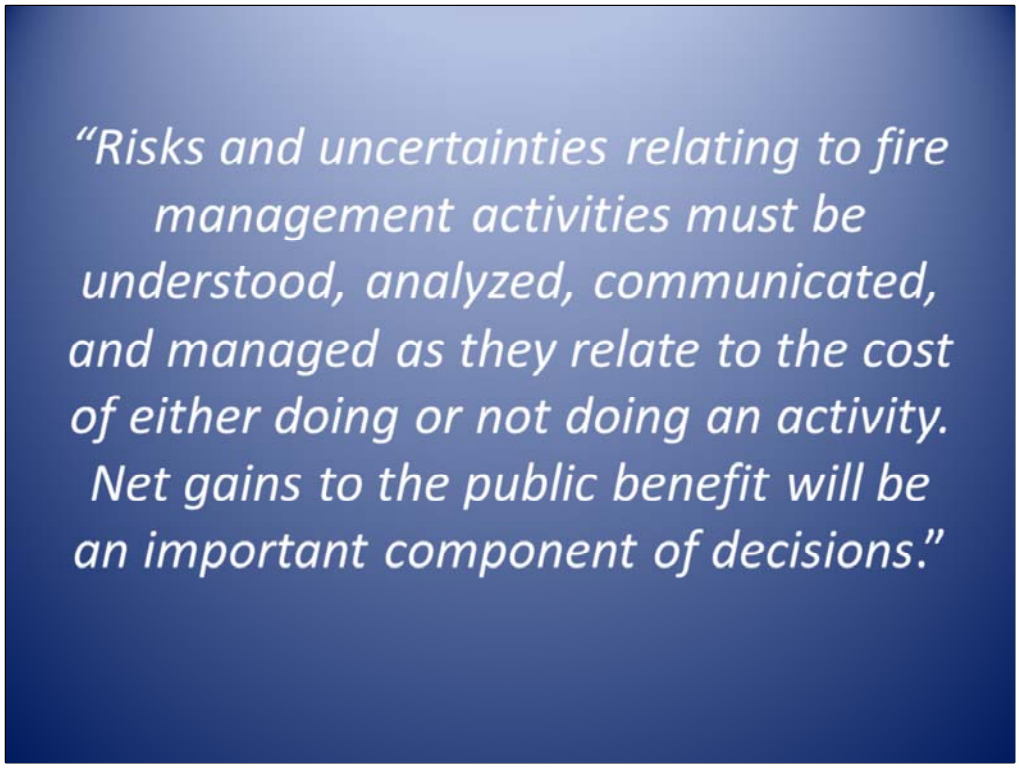
Wildland Fire Decision
Support System
Agency Administrator Review 2016

Objectives

- Briefly review the risk management process and WFDSS.
- Discuss findings from fire reviews - summer 2014 & 2015.
- Discuss WFDSS spatial fire planning.
- Define the Agency Administrator's role in decision support.
- Discuss recent changes to WFDSS important to Agency Administrators.
- Discuss decision making support tools that are available.



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.

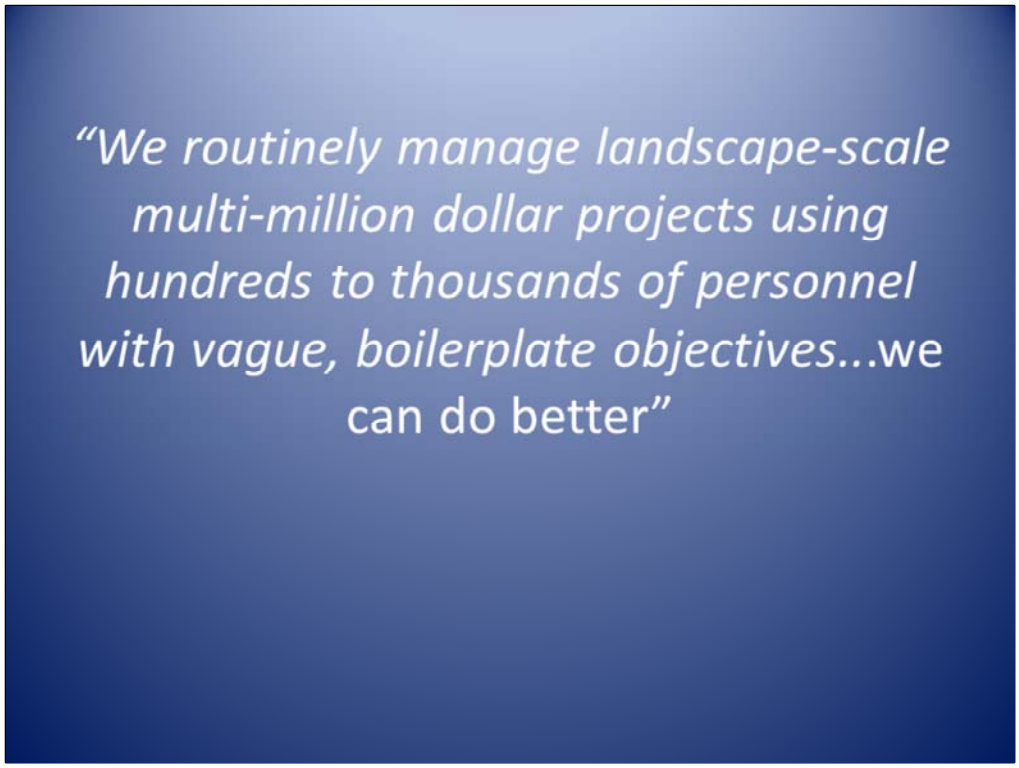
There are three different decision making models shown - the Basic Structured Decision Model, the Risk Management Cycle, or the Wildland Fire Decision Support System. They are all using very similar processes, just utilizing different steps in evaluating and managing the risks and benefits. Essentially in all of them you identify a problem, analyze and assess that problem, develop mitigations or identify benefits, make a decision and document that decision. Then continually re-evaluate that decision and adjust utilizing the feedback. This again, is similar to the processes used by firefighters in their risk management process.

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

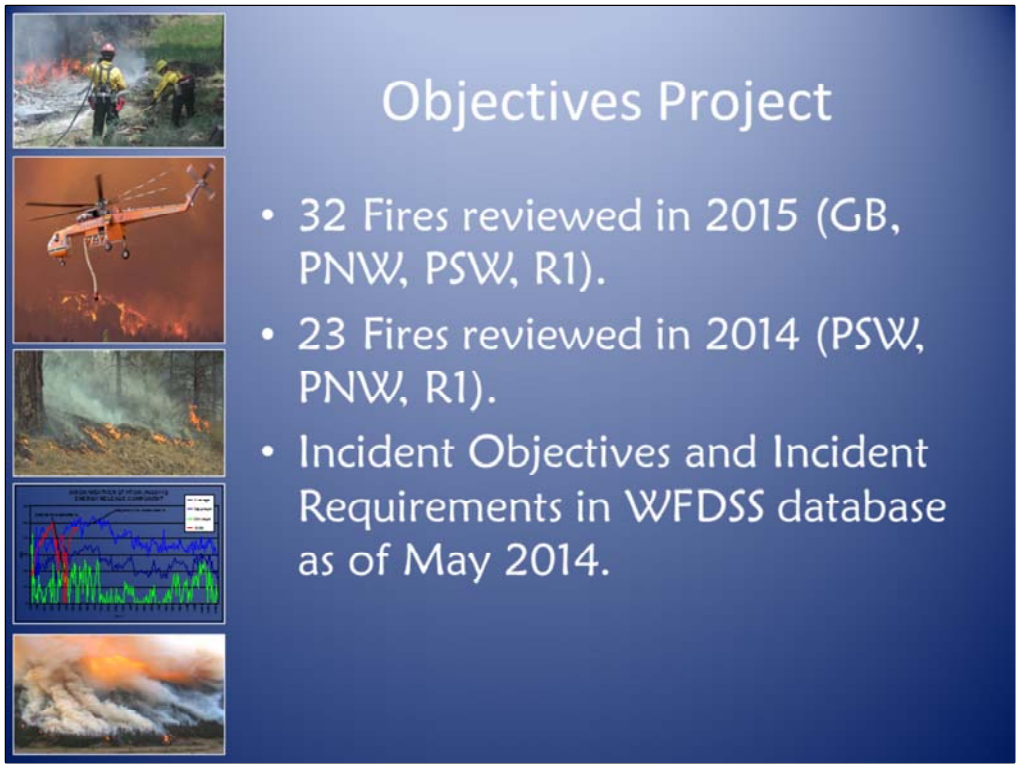
This risk management cycle is defined in the *Decision Making for Wildfire: A Guide for Applying a Risk Management Process at the Incident Level* (RMRS-GTR-298). It defines a circular process - identify the incident or issue (situation awareness), assessing that hazard or risk by determining the values, 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 is utilizing a similar process as defined in the Risk Management Cycle but described them linearly across the tabs. You identify the incident (Information), asses the situation, gain situation awareness, and assess the risks and benefits (Situation / Objectives / Course of Action). Formulate a decision (Objectives, Course of Action, Validation, Decision). And evaluate your decision (Periodic Assessment). Similar to the Risk Management Cycle, many of these steps are occurring concurrently.

The WFDSS process starts at the strategic level and can be traced all the way to the incident level. The risk process is occurring at all of these levels of decision making. 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.

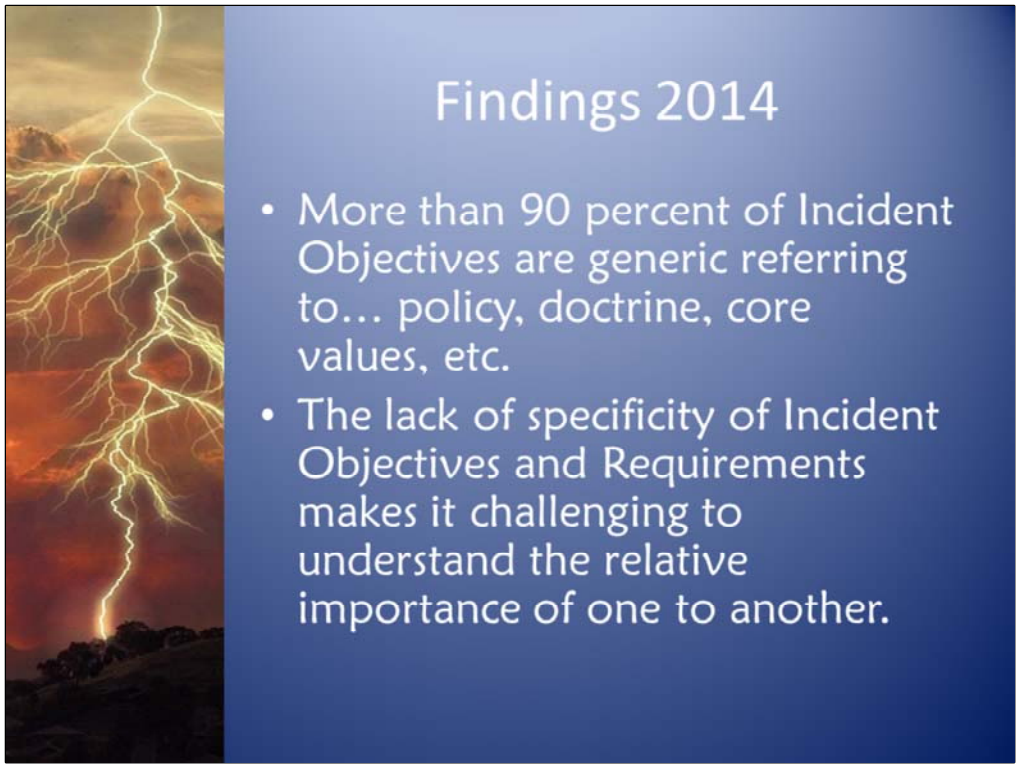


This is a collective challenge among IMTs, Agency Administrators and partners. When firefighters on a division understand the overall strategy and the context of their assignments in achieving that strategy they are better able to adapt and improvise as conditions change to continue making progress towards achieving the overall strategy while limiting their exposure to hazards. This quote is paraphrased from a conversation between Tom Harbour and Tim Sexton.



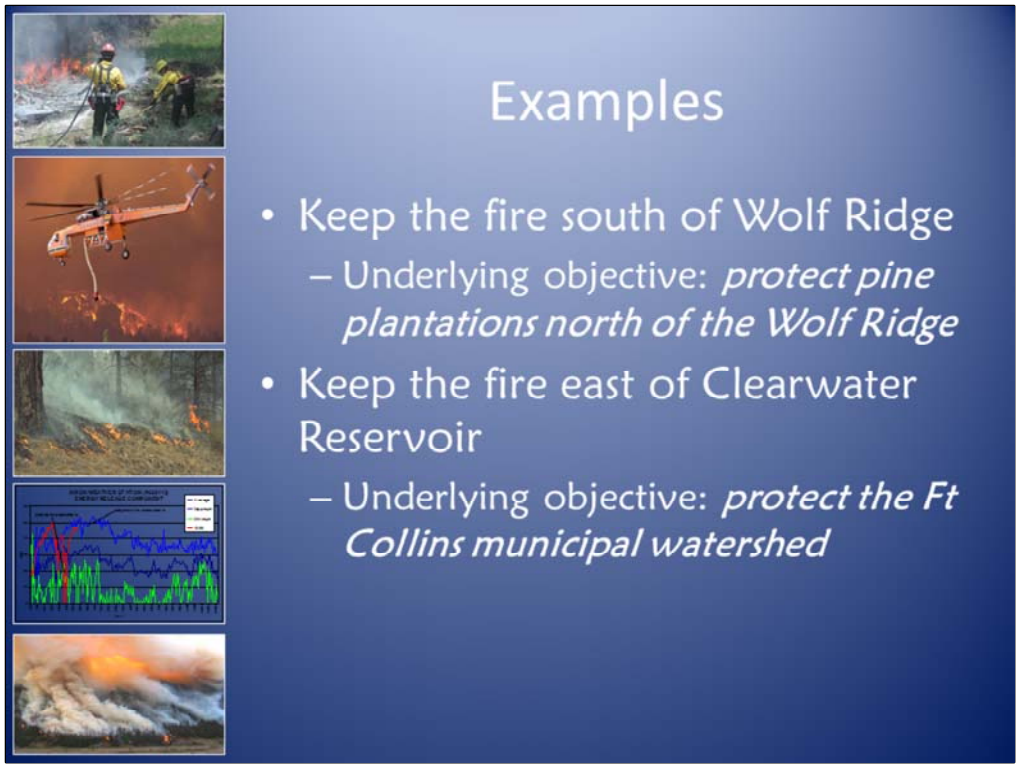
In 2015 incident Decisions were reviewed to evaluate if improvements have been made in writing Incident Objectives and Incident Requirements for wildfires.

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.

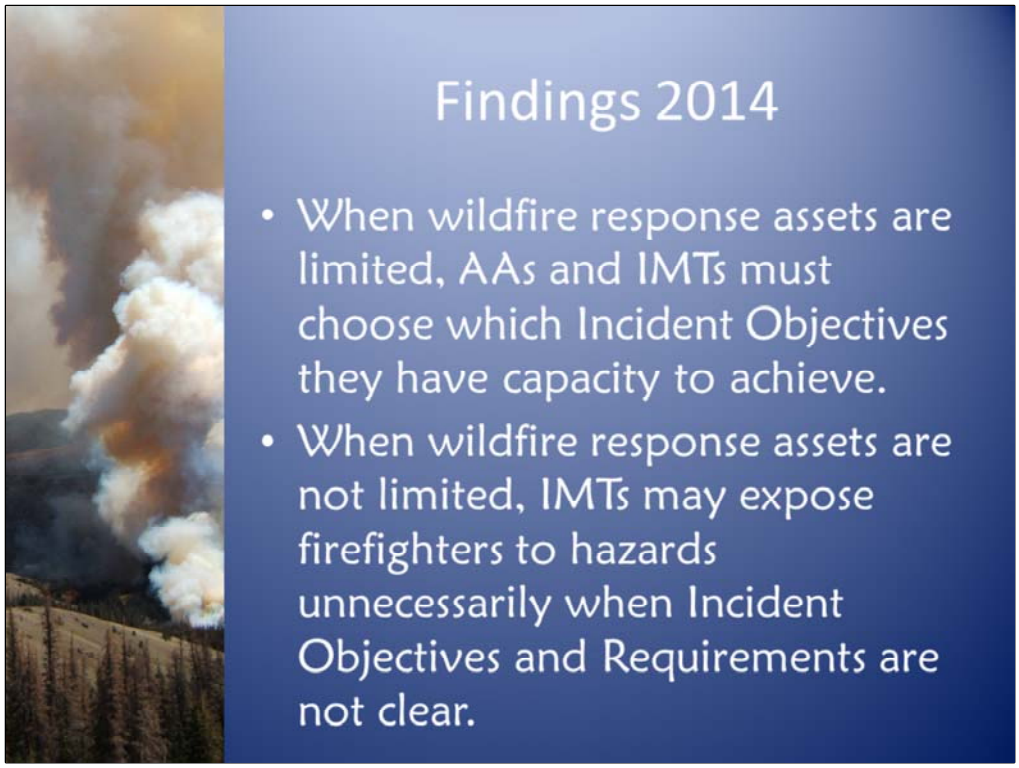


Generic information in the Incident Objectives does not provide leader's intent for the IMT or define clear understanding of the priorities. If information specific to the unit's direction is provided, it should be in the leader's intent document attached to the Delegation of Authority. Information in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

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

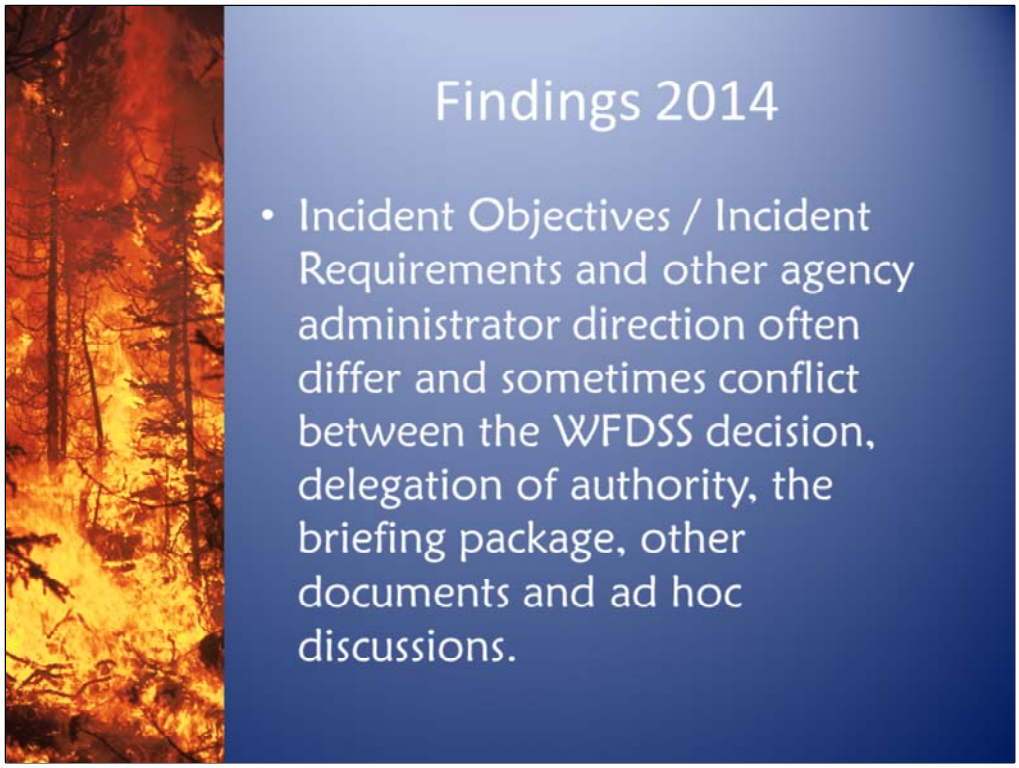


These are two example Incident Objectives seen in 2014. The Incident Objectives as written do not help an IMT or IC understand why they might be keeping the fire to a certain area. If it is understood that there is a plantation or a watershed that is of concern, tactics can be made to protect them. If it is just 'confine' the fire to a certain area, it makes it much more challenging to assess resources needed or determine tactical options.



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.)

When wildfire response assets are not limited, IMTs may expose firefighters to hazards unnecessarily when objectives and their relative importance are not clearly defined and understood.



This lack of guidance or consistency sometimes results in misdirection in managing risk and the fire.

These inconsistencies lead to delegations of authority and briefing packages that are inconsistent or do not provide adequate agency administrator intent.

The WFM RD&A has undertaken a project to update the Delegation of Authority, Leader's Intent, and Briefing package to ensure continuity among these and the WFDSS Decision Document. This information will be available for testing in 2016.

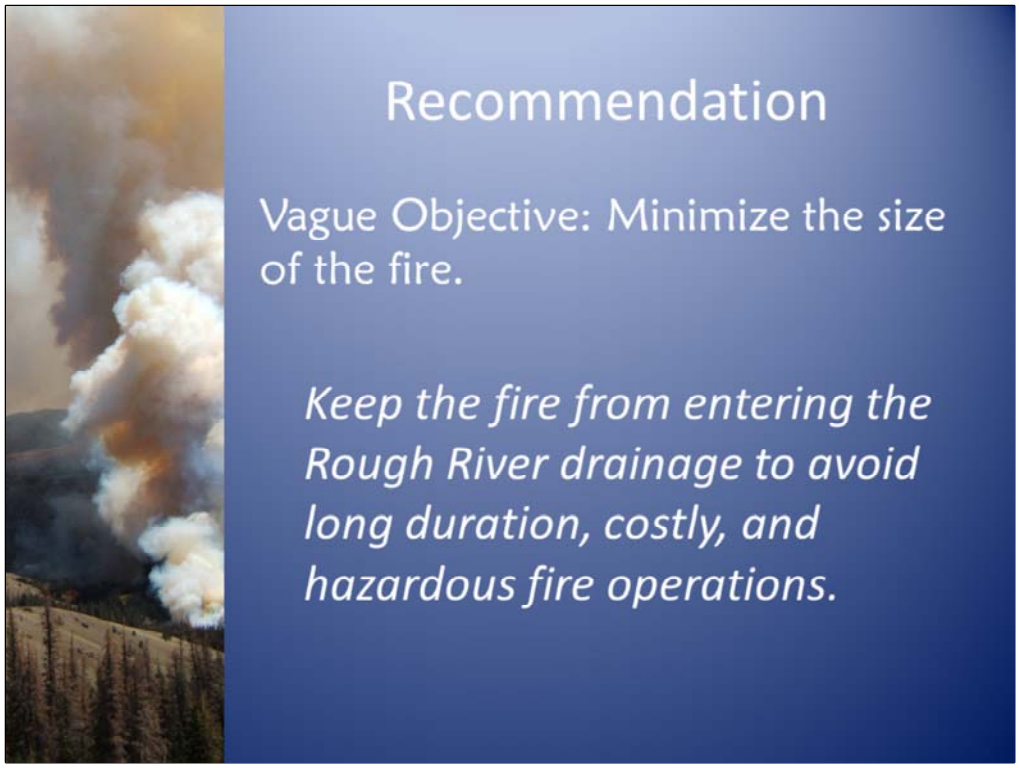
There is a need to improve the linkages between incident objectives, incident requirements, course of action and rationale. Incident Objectives and Incident Requirements must be tiered to LRMPs. The Course of Action must be devised to meet the Incident Objectives and the Rationale must provide a clear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

It is challenging to ensure priorities and values are identified if the entire decision document must be read to understand it. Also the intent of tying to the LRMP and building a plan off of what can and can't be done is critical.

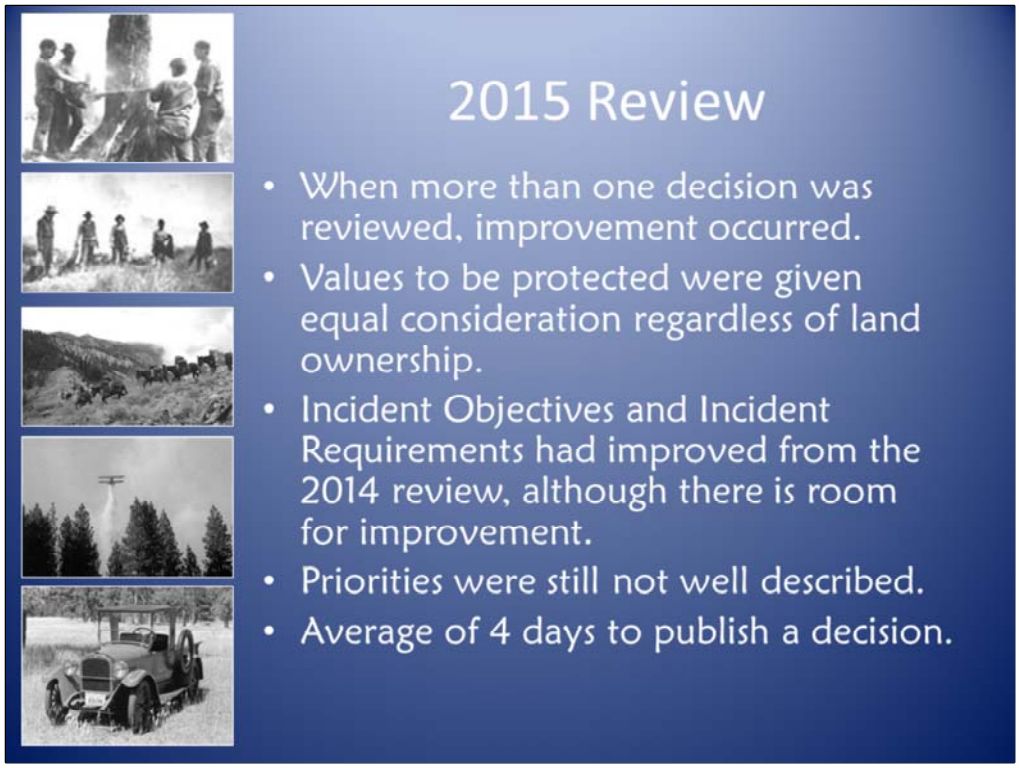
The Rationale section of the decision document is the Line Officer's responsibility. This can be thought of as the executive summary for the document. It also should clearly state what the decision was, what the strategy is, and what was considered in making the decision.

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. Although is likely the most critical element to address, 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.

Emphasis must be placed on why. If this is addressed, much confusion can be alleviated when working to meet the leader's intent.



The bullet is an objective from a past WFDSS decision.
The italicized objective below it is a recommended improvement which addresses the "why" question.



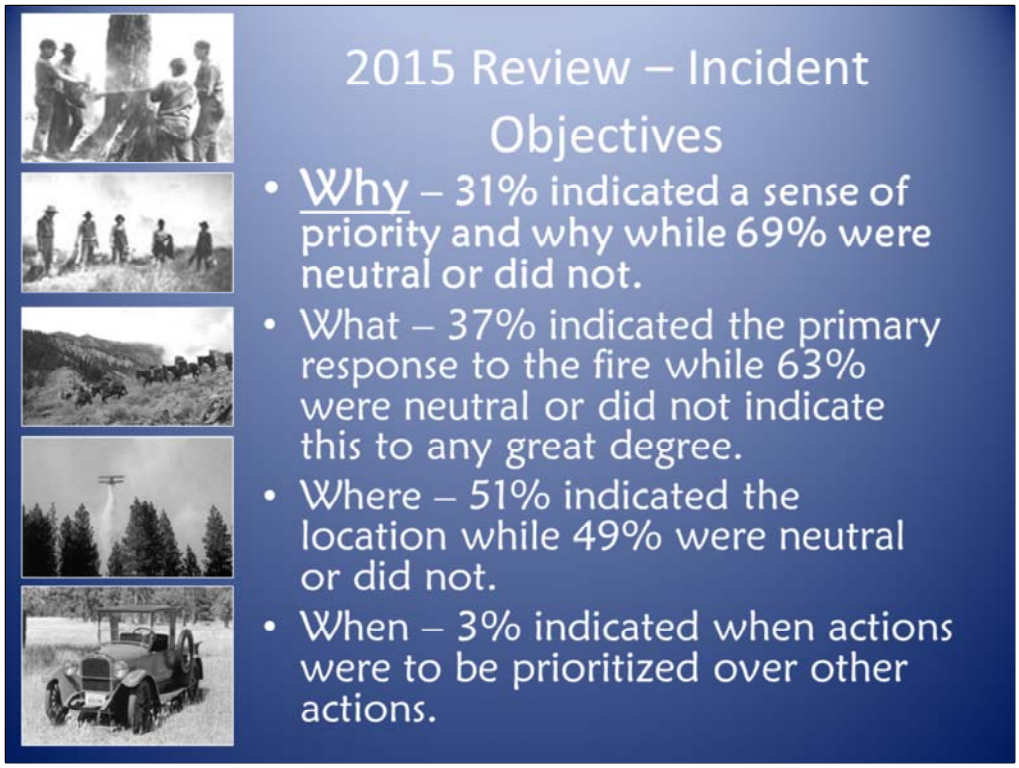
About 11% of the WFDSS decisions reviewed contained objectives which conflicted with each other.

When more than one decision was reviewed for the same incident, improvement usually occurred with each successive decision.
In most cases values to be protected were given equal consideration regardless of land ownership or agency jurisdiction.
Incident Objectives and Incident Requirements were found to be clearer than previous reviews although there is still room for improvement.

- Typically the entire decision had to be read to obtain a clear understanding of the values, leader's intent, and priorities because information was inconsistently located throughout the decision. Without reading the Incident Objectives, Incident Requirements, Course of Action, Relative Risk Assessment, and Rationale, it was difficult to piece together the intent. More clearly written Incident Objectives and Incident Requirements would clarify intent, improve flow through the decision, and lead to better understanding.
- If the entire document was read, it was apparent that risks were being considered although information could be clearer and better organized to ensure leader's intent and concerns were articulated.
- Having important information inconsistently located throughout the Decision hinders full understanding because many readers (including IMTs) often do not read the entire decision. Although the document builds on the Incident Objectives and Incident Requirements, it is important to ensure key information

is relayed within them.

- Establishing priorities in the Incident Objectives and Incident Requirements, should be improved upon to ensure IMT understanding of relative importance.

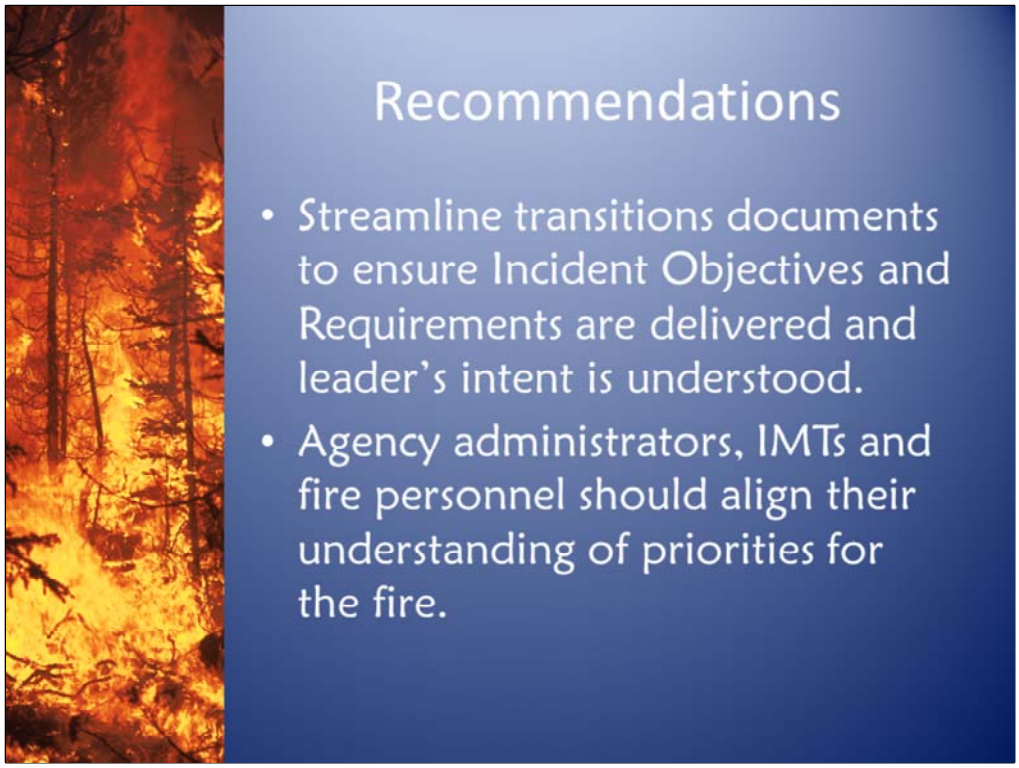


Evaluation of whether Incident Objectives addressed *what, where, why*, and *when* was utilized because writing SMART objectives can be challenging on wildfires, especially fires of the scale and magnitude seen in 2015.

Continue work improving specificity of WFDSS Incident Objectives and Incident Requirements, leading to a more deliberate Course of Action and Rationale. This will clarify intent and improve flow through the decision and support risk based fire management, ensuring intent is understood and addressed.

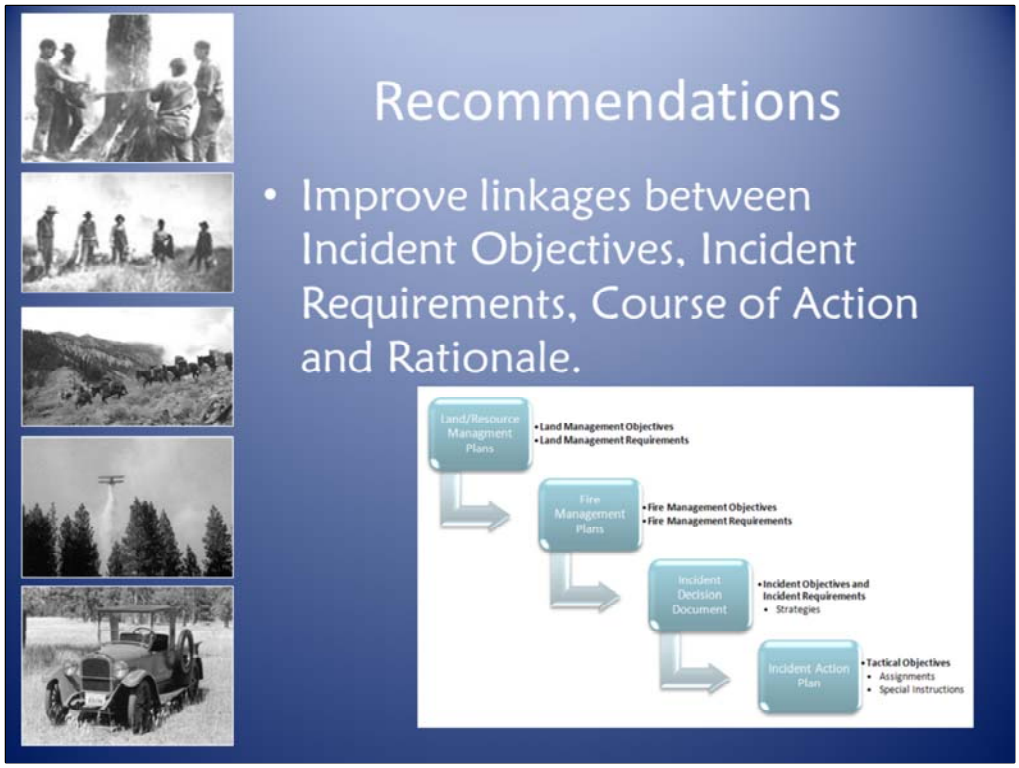
Improve linkages between WFDSS Incident Objectives, Incident Requirements, Course of Action and Rationale. Incident Objectives and Incident Requirements must be tiered to LRMPs. The Course of Action must be developed to meet the Incident Objectives. The Rationale must provide a clear explanation of how elements of the decision link together, and why the specific Course of Action provides the best means of achieving the Incident Objectives and Incident Requirements.

Agency Administrators, Incident Commanders, and



There is a need to streamline team transition documents to ensure Incident Objectives and requirements are delivered in a consistent manner.
Strategic Objectives and Management Requirements not applicable to fire incidents should be eliminated from decisions for those incidents. 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.



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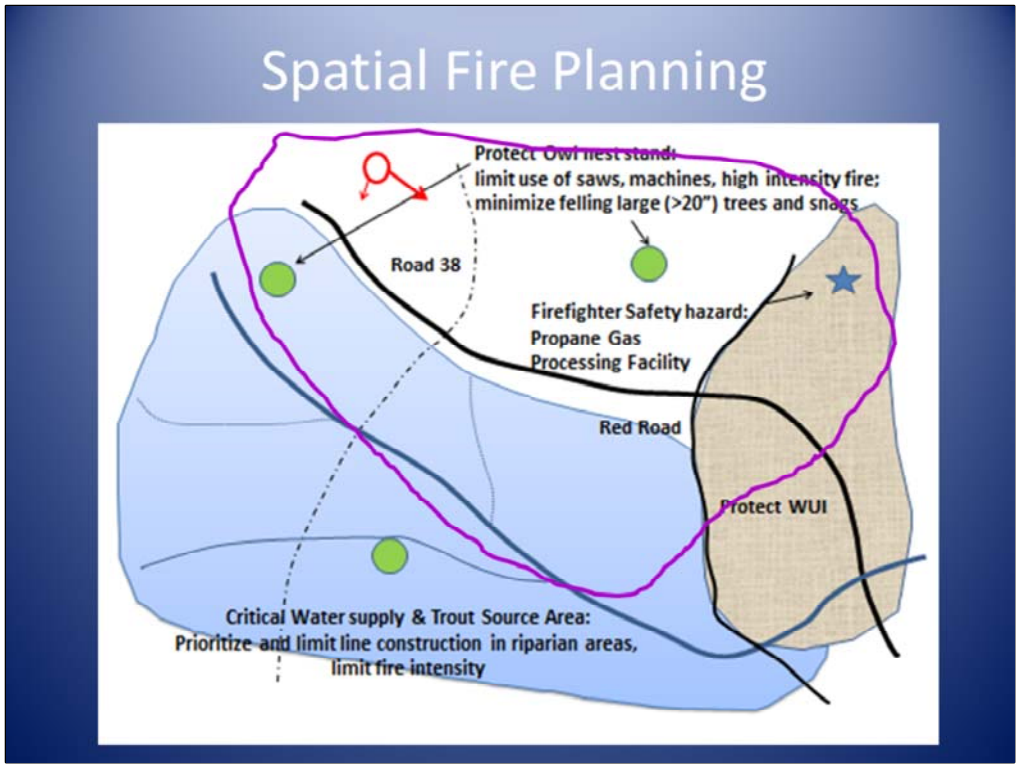
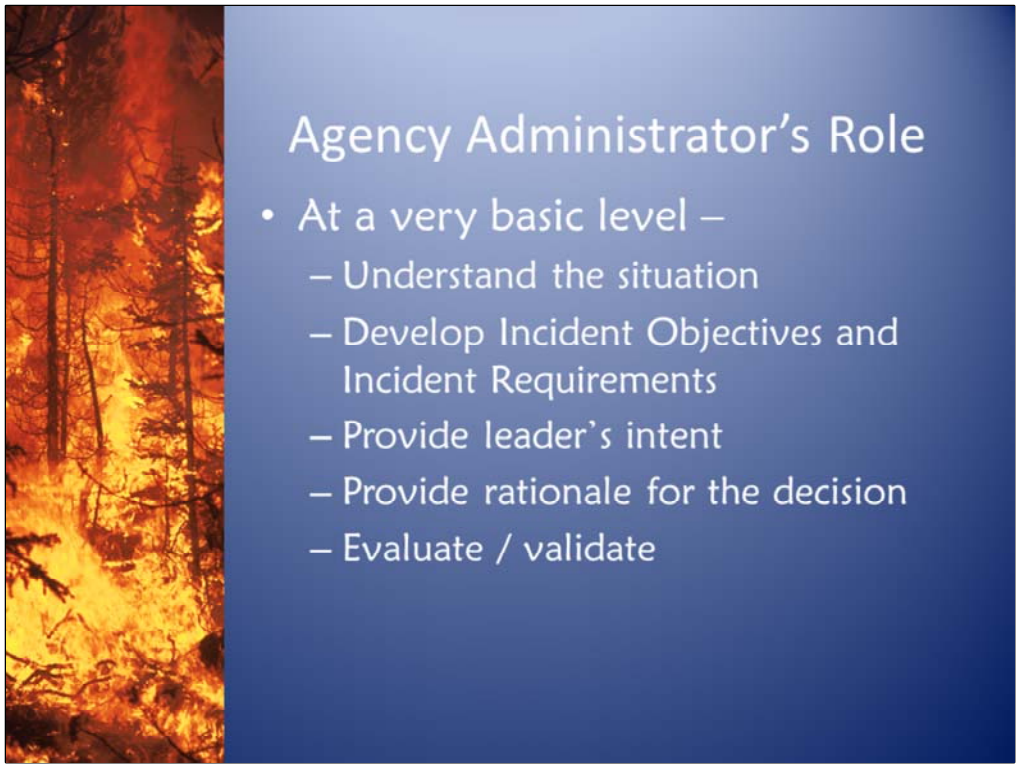
The Spatial Fire Planning process can provide units with a better visual depiction of their LRMP direction and allow the unit to have greater control over their data. Having a visual depiction of where values and resources, that can benefit from and be harmed by fire, are located on the ground allows 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.



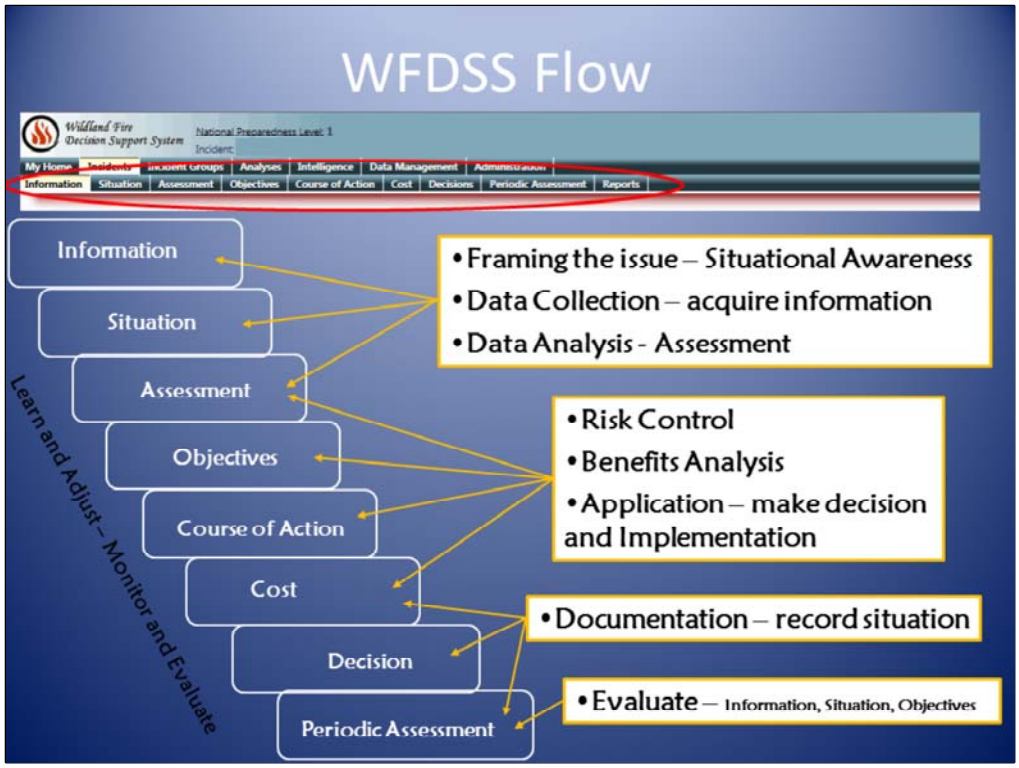
Planning area – depicted with purple line.

Strategic Objective: Suppress all fires within the WUI.
Strategic Objective: Fire on the landscape is promoted.

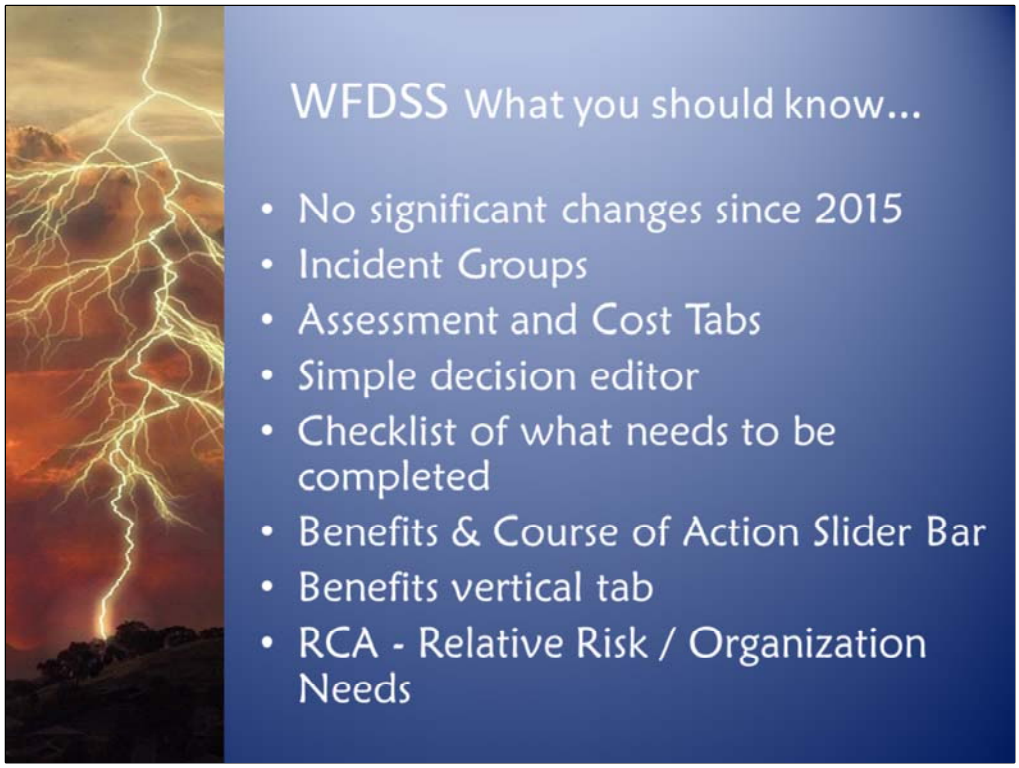
Incident Objective: Provide for community and firefighter safety by keeping the fire to the east of Red Road and avoiding firefighter exposure to the propane and natural gas processing plant.
Incident Objective: Protect the community water supply and bull trout source area by limiting fire intensity 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.



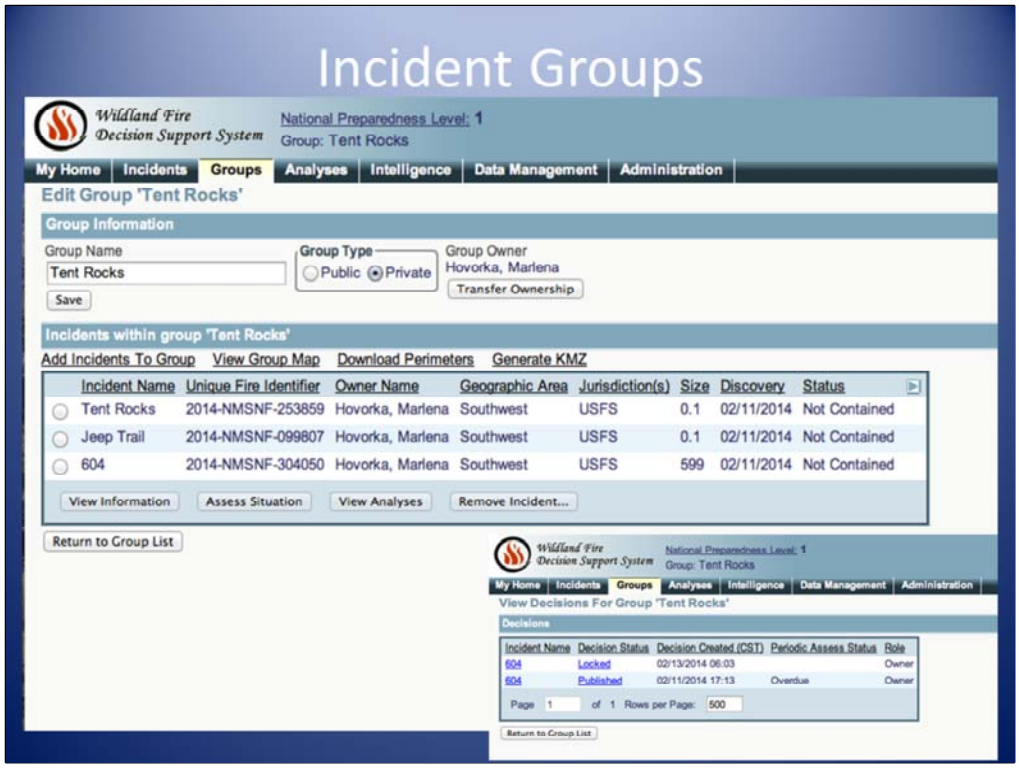
The Agency Administrator's role is critically important to ensure LRMP direction is being implemented on the landscape when it comes to managing fire. Engagement in the entire decision process and articulating leader's intent and continuity is invaluable.



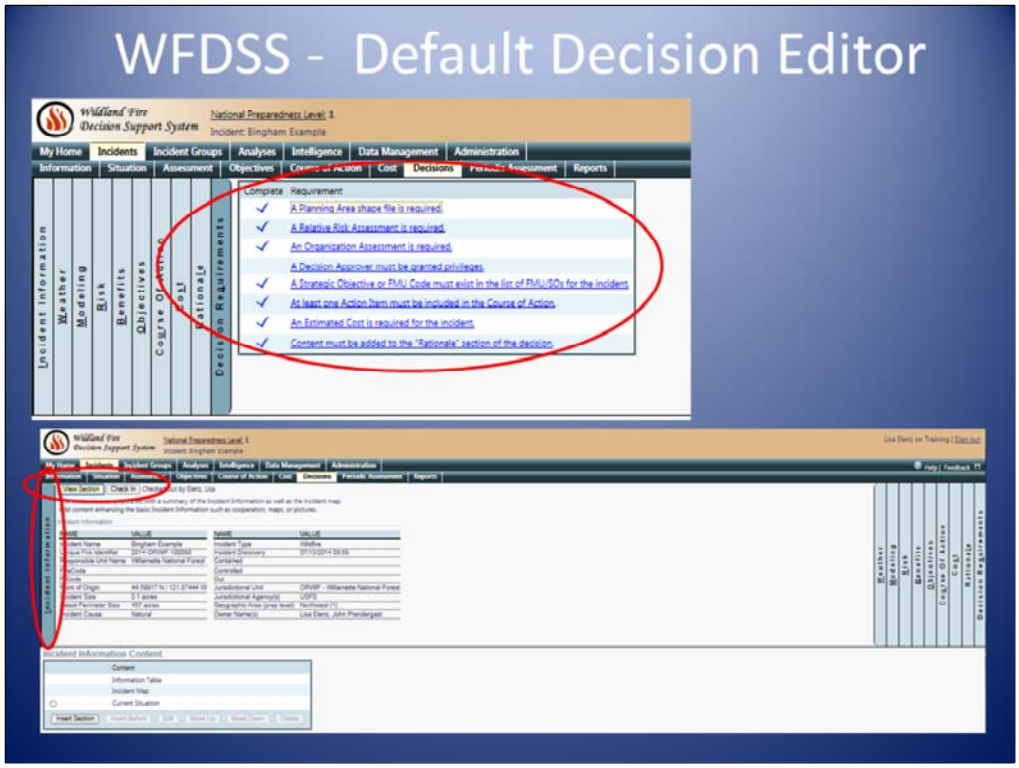
As can be seen in these identified tabs in WFDSS, a deliberative risk process can be utilized in assessing a fire situation, managing risks, and making a decision on a fire.



A summary of the recent changes in WFDSS is provided on this slide.



Incident Groups allow users to look at multiple fires on their unit or to view fires on adjacent units that could affect them.



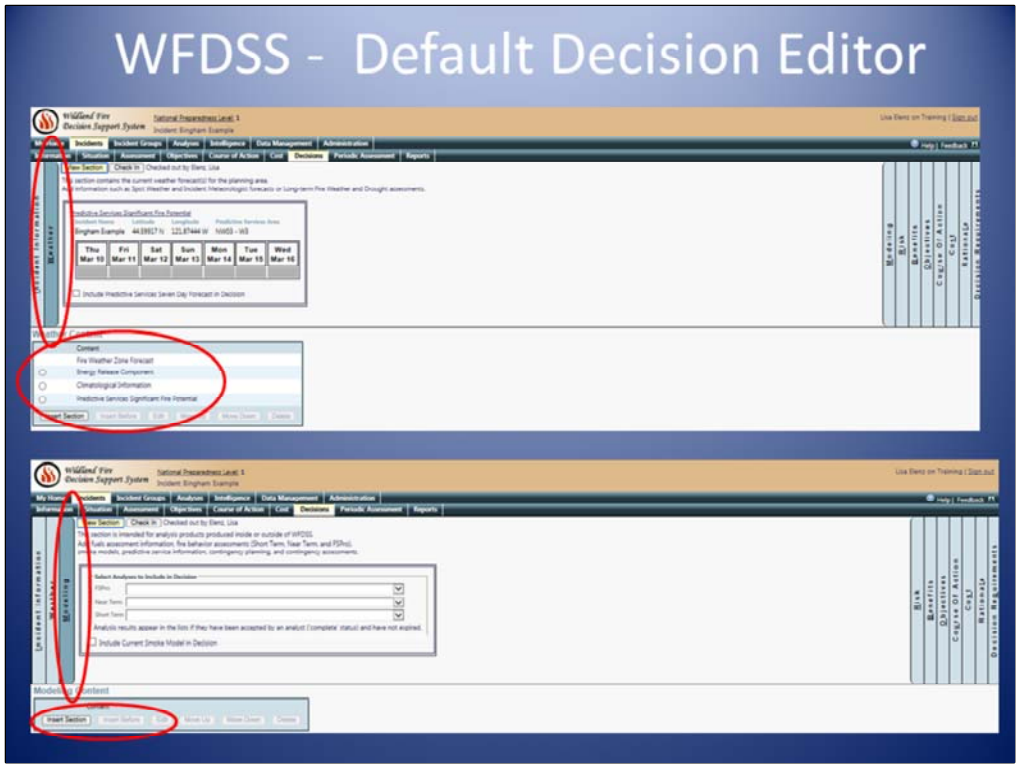
The new default Decision Editor is now organized in vertical tabs and allow users to 'leaf through' the tabs as you would turn the pages in a book. This new format assists people in finding information in each 'section' of the decision and is much easier to use.

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.

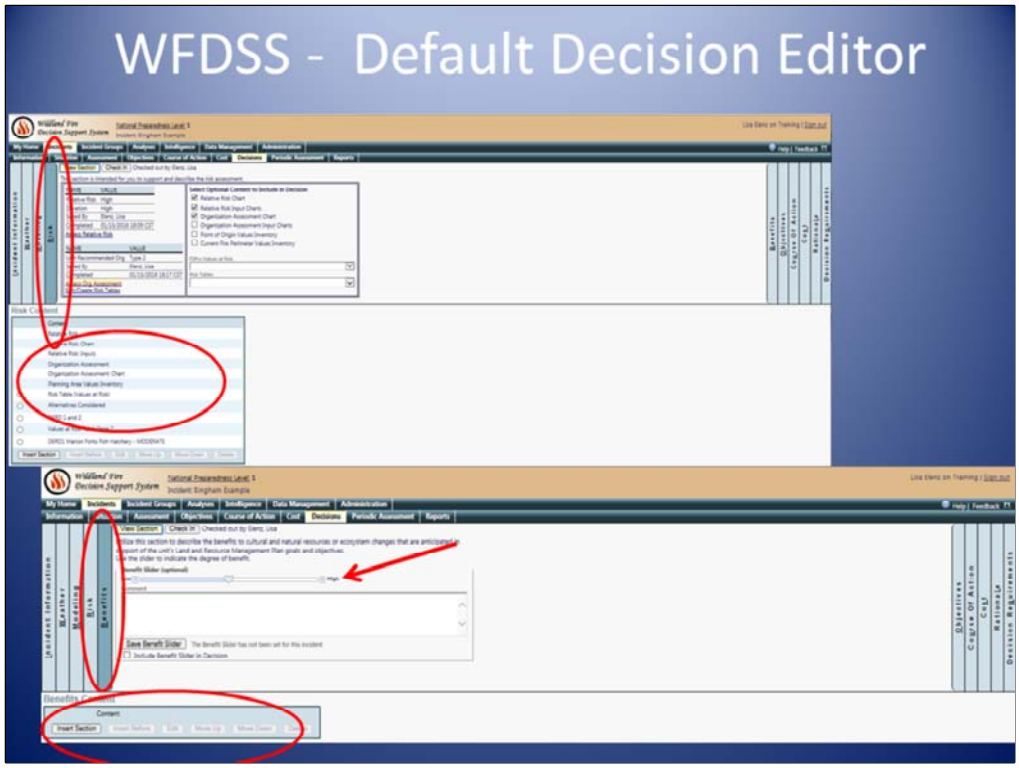
Each section of the Decision content can be viewed by selecting the view section button at the top of the 'page'. When selected a new browser window will open.

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.



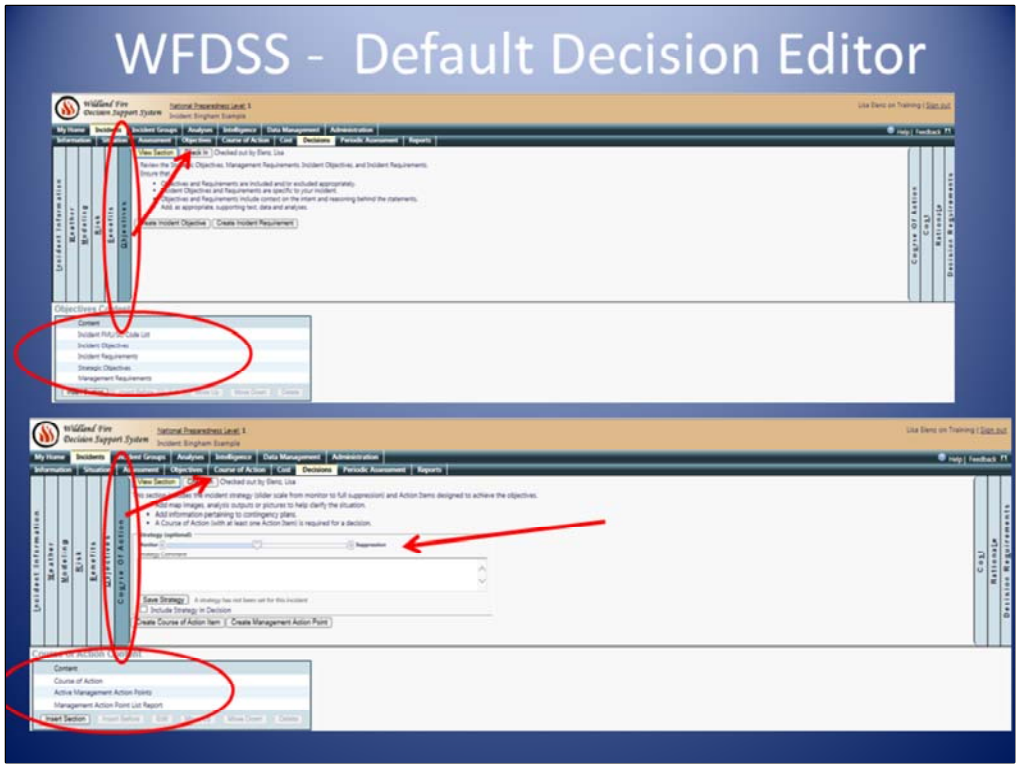
As the 'pages are turned' in the vertical tabs each will display pertinent information to that tab. Note that there is information that is automatically system generate and information can be added by the user by inserting information.

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



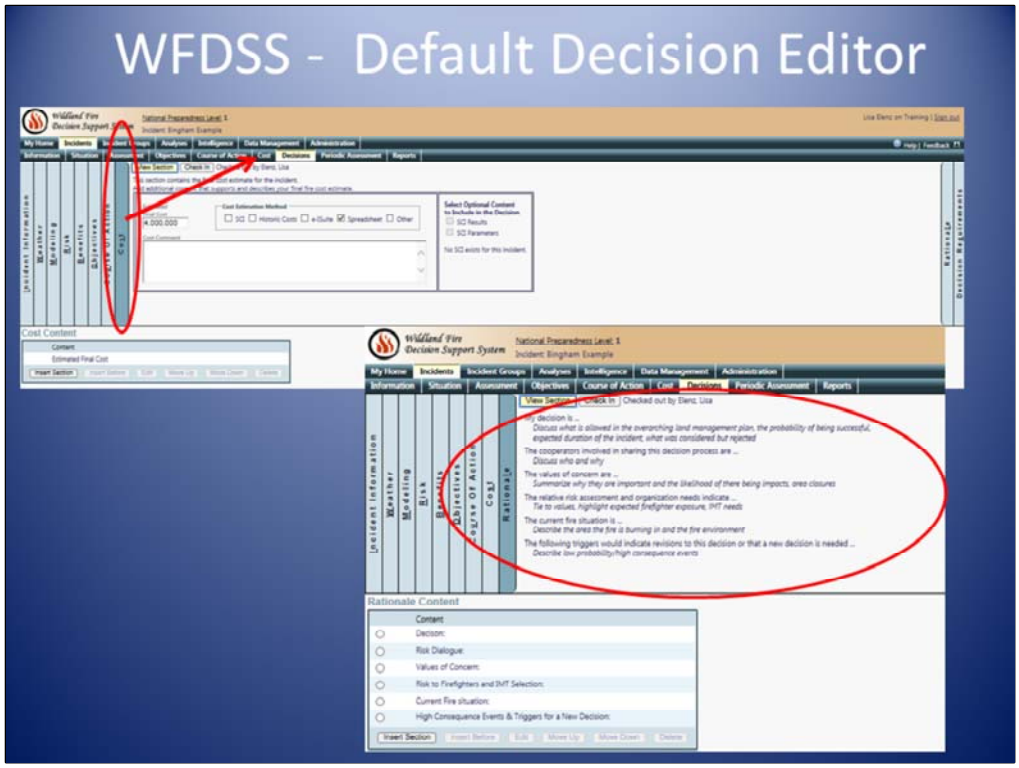
The Risk and Benefits vertical tabs are new in this decision editor. This allows users to more easily document what is being considered for both risks and benefits.

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)

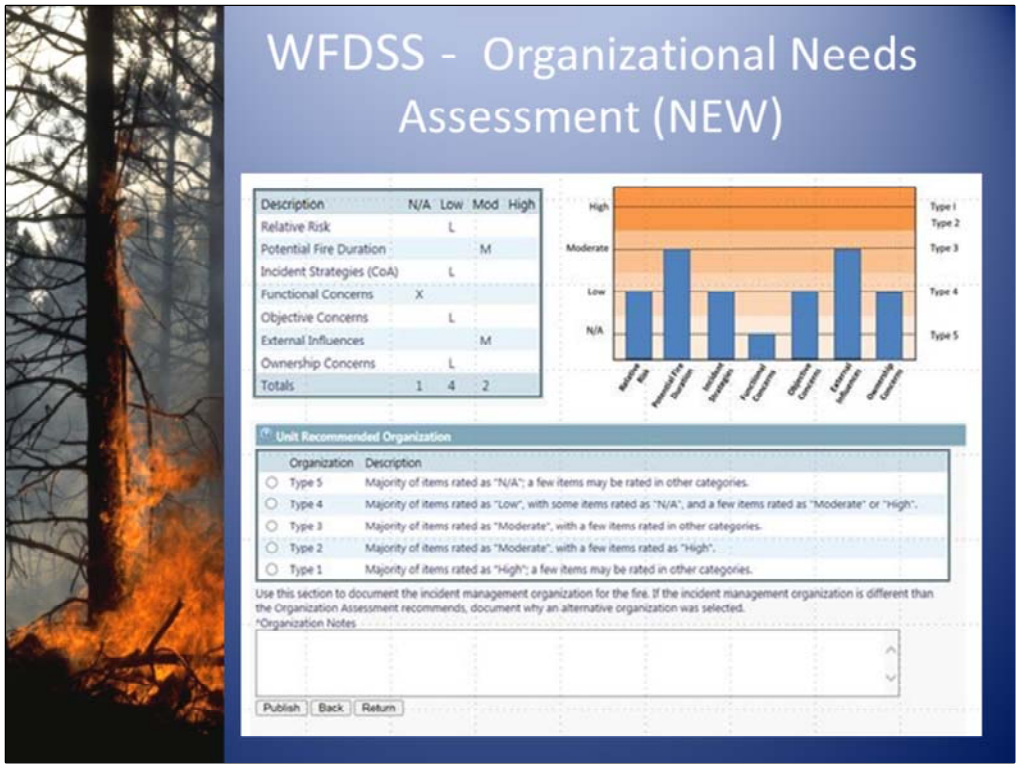
The Course of Action Slider bar can be utilized to describe the overall strategy for the fire. This allows users to once again consider the alignment between the LRMP direction, Incident Objective and Incident Requirements, and Course of Action. And subsequently describe it in the Rationale.



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

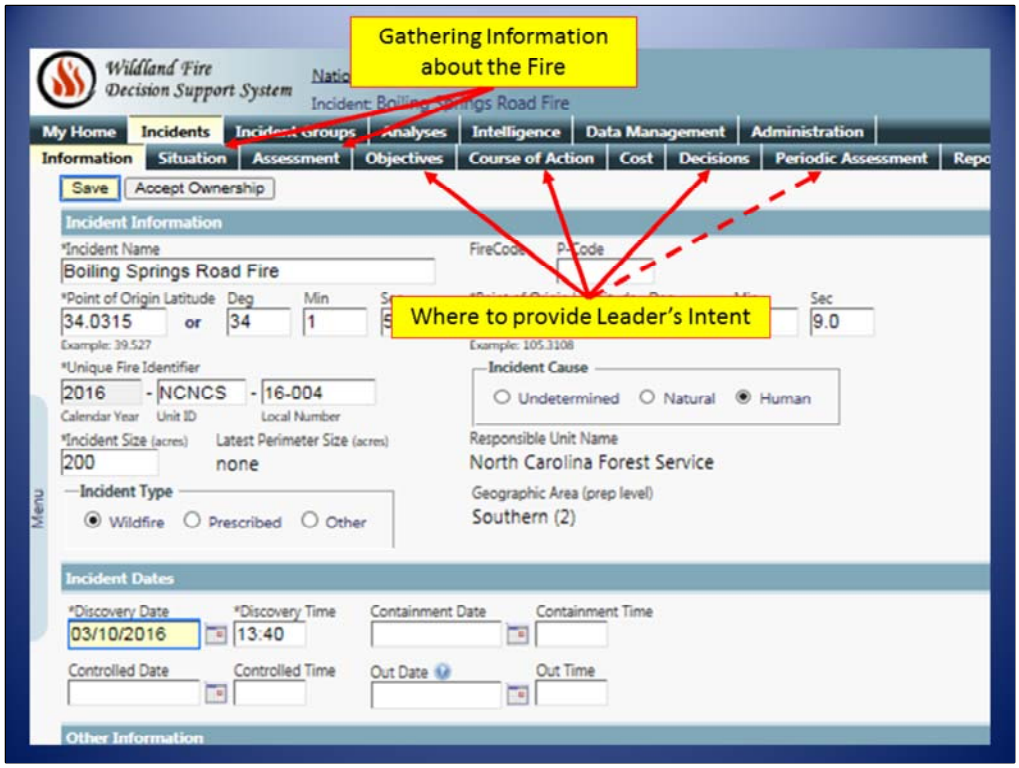
The Rationale vertical bar now provides an outline to consider when adding content. It is important that this section describes what the decision is for the fire and should likely start with *my decision is*. Too often when reading the Rationale there is still no clarity to the decision, the priorities, 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.

There has been 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.

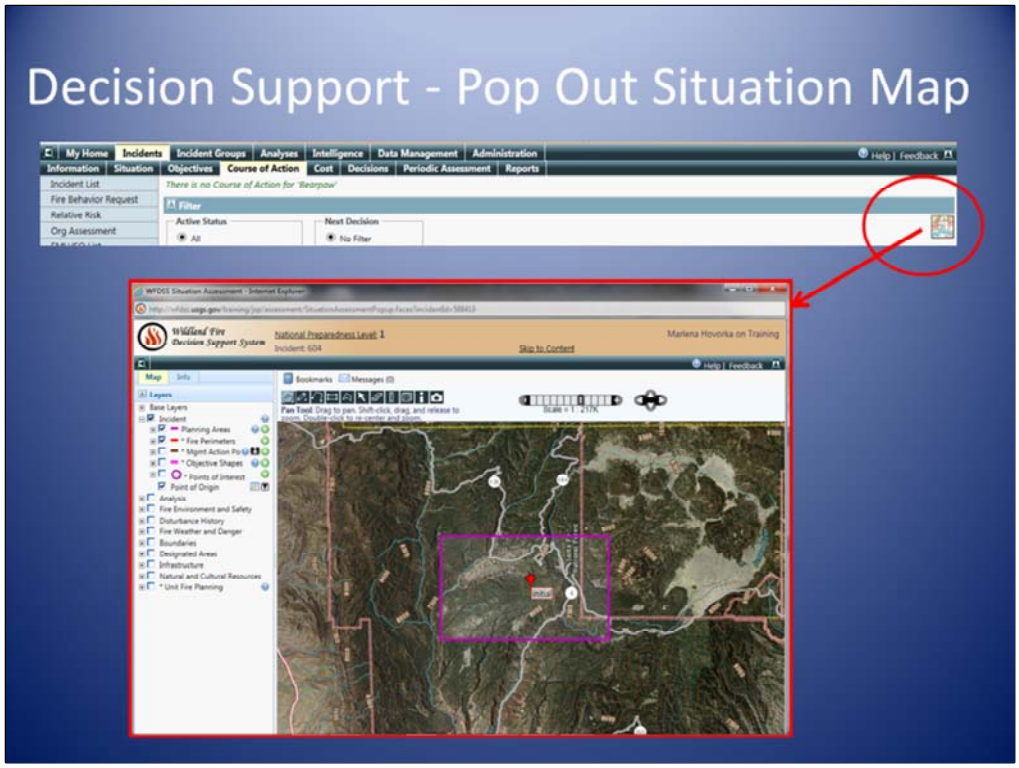


In addition to the bar chart being added, the team type will no longer be recommended. Based on the summary information a team will have to be selected and noted. The value of the bar chart is that is easily shows what areas might need attention.

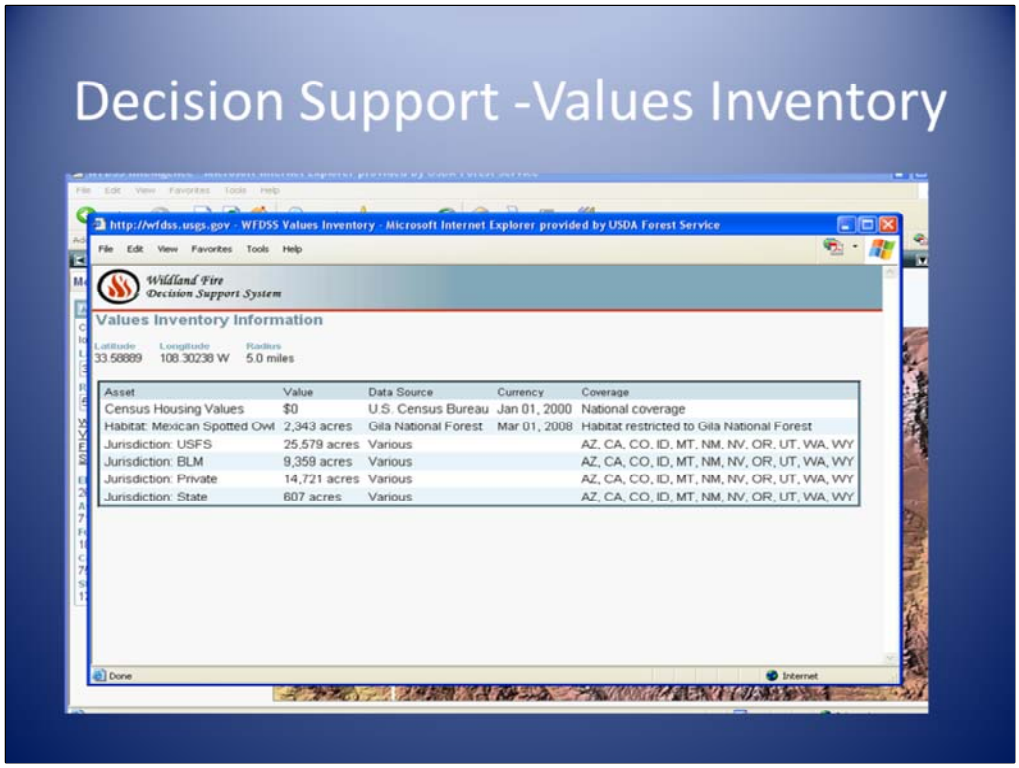
In this example a Type 4 incident organization is indicated but one might want to add extra Public Information efforts given the external influences are higher than most of the other items evaluated. Or perhaps it is worth using a Type III team to ensure the external concerns are addressed.



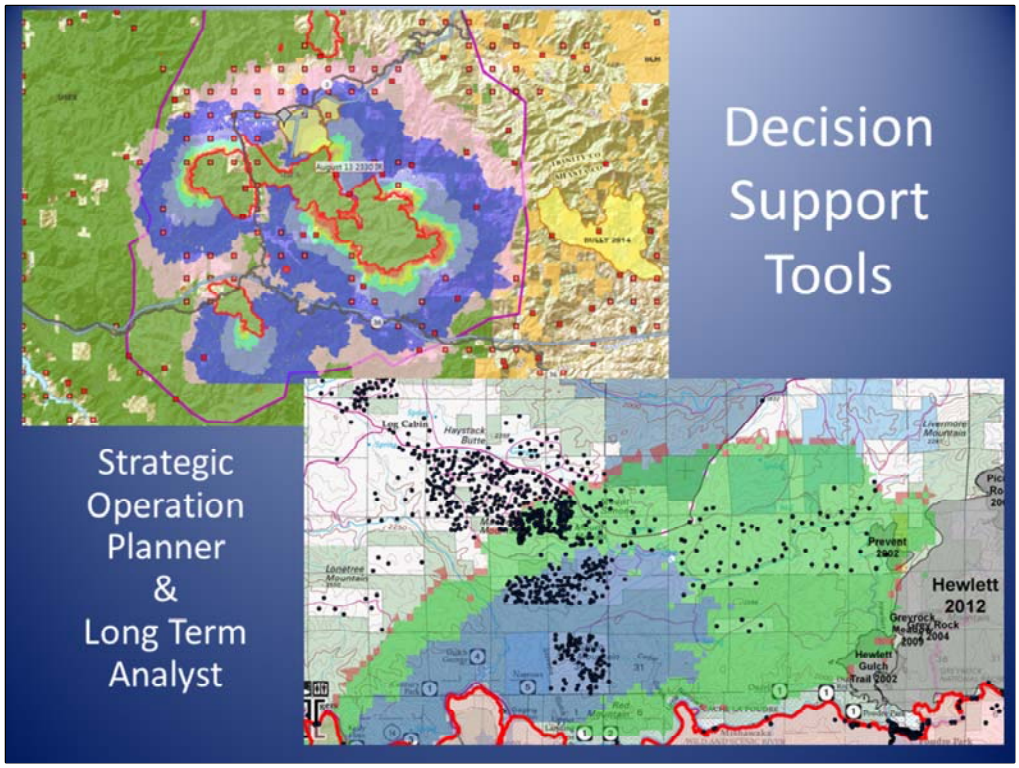
There are many places to gather information about a fire, this slide indicates where on the tabs you can gain situation awareness. Additionally it shows where an Agency Administrator should provide leader's intent.



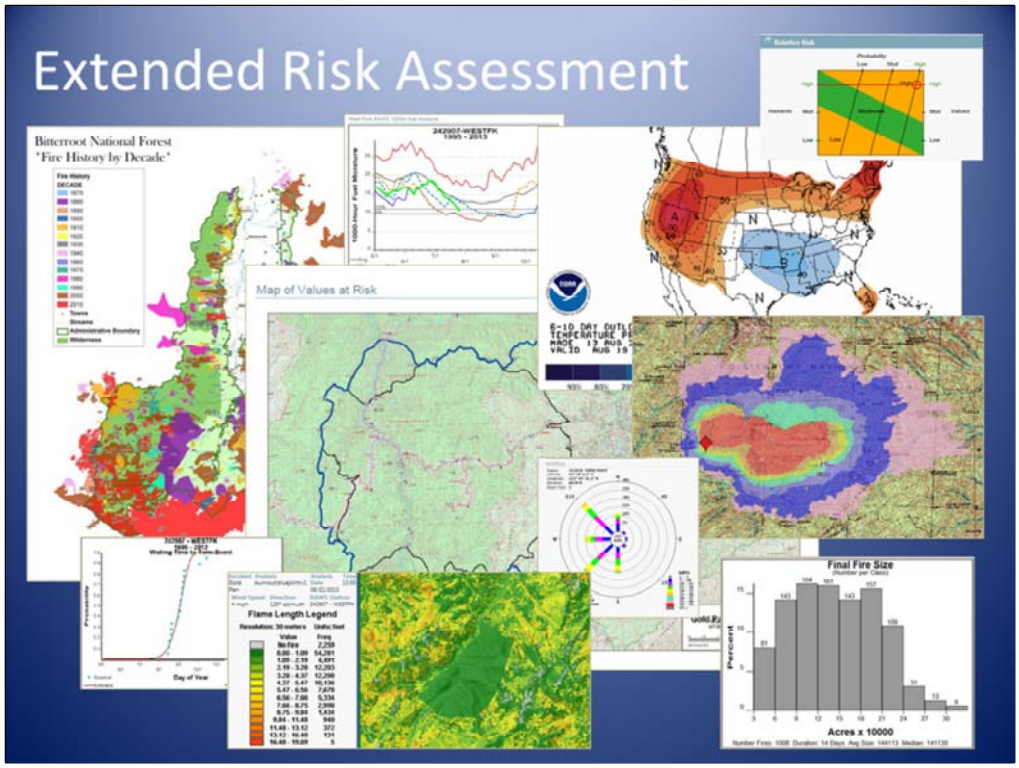
There is a map logo on all pages when using the tabs. Users can click the map icon to open a browser window of the situation map from anywhere in the application. Again, this is where additional situation awareness can and should be obtained.



The values inventory is important to look at to determine which values, based on the data in WFDSS, are within the Planning Area and likely should be addressed or considered when making the decision. This inventory is available once a Planning Area is drawn.

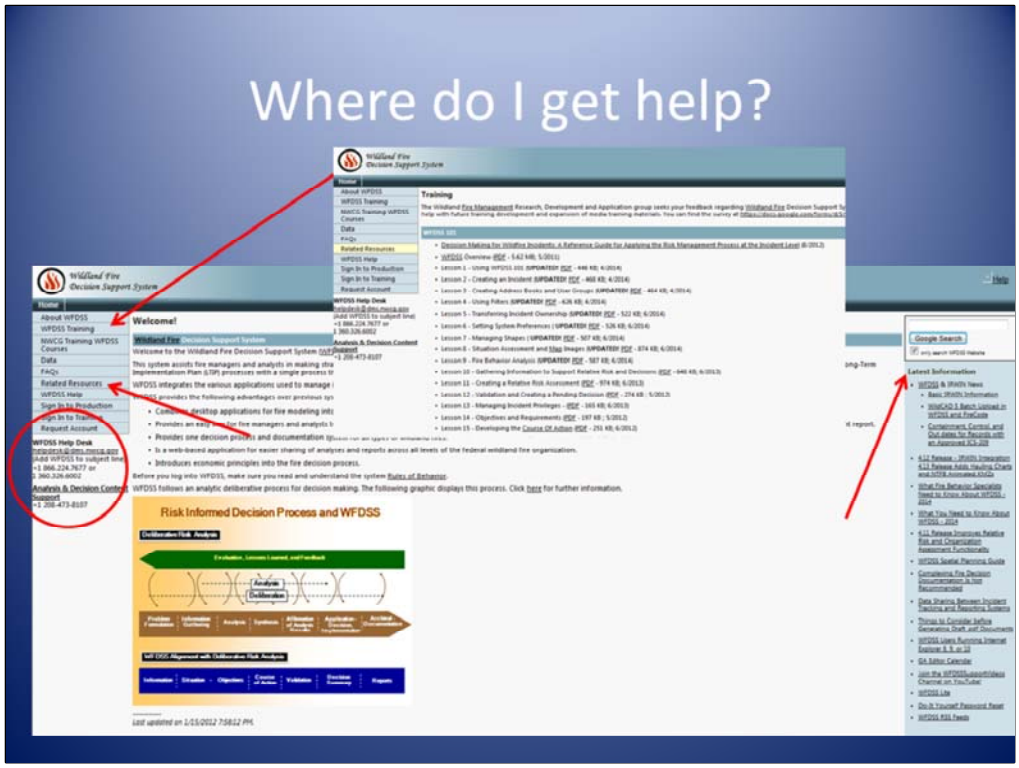


Utilizing a long term analyst or strategic operation planner to help evaluate the risks and benefits will help ensure that as much information as possible is considered and increases the potential of looking at the whole picture. Products that they can support not only helps managers look beyond their "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. In these two examples, Fire Spread Probability (FSPro) shows potential fire impact to FS and private lands by multiple fires. This information helps Agency Administrators determine the priority of thee fires and where actions may or may not be needed between fires. The second example is a specific near term analysis completed to help determine if evacuations were needed of the communities represented by the black dots. This indicated the fire would affect the communities given the predicted wind event so evacuations were completed. Within a few days, the fire burned similarly with this wind even and spots over the line. The evacuations were complete based on this projection.

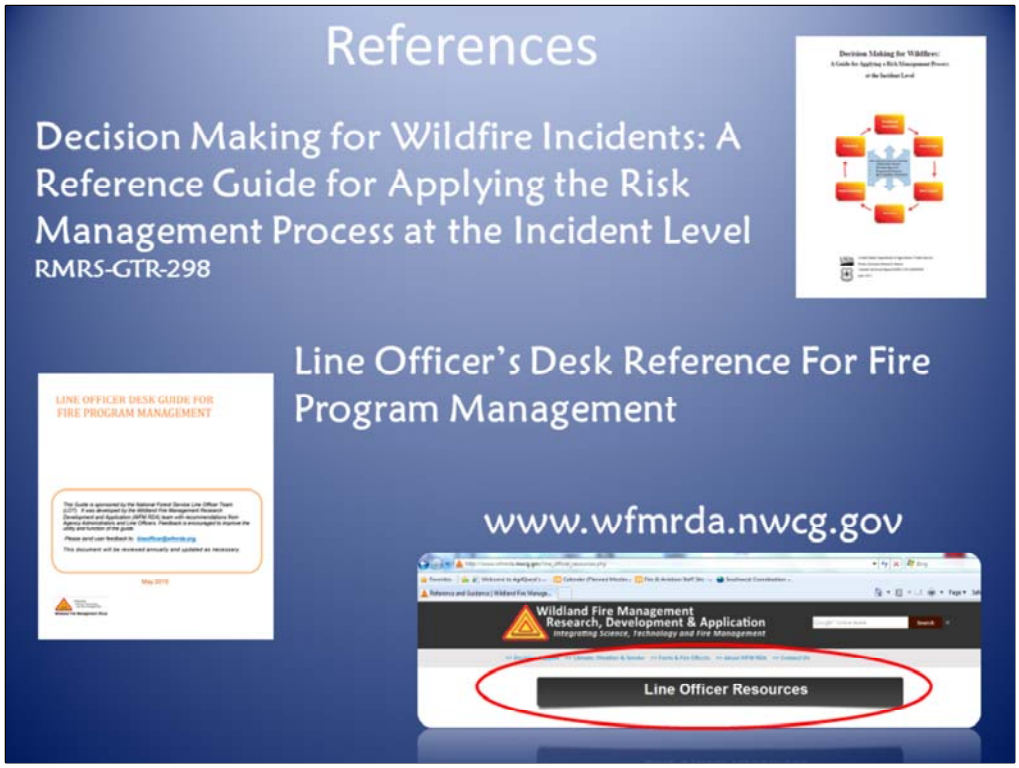


Now let's go back to the analyzing information and how that deep dive can assist managers in making decisions. Although all of the steps in the cycle are often occurring concurrently, the more time spent in analyzing the information and weighing out the risks and benefits, the more support the line officer 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.

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.

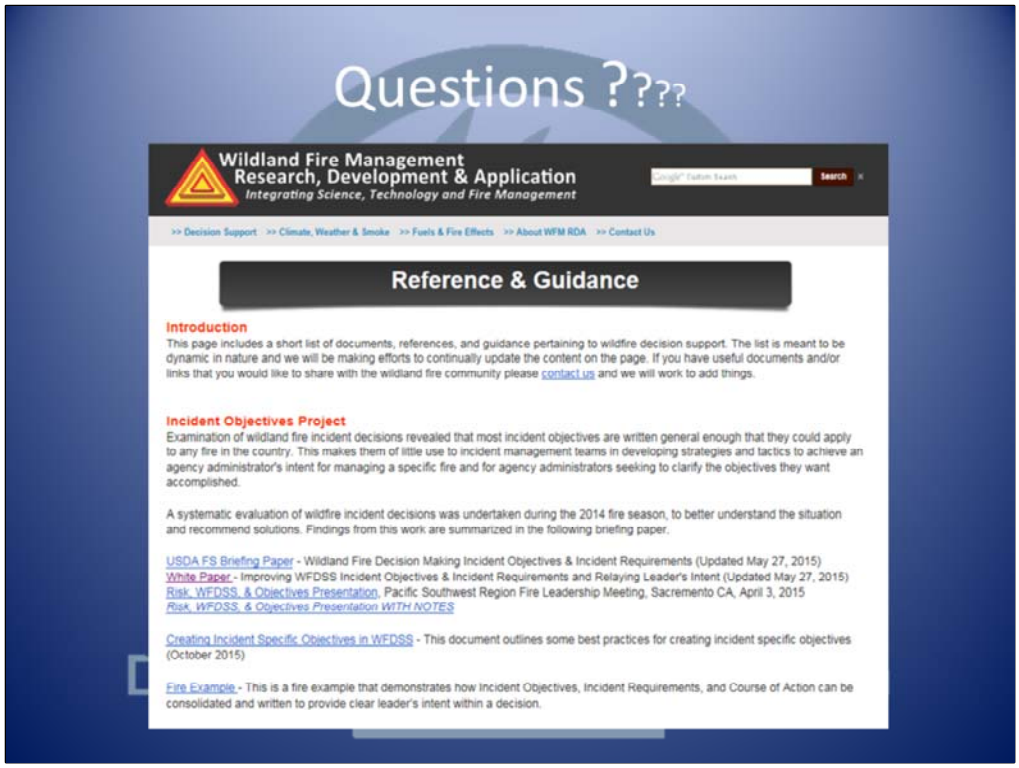


In addition to these resources on the WFDSS website as shown here, there are assigned Geographic Area Editors to represent each agency or region to support user needs.



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.



There are many great resources being produced on the WFM RD&A webpage to support you in writing Incident Objectives and Incident Requirements. Consider utilizing them when making your next decision.

Thank you for attending the presentation and reviewing this PowerPoint!