

Agency Administrator Refresher 2015
Risk – WFDSS – Objectives



This presentation has been prepared as a refresher for Agency Administrators for the 2015 fire season.

Objectives



- Review the risk management process and WFDSS.
- Present findings from the summer 2014 fire reviews.
- Discuss recent changes to WFDSS important to Agency Administrators.
- Discuss spatial fire planning.
- Open forum – question & answer.

The objectives for the following presentation are listed above.

“Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. Net gains to the public benefit will be an important component of decisions.”

Fire Management Policy Guidance

As indicated from the current policy, it is important that risks related to fire management are understood, analyzed and communicated. This presentation will discuss how risks can be analyzed and understood in WFDSS. Information from recent fire reviews will also be present which indicate how we are and aren't communicating priorities on fires in relation to managing wildfires.

Decision Models

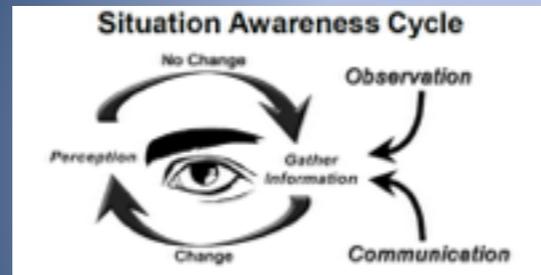


There are three different decision making models shown - the Basic Structured Decision Model, the Risk Management Cycle, or the Wildland Fire Decision Support System. They are all using very similar processes but are utilizing different steps in evaluating and managing the risks and benefits. All of these models indicate a process in which you identify a problem, analyze and assess that problem, develop mitigations or identify benefits, make a decision and document that decision. The decision is continually re-evaluated and adjusted utilizing the feedback or findings. This again, is similar to the processes used by firefighters in their real time risk management process.

The Structured Decision Model is a basic model for decision making. Although similar to the other two models illustrated here this defines the process very simply with only four steps. Typically in wildland fire management the steps are broken out further such as with the Risk Management Process firefighters use or the Risk Management Cycle and WFDSS.

This risk management cycle is defined in the *Decision Making for Wildfire: A Guide for Applying a Risk Management Process at the Incident Level* (RMRS-GTR-298). It defines a circular process - identify the incident or issue (situation awareness), assessing that hazard or risk by determining the values, the potential hazard/risks threatening those values, and the probability of the values being affected. Identify the benefits of the fire. (Assessment). Determining the risk management needed to mitigate and control the risks (risk control). Make a decision and implement (Decision & Implementation). Then evaluate if that decision is working or not (Evaluation). Although this process is defined circularly, many of these steps are occurring concurrently and continually.

The Wildland Fire Decision Support System (WFDSS) utilizes a similar process as defined in the Risk Management Cycle but utilizes tabs that are organized linearly (although the process is not linear). The incident is identified (Information), the situation is assessed gaining awareness and evaluating risk/benefits (Situation / Objectives / Course of Action). A decision is then formulated (Objectives, Course of Action, Validation, Decision). The decision is evaluated (Periodic Assessment). Similar to the Risk Management Cycle, many of these steps are occurring concurrently.



Risk Management Process

Step 1 Situation Awareness

Gather Information

- Objective(s)
- Previous Fire Behavior
- Communication
- Weather Forecast
- Who's in Charge
- Local Factors

Scout the Fire

Step 2 Hazard Assessment

Estimate Potential Fire Behavior Hazards

- Look Up/Down/Around Indicators

Identify Tactical Hazards

- Watch Outs

What other safety hazards exist?

Consider severity vs. probability?

Step 3 Hazard Control

Firefighting Orders → LCES Checklist - MANDATORY

- Anchor Point
- Downhill Checklist (if applicable)

What other controls are necessary?

Step 4 Decision Point

Are controls in place for identified hazards?

NO - Reassess situation YES - Next question

Are selected tactics based on expected fire behavior?

NO - Reassess situation YES - Next question

Have instructions been given and understood?

NO - Reassess situation YES - Initiate action

Step 5 Evaluate

Personnel: Low experience level with local factors?

Distracted from primary tasks?

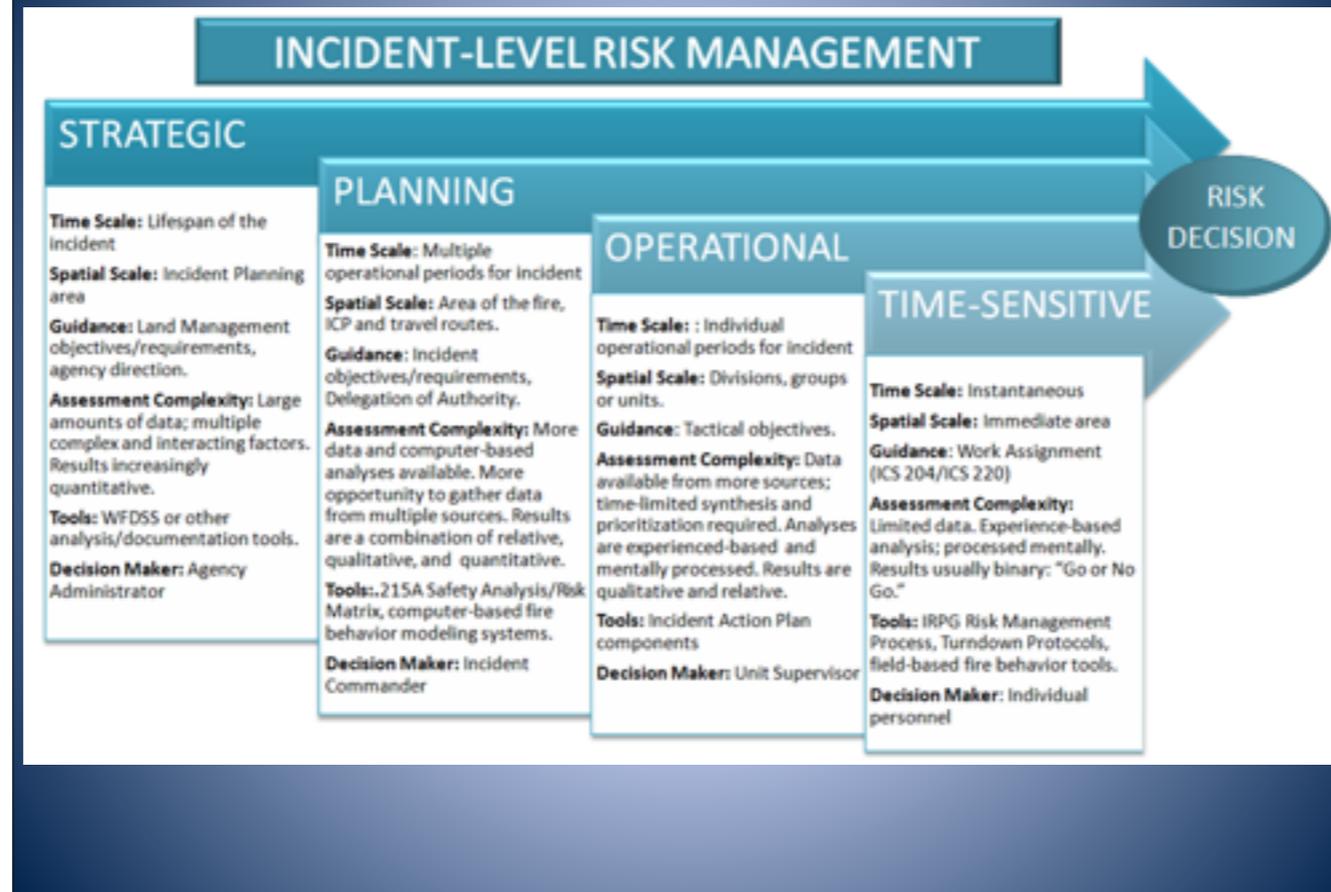
Fatigue or stress reaction?

Hazardous attitude?

The Situation: What is changing?

Are strategy and tactics working?

Risk assessment and subsequent mitigation is occurring continually at all levels. Field personnel maintain situation awareness that provides input to their risk management process. Just as it is not a one time process for fire personnel, it is not a one time process for managing fires or at the strategic level. This information assessed by personnel on the ground should be provided to the IMT or the Agency Administrator for consideration in the risk/benefits analysis. Wildfire management is risky and the risk to firefighters must always be evaluated versus the course of action being identified for the firefighters to implement.



Here is another demonstration of how the risk cycle starts from WFDSS at the strategic level and can be traced all the way down to the incident level. The objectives in the WFDSS decision should follow through to the delegation of authority and be recognizable in the incident action plan. Then the Incident Assignment List (ICS 204) and the actions being assigned to the crews should resemble the course of action and support those objectives. Feedback from the firefighters back to the Agency Administrator / IMT so modifications of the actions can be made is important.

Objectives Project



- 23 Fires reviewed in 2014 (R5, R6, R1).
- Incident Objectives in WFDSS database as of May 2014.

In 2014 a systematic evaluation of 23 wildfire Incident Decisions was undertaken to better understand Incident Objectives and Incident Requirements and recommend solutions. The review also included interviews of Agency Administrators, incident commanders and WFDSS Authors. An analysis of all Incident Objectives in the WFDSS database as of May 2014 was also conducted.

Findings are that Agency Administrator direction often differed and sometimes conflicted between WFDSS, the Delegation of Authority, Leader's Intent letters, and Incident Action Plan (IAP) Objectives. Additional information regarding findings and a detailed discussion on how to write Incident Objectives and Incident Requirements can be found at http://www.wfmrda.nwcg.gov/reference_&_guidance.php

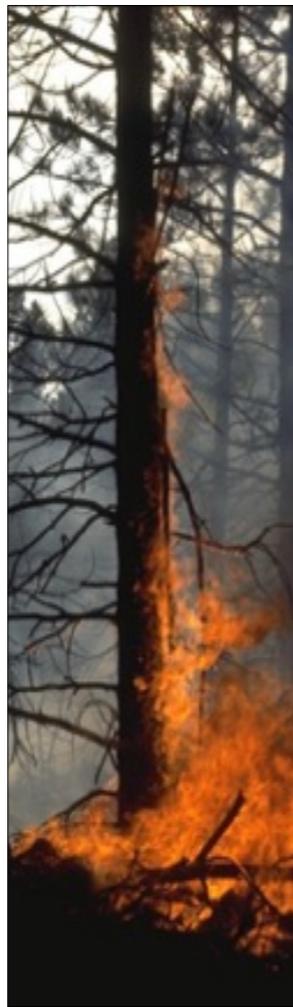


Findings

- More than 90 percent of incident objectives are generic referring to...
 - Policy - minimize the size of the fire
 - Doctrinal – keep costs commensurate with values at risk, adhere to LCES
 - Core Values - firefighter safety is the number 1 priority
 - Vague Terms - keep the fire small.

Generic information in the Incident Objectives does not provide leader's intent for the IMT or define clear understanding of the priorities. If information specific to the unit's direction is provided, it should be in the leader's intent document attached to the Delegation of Authority. Information in the WFDSS decision should be pertinent to managing the wildfire versus generic or unit specific information.

A project is being undertaken to revise and update the Delegation of Authority, Leader's Intent, and Inbriefing package to ensure continuity among these and the WFDSS Decision Document. It is hoped that this information will be available for use in 2016, with some units testing it in 2015.



Findings

- The lack of specificity of objectives makes it challenging to understand the relative importance of one objective to another.

This leads to potential mismanagement of resources based on unclear priorities, jeopardizing a sound risk management process that may expose firefighters to hazards needlessly.

Examples



- Keep the fire south of Wolf Ridge
 - Underlying objective: *protect pine plantations north of the Wolf Ridge*
- Keep the fire east of Clearwater Reservoir
 - Underlying objective: *protect the Ft Collins municipal watershed*

Review the examples provided above to consider how you might reword your Incident Objectives in the future. Indicating the *why, what, when, and where* is very important to assist the IMT's in determining the priorities for the incident.



Findings

- When fire response assets are limited, AAs and IMTs must choose which objectives they have capacity to achieve.

Beyond protecting life (civilian and FF) everything else is second priority and by virtue of all those "second priorities" being such, they sometimes get lumped into an incoherent mass. (Keeping the fire out of the Ft Collins municipal watershed likely is more important than protecting a pine plantation on the Arapaho-Roosevelt NF, yet they may be listed as though they have equal importance.)



Findings

- Agency administrator direction often differ and sometimes conflict between the WFDSS decision, delegation of authority, the briefing package, other documents and ad hoc discussions.

Incident Objectives and Incident Requirements from WFDSS are not being relayed consistently. This inconsistency sometimes results in conflicts in managing risk and the fire.

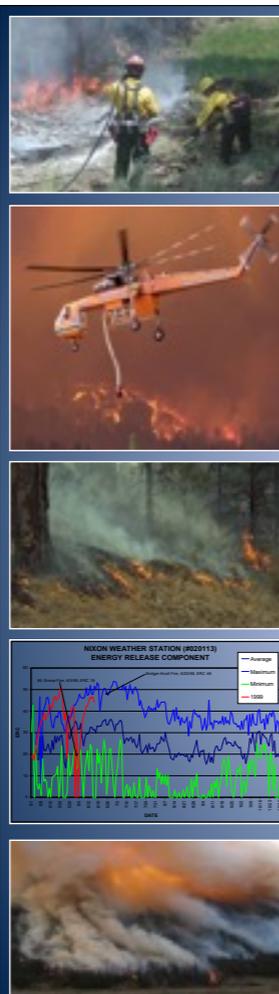
Findings



- In many cases IMTs are not even reading the WFDSS decision.

It is important that the IMTs understand what is in the WFDSS Decision so their actions align with the AA's priorities and intent.

Findings



- The tie from Land and Resource Management Plan (LRMP) Strategic Objectives and Management Requirements to Incident Objectives, Incident Requirements, and the Course of Action is unclear and inconsistent.
- Often the Rationale did not provide an overview of this information or why the decision is made.

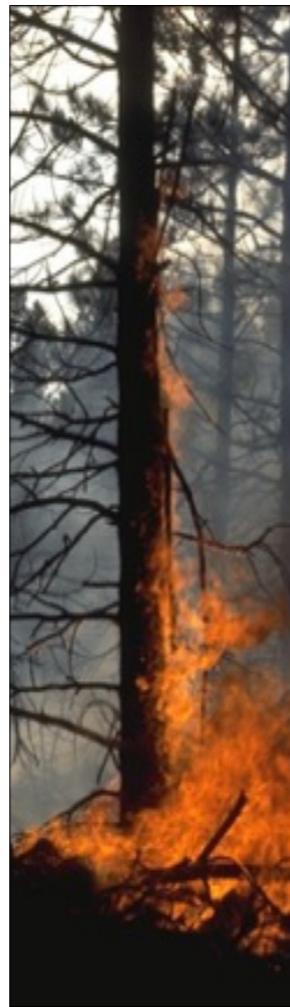
These inconsistencies lead to delegations of authority and inbriefing packages that are inconsistent or do not provide adequate Agency Administrator intent.



Findings

- The number of Strategic Objectives and Management Requirements from the LRMPs are excessive with at least two-thirds of them not being applicable to the wildland fire incident.

As LRMPs were moved to the WFDSS process many were just cut and paste in to WFDSS as a whole leading to Strategic Objectives and Management Requirements being listed that were not relevant to wildfire management. As people move to Spatial Fire Planning, there is an opportunity to eliminate non-relevant information and ensure what is listed can be spatially represented to reduce redundancy in the system.



Findings

- Spatial Fire Planning will assist managers in gleaning pertinent information for developing direction for managing a wildland fire and will inform that direction with only relevant LRMP information.

As WFDSS is updated with Spatial Fire Planning information it is an opportunity to put only information pertinent to managing a wildfire incident. This information is also represented spatially therefore only information relevant to the incident will be provided.



Recommendation

- Improve specificity of incident objectives and incident requirements – *what, when, where, why*

If the *who, what, when, where, and why* is answered the Incident Objectives and Incident Requirements will be much closer to a S.M.A.R.T. objective which we know is challenging when defining strategic leader's intent. The *who* may not always be defined as that will be determined through the Organizational Needs Assessment. The *how* will then be negotiated with the IMT or personnel managing the fire to ensure the AA is comfortable with the risks being incurred versus the priorities set.



Recommendation

Keep fire south of the Cape Royal road at the Fuller Canyon.

Vs

Ensure fire management activities allow for public access along the Cape Royal Road at the Fuller Canyon intersection during Memorial Day weekend.

Example of an improved incident objective. It further defines the where, when, and why.



Recommendation

Contain portion of fire north of the Elliot Highway on the west side.

Vs

Protect the town of Minto to the south of Elliot Highway.

Example of an improved incident objective which indicates the why by identifying the town of Minto as a priority.



Recommendation

Keep fire east of Antelope Road
and north of Garden Valley Road

Vs

Requirement: Do not engage the
fire in the area west of Antelope
Road and North of Garden Valley
Road because it has been used for
small arms range practice
therefore unexploded ordinance is
likely in the area.

Example of an improved incident objective which indicates an area to keep fire out of yet does not specify *why*. Changing it to a clear Incident Requirement indicates to the team that they should not utilize ground personnel in the area due to unexploded ordinance hazards.



Recommendations

- Streamline transition documents to ensure Incident Objectives and Incident Requirements are delivered and leader's intent is understood.
- Agency Administrators, IMTs and fire personnel should align their understanding of priorities for the fire.

There is a need to streamline team transition documents to ensure Incident Objectives and Incident Requirements are delivered in a consistent manner.

Strategic Objectives and Management Requirements not applicable to fire incidents should be recognized and not utilized in the incident Decision. There are places within the system to document when there is irrelevant information to the decision. The result will be better risk management.

Agency Administrators, Incident Commanders, and fire personnel should be aligned in their understanding of priorities for the incident. A sense of priorities for objectives should be conveyed in the course of action and should also be described in the rationale.

Recommendations

- Improve linkages between Incident Objectives, Incident Requirements, Course of Action and Rationale.



There is a need to improve the linkages between Incident Objectives, Incident Requirements, Course of Action and Rationale. Incident Objectives and Incident Requirements must be tiered to LRMPs. The Course of Action must be devised to meet the Incident Objectives and the Rationale must provide a clear explanation of how these elements of the decision link together and why the specific Course of Action provides the best means of achieving the Incident Objectives.

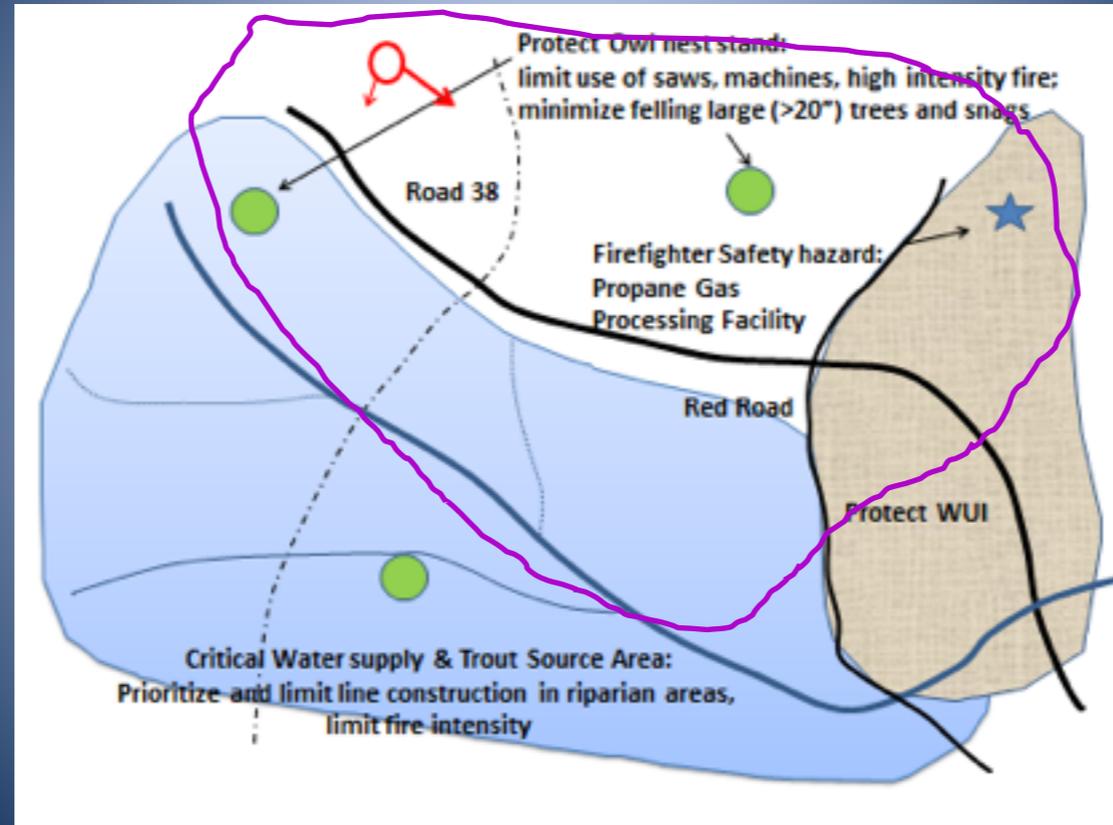
Spatial Fire Planning



- Spatially represent information from LRMPs.
- Provides an opportunity to remove information not pertinent to wildfire management.

The Spatial Fire Planning process can provide units with a better visual depiction of their LRMP direction and allow the unit to have greater control over their data. Having a visual depiction of where values and resources, that can benefit from and be harmed by fire, are located on the ground allows for better incident specific Objectives and Requirements to be created. The more incident specific the WFDSS Objectives and Requirements are the more likely leader's intent will be understood and implemented by fire managers.

Spatial Fire Planning



Planning area – depicted with purple line.

Strategic Objective: Suppress all fires within the WUI.

Strategic Objective: Fire on the landscape is promoted.

Incident Objective: Provide for community and firefighter safety by keeping the fire to the east of Red Road and avoiding firefighter exposure to the propane and natural gas processing plant.

Incident Objective: Protect the community water supply and bull trout source area by limiting fire intensity within the watershed south of Road 38.

Incident Objective: Protect owl nest stands within the fire area by avoiding direct line construction through them and limiting high intensity fire in any tactical firing operations.

Incident Requirement: Avoid direct line construction in riparian areas in the watershed.

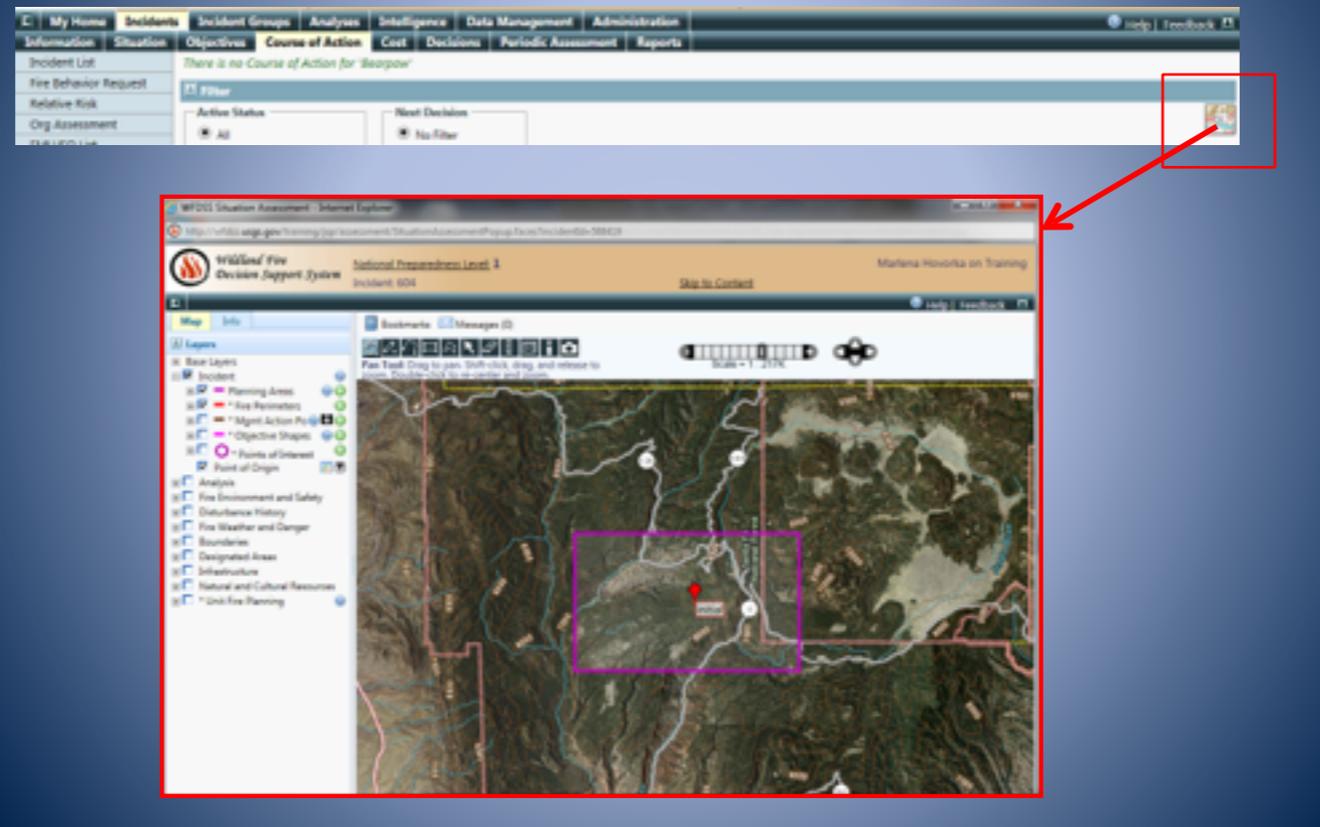


WFDSS Changes

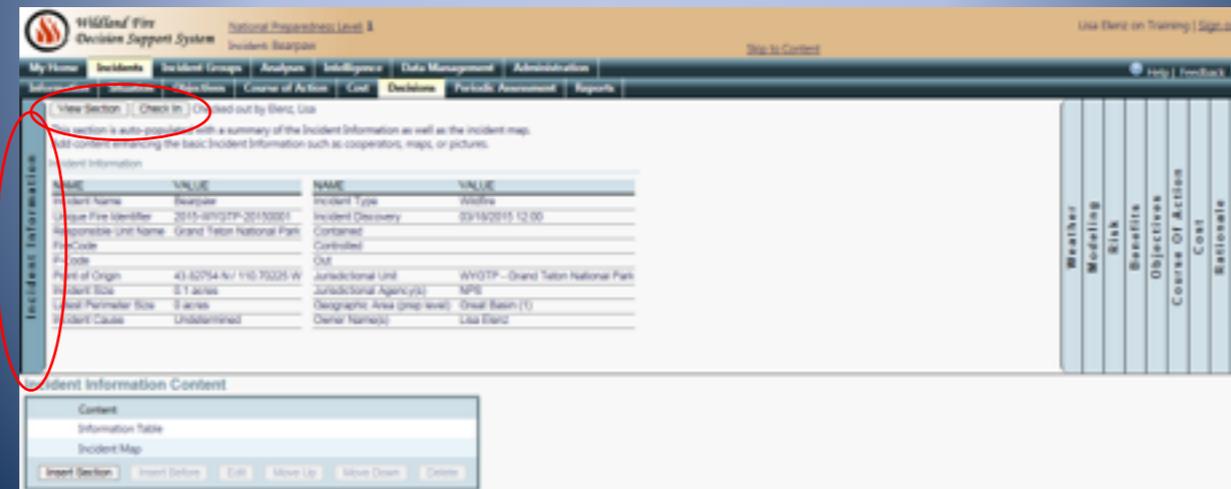
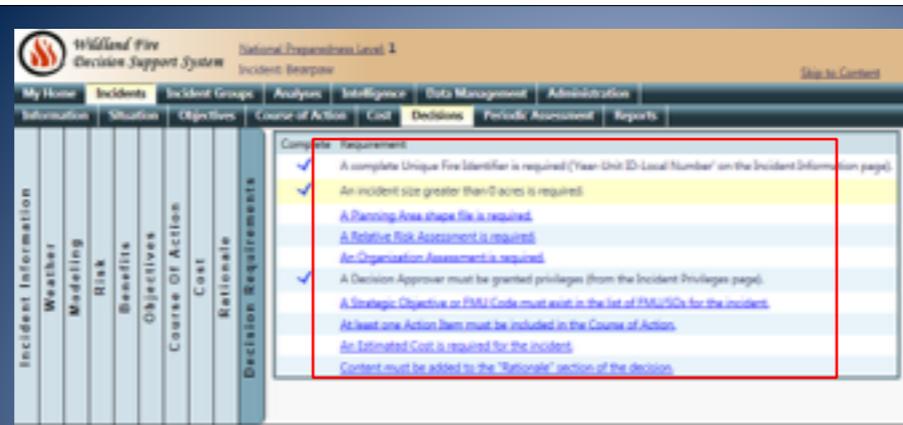
- Situation Map
- Decision editor
- Checklist of what needs to be completed
- Course of Action Slider Bar
- RCA - Relative Risk / Organization Needs
- Decision reorganization
- Review groups

The following changes that have been made in WFDSS or will be made this spring.

Pop Out Situation Map



There is a map logo on all pages when using the tabs. Users can click the map icon to open a browser window of the situation map from anywhere in the application.



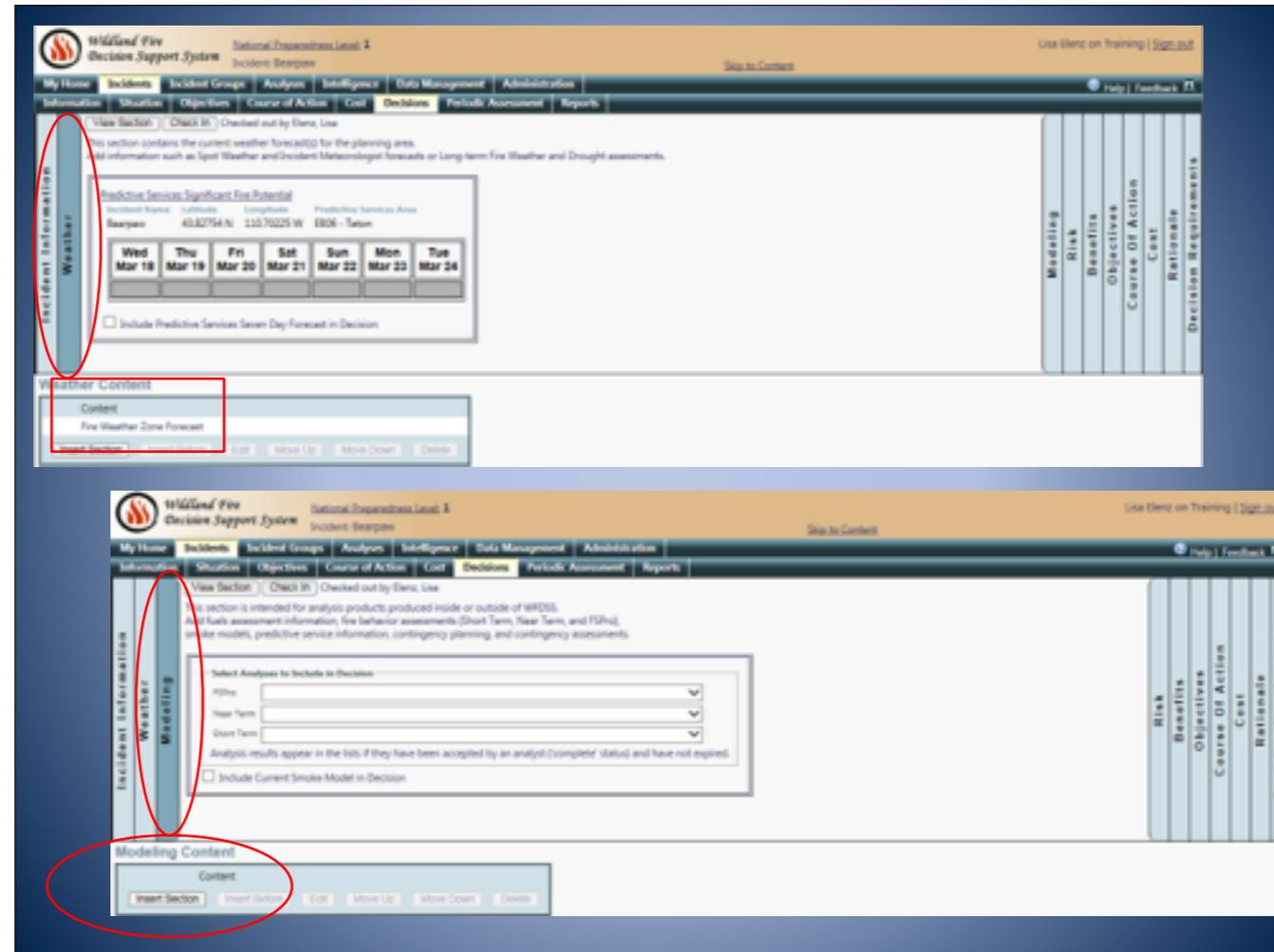
The new default Decision Editor is now organized in vertical tabs and allow users to 'leaf through' the tabs as you would turn the pages in a book. This new format assists people in finding information in each 'section' of the decision and is much easier to use.

When the editor is opened, a list of requirement to complete a decision is provided.

The farthest left vertical tab is the incident information as shown in the lower diagram.

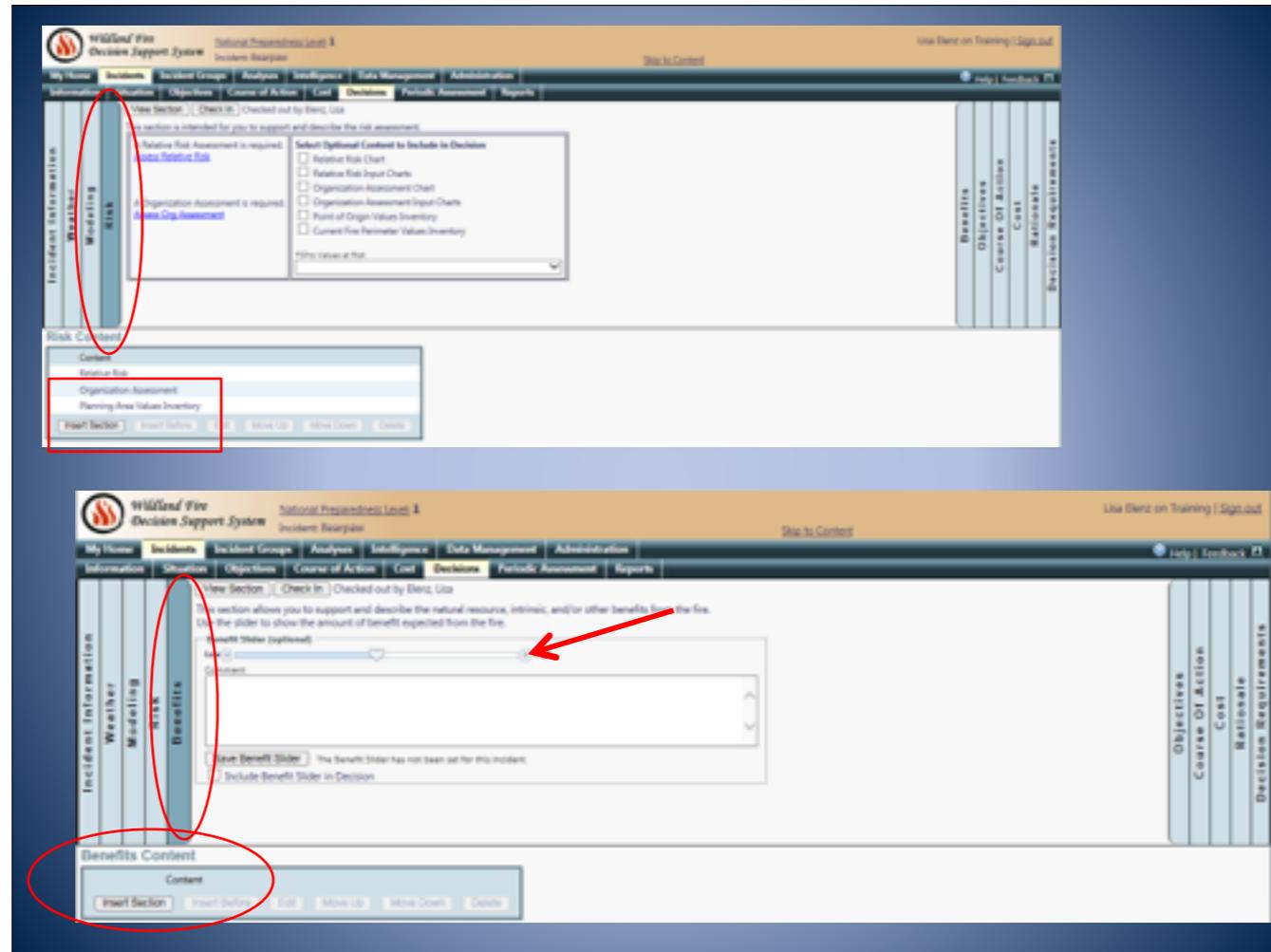
Each section of the Decision content can be viewed by selecting the view section button at the top of the 'page'. When selected a new browser window will open.

The Check In section can be utilized similarly to the previous process. This allows users to check in that section of the document for others to edit.



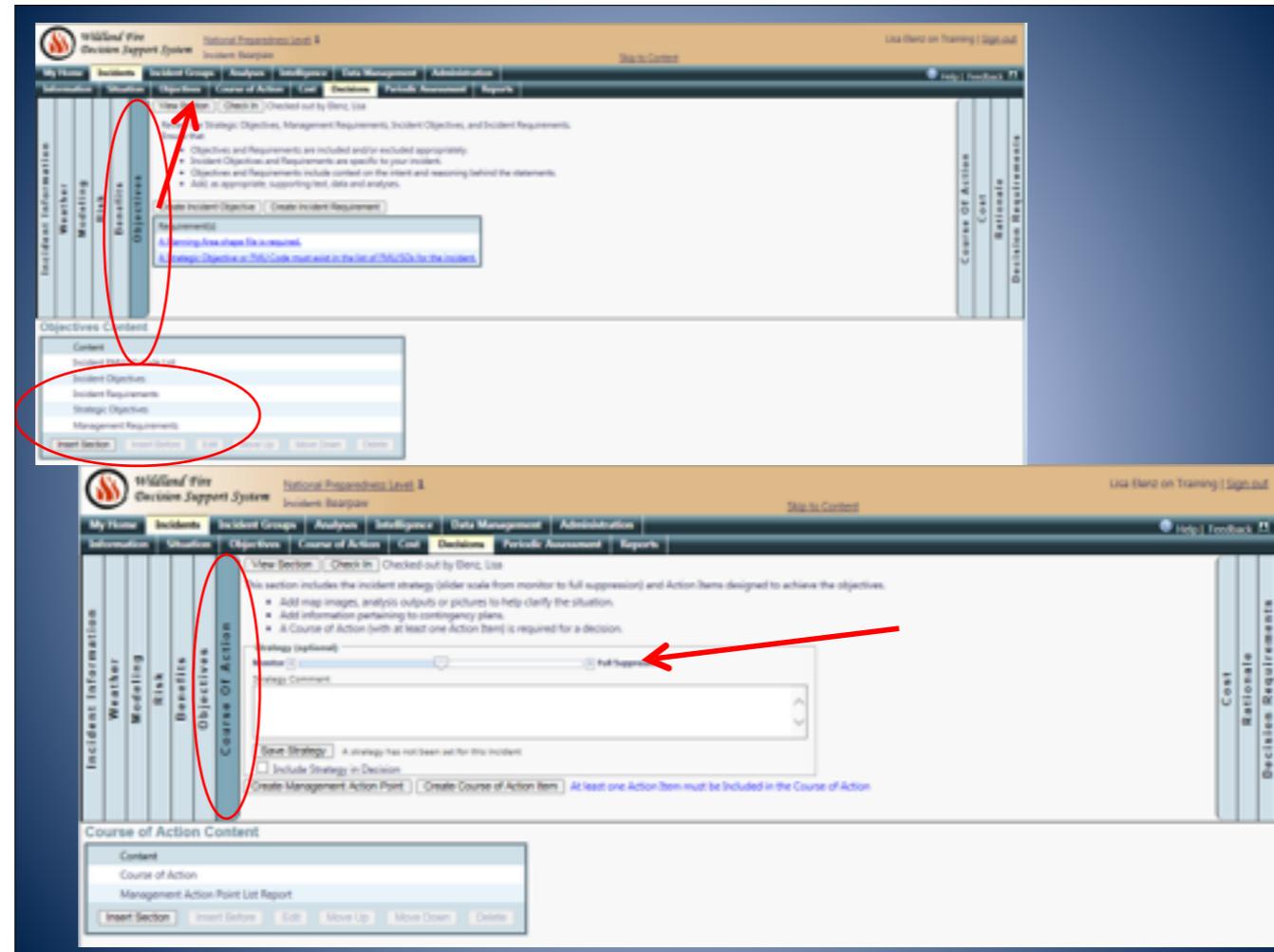
As the 'pages are turned' in the vertical tabs each will display pertinent information to that tab. Note that there is information that is automatically system generate and information can be added by the user by inserting information.

These two images show the Weather and Modeling vertical tabs where that information can be added.



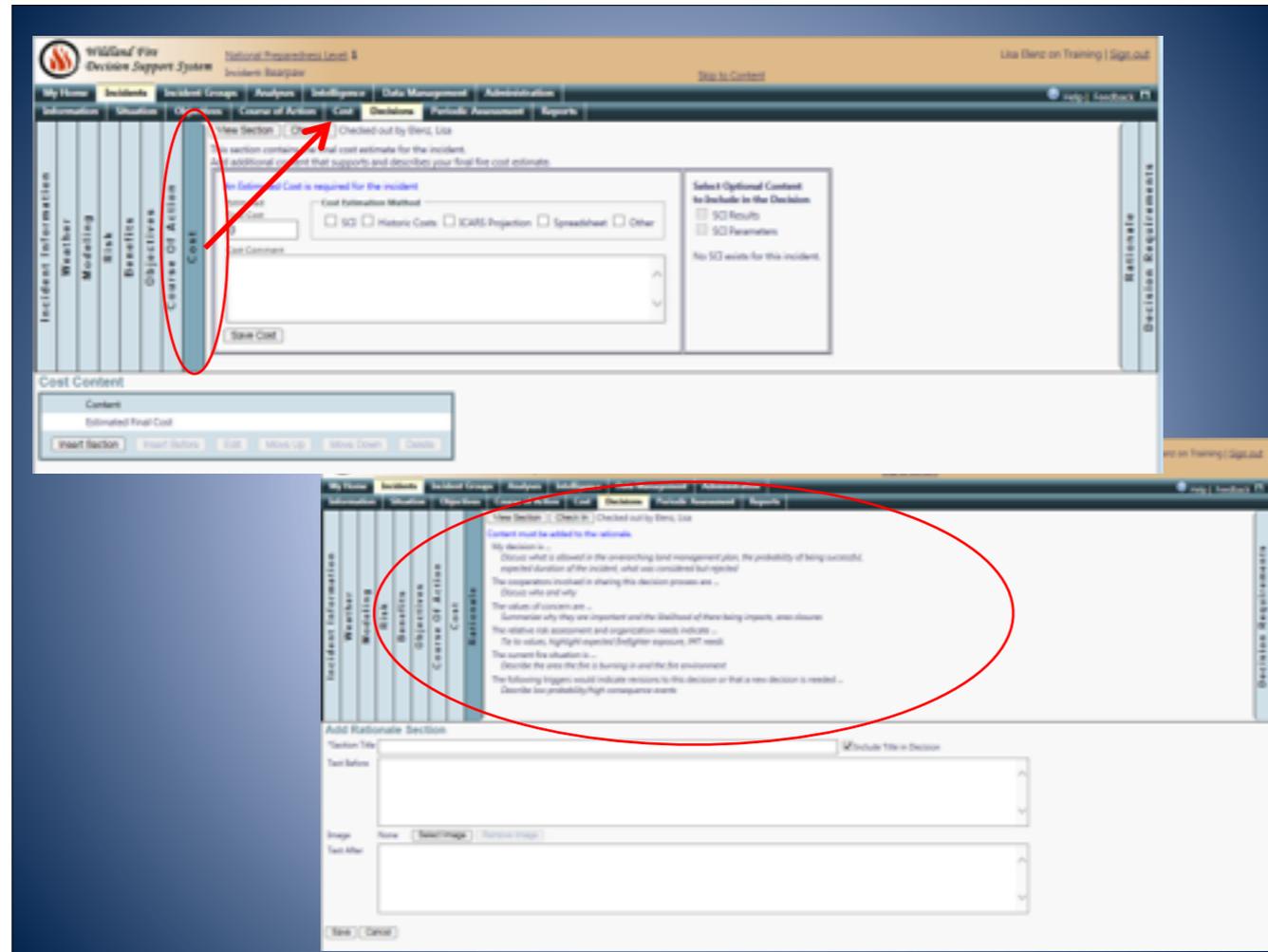
The Risk and Benefits vertical tabs are new in this decision editor. This allows users to more easily document what is being considered for both risks and benefits.

The Benefits vertical tab has been added to allow users to document benefits from the fire to cultural, natural and ecosystem values. The easy to use slider bar will also assist managers in providing an overall sense of benefits.



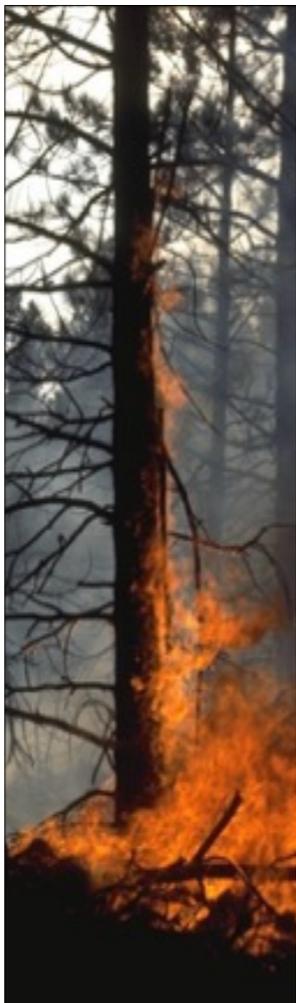
These images illustrate the Objectives and Course of Action vertical tabs. Important to the user is that the information added on the horizontal tabs will be reflected in this vertical tab and vice versa. When information is added in one location it will be updated on the other. (vertical and horizontal tabs)

The Course of Action Slider bar can be utilized to describe the overall strategy for the fire. This allows users to once again consider the alignment between the LRMP direction, Incident Objective and Incident Requirements, and Course of Action. And subsequently describe it in the Rationale.



The Cost information added on either the vertical or horizontal tabs will be reflected in each as updated and revised in either location.

The Rationale vertical bar now provides an outline to consider when adding content. It is important that this section describes what the decision is for the fire and should likely start with *my decision is*. Too often when reading the Rationale there is still no clarity to the decision, the priorities, and what was considered. Although some USFS units may require that the 10 questions from the Risk Management Framework, the WFM RD&A believes that if this outline is used and information is documented throughout the decision in the sections provided these questions will be answered.

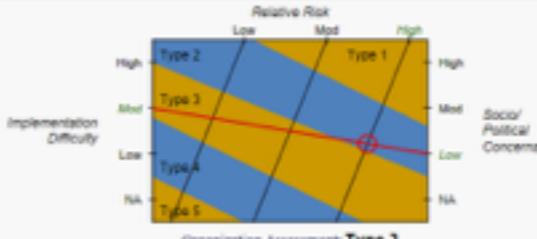


Objectives Course of Action Cost Decisions Periodic Assessment Reports

Use the Publish button to complete your Organization Assessment.

Organization Assessment Results

Description	N/A	Low	Mod	High
Relative Risk				H
Potential Fire Duration		M		
Incident Strategies (CoA)		M		
Functional Concerns		M		
Objective Concerns	L			
External Influences		M		
Ownership Concerns	L			
Totals	2	4	1	



Organization Assessment **Type 2**

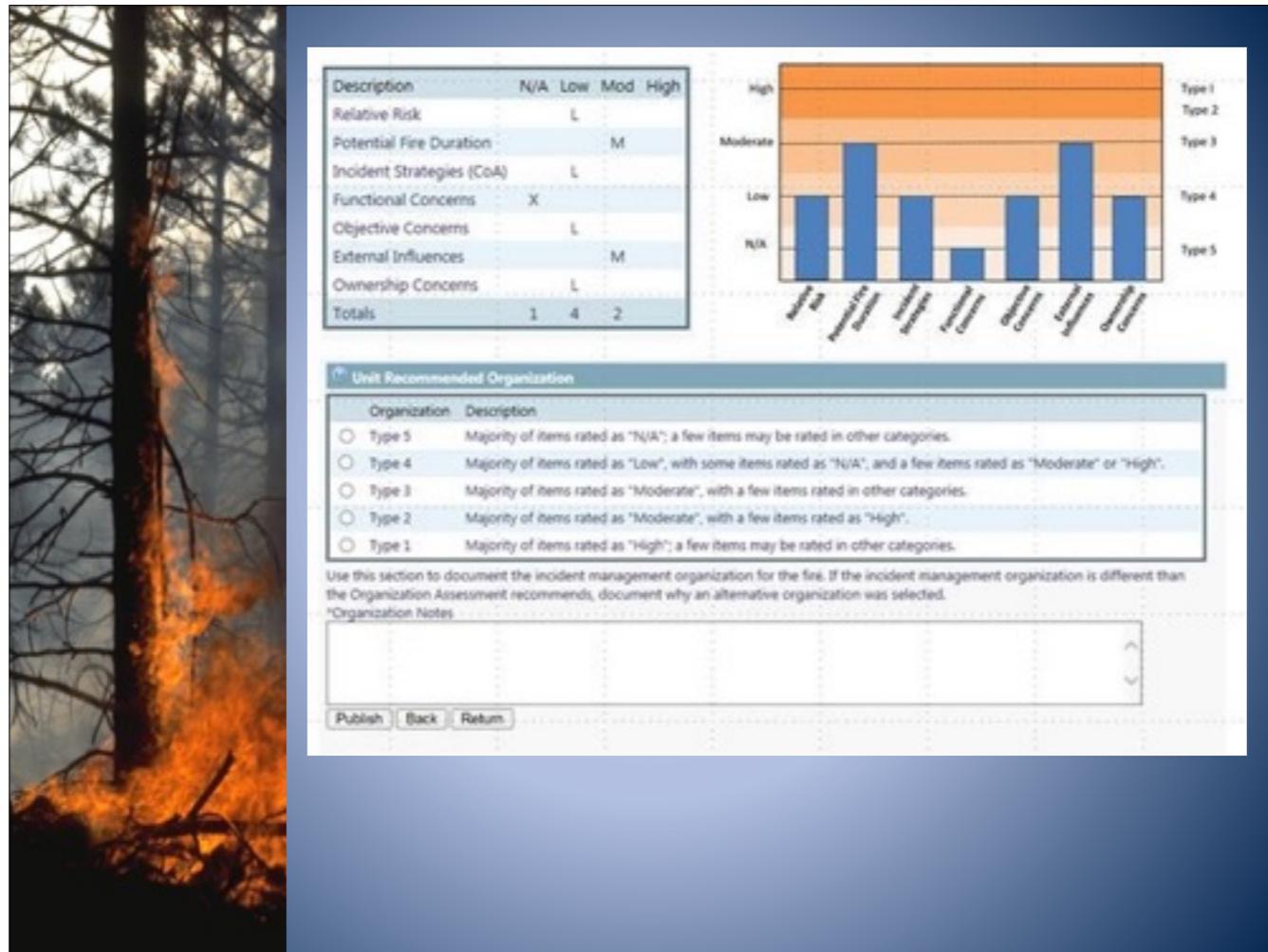
Unit Recommended Organization

Organization	Description
<input type="checkbox"/> Type 5	Majority of items rated as "N/A"; a few items may be rated in other categories.
<input type="radio"/> Type 4	Majority of items rated as "Low", with some items rated as "N/A", and a few items rated as "Moderate" or "High".
<input type="radio"/> Type 3	Majority of items rated as "Moderate", with a few items rated in other categories.
<input checked="" type="radio"/> Type 2	Majority of items rated as "Moderate", with a few items rated as "High".
<input type="radio"/> Type 1	Majority of items rated as "High"; a few items may be rated in other categories.

Use this section to document the incident management organization for the fire. If the incident management organization is different than the Organization Assessment recommends, document why an alternative organization was selected.

*Organization Notes

There will be a new release of the Organizational Needs that will better reflect the paper document Risk and Complexity Analysis. This graphic will be exchanged for the bar chart on the next screen.



In addition to the bar chart being added, the team type will no longer be recommended. Based on the summary information a team will have to be selected and noted. The value of the bar chart is that it easily shows what areas might need attention.

In this example a Type 4 incident organization is indicated but one might want to add extra Public Information efforts given the external influences are higher than most of the other items evaluated.



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EXECUTIVE SUMMARY

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Map

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INCIDENT STRATEGY

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Incident Map

Values Inventory

Relative Risk

Organization Assessment

Situation—

Preparedness Level

Weather

LAND & RESOURCE MANAGEMENT PLAN INFORMATION

DECISION DOCUMENTATION INFORMATION & HISTORY

Although not complete. The WFM RD&A is hoping to complete work to rearrange the decision document to put the 'executive summary' up front. Essentially reversing the document. Only a portion of this work may be completed prior to fire season. Your feedback in utilizing the document this summer is welcome so it can be completed next winter.

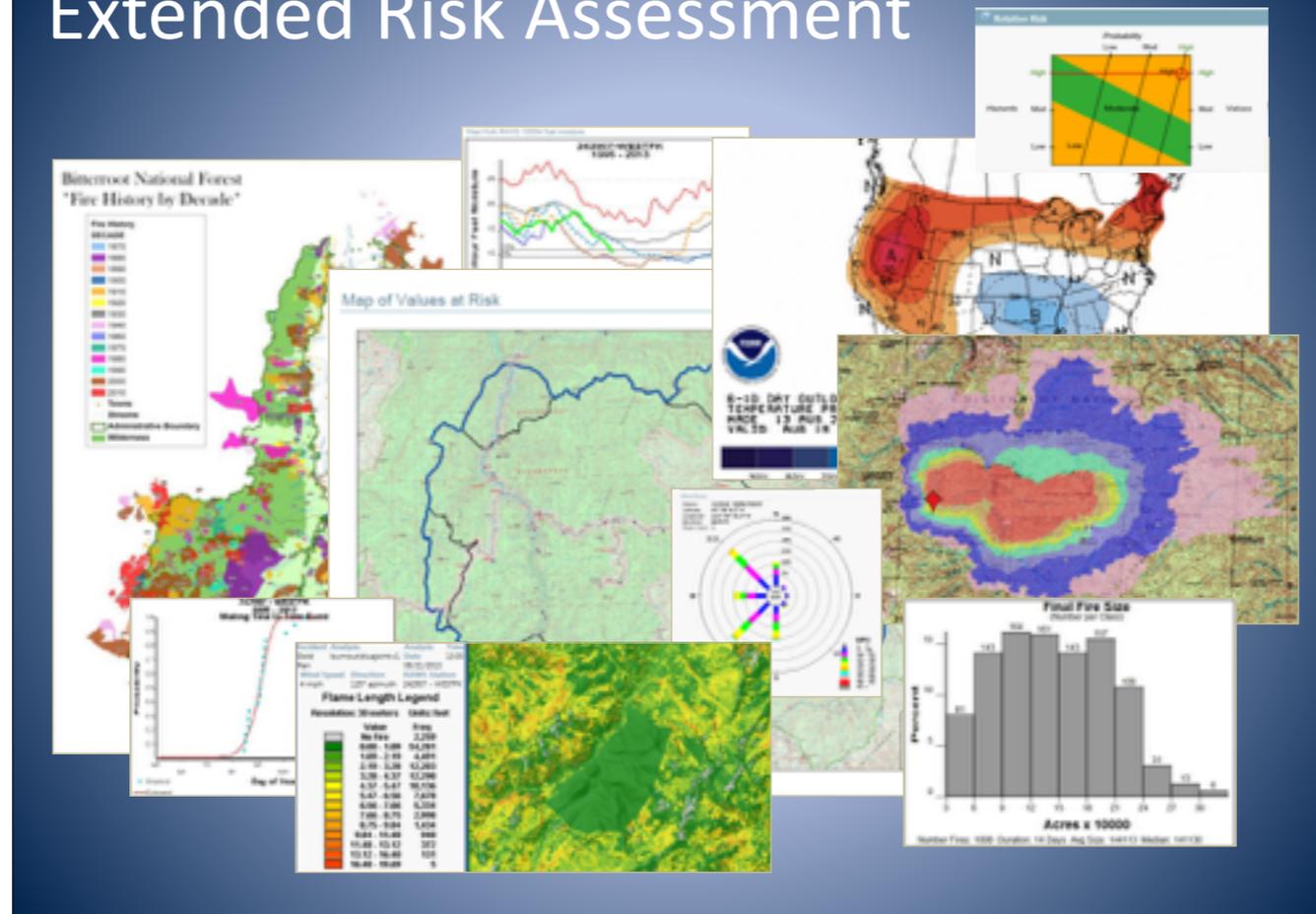
Periodic Assessment

Editor Name	Action	Date (CST)	Status	Comment
Petersen, Brant	Decision Still Valid	07/23/2013 08:44	Published	Fire is within planning area and costs have been reviewed by Agency Administrators. Mop up 100 in from fire line continues. Transitioning to a type III organization at 1800 today.
Petersen, Brant	Decision Still Valid	07/22/2013 09:03	Published	Monday July 22nd, all actions are within the DOA, letter of Leader's intent and planning area. The team is working on staffing chart to transition to a type three fire organization on Wednesday. Costs were reviewed by Forest Service Agency Administrator and are within plan costs.
Petersen, Brant	Decision Still Valid	07/21/2013 08:45	Published	Sunday July 21st, all actions are within the DOA, letter of Leader's intent and planning area. Cost were reviewed by Forest Service Agency Administrator and are intin plan costs. Sunday July 21st, all actions are within the DOA, letter of Leader's intent and

Comment
<p>Fire is within planning area and costs have been reviewed by Agency Administrators. Mop up 100 in from fire line continues. Transitioning to a type III organization at 1800 today.</p> <p>Monday July 22nd, all actions are within the DOA, letter of Leader's intent and planning area. The team is working on staffing chart to transition to a type three fire organization on Wednesday. Costs were reviewed by Forest Service Agency Administrator and are within plan costs.</p> <p>Sunday July 21st, all actions are within the DOA, letter of Leader's intent and planning area. Cost were reviewed by Forest Service Agency Administrator and are intin plan costs. Sunday July 21st, all actions are within the DOA, letter of Leader's intent and planning area. Costs were reviewed by Forest Service Agency Administrator and are within plan costs. All divisions plan to mop-up 100 from containment lines. All divisions will begin pulling in hose lay and back hauling operations. Demobilization will begin today for crew, aviation and fire support staff.</p> <p>As of Saturday July 20th AM actions are still within the DOA, Letter and Leader's intent and planning area. Costs were reviewed by both the State of Idaho Agency Administrator and the Forest Service Agency Administrator and are within the planned costs. Focus for Saturday July 20th is the continued burnout operations along Grimes Creek road. Consideration was given to potential spotting across Grimes Creek and debris rolling on to the Grimes Creek road as burnout operations progress. Division Y is staring to GPS and for use in rehab operations.</p>

This process has not changed but it is a reminder that it is important to add notes as the Decision is validated. These notes will remain within the system and will be important if the fire is reviewed later to 'rebuild' the routine validation and thought process. In the future we are hoping to more closely link this information with the Decision when the pdf is created because they are all part of the documentation. At this time previous periodic assessment notes can be found in the left hand menu in the Incident History.

Extended Risk Assessment



Now let's go back to the analyzing information and how that deep dive can assist managers in making decisions. Although all of the steps in the cycle are often occurring concurrently, the more time spent in analyzing the information and weighing out the risks and benefits, the more support the line officer will have or the more informed a decision will be. Often those initial decisions are based on information readily at hand, but they can be supported through analysis and can be revised as new and more detailed information is obtained.

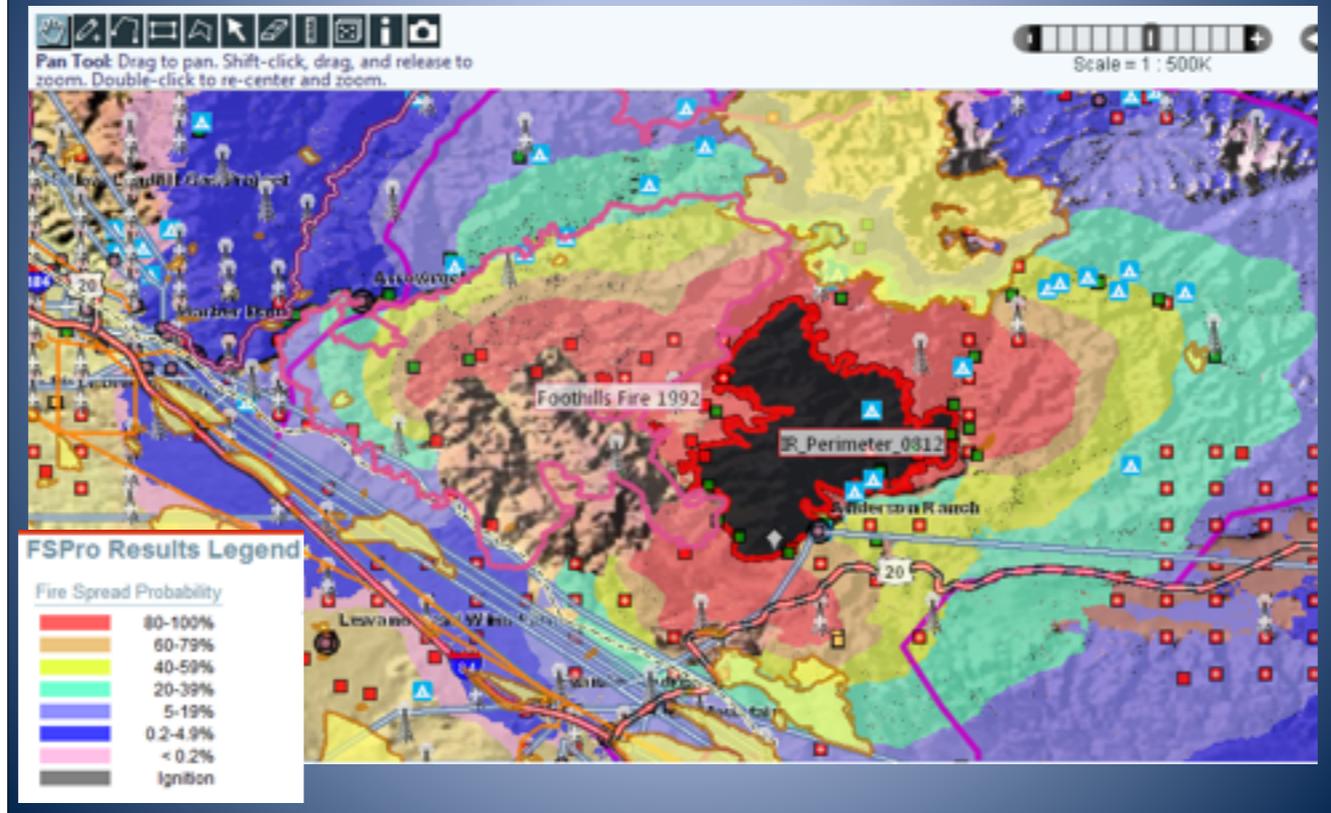
Analyzing Potential Benefits

- What are the opportunities to manage the fire or areas of the fire to meet land management objectives?
- Will the fire cause an area to move closer to its natural conditions and fire regime or will it be burned by uncharacteristic fire behavior? Is there something we can do to change that outcome?



As benefits are analyzed and documented in the decision, consider the questions listed above. Ensuring these considerations are made when the LRMP allows it is very important to the long term health of the ecosystem.

Long Term Planning - FsPro



When determining what potential outcomes there are with a fire burning longer term on the landscape, the Fire Spread Probability (FsPro) model can be used. FsPro is a geospatial probabilistic model that predicts fire growth, and is designed to support long-term decision-making (more than 5 days). FsPro addresses fire growth beyond the timeframes of reliable weather forecasts by using historic climatological data. FsPro calculates and maps the probability that fire will visit each pixel on the landscape of interest during the specified period of time, in the absence of suppression, based on the current fire perimeter or ignition point.

The results do not predict actual fire perimeters, but instead show the probability that each cell will burn. Based on the historical data FsPro produces many weather scenarios for the selected time period. Each weather scenario is used to model an individual fire, (normally 1,000 to 4,000 fires), that are overlaid to produce a map with the probabilities. The FsPro output map produced is often misinterpreted as a perimeter map. The red area represents a 80-100% probability of being burned. The orange area represents 60-79%, the yellow area 40-59%, the green area 20-39%, the light purple 5-19%, the dark purple 2-4.9%, and the pink < .2 % change of burning in the 7 day period under the modeled conditions.

FsPro can be utilized to answer Line Officer Concerns such as –

- What is the probability the fire will reach the Interstate?
- The fire has hung in the higher elevations and the season is coming to a close, what is the likelihood the fire will run again and threaten the communities in the valley?
- There are fires all over the place; what is the chance these fires will merge in the next week or two?

Long Term Planning – Values at Risk

Values at Risk

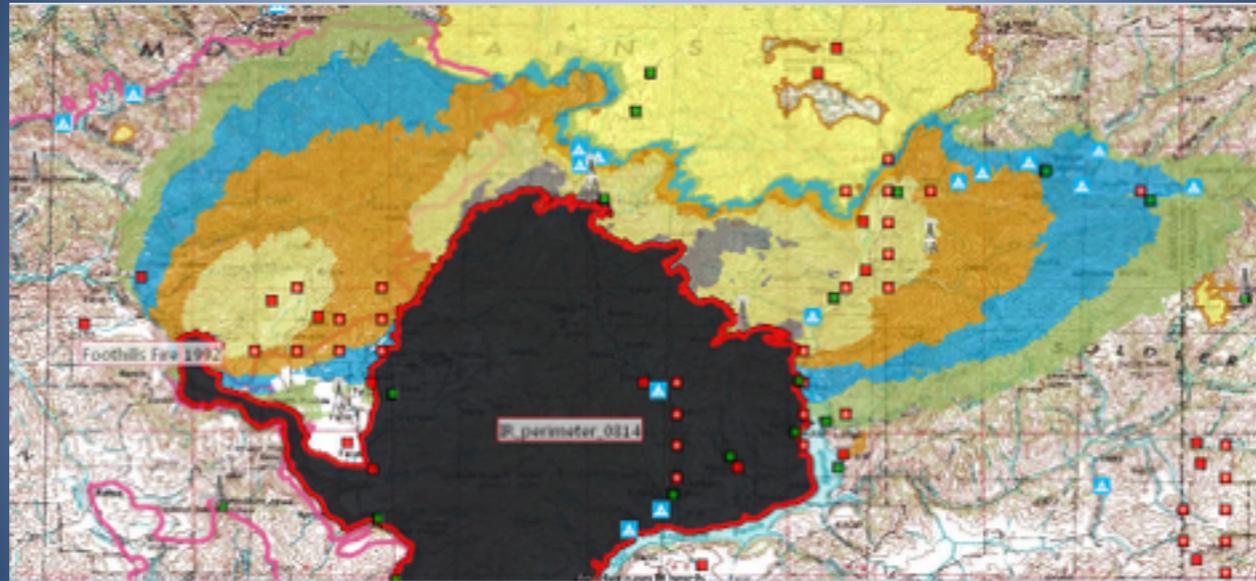
NAME	VALUE
Incident Name	ELK
Analysis Name	7day_8_12_1000f
Author	Multiple
Analyst	Pence, Dusty
Latitude	43.33484
Longitude	115.49667
Geographical Area	Eastern Great Basin

Values List

Category	80-100%	60-79%	40-59%	20-39%	5-19%	0.2-4.9%	<0.2%	Expected Value
BLM Buildings	3	4	0	0	0	3	6	5.58
BLM Range Allotments	29,041 acres	10,190 acres	17,123 acres	86,499 acres	158,861 acres	335,670 acres	110,242 acres	96,476 acres
Building Clusters: Ada, ID	0	0	0	0	12	1,092	293	30.2
Building Clusters: Blaine, ID	0	0	0	0	0	650	1,384	18.3
Building Clusters: Boise, ID	no data	no data	no data	no data				
Building Clusters: Camas, ID	0	0	0	28	798	431	520	119
Building Clusters: Elmore, ID	349	84	124	25	117	824	51	478
Building Clusters: Gooding, ID	no data	no data	no data	no data				
Building Clusters: Lincoln, ID	no data	no data	no data	no data				
Campgrounds	2	1	9	5	8	15	18	9.91
Class 1 Airsheds	0 acres	16,111 acres	5,034 acres	424 acres				
Communication Towers	70	2	1	28	72	454	226	94.3
County: Ada, ID	0 acres	0 acres	0 acres	0 acres	15,248 acres	85,588 acres	20,763 acres	4,152 acres
County: Blaine, ID	0 acres	194,049 acres	118,094 acres	5,163 acres				

WFDSS Values at Risk (VAR) combines FSPro output with national and preloaded local value data to quantify the specific values within each probability contour (acres, miles, count, etc.). Similar to Values Inventory, VAR provides the values information in a table, and a map of the inventory area is available from the Situation map. The map capture feature can be used to add an image to the incident and decision content. Like Values Inventory, VAR is also intended as a strategic planning tool and provides a quick method to quantify values within an FSPro projection area.

Near Term Fire Behavior



As discussed earlier, fire behavior modeling can be completed to assist managers in making decisions on fires. These models not only add quantitative information for completing a risk assessment but can also assist Line Officers in evaluating concerns they have.

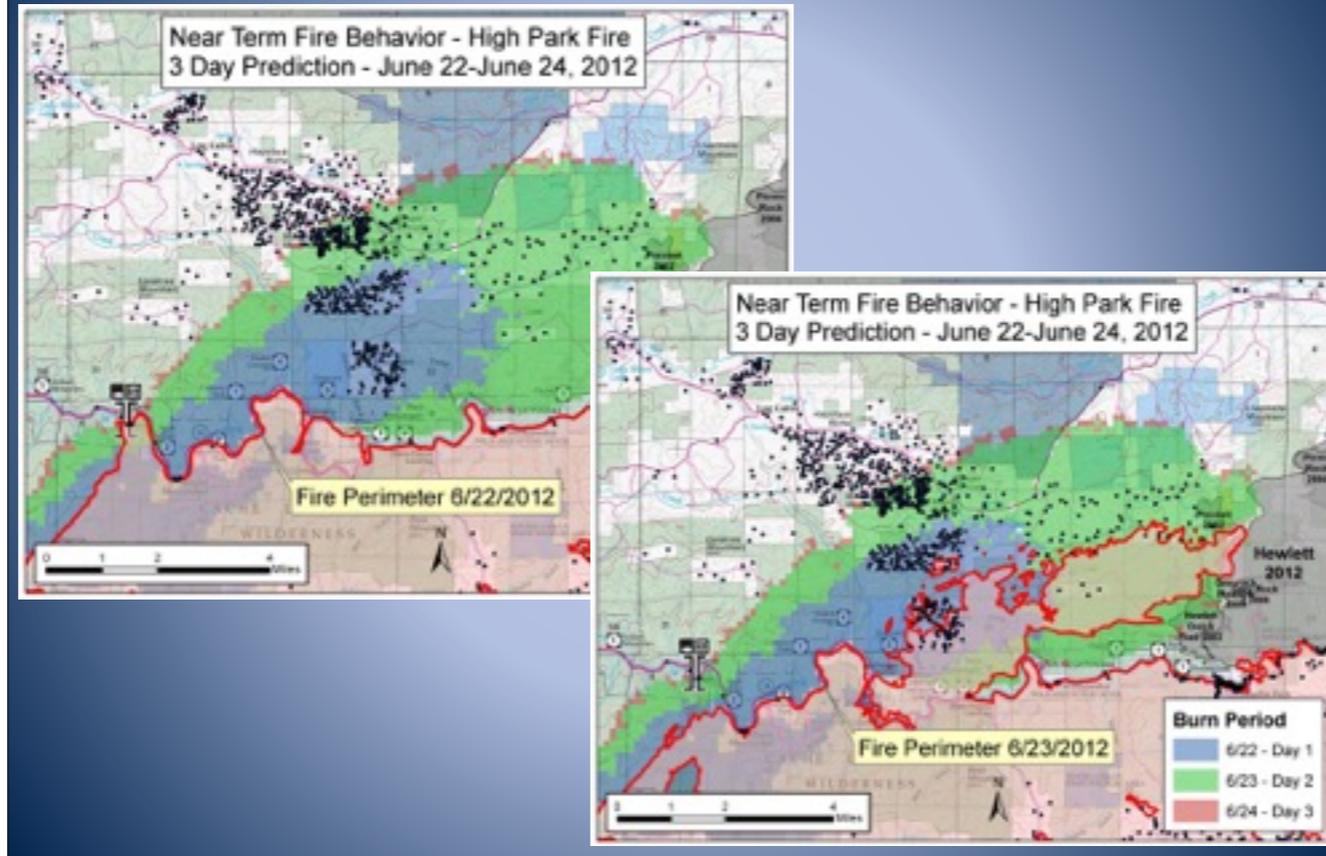
Near Term Fire Behavior (NTFB) models fire growth in the form of a fire progression. Unlike Short-Term Fire Behavior, NTFB models fire behavior using inputs for weather and wind that change over the duration of the simulation. NTFB can model fire growth for up to 7 days, however caution should be used when projecting beyond reliable weather forecast timeframes. Near Term Fire Behavior simulates where and when a fire may grow, and also predicts fire behavior characteristics on the landscape where it does burn. In this example of NTFB output below each color represents a 3-hour interval; the black lines represent daily burn periods.

This model was utilized by the Line officer to discuss evacuations with the land owners ahead of this fire. (identified within the ellipse on the map) She could show that over the next four days, if weather continued as anticipated and suppression actions were unsuccessful, the fire would burn through the area where their homes were. This could also be discussed in the context of whether fire personnel should be dealing with evacuations on a one way in/out road or fighting the fire.

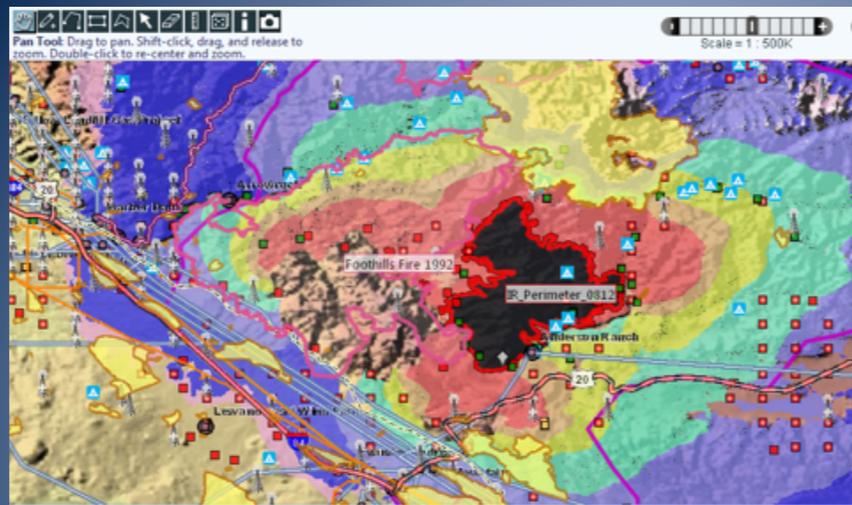
NTFB can be utilized to answer Line Officer concerns such as –

- The district ranger is concerned about a thermal trough pushing the fire; what might that look like?
- Given the changing winds and weather, when do you think the fire will reach the containment line?
- We are doing a large burn-out operation; if we get a spot across the line, what size will the fire be with and without a frontal passage?
- What fire behavior (e.g. flame length, rates of spread, spotting) is expected with known weather and fuel conditions?
- Can you reconstruct the growth of this fire if we provide you an ignition and the final fire perimeter?
- If a fire reaches a point of concern, what fire behavior can I expect at that location?

Near Term Fire Behavior



On the High Park incident, the fire spotted to the north and were challenging crews to suppress all of them. With a high wind forecast a few days out, the Near Term Fire Behavior model was run to project what the fire might do under these wind conditions. (upper left). Because of this projection the structures (black dots) were evacuated ahead of the wind event. The lower right image shows the actual fire perimeter as compared to the model's projection. Although not perfect, the analysis does show that this was a concern, did help the Line Officer make the decision in advance, and put fewer public and firefighters at risk.



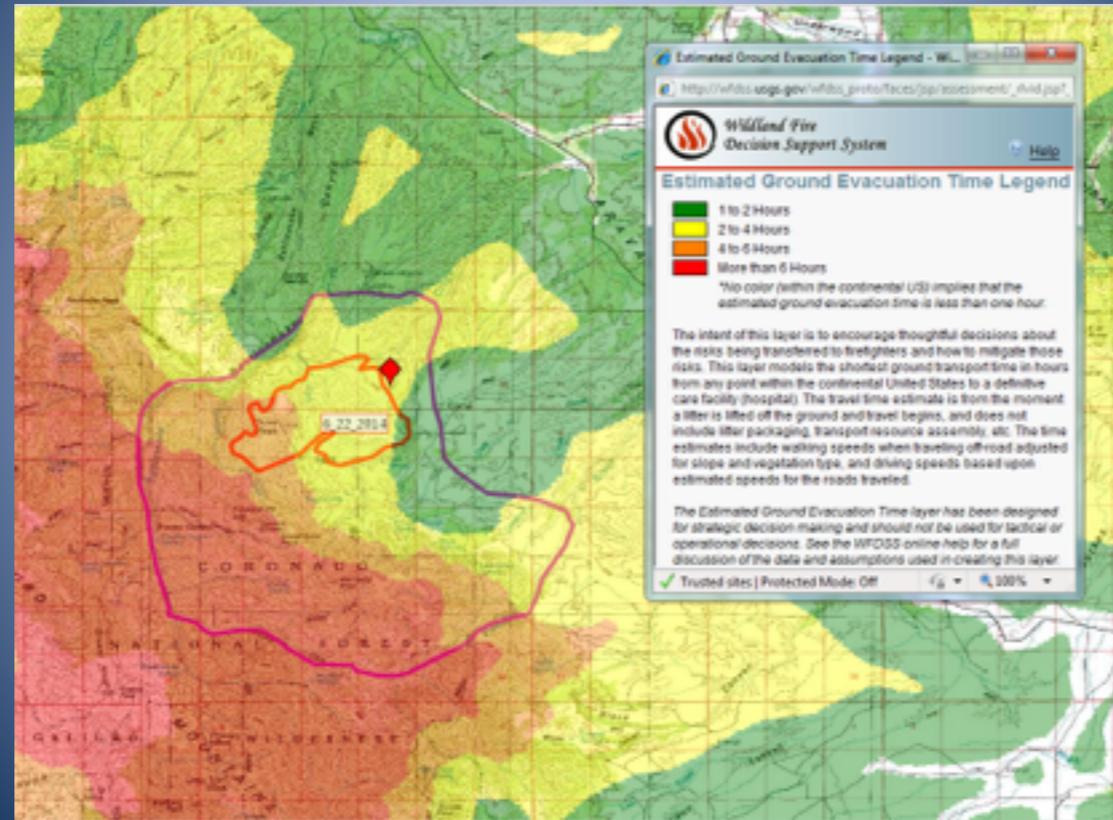
Strategic
Operational
Planner

Long Term
Analyst



Utilizing a long term analyst or strategic operation planner to help evaluate the risks and benefits will help ensure that as much information as possible is considered and increases the potential of looking at the whole picture. Products that they can support not only helps managers look beyond their “known” but can expand the realm of possibilities for consideration. In other words the models may show fire potential differently than local experts might consider, or may be utilized to assist in informing the public of potential outcomes to garner support for the decisions.

Firefighter Ground Evacuation Layer



The Estimated Ground Evacuation Time layer was added as another tool to assist managers in considering actions to take on the fire versus exposure to firefighters. It provides perspective on how difficult it will be to evacuate a firefighter if injured which can help decision makers evaluate if the firefighting effort to limit fire spread is worth the exposure to the firefighter.

Preseason Work

- Scenario / refresher
- Discussion about what is currently in LRMP/ FMP direction and being displayed in WFDSS
- Meeting with resource personnel to evaluate concerns / issues or benefits from fires in certain areas
- Determine if there are boundary issues

Consider any preseason work that can be completed to assist you in the decision making process during the fire. The USFS has direction provided in the Chiefs 2015 season direction that specifically speaks to completing some of these tasks. There are many documents on the WFDSS and WFM RD&A websites that will also help with this preseason work.

Line Officer Refresher Training materials– Posted to the WFDSS training site under [Decision Learning Resources](http://wfdss.usgs.gov/wfdss/WFDSS_Training.shtml) at http://wfdss.usgs.gov/wfdss/WFDSS_Training.shtml

Objectives Project Briefing Paper and White Paper: See the header “Incident Objectives Project” from the [Reference and Guidance](http://www.wfmrda.nwcg.gov/reference_&_guidance.php) page of the WFM RD&A site. http://www.wfmrda.nwcg.gov/reference_&_guidance.php

Examples Decisions: See the header “Example Decisions” from the [Reference and Guidance](http://wfdss.usgs.gov/wfdss/WFDSS_Training.shtml) page of the WFM RD&A site for examples of a Long Duration Incident Decision ([Gold Pan](#)) and a Type 3 Incident Decision ([Salt Springs](#)). http://wfdss.usgs.gov/wfdss/WFDSS_Training.shtml

2015 Spring Training Documents –

“What Fire Behavior Specialists Need to Know About WFDSS” posted under the [Modeling Learning Resources](#) on the “WFDSS Training” page.

“What You Need to Know About WFDSS” posted under the [Decision Learning Resources](#) on the “WFDSS training” page.

http://wfdss.usgs.gov/wfdss/WFDSS_Training.shtml

[Strategic-Level Risk Assessment Video Series](#): These 7 videos explain the role of the Fire Behavior Specialist in providing information for the Relative Risk Assessment and the Extended Risk Assessment, including a basic “effects analysis.” <https://www.youtube.com/playlist?list=PLQOp517UPvtAeMCxmt00BfDzeVqwmDGIG>

Where do I get help?

The image shows a screenshot of the Wildland Fire Decision Support System (WFDS) website. The page is titled "Wildland Fire Decision Support System" and features a navigation menu on the left, a main content area, and a search bar on the right. Red arrows point to various help resources:

- WFDS Help Desk:** Located in the left navigation menu, circled in red. It provides contact information for user support.
- WFDS Training:** Located in the left navigation menu, with an arrow pointing to the "Training" section of the main content area.
- WFDS Help:** Located in the left navigation menu, with an arrow pointing to the "Help" section of the main content area.
- Google Search:** Located in the top right corner, with an arrow pointing to the search bar.

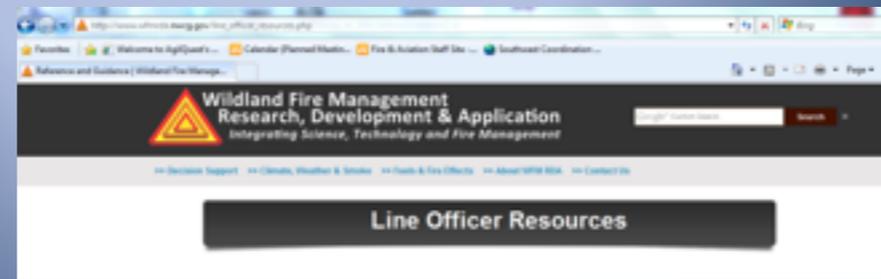
The main content area includes a "Welcome!" message, a "Training" section with a list of lessons, and a "Risk Informed Decision Process and WFDS" diagram. The diagram illustrates the decision-making process, from "Identify/Track Analysis" to "Decision Support System" and "Decision Support System".

References

Decision Making for Wildfire Incidents: A Reference Guide for Applying the Risk Management Process at the Incident Level RMRS-GTR-298



Line Officer's Desk Reference For Fire Management Program



There are many great references to help people understand both the decision making process and WFDSS. The Decision Making GTR was referenced earlier and was written to help people understand the decision making process, rather than the WFDSS process. The Line Officer's Desk Reference has been developed for Forest Service Line officers to provide them with one place to find fire related information.

The Wildland Fire Management RD&A is setting up a location on their website, working with the FS National Line Officer's Team, to host information in one place for Line Officers. Although the FS Line Officer's Desk Reference is hosted here, there are many other documents of interest to interagency Line Officers available here too.



Questions