

Stage II

Stage II Analysis (Completed within 24 hours after Stage I completion)

The Wildfire Implementation Plan Stage II, Short-Term Implementation Actions, represents the initiation of management for resource benefits. This stage will provide managers and staff with information to initiate and continue management of the wildland fire for resource benefits. It includes validation of short-term implementation actions as a decision. This stage will provide predictions of where the fire may go, how intense it may burn, how fast it may spread, what the necessary short-term management actions are, what the full complexity is, and if long-term management actions (Stage III) need to be addressed immediately.

Information sources and estimated completion times include:

- Fire behavior prediction (< 2 hours) generated through the Fire Behavior Prediction System (FBPS) using the BEHAVE system to obtain predictions of fire intensity and rate of spread based on fuel model, wind, topography, and fuel moisture conditions.
- Risk Assessment (< 24 hours) a variety of techniques can provide specific estimates of degree of risk. For Stage II, risk assessment can be quickly assessed. The use of RERAP or FARSITE is preferred as it provides the best information available. In the event such quantitative methods cannot be completed in a timely manner, the relative risk chart can be used to obtain a subjective assessment of the risk.
- Short-term implementation actions (< 24 hours) developed from staff input, predicted fire behavior, risk assessment, fuel types, fuel continuity, and overall objectives. Represents tactical implementation actions.
- Complexity Analysis (< .5 hour) developed from staff input and review of standard complexity elements.
- Stage III need assessment chart (< .5 hour) determined from completion of relative risk, complexity rating, fire behavior predictions, and Stage I Fire Situation

Fire Behavior Predictions and Risk Assessment

Short-term fire behavior predictions are generated through the Fire Behavior Prediction System using the BEHAVE system to obtain predictions of fire intensity and rate of spread based on fuel model, wind, topography, and fuel moisture conditions. These predictions are important because they provide the following supportive information:

- estimates of fire size and shape at a given time
- models of management alternatives
- determination of resource needs, production rates, and requirements
- placement of resources
- estimates of behavior under different weather conditions
- estimates of fire intensity and duration inputs for First Order Fire Effects
- modeling for contingency action planning
- developing prescriptions through historical weather records
- opportunity to calibrate and improve future predictions

Risk assessment may be quickly made for this stage by referring to the Wildland Fire Relative Risk Rating chart. If the unit has the capability to complete full long-term risk assessments using RERAP and FARSITE, it is strongly encouraged to begin assessment in preparation for Stage III.

Short-Term Implementation Actions

The Short-Term Implementation Action form will be completed to describe what the initial or immediate implementation actions will be. These actions can vary significantly, depending upon

the specific circumstances of the particular fire. In cases where the fire may be fuel-limited, surrounded by sparse fuels or natural barriers with only limited spread potential, monitoring may be specified as the necessary implementation action. In other cases, monitoring plus some form of limited mitigation actions may be necessary. Conversely, fuel types in which the fire is burning actively may require immediate actions to delay, check, or direct the spread of the fire.

In describing the Short-Term Implementation Actions, the following action items will be considered:

- Objectives and desired effects
- Safety considerations
- External concerns
- Environmental Concerns
- Threats
- Estimated costs

The Short-Term Implementation Action form follows:

Wildland fire Implementation Plan - Stage II

SHORT-TERM IMPLEMENTATION ACTION

Attach Stage I information.

Action Items

Information specific to this fire

Objectives and Desired Effects

Safety Considerations

External Concerns

Environmental Concerns

Wildland Fire Implementation Plan - Stage II

Threats

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**Short-Term Actions
(describe)**

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Estimated Costs

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Signature

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Title/Date

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Complexity Analysis

The Wildland Fire and Prescribed Fire Complexity Analysis has been developed to evaluate the overall complexity of specific fires. This analysis incorporates an assigned numeric complexity value for specific complexity elements that are weighted in their contribution to overall complexity. The weighted value is multiplied by the numeric value to provide a total element rating. The total values are added to generate the summed complexity numeric value. Breakpoint values are provided for low, moderate, and high complexity.

Complexity elements that have been established include:

- Safety
- Threats to boundaries
- Fuels and fire Behavior
- Objectives
- Management organization
- Improvements to be protected
- Natural, cultural, and social values to be protected
- Air quality values to be protected
- Logistics
- Political concerns
- Tactical concerns
- Interagency coordination

The form used to complete the above analysis (Wildland and Prescribed Fire Complexity Rating Worksheet) and a supplemental guide to facilitate determination of numeric values follows:

Wildland Fire Implementation Plan - Stage II

**WILDLAND AND PRESCRIBED FIRE COMPLEXITY
RATING WORKSHEET**

	Weighting Factor	Complexity Value	Total Points
Safety	5		
Threats to boundaries	5		
Fuels and fire behavior	5		
Objectives	4		
Management organization Improvements	4		
Natural, cultural, social values	3		
Air quality values	3		
Logistics	3		
Political concerns	2		
Tactical operations	2		
Interagency coordination	1		

Total complexity points

Complexity Rating (circle)

L

M

H

Complexity Value Breakpoints:

Low

40 - 90

Moderate

91 - 140

High

141 - 200

The Wildland and Prescribed Fire Complexity Analysis provides a method to assess the complexity of both wildland and prescribed fires. The analysis incorporates an assigned numeric rating complexity value for specific complexity elements that are weighted in their contribution to overall complexity. The weighted valued is multiplied times the numeric rating value to provide a value for that item. Then all values are added to generate the total complexity value. Breakpoint values are provided for low, mode rate, and high complexity values.

The complexity analysis worksheet is accompanied by a guide to numeric values for each complexity element shown, provided on the following pages.

**Wildland and Prescribed Fire Complexity Rating
Worksheet Numeric Rating Guide**

Complexity Element	Guide to Numeric Rating		
	1	3	5
Safety	<ul style="list-style-type: none"> • Safety issues are easily identifiable and mitigated 	<ul style="list-style-type: none"> • Number of significant issues have been identified • All safety hazards have been identified on the LCES worksheet and mitigated 	<ul style="list-style-type: none"> • SOF1 or SOF2 required • Complex safety issues
Threats to Boundaries	<ul style="list-style-type: none"> • Low threat to boundaries • POI < 50% • Boundaries naturally defensible 	<ul style="list-style-type: none"> • Moderate threat to boundaries • 50 < POI < 70% • Moderate risk of slopover or spot fires • Boundaries need mitigation actions for support to strengthen fuel breaks, lines, ect. 	<ul style="list-style-type: none"> • High threat to boundaries • POI > 70% • High risk of slopover or spot fires • Mitigation actions necessary to compensate for continuous fuels
Fuels/Fire Behavior	<ul style="list-style-type: none"> • Low variability in slope & aspect • Weather uniform and predictable • Surface fuels (grass, needles) only • Grass/shrub, or early seral forest communities • Short duration fire • No drought indicated 	<ul style="list-style-type: none"> • Moderate variability in slope & aspect • Weather variable but predictable • Ladder fuels and torching • Fuel types/loads variable • Dense, tallshrub or mid seral forest communities • Moderate duration fire • Drought index indicates normal conditions to moderate drought; expected to worsen 	<ul style="list-style-type: none"> • High variability in slope & aspect • Weather variable and difficult to predict • Extreme fire behavior • Fuel types/loads highly variable • Late seral forest communities or long return interval fire regimes • Altered fire regime, hazardous fuel/stand density conditions • Potential long duration fire • Drought index indicates severe drought; expected to continue

Complexity Element	Guide to Numeric Rating		
	1	3	5
Objectives	<ul style="list-style-type: none"> Maintenance objectives Prescriptions broad Easily achieved objectives 	<ul style="list-style-type: none"> Restoration objectives Reduction of both live and dead fuels Moderate to substantial changes in two or more strata of vegetation Objectives judged to be moderately hard to achieve Objectives may require moderately intense fire behavior 	<ul style="list-style-type: none"> Restoration objectives in altered fuel situations Precise treatment of fuels and multiple ecological objectives Major changes in the structure of 2 or more vegetative strata Conflicts between objectives and constraints Requires a high intensity fire or a combination of fire intensities that is difficult to achieve
Management Organization	<ul style="list-style-type: none"> Span of control held to 3 Single resource incident or project 	<ul style="list-style-type: none"> Span of control held to 4 Multiple resource incident or project Short-term commitment of specialized resources 	<ul style="list-style-type: none"> Span of control greater than 4 Multiple branch, divisions or groups Specialized resources needed to accomplish objectives Organized management teams (FUMT, IMT)
Improvements to be protected	<ul style="list-style-type: none"> No risk to people or property within or adjacent to fire 	<ul style="list-style-type: none"> Several values to be protected Mitigation through planning and/or preparations is adequate May require some commitment of specialized resources 	<ul style="list-style-type: none"> Numerous values and/or high values to be protected Severe damage likely without significant commitment of specialized resources with appropriate skill levels
Natural, Cultural, and Social Values to be protected	<ul style="list-style-type: none"> No risk to natural, cultural, and/or social resources within or adjacent to fire 	<ul style="list-style-type: none"> Several values to be protected Mitigation through planning and/or preparations is adequate May require some commitment of specialized resources 	<ul style="list-style-type: none"> Numerous values and/or high values to be protected Severe damage likely without significant commitment of specialized resources with appropriate skill levels

Complexity Element	Guide to Numeric Rating		
	1	3	5
Air Quality Values to be Protected	<ul style="list-style-type: none"> • Few smoke sensitive areas near fire • Smoke produced for less than 1 burning period • Air quality agencies generally require only initial notification and/or permitting • No potential for scheduling conflicts with cooperators 	<ul style="list-style-type: none"> • Multiple smoke sensitive areas, but smoke impact mitigated in plan • Smoke produced for 2-4 burning periods • Daily burning bans are sometimes enacted during the burn season • Infrequent consultation with air quality agencies is needed • Low potential for scheduling conflicts with cooperators 	<ul style="list-style-type: none"> • Multiple smoke sensitive areas with complex mitigation actions required • Health and visibility complaints likely • Smoke produced for greater than 4 burning periods • Multi-day burning bans are often enacted during the burn season • Smoke sensitive class 1 airsheds • Violation of state and federal health standards possible • Frequent consultation with air quality agencies is needed • High
Logistics	<ul style="list-style-type: none"> • Easy access • Duration of fire support is less than 4 days 	<ul style="list-style-type: none"> • Difficult access • Duration of fire support between 4 and 10 days • Logistical position assigned • Anticipated difficulty in obtaining resources 	<ul style="list-style-type: none"> • No vehicle access • Duration of support is greater than 10 days • Multiple logistical positions assigned • Remote camps and support necessary
Political Concerns	<ul style="list-style-type: none"> • No impact on neighbors or visitors • No controversy • No media interest 	<ul style="list-style-type: none"> • Some impact on neighbors or visitors • Some controversy, but mitigated • Press release issued, but no media activity during operations 	<ul style="list-style-type: none"> • High impact on neighbors or visitors • High internal or external interest and concern • Media present during operations

Complexity Element	Guide to Numeric Rating		
	1	3	5
Tactical Operations	<ul style="list-style-type: none"> • No ignition or simple ignition patterns • Single ignition method used • Holding requirements minimal 	<ul style="list-style-type: none"> • Multiple firing methods and/or sequences • Use of specialized ignition methods (i.e. terra-torch, Premo Mark III) • Resources required for up to one week • Holding actions to check, direct, or delay fire spread 	<ul style="list-style-type: none"> • Complex firing patterns highly dependant upon local conditions • Simultaneous use of multiple firing methods and/or sequences • Simultaneous ground and aerial ignition • Use of heli-torch • Resources required for over 1 week • Multiple mitigation actions at variable temporal and spatial points identified. Success of actions critical to accomplishments of objectives • Aerial support for mitigation actions desirable/ necessary
Interagency Coordination	<ul style="list-style-type: none"> • Cooperators not involved in operations • No concerns 	<ul style="list-style-type: none"> • Simple joint-jurisdiction fires • Some competition for resources • Some concerns 	<ul style="list-style-type: none"> • Complex multi-jurisdictional fires • High competition for resources • High concerns

Stage III Need Assessment Chart

The assessment chart provides the agency administrator and staff with an aid to determine if the Stage III, Long-Term Assessment and Implementation Actions, need to be developed, documented, and implemented immediately, or if the fire can be managed through the established short-term implementation actions until indicated otherwise by the Periodic Fire Assessment. For many wildland fires, fuel continuity and spread potential will be low. In other situations, environmental conditions will preclude active burning and spread. For instances such as these, immediate completion of Stage III of the WFIP will not need to occur until specified thresholds are reached. These thresholds are assessed subjectively on this chart and/or through the continued assessment provided by the Periodic Fire Assessment

The following Stage III Need Assessment Chart will help agency administrators prioritize planning needs for multiple fires and ensure that those having the greatest need will receive the necessary planning in response to management capability and time constraints. To complete the assessment, local fire staff evaluates the criteria and determines if the fire warrants completion of the long-term implementation actions (Stage III) at this time or if Stage II implementation directions are adequate. If Stage II actions continue, the Periodic Fire Assessment will determine if and when Stage III will be initiated.

The chart evaluates the following variables:

- Complexity - determined from the Wildland and Prescribed Fire Complexity Rating, including the review of objectives and type of fire behavior required to achieve those objectives (i.e., low intensity, surface fire, high intensity, stand replacement burning etc.).
- Time of the Fire Season - this element is important in determining whether or not Stage III should be completed immediately. Past observations and archived fire danger interactions can be used to identify contributing factors and time periods when specific fuel types exhibit a transition between benign and severe fire behavior. The factors contributing to this transition become important determinants of risk associated with this fuel type. For example, fuel types where fire occurs infrequently but at high intensities, factors of drought, high Energy Release Components (ERC), low relative humidities, high temperatures, and high winds combine to result in sustained high-intensity crown fire activity. The importance of this information lies in the identification of the current point in time and its proximity to the fire behavior transition point. *Where the affected administrative unit is temporally in relation to this threshold is a critical consideration determining the level of WFIP planning and implementation to be done. The closer to this point, the greater the need to prepare WFIP Stage III.*
- Relative Risk - can be determined from the Wildland Fire Relative Risk Rating chart or from long-term risk assessment procedures such as RERAP or FARSITE.
- Fire Behavior - determined from short-term and long-term fire behavior predictions and forecasts.

Stage III Need Assessment Chart

Stage III Need Assessment Chart

