State incidents, and National assignments.

- Resource Availability

The current resources available Statewide

Table 2: Statewide Preparedness Levels

PREP LEVEL	DESCRIPTION	RECOMMENDED ACTIONS
<p>I</p>	<p>Statewide Most areas in Low Fire Danger</p> <p>NFDRS Adjective Rating LOW to MODERATE</p> <p>ERC - BI - CFFDRS -</p> <p>Weather No adverse Fire Weather conditions exist as related to: Wind Events, Haines Index; and Red Flag Weather Warnings and Watches.</p> <p>Fire Activity Levels Local - Little or no activity occurring Statewide - Little or no activity occurring</p> <p>Resource Committed Little or no commitment of suppression resources locally</p> <p>Resource Availability Local - Adequate for current & predicted conditions Statewide - Adequate for current & predicted conditions</p> <p>Prescribed Fire Conditions exist for routine prescribed fire operations.</p> <p>Season Fire Season – pre-season preparation</p>	<ul style="list-style-type: none"> • Fire Season Preparation Review/Update all annual agreements, plans, IA guides, and necessary operational paperwork for the upcoming Fire Season. • Ensure all fire equipment – portable pumps, engines, tractor plows and marsh rigs are in operational condition and prepare for fire season. • Communications Systems operational (Radio, Email, phone system, cell phones). • Fire Personnel Preparation training and fitness. • Prepare work plans, project work, prescribed fire preparation. • WIMS/NFDRS activated/calibrated/monitored. Annual Weather Station maintenance completed. • Ensure that fire cache inventory is adequate for expected activity level. Order additional supplies and equipment as needed. • Fire Staff evaluates seasonal severity data (BI, ERC, fuel loadings, live FM, drought indices and long term forecasts).

PREP LEVEL	DESCRIPTION	RECOMMENDED ACTIONS
<p style="font-size: 2em; font-weight: bold; margin: 0;">2</p>	<p>Statewide Majority of areas in Moderate Fire Danger</p> <p>NFDRS Adjective Rating MODERATE to HIGH</p> <p>ERC - BI - CFFDRS -</p> <p>Weather Adequate precipitation expected. No adverse Fire Weather conditions exist as related to: Wind Events; Haines Index; and Red Flag Weather Warnings and Watches.</p> <p>Fire Activity Levels Local - A few small fires occurring. Grass and fine fuels primary carrier of fires. Minimal potential exists for escapes to larger fires Statewide - minimal fire activity</p> <p>Resource Committed Local FRU resources sufficient; minimal commitment of resources locally or nationally.</p> <p>Resource Availability Local - Adequate for current & predicted conditions Statewide - Adequate for current & predicted conditions</p> <p>Prescribed Fire Conditions and resources adequate for routine prescribed fire operations.</p> <p>Season Normal Springtime conditions. Extended dry periods.</p>	<p>Most actions at PL 1 are addressed and/or implemented.</p> <ul style="list-style-type: none"> • Evaluate fire occurrence and fire behavior activity. • Conduct daily and weekly fire equipment checks. • Evaluate availability of resources for local “Out-of-Area” response. • Statewide fire management begins weekly conference calls (or as needed). May determine a need for more frequent communications. • Alert prevention staff of need for media releases concerning fire activity or prevention messages. • Ensure IA crews are briefed on local fire conditions and availability of IA resources. • Ensure incoming personnel are briefed on local conditions and fire behavior. • Daily Operations Plans issued

PREP LEVEL	DESCRIPTION	RECOMMENDED ACTIONS
<p style="font-size: 2em; font-weight: bold; margin: 0;">3</p>	<p>Statewide Significant areas of the state in High Fire Danger</p> <p>NFDRS Adjective Rating HIGH to VERY HIGH</p> <p>ERC - BI - CFFDRS -</p> <p>Weather Adverse Fire Weather conditions may exist as related to: Wind Events; Low RHs; Haines Index; and Red Flag Weather Warnings and Watches.</p> <p>Fire Activity Levels Local - Potential for larger fires exists; potential for multiple fire ignitions increasing. Statewide - Fire activity increasing; multiple areas reporting fires.</p> <p>Resource Committed Incidents may occur requiring a major commitment of fire suppression resources. The potential exists for ordering additional resources through dispatch channels. The “closest resources” will be made available to support out of area response.</p> <p>Resource Availability Local - Minimal to inadequate for current & predicted conditions Statewide - Adequate number of resources available; suppression resources should be prepared for extended attack fires and extended fire duty out of Area boundaries.</p> <p>Prescribed Fire Prescribed Fire conditions exist.</p>	<p>Most actions at PL 1 & 2 are addressed and/or implemented.</p> <ul style="list-style-type: none"> • Local fire management activates daily briefing routine. • Evaluate the need for fire restrictions. • Consider pre-positioning of resources. • Conduct daily and weekly fire equipment checks. • New prescribed burning operations require interdepartmental coordination. Prescribed fires permission evaluated daily. • Evaluate crew and staff work/rest requirements. • Brief agency administrators on burning conditions and fire activity. • Area Forestry Leaders provide feedback to Fire Management Staff on fire conditions, unique/unexpected fire behavior or the need to increase IA or extended attack capabilities. • Ensure supervisors approve fire availability of IMT staff and notify AFL. • Provide public, local industry and fire departments with access to fire danger information, closures, restrictions and warning. • Madison Command Center may be activated by regions.

PREP LEVEL	DESCRIPTION	RECOMMENDED ACTIONS
<p style="font-size: 2em; font-weight: bold; text-align: center;">4</p>	<p>Statewide Majority of the state at High and Very High Fire Danger.</p> <p>NFDRS Adjective Rating VERY HIGH to EXTREME</p> <p>ERC - BI - CFFDRS -</p> <p>Weather Increased adverse Fire Weather conditions as related to: high temperatures, low RH, wind events, Haines Index; critical fire weather exists, and Red Flag Weather Warnings and Watches; 7-day weather predictions do not call for any immediate relief.</p> <p>Fire Activity Levels Local - Multiple fires occurring; large fires possible. Statewide - Some extended attack fires occurring; significant resource commitment for IA fires.</p> <p>Resource Committed Incidents occurring may require a major commitment of local resources. Ordering additional resources through dispatch channels. Heavy commitment of resources locally and statewide.</p> <p>Resource Availability Local - Minimal to no additional resources available for current & predicted conditions. Order external resources for current & predicted conditions Statewide - Competition for resources exists.</p> <p>Prescribed Fire No commitment of DNR forestry resources.</p>	<p>Most actions at PL 1 - 3 are addressed and/or implemented.</p> <ul style="list-style-type: none"> • Daily fire weather behavior briefings • Expanded Dispatch organization implemented (Additional Dispatchers) • Evaluate availability of partner fire suppression and fire support resources. • Pre-position preparedness resources as per coordination with other cooperating Dispatch Groups. • Consider suspending new prescribed burning. Prescribed fires progress evaluated daily. • Consider additional staffing for all suppression resources. • IMT staff in readiness status • Notify all fire partners and public of fire danger • Consider Emergency Burning Regulations. • Fire Suppression Resources prepared for extended duty and overnight assignments • Enact daily fire conference to prioritize resource allocation statewide. • Madison Command Center activated and staffed • No WI fire suppression resources mobilized for out of state duty

PREP LEVEL	DESCRIPTION	RECOMMENDED ACTIONS
<p style="font-size: 2em; font-weight: bold; margin: 0;">5</p>	<p>Statewide Extreme Fire Danger exists in two or more areas of the state</p> <p>NFDRS Adjective rating: VERY HIGH to EXTREME</p> <p>ERC - BI - CFFDRS -</p> <p>Weather Significant adverse fire weather conditions exist as related to: Critical Fire Weather; Haines Index; and Red Flag Weather Warnings and Watches. 7 - 14 day weather predictions do not call for any immediate relief.</p> <p>Fire Activity Levels Local - Multiple fires occurring with significant IA commitment. Statewide - Large Fire potential High. Numerous ignitions occurring with extended attack fires.</p> <p>Resource Committed All resources committed to incidents or preparedness activities. Ordering additional resources through dispatch channels. Heavy commitment of resources statewide.</p> <p>Resource Availability Local - Local resources are inadequate for predicted conditions. Order external resources. Statewide - Competition for resources exists. Resource requests may take 2+ hours to fill.</p> <p>Prescribed Fire No commitment of DNR forestry resources</p>	<p>Most actions at PL 1 - 4 are addressed and/or implemented.</p> <ul style="list-style-type: none"> • Daily briefings will discuss fire status, set resource priorities, fuel conditions, safety considerations, fire indices, and available resources. • All available resources are pre-positioned and ready for response. • Prepare all resources for out of area/ statewide assignments for multiple days. • The AFL and RFL evaluate situation provide Madison Command Center input to fire resource needs. • The AFL and RFL implement any needed action items to address current and predicted situation. • Consider suspending prescribed burning. • Release fire danger and fire activity reports to the news outlets. • Suspend any activities that represent high fire ignition potential. • Enact Emergency Burning Regulations. • Madison Command Center fully activated and staffed.

Table 3: Statewide Preparedness Level Activities

Statewide Preparedness Levels	PL I	PL II	PL III	PL IV	PL V
NFDRS / CFFDRS Adjective Rating	LOW (most Areas)	MODERATE (five or more Areas)	HIGH (four or more Areas)	VERY HIGH (three or more Areas)	EXTREME (two or more Areas)
8-14 day Wx Forecast	Winter conditions, most of State snow covered, temps below freezing.	Normal conditions for season, adequate precipitation expected	Less than normal precipitation and RH, higher than normal temps forecast	Dry weather patterns persisting, no change forecast	Dry pattern intensifying; unstable weather forecast leading to extreme fire behavior conditions.
Madison Command Center Staffing	None required	None required	May be activated by regions	Activated	Activated and Fully Staffed
Fire Occurrence (Initial Attack)	Rare, infrequent fire occurrence	Fires reported in scattered Areas. Generally, less than 10 fires/day Statewide.	Multiple Areas/Agencies reporting fires. 10 to 20 fires/day Statewide	Multiple Areas/Agencies reporting fires. 20 to 30 fires/day Statewide	Multiple Areas/Agencies reporting fires. 30+ fires/day Statewide.
Emergency Burning regulations	No	No	No	Recommend to implement if WX forecast indicates persisting dry pattern	Activated by Area
Resource Availability	Regular	No shortages expected.	Moderate demand for some in-state resource types expected	Shortage of certain in-state resource types	Most in-state resources committed. Out of State assistance may be necessary.
In-State Mobilization	None	None	Some short term movement	Resources prepared to move regionally and overnight	All Suppression Resources prepared to be out of home unit for up to 5 days statewide.
Out-of-State Mobilization	At statewide preparedness level IV and above, out of state mobilization will be limited to compact requests and division administrator approval.				

*Fire danger indices should not be used alone to determine Preparedness Levels. Consider all categories in the guide before establishing level.

Partnership Roles – Division of Forestry and Fire Department

Objectives

Determine the optimal role for partners in providing forest fire protection;
Define the Fire Department's role by stratification level; and
Recommend the role and relationship with agencies such as U.S. Forest Service, Menomonee Tribal Enterprises, and U.S. Fish and Wildlife Service.

Analysis

The Wisconsin Department of Natural Resources (WDNR) - Division of Forestry (DOF) maintains a direct working relationship in wildland fire suppression with over 450 Wisconsin Fire Departments (FD). The outline of that relationship is formally defined in a Memorandum of Understanding (MOU) between the DNR and participating fire departments. In general, the FD's agree to assist the DNR with initial and extended attack of wildland fires within their jurisdictions. The optional part of the agreement is payment for services rendered. Approximately 30% of FD's charge the DNR for their wildland fire suppression services.

The role and relationship between the WDNR Division of Forestry and federal agencies such as the U.S. Forest Service, U.S. Fish and Wildlife Service and Menomonee Tribal Enterprises are also based on Memorandum of Understandings (MOUs) and Annual Operating Plans (AOPs). These documents represent a very formal relationship that has developed over many years. Revisions to these documents require a formal approval process with respective agency heads and take significant amounts of time to accomplish.

Current Conditions

The Fire Program Assessment Team and associated working groups suggested a Wisconsin Fire Department Survey in August, 2009. The intent of the survey was to capture the capabilities, preparedness and attitudes of fire departments in wildland fire suppression and related topics. Furthermore, some of the survey was intended to check the effectiveness of several DNR FD initiatives, and to gather further information about wildland fire situation in the cooperative fire protection areas.

Notification of this internet based survey was mailed to all 870 fire departments in Wisconsin in late September 2009. The survey was posted through links on the DNR Division of Forestry webpage. The results have been tabulated (33% response rate, 287/870 FD's) and the survey results have been summarized in a spreadsheet and are located in the Appendix.

The relationship between the DNR and federal agencies are based on separate MOUs and annual operating plans. These operating plans are reviewed annually. Changes to those plans require extensive reviews and signatures from respective agencies to be enacted.

Components Considered

Status Quo

Expanded use of FD's in wildland fire suppression, detection and prevention

Expanded use of federal partners in wildland fire suppression

Recommendations

1. WDNR – maintain wildland fire expertise

Fire departments recognize that WDNR are the experts in wildland fire in Wisconsin. In the FD survey, departments expressed an overwhelming benefit from the DNR on suppression, grants and training. They also expressed a high value on that DNR expertise by ranking it in the top three assets to them. Also, 86% of departments reported that DNR involvement in wildland fire had a positive impact upon their fire department.

2. WDNR and Fire Department – maintain shared initial fire attack responsibilities

Fire departments believe in the shared nature of the wildland fire endeavor. Most departments are aware of the DNR statutory responsibilities in wildland fire and are

willing to assist in meeting those responsibilities. In the Fire Department Advisory Council (FDAC) discussion of this issue (Appendix – FDAC Café), it is clear that the current system works and is very effective and successful. Also clear was the recognition that volunteer fire departments are experiencing lots of budgetary and personnel pressures. These pressures will limit the expanded commitment of time or money to wildland fires. Two-thirds of the fire departments in fire protection areas expressed a shortage of daytime firefighters due to employment and or family concerns. The FDAC is concerned with any diminished DNR role in wildland fire.

3. **WDNR – continue the use of tractor-plows as a primary wildland fire suppression tool**

The FD's surveyed in DNR fire protection areas recognized the importance and utility of DNR tractor-plows. It is a wildland fire suppression tool that FD's do not have nor will likely acquire. The only source for this type of equipment is the DNR and it was rated as the first or second most important asset to WI FD's involved in wildland fire fighting. The FDAC further supports the training and certification of FD personnel in the use of DNR Type 4 engines for wildland fire suppression and structural protection. The FDAC also noted that even though the DNR aircraft was rated low in importance in the FD Survey, it must be recognized that DNR aircraft play an important role in the safety and efficiency of all wildland fire fighting efforts. The FDAC supports the use and role of DNR aircraft.

4. **WDNR - maintain a fully funded Forest Fire Protection Grant program for Wisconsin Fire Departments**

In the FD survey, fully ninety percent of fire departments have benefitted from the Forest Fire Protection grant. The endorsement of the value of that grant program is universal in the Wisconsin fire service. The FDAC expressed the need to restore state funding to the mandated \$775,000 level.

5. **WDNR – maintain wildland fire training for Wisconsin Fire Departments**

The highest benefit from the DNR to the FD's was rated as wildland fire training. Providing worthwhile and informative training assists FD's to be effective, efficient and safe on WI wildland fires. The FDAC further expressed the need for a full and well rounded training for all fire departments by local DNR fire staff to assist in building trust in the DNR – FD partnership. The Cooperative fire protection area FD's reported that the DNR training outreach program is has doubled the number of trained FD's in wildland fire.

6. **WDNR – Develop the use of Fire Departments to conduct school-based wildland fire prevention programs**

Over 80% of the departments surveyed conduct school based fire prevention programs for children. Furthermore, three-quarters of fire departments would be willing to include wildland fire prevention messages if given training and resources. Smokey Bear prevention materials and perhaps a loanable Smokey Suit would be the investment required by the DNR. Information on this recommendation was also referred to the Prevention and Wildland Urban Interface Work Group.

7. **WDNR – Investigate the use of the National Fire Incident Reporting System (NFIRS) to report wildland fires occurring in the Cooperative Fire Protection Areas**

Effectively counting the number and extent of wildland fire in WI has long been missed in the cooperative fire protection areas where the local departments carry the responsibility of initial attack. This missing link in the overall wildland fire picture may be able to be solved utilizing the National Fire Reporting System (NFIRS). In the spring of 2009, a state law requiring all structure fires be reported through NFIRS was enacted. Most FD's reported in the survey that they are also reporting wildland fires in the system. Gathering those reports would provide a much clearer picture of the cooperative area fire problem.

8. **Explore with cooperating federal agencies ways to support each other's wildland fire programs**

The relationship with federal agencies varies according to MOU and AOP. Federal agency fire programs are generally much smaller in size and scope than the DNR fire protection program. Federal agencies also have their own wildland suppression workload and priorities. Any changes in support of each others' mutual desires would have to be negotiated and agreed to through existing administrative channels. Significant time and effort beyond the scope of this assessment is needed to adequately analyze existing fire protection agreements with our federal counterparts - particularly with the US Forest Service and the imbalance areas. Future annual operating meetings are the appropriate venue to pursue these discussions.

Change in Investment (w/additional resources)

Increased compensation for fire department suppression responses

In the 2009 Fire Department Survey, less than half agreed the current rates the DNR allow for fire suppression assistance are adequate. The current rates were set back in the 1997 Memorandum of Understanding (MOU) with no increases except for increases in the minimum wage set by state and federal law.

The Fire Department Advisory Council (FDAC) had suggested an increase in rates of pay for fire departments. This suggestion was forwarded as a budget initiative in the '07-09 biennial budget, but it was not funded.

The 2009 FD Survey allowed fire departments to suggest appropriate rates of pay for wildland fire suppression services. The rates would effectively double the current rate, which would be an increase of approximately \$160,000 per year. Currently the 5-year average expenditure is \$159,000/year. This would increase to about \$320,000/year. If all departments were in pay status the expenditure based on the '97 MOU's would be around 387,000/year. If all were in pay status based on the rate increase, the expenditure would be around \$530,000.

Again, what is not measurable in the suppression rates is the relationship the Department has with the Local FD. Fire Departments have indicated that they are very satisfied with the current relationship. These Local FD's serve as the backbone of the suppression program.

Increased Forest Fire Protection Grant funding

As discussed above, FD report positive outcomes with supplies and equipment utilizing FFP grant monies. Increasing that budget will further the safety and efficiency of fire departments on wildland fires.

Increased fire prevention budget for FD school programs

As discussed above, fire departments are willing to include wildland fire prevention messages to their school programs with DNR support. Additional Smokey materials and Smokey suits would be required to support FD's.

Increased Cooperative Fire Department training effort

As discussed above, the cooperative wildland fire training initiative has been a success. In the last five years, almost 8000 firefighters on 286 fire departments in the cooperative fire protection area have been trained. Continued support of this effort is desired by fire departments.

Incident Management Team

Objective

Examine the current IMT structure;
Determine effectiveness and need; and

Explore opportunities for efficiencies and improvement.

Analysis

An informal poll and follow-up discussion with the Fire Working Group and AFL's showed strong support for modifying the current IMT structure citing such concerns as difficulties with managing and training large teams, maintaining interest from non-forestry team members and equipment. It is recognized there would likely exist efficiencies with sharing regional positions along with the amount and type of training that may be needed. There was inadequate time to obtain agreement to positions to require on each team.

Current Conditions

Each dispatch group (9) maintains a large "Type 2" Incident Management Team (IMT) with each team consisting of 20-40 members. The purpose of the IMT is to respond to, assume command of and manage large project fires occurring within the state. The goal for each team is to maintain the ability to form an operational fire management structure within a 2-hour timeframe. In recent years, local governments have requested DNR IMT to assist with managing large responses to natural disasters. Recently, the Forestry Leadership Team (FLT) approved policy, which allows DNR IMT to manage all-risk incidents upon request from other governing agencies. Area Forestry Leaders (AFL) are responsible for maintaining the IMT within their respective dispatch groups. Individuals serving on IMT must meet and maintain certain qualifications for the respective position. In addition, each IMT is required to conduct annual refresher trainings, and must be certified every 5 years.

Components Considered

Status-quo
Reduce the current number of IMT
Share positions within current team makeup
Concept of establishing Core / Expanded teams

Recommendation(s)

1. Modify the current IMT structure; form nine (9) 'core' IMT for each dispatch group; AFL's continue to hold the responsibility for maintaining the core team membership. Core team is comprised of individuals located within the area, and would have the primary responsibility of establish the incident command post and assuming command within 2 hours. The core team would respond to all-risk IMT requests.
2. Modify the current IMT structure; form a minimum of 4 expanded IMT for the purpose of maintaining a pool of qualified individuals at the region level; Regional Forestry Leaders would be responsible for maintaining members of the expanded team. Expanded team is comprised of individuals located within the region, and would respond - in whole or in part - to support the core team upon request from the incident commander within 4 hours. Both teams would respond to all risk response.
3. Charge the FWG with determining the primary 'core' positions for each core team

Changes in Investment (w/additional resources)

No discussion of the need to increase capabilities of IMT. There is concern for operating budget to cover cost of training and maintaining equipment for IMT

Changes in Investment (w/fewer resources)

Adopting the Core/Expanded Team concept should require less staff and reduce cost while maintaining response capabilities. Concerns not to reduce the Core team to a size that would not allow for the IMT to effectively assume command. Sharing of regional Staff across the teams should result in a 15-20% reduction in staff time need for training and practicing.

Forestry Duty Officer

Objective

Provide local partners with a reliable DNR forestry contact to deal with unforeseen forest fire suppression and enforcement issues;

Provide Co-Op fire areas with a reliable contact for requesting forest fire suppression assistance; and

Provide a reliable forestry contact for all-risk response requests.

Analysis

Surveys of the Fire departments and discussions with the Fire Department Advisory Board identified a need for an emergency contact (24-7) for local fire departments to deal with forest fire in the Co-Op areas requesting DNR assistance and for emergency responders in areas of protection when the Department is not staffing. Current local contacts (DNR phone list) through local county dispatcher, was determined to be unreliable when the DNR was not staffing for fire. Fire Departments felt strongly they need to have a ready contact to deal with suppression, and law enforcement situations which are beyond the capabilities of the local initial attack. A Regional forestry duty officer, available when the ground was not snow covered was determined to be the most effective way to support this need while maintaining reasonable cost.

All Local emergency responders would be given a Regional Forestry Duty Officer (RFDO) contact number. If local emergency responders were unable to reach local DNR Forestry responders to address a forest fire response issue (examples would be arson, significant illegal burning or fatal fire situation) they would use the contact number, which would be forwarded to the weekly assigned RFDO cell phone. The RFDO would determine the type of response needed, contact closest appropriate staff, document action, and follow up with requesting agency as to actions initiated. There would be no expectation that an RFDO would respond to any incident.

A Regional Forestry Duty Officer would be best suited for evaluating the situation, determining an appropriate forestry response, and would have knowledge of local DNR resources and conditions. The DNR statewide duty officer could be used as a contact but a list of available (on call) local DNR forestry resources would have to be provided to deal with the situation. Similar to the schedule of LE wardens on duty provide to the DNR duty officer. Having a regional forestry contact seemed to be the most efficient way of addressing forest fire and forestry needs. These Regional Forestry Duty Officers would also serve as the local contact for requests for the IMTs to respond for all risk responses.

Area forestry leaders were informally polled about the idea and effectiveness of a forestry duty officer. Responses were mixed ranging anywhere from identifying a duty officer as a real need to considering the idea a low priority with minimal value for the cost. There was agreement that a forestry duty officer be assigned locally as to be able to access the situation and facilitate response.

Current Conditions

Currently when external emergency response partners need to request DNR forestry assistance they go through a list of provided local forestry contact numbers. If forestry is not actively staffing, results are hit or miss. Fire departments, in particular, express concern and frustration with the current situation. Co-OP Fire departments may or may not have knowledge of whom and how to contact DNR forestry to request suppression assistance. The same is true for the DNR duty officer trying to find a local forestry contact if needed.

Components Considered

Maintain the status-quo

Utilization of a statewide DNR duty officer

Utilization of a statewide Forestry duty officer
Area forestry duty officers
Regional forestry duty officer

Recommendations

1. Regional forestry duty officer

Change in Investment

The cost to cover additional standby cost to cover additional shifts is estimated to be ~\$16,840 per region per year, which would require a total of ~\$67,360 of additional funding to support the S-line account. 4 duty officer phones would cost \$700 annually.

Madison Command Center and Regional Fire Coordination

Objective

Determine the appropriate role and staffing of the Madison Command Center; recommend any needed improvements;

Identify the most effective method for Regional Fire Coordination and the appropriate relationship to Central Office staff and the Command Center; and

Review, revise, and develop any necessary policies and procedures to move personnel and equipment statewide for short durations as needed for fire conditions or activity.

Analysis

The Madison Command Center is located in the basement of GEF 2. The Division of Forestry and Division of Enforcement and Science are the primary users of the facility. However, other Department Divisions have access to the facility if needed. The primary purpose of the Forestry Command Center is to direct the deployment of equipment and personnel on a priority need basis when an emergency occurs, to protect the people and resources of the state.

The role of the Forestry Command Center is clearly defined in chapter 50-20 of the Forestry Operations Handbook and activation procedures are clearly outlined in Chapter 50-21. However, outdated organizational structure and terminology is used.

Current Conditions

Currently, the Regional Forestry Leader is designated as the person to coordinate fire suppression and overall preparedness for the Region. The Regional Forestry Leader becomes the primary contact for the Command Center when it is activated. The Regional Forestry Leader is expected to keep the Bureau of Protection advised of current fire conditions and on-going significant fire activity within the Region. Regional requests for activation of the Command Center will be made by the Regional Forestry Leader or their designee. Early notification or even a heads-up alert from the Region to the Central Office of significant or on-going or expected activity can prove to be critical to advance planning and resulting in effective and rapid deployment of resources on a statewide basis. Based on accurate and timely information from the Region, the Command Center can activate assistance from other agencies if needed and keep the Division Administrator and Department Secretary fully informed.

The Director of the Bureau of Protection or the Fire Section Chief is assigned as the lead Command Center supervisor upon its activation, and is staffed primarily by Division personnel whose regular offices are on the 4th floor of GEF 2. When conditions warrant, staffing during the work week is covered by available personnel in the office and weekend

needs are covered by placing selected staff on stand-by. Staffing availability and training of personnel are appropriate and adequate at this time.

The Command Center was relocated to the basement of GEF 2 approximately four years ago with an approximate forestry investment of \$25,000. Annual ongoing operating costs (excluding staffing) are approximately \$1000. Some radio communication enhancements have occurred during the last two years. There is a relatively new cell phone antenna on the roof of GEF 2 and since that was installed, cell phone coverage is excellent. There is television capability for viewing cable or network news coverage of on-going incidents by public information officers or other Command Center staff. Additional equipment to support the function of the center when it is activated is more than adequate. It is designed to accommodate technological advances and any changes at this time are not necessary.

Chapter 50-30 of the Forestry Operations Handbook outlines critical fire management responsibilities by position but it uses outdated organizational terminology. Chapter 5120-20 of the Fire Management Handbook defines the fire responsibilities of the "District Forestry Supervisor" – a position used in the previous Department organization that correlates closely with the current position of Regional Forestry Leader.

The Dispatch Group Dispatcher, under direction of the Area Forestry Leader is authorized and expected to preposition or move resources between fire response units on an "as needed basis". Area Leaders are authorized to move resources between adjoining Areas as needed and when the Madison Command Center is not activated.

Regional Forestry leaders can move or share resources from one Region to another when the Madison Command Center is not activated. The exchange of daily fire operations plans are employed to promote awareness of resource availability between areas. In all of these scenarios, the concept of "closest resource" to achieve efficient and prompt initial attack is expected to be utilized.

Components Considered

Present policies and procedures and any necessary changes or updates.

Fire Department Advisory Council café had expressed concerns that DNR may not fully utilize resources because of geo-political administrative boundaries.

Recommendation(s)

1. Maintain the Madison Command Center; update equipment and technology as future advances occur
2. Staff the Command Center on an 'as needed' basis with existing Central Office Forestry staff similar to what is presently occurring
3. Update handbooks to reflect existing Department and Division organizational structure, specific and accurate activation protocol, policies and procedures for the movement of personnel and equipment, current terminology, and include reference to natural events and all-risk application

Forestry Operations Handbook (Chapters 50-20 and 50-21)

Fire Management and Forestry Operations Handbook (consolidate Chapter 5120-20 and Chapter 50-30, respectively)

4. Support sharing and pre-positioning of resources across respective fire boundaries (fire response units, areas and regions).
5. Continue to utilize the Regional Forestry Leader to be Regional Fire Coordinator and the main point of contact for the Central Office and Command Center (when activated).
6. Continue to support the concept of "closest resource" for strong and efficient wildfire initial attack.
7. Continue the sharing of daily operations plans between fire managers.

Administrative Areas, Protection Boundaries & Jurisdictions

Objective

Recommend any changes needed to existing organized protection boundaries, fire response unit boundaries, and any unique Area boundary special circumstances.

Analysis

Current Conditions

The State of Wisconsin is stratified into three levels of forest fire protection. These are the DNR intensive forest fire protection area, the DNR extensive forest fire protection area, and the Cooperative forest fire protection area. Division of Forestry fire personnel and equipment are concentrated in the intensive and extensive forest fire protection areas because the possibility of forest fires impacting life, property, and natural resources are highest there. The Division does not maintain fire personnel or equipment in the Coop fire protection area.

Currently, the intensive and extensive forest fire protection areas are divided into 56 fire response units. The amount of equipment and personnel assigned to the fire response unit depends on the level of risk to life, property, and natural resources.

Components Considered

Evaluation of personnel placement and administrative boundaries across Wisconsin based on the following factors:

- ~ fire risk
- ~ fire behavior
- ~ tractor-plow response time
- ~ the amount of "risk" a tractor-plow can protect in a landscape
- ~ fire response unit boundaries
- ~ fire occurrence
- ~ extended attack situations in fire landscapes
- ~ fire department density
- ~ fire department resources

Recommendations

1. Maintain existing area / dispatch group boundaries to sustain uniform management of personnel
2. Reduce DNR fire protection in FL10 by eliminating fire response units (FRUs). FRU boundaries from adjacent fire landscapes could be expanded to cover DNR fire protection areas inside FL10.

Consideration: Half of FL10 is currently in the Cooperative fire protection area. Agriculture is the dominant land use in the fire landscape. Most of the fire landscape is not forested. There has not been a forest fire over 499 acres in fire landscape 10 during the time period from 1975 to 2008. However, data is not complete due to some of the area being in the Cooperative fire protection area. For these reasons, in addition to the data gathered on fuel type, flame length in that fuel type, forest patch size, and number of improvements the work group recommends reducing DNR fire protection in FL10. However, the work group realizes the state's responsibility to provide fire protection to areas currently protected by DNR fire resources. Therefore, the work group recommends expanding adjacent FRU boundaries from other fire landscapes to cover existing DNR fire protection areas inside FL10.

3. Support expansion of organized protection in FL 14, 11, 3 if local political support is there

Change in Investment (w/additional resources)

Fire response unit boundaries may be altered depending on what the FPAT decides regarding changes in investment (reference **Optimal Permanent Staffing Needs - Changes in Investment** for additional information). If DNR forest fire protection is expanded in FL3, 11, & 14 current FRU boundaries may change and new FRUs may be created.

Change in Investment (w/fewer resources)

Fire response unit boundaries may be altered depending on what the FPAT decides regarding changes in investment (reference **Optimal Permanent Staffing Needs - Changes in Investment** for additional information). If DNR forest fire protection is reduced in FL6, 8, & 10 some FRU boundaries may expand as other FRUs are eliminated.

- APPENDICES -



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WISCONSIN FIRE DEPARTMENT SURVEY QUESTIONS



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FDAC CAFÉ SUMMARY



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FD SURVEY RESULTS



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FIRE LANDSCAPE ALLOCATION WORKSHEET AND FORMULA