

PROGRAMMATIC AGREEMENT
AMONG
USDA FOREST SERVICE, SOUTHWESTERN REGION
AND
ARIZONA STATE HISTORIC PRESERVATION OFFICER
AND
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER
AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING
WILDLAND URBAN INTERFACE HAZARDOUS FUELS REDUCTION PROJECTS

WHEREAS, the USDA Forest Service and other federal land managing agencies are directed by Congress to implement an accelerated, multi-year program of hazardous fuels reduction as one component of the National Fire Plan; and

WHEREAS, the USDA Forest Service Southwestern Region (FS) is implementing such an accelerated program of hazardous fuels reduction in areas adjacent to the Wildland Urban Interface (WUI), described in Appendix E; and

WHEREAS, the Federal Fire Policy emphasizes that wildland fire is a critical natural process that must be reintroduced into the ecosystem; and

WHEREAS, current, unmanaged fuel loads in many areas support large, hot, uncontrolled, and devastating wildfires that destroy life and property, including historic properties; and

WHEREAS, mechanical treatments, such as thinning, in combination with prescribed fire will reduce fuel loading and stand density in areas adjacent to the Wildland Urban Interface so that wildfires approaching these areas will “go to the ground” where they can be effectively and safely suppressed; and

WHEREAS, hazardous fuels reduction treatments will also help protect historic properties from the devastating effects of catastrophic wildfires, including associated suppression activities and subsequent erosion, such as the fires experienced in the Southwest in the 2000 wildfire season; and

WHEREAS, although beneficial to historic properties over the long-term, various fuels reduction treatments are undertakings that have the potential to affect historic properties, particularly fire-sensitive sites (Appendix B), and steps should be taken to avoid or minimize those effects while accomplishing the objectives of the National Fire Plan; and

WHEREAS, the FS has consulted with the Arizona and New Mexico State Historic Preservation Officers (SHPOs) and the Advisory Council on Historic Preservation (Council) pursuant to Section 800.14(b) of the regulations (36 CFR 800, published 12/12/01) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

NOW, THEREFORE, the FS, the Council, and the SHPOs agree that the FS shall implement Wildland Urban Interface (WUI) projects in accordance with the following stipulations in order to satisfy responsibilities under Section 106 of the National Historic Preservation Act (NHPA).

STIPULATIONS

The FS shall ensure that the following stipulations are carried out:

1. **SCOPE.** This Agreement covers all hazardous fuels reduction activities within WUI areas, described in Appendix E, with the exception of stand-alone commercial timber sales. Activities covered by the Agreement include: hand thinning; mechanical thinning; use of equipment such as Hydro-ax, Agra-ax, and brush crushers, timber sales embedded in thinning contracts; slash disposal, including lopping and scattering, chipping, pile burning, and windrow or jackpot burning; broadcast burning; and fuelwood use, including free use, fuelwood permits, and commercial fuelwood sales undertaken as part of a WUI project.
2. **INTERNAL COORDINATION AND TRACKING.** The FS shall ensure that heritage specialists are brought into the planning for WUI projects as early as possible in the planning process, but no later than the identification stage, and that a system is in place to track implementation of heritage resource protection and monitoring requirements, and that necessary communication and coordination between fuels treatment specialists and heritage specialists will continue throughout the implementation of WUI projects carried out under this Agreement.
3. **TRIBAL CONSULTATION.** As early as possible in the planning process, but no later than the identification stage, the FS shall consult with American Indian tribes to determine if any properties of traditional cultural or religious importance are present within the WUI project's area of potential effect. If specific properties are identified, the FS shall consult with the appropriate tribes concerning evaluation, determination of effects, and protection measures. If agreement cannot be reached or if adverse effects cannot be avoided, the FS shall consult case-by-case with interested tribe(s) and the SHPO as provided for in Stipulation 13.
4. **PUBLIC INVOLVEMENT.** The FS shall use the NEPA scoping process and other means necessary to solicit input on heritage resource concerns and to identify consulting parties as required in 36 CFR 800.3(f).
5. **IDENTIFICATION.** The Forest Archaeologist shall determine or approve the level of field survey for each WUI project. If less than a 100% survey is proposed, the Forest Archaeologist shall notify the appropriate SHPO of the proposed survey strategy and rationale, using the guidelines in Appendix A. The SHPO shall provide any comments within 10 working days of receipt of the notification. The Forest Archaeologist shall take the SHPO's comments into account in finalizing the survey strategy. The finalized survey strategy will be provided to the SHPO upon request. If no comments are received within the specified timeframe, the Forest Archaeologist may assume that the SHPO does not object to the submittal and may proceed with the identification strategy. Alternatively, a Forest may opt to develop a Forest-wide survey strategy for WUI projects in consultation with the SHPO and thereby eliminate the need for individual project notifications. As experience is gained with WUI projects, the goal is to develop a Region-wide set of WUI survey guidelines which can be incorporated into Appendix A and used in lieu of case-by-case SHPO notification and review.
6. **EVALUATION.** The FS and the SHPOs agree that certain classes of properties (Appendix C) may be determined eligible for the National Register of Historic Places for Section 106 purposes based on survey information without further, case-by-case SHPO consultation. The eligibility of other properties may

remain unevaluated but treated as if eligible, unless the FS chooses to consult with the SHPO on individual eligibility determinations or adverse effects cannot be avoided. The FS shall consult with the SHPO and appropriate tribes concerning the eligibility of any traditional cultural properties identified by the tribes that cannot be protected from project effects.

7. EFFECT. Following completion of the survey strategy approved by the Forest Archaeologist in accordance with Stipulation 5, the FS shall determine the effects of the WUI project on historic properties:

a) No Historic Properties Affected. If no properties are identified within the area of potential effect or if through application of the site protection measures in Appendix D potential effects have been excluded from all eligible and unevaluated properties, and provided that none of the conditions requiring case-by-case consultation specified in Stipulation 13 apply, a determination of “No Historic Properties Affected” will be made for the WUI project in accordance with 36 CFR 800.800.4(d)(1). For prescribed fires, this will include only those projects in which a 100% survey is conducted and all eligible and unevaluated properties will be protected. For other types of activities, if less than a 100% survey is conducted, the discussion of effects will include a rationale addressing the sufficiency of the level of effort.

b) No Adverse Effect. If properties are present but through application of the protection measures in Appendix D potential adverse effects on eligible and unevaluated properties have been minimized to the extent that they do not meet the criteria of Adverse Effect contained in 36 CFR 800.5(a)(1), and provided that none of the conditions requiring case-by-case consultation specified in Stipulation 13 apply, a finding of “No Adverse Effect” will be made for the WUI Project in accordance with 36 CFR 800.5(b). This shall include prescribed burns in which fire-sensitive properties will be protected.

c) Adverse Effect. If the Forest Archaeologist determines that a property(ies) may be adversely affected, or in the case of a prescribed fire, a fire-sensitive property cannot be adequately protected, the FS shall consult case by case on the WUI project under 36 CFR 800.6, as specified in Stipulation 13.

8. PROTECTION. The Forest Archaeologist shall draw from the protection measures in Appendix D to ensure that effects to historic properties (or fire-sensitive properties for prescribed fire undertakings) are avoided. Site protection requirements shall be documented in the inventory report (Stipulation 10) and on the FS Inventory Standards and Accounting (IS&A) form.

9. MONITORING. Terms and conditions of Section 106 compliance shall include appropriate post-project monitoring to assess effectiveness of protection measures in accordance with FSM 2361.28.5, including monitoring 20% of protected fire-sensitive sites in prescribed burn areas. In addition, each Forest will incorporate into the inventory report for at least one WUI project each year the requirement to monitor a minimum of 20% of sites not considered fire-sensitive within the burn area. For this monitoring, Forests will select WUI projects that offer good opportunities to assess the effects of prescribed fire on the types of sites not normally protected during burn implementation. Alternatively, the Forest Archaeologist may develop, in consultation with the SHPO, a different monitoring strategy for a WUI project or group of projects. The purpose of post-treatment monitoring is to gather data that will be used to improve planning for protection of heritage resources in future WUI projects. Forests are encouraged to monitor a sample of sites not considered fire-sensitive in more than one WUI project per year when feasible to expand available information on the effects of prescribed fire on historic properties. Site-specific monitoring requirements will be documented in the inventory report and on the IS&A form. Each Forest shall maintain an updated list of sites to be monitored which will include the date monitoring is planned, date completed, and monitoring results. This list and a summary of monitoring results will be included in the annual summary report to SHPOs and the Council (Stipulation 18).

10. **INVENTORY REPORT.** Inventory reports shall follow standard FS and SHPO reporting guidelines. For WUI projects, the FS shall also ensure that reports include: a description of all planned activities, equipment to be used, and expected impacts; a discussion of fuel loading and expected fire behavior if prescribed burns are planned; a detailed discussion and rationale for the survey strategy if less than 100%, including a rationale for what is considered “fire-sensitive” (Appendix A.2); a summary of the inspection of fire-sensitive sites and any other sites to be monitored, including site-specific fuel loading; site-specific protection measures, and site-specific monitoring requirements.

11. **APPROVAL.** When all of the above stipulations are complied with and the inventory report has been approved by the Forest Archaeologist, and provided that none of the conditions requiring case-by-case consultation specified in Stipulation 13 apply, the Forest Supervisor may approve the report and proceed with the undertaking, provided all site-specific protection measures are implemented. The Forest Supervisor shall forward a copy of the report, IS&A form, and associated site forms to the SHPO within 30 days, unless otherwise agreed to with the SHPO.

12. **SHPO AND COUNCIL REVIEW.** The SHPOs will programmatically review results of work conducted under this agreement for discussion at the annual meeting (Stipulation 19). If, at any point, a SHPO identifies a concern about how the stipulations of this Agreement are being applied, the SHPO may submit comments to the FS for consideration in future projects. If a SHPO or the Council has a substantial concern that historic properties may be adversely affected in a specific WUI project, the SHPO or Council may contact the Forest Archaeologist or Forest Supervisor to resolve those concerns. If the concerns are raised prior to the NEPA decision, and are not resolved, the SHPO or the Council may request that the FS consult case-by-case as provided for in Stipulation 13. If the NEPA decision for the WUI project has already been made, the FS shall take into account the SHPO/Council comments for those actions not yet completed.

13. **CASE-BY-CASE CONSULTATION.** The FS shall consult separately under the Region 3 *Programmatic Agreement Regarding Cultural Property Protection and Responsibilities* or the Council’s regulations for any WUI Project where:

- a. the FS chooses to consult case-by-case
- b. a substantial public concern exists about effects of the project on historic properties such that the expedited review procedures in this Agreement cannot ensure that those concerns will be adequately considered
- c. a disagreement exists with an Indian tribe concerning adverse effects on a property of traditional cultural or religious importance to the tribe
- d. the FS determines that it is likely that adverse effects to eligible or unevaluated sites cannot be avoided using the protection measures in Appendix D.
- e. a SHPO or the Council requests that the FS consult case-by-case based on a substantial concern that historic properties may be adversely affected, as provided for in Stipulation 12.

In case-by-case consultations for WUI projects, the definition of “Adverse Effect” and the consultation procedures to resolve adverse effects, 36 CFR 800.6, will be those contained in the current (12/12/00) regulations.

14. **DISCOVERY SITUATIONS.** There is some potential for encountering previously unrecorded properties or for affecting properties in an unanticipated manner during the course of hazardous fuels reduction treatments. Previously unrecorded properties that are encountered during the course of a WUI

Project shall be protected in the same manner as other properties, using the protection measures in Appendix D. If the FS determines that a property has been damaged, the FS shall halt all activities that could result in further damage to the property and shall notify the appropriate SHPO concerning proposed actions to resolve adverse effects. The SHPO shall respond within 48 hours of notification. The FS shall carry out the agreed-upon actions.

15. PHASING FOR CRITICAL WUI PROJECTS. In recognition of the difficulties inherent in initial implementation of an accelerated hazardous fuels reduction program, it is agreed that in FY 2001 and FY 2002, a phased approach may be used to expedite WUI Projects that directly border communities and residential areas in order to protect life and property. A phased approach should be used only when it is not reasonably possible to complete Section 106 compliance for all aspects of the undertaking prior to reaching a NEPA decision. Where deemed necessary by the Forest Supervisor, consultation for such a project may be carried out in two phases: 1) Fuelbreak Area - the initial creation of fuelbreaks within mile of communities and residential areas using mechanical treatments, usually followed by burning; and 2) Non-Fuelbreak Area – an adjacent area, usually treated in a subsequent year with broadcast burning or a combination of thinning and burning to reduce hazardous fuels leading up to the fuelbreaks. In this phased approach, a final NEPA decision on the WUI project may be made prior to completion of the identification and evaluation of properties in the Non-Fuelbreak Area provided that all of the following requirements are met:

- a. none of the conditions in Stipulations 13 apply to the WUI project
- b. the requirements in Stipulations 3-7 have been completed for the Fuelbreak Area
- c. the expected nature and distribution of properties in the Non-Fuelbreak Area and anticipated effects are discussed and considered in the inventory report and in the NEPA analysis;
- d. there is no reason to believe that the protection measures in Appendix D will not be sufficient to protect properties in the Non-Fuelbreak Area.
- e. a condition of the forest satisfying responsibilities under Section 106 for the WUI Project, clearly stated in the inventory report and on the IS&A Form, is that the identification and protection requirements of this Agreement, including the written approval of the Forest Archaeologist and Forest Supervisor, shall be completed prior to the award of any contract, permit, or other authorization for on-the-ground work in the Non-Fuelbreak Area.
- f. the NEPA decision document clearly states that initiation of work in the Non-Fuelbreak Area will be contingent upon completion of the identification and protection of historic properties and compliance with applicable provisions of NHPA in accordance with this Agreement.

If the FS subsequently determines that adverse effects on historic properties in the Non-Fuelbreak Area cannot be avoided, the FS shall consult with the SHPO and other consulting parties in accordance with the requirements of 36 CFR 800 and will amend its decision if necessary to disclose the effects.

16. DATA MANAGEMENT. The FS shall incorporate survey and site information gathered under this Agreement into its corporate tabular (INFRA) and spatial (GIS) data base for heritage resources and shall make these data available to the SHPOs or relevant state agencies for incorporation into State-wide databases. The FS will continue to work with the SHPOs to coordinate and expedite data sharing. When possible, GIS maps will be made available to the Fire Use Manager or Burn Boss for use in implementation of prescribed fires and in the event of an escaped fire.

17. SECRETARY'S STANDARDS. The FS shall ensure that work under this Agreement is carried out under the supervision of a person or persons meeting the Secretary of the Interior's Historic Preservation Professional Qualifications Standards.

18. ANNUAL SUMMARY REPORT. The FS shall document the combined results of work conducted under this Agreement in a separate part of the Region's Annual Report submitted to the SHPOs and the Council pursuant to the Southwestern Region's 1990 *Programmatic Agreement Regarding Cultural Property Protection and Responsibilities*. The report shall include Forest-specific summaries of the results of monitoring, including the effectiveness of the identification strategies and protection measures and any changes proposed to make these more effective. The report shall be submitted to the SHPOs and the Council prior to the annual meeting (Stipulation 19).

19. ANNUAL MEETING. Prior to March 1 of each year, as part of the annual meeting carried out pursuant to the Southwestern Region's 1990 *Programmatic Agreement Regarding Cultural Property Protection and Responsibilities*, the FS, the SHPOs, and the Council, if it chooses to participate, shall review the activities carried out pursuant to this Agreement, reevaluate its terms, and determine whether continuation, amendment, or termination is appropriate.

ADMINISTRATIVE STIPULATIONS

REVISION OF APPENDICES

Any signatory to this Agreement may request modifications to Appendices, without a formal amendment, whereupon the parties will consult to consider such change. Changes may be made by written consent of the Regional Forester, SHPOs, and Council after appropriate consultation.

AMENDMENTS

Any signatory to this Agreement may request that it be amended, whereupon the parties shall consult to consider the amendment.

TERMINATION

Any signatory to this Agreement may terminate it by providing thirty (30) days notice to the other parties. The signatories will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the FS shall comply with the Region's 1990 *Programmatic Agreement Regarding Cultural Property Protection and Responsibilities* with regard to individual undertakings that otherwise would be covered by this Agreement. Termination by an individual SHPO shall only terminate the application of the Agreement within the jurisdiction of that SHPO.

EXPIRATION

This Agreement is executed as of the last date shown below and expires in five years at which time it is subject to review, renewal, or expiration. If the FS wishes to extend the life of the Agreement past the five-year period, the FS will contact the SHPOs and Council at least ninety days prior to expiration with its recommendation to either amend the Agreement or extend its term without revision. Based on comments received from the SHPOs and Council, the FS will make any needed changes to the Agreement and circulate the new document for review and signature.

EXECUTION

Execution and implementation of this Agreement satisfies the Forest Service's Section 106 responsibilities for all WUI projects in the Arizona and New Mexico that are treated in conformance with the stipulations herein.

IMPLEMENTATION

This Agreement becomes effective on the date of the last signature below and will be implemented immediately.

/s/ JAMES T. GLADEN

7/12/01

Eleanor S. Towns, Regional Forester
USDA Forest Service – Southwestern Region

Date

/s/ JAMES W. GARRISON

7/16/01

James W. Garrison, State Historic Preservation Officer
State of Arizona

Date

/s/ ELMO BACA

7/13/01

Elmo Baca, State Historic Preservation Officer
State of New Mexico

Date

/s/ JOHN M. FOWLER

7/19/01

John M. Fowler, Executive Director
Advisory Council on Historic Preservation

Date

APPENDIX A

HERITAGE RESOURCE SURVEY STRATEGIES FOR SOUTHWESTERN REGION WILDLAND URBAN INTERFACE PROJECTS

The following guidelines will be used to determine survey strategies under this Agreement.

Pre-field Research

The Forest will utilize relevant information to assess the WUI Project's potential to affect heritage properties and the expected nature and distribution of heritage properties that may be affected.

Expected nature and severity of project impacts (this should include consideration of all planned activities and entries)

- type and intensity of mechanical treatment
- type and intensity of prescribed burn, including fuel loading and fire prescription
- type and intensity of fuelwood use
- associated activities

Expected nature and distribution of heritage resources

- heritage GIS survey and site layers or hard copy survey and site atlases
- previous heritage reports and site forms
- cultural resource overviews and planning assessments
- information obtained through tribal consultation and public input
- information provided by other resource specialists familiar with the project area
- topographic maps, aerial photographs, ortho-photo quads
- other available GIS layers and maps including soils, vegetation type, slope
- determination of known/expected fire-sensitive sites

Field Survey

The following general guidelines will guide the identification of areas selected for survey and the level of survey coverage:

1. Areas of intensive ground disturbance will receive 100% survey, including but not limited to:
 - intensive mechanical treatments (machine piling, windrowing, mechanical crushing, timber sale cutting units)
 - hand and mechanical fire line construction
 - staging areas, constructed safety zones
 - water bars and other constructed erosion control features

2. Prescribed burns. The goal of pre-treatment surveys is to identify sites that may be affected by the project and to collect specific information on the amount and character of fuels on individual sites that will serve as the basis to propose appropriate protection measures and monitoring requirements. As a minimum, surveys for prescribed burn areas will include:

- inspection of previously-recorded fire-sensitive sites to document fuel loading, to determine protection needs, and to gather baseline data to assess sufficiency of protection measures during post-project monitoring;
- survey of locations likely to contain additional fire-sensitive sites, based on prefield research, expected fire behavior, and other relevant data; and
- for prescribed burns where sites not considered fire-sensitive will be monitored, inspection of a sample of other sites to document fuel loading and gather baseline data to assess effects of the project on those sites during post-project monitoring.

The survey strategy shall identify the types of sites that are considered fire-sensitive for each WUI project, using the guidelines in Appendix B. This should include both known fire-sensitive sites and other sites considered fire-sensitive for the specific burn, based on fuel loading, site characteristics, and expected fire behavior.

3. Additional survey needs for each WUI project will be evaluated and determined on a case-by-case basis, considering the following:

- nature and severity of expected impacts
- nature and extent of past surveys
- nature and distribution of previously recorded sites
- likely nature and distribution of as yet undiscovered sites

APPENDIX B

LIST OF FIRE-SENSITIVE SITES

A review of available literature on the effects on fire on cultural resources and on the experience of FS heritage resource specialists and SHPO staff in the Southwestern Region indicates that there are two categories of fire-sensitive sites. The first consists of sites long-known to be vulnerable to the effects of even low-temperature fires and/or light fuel loads, such as sites that contain organic materials, exposed architecture, etc. The second group includes sites that have generally been considered to have less risk for fire effects in most situations, including prehistoric and historic sites with deeply buried cultural deposits; prehistoric and historic artifact scatters; and prehistoric and historic sites with non-flammable surface features. However, depending on field conditions—especially fuel loading—as well as specific site characteristics and expected fire behavior, these other site types may be fire-sensitive in certain WUI projects.

Known Fire-Sensitive Sites in the Southwestern Region:

- Historic sites with standing, or down wooden structures or other flammable features or artifacts
- Rock art sites
- Cliff dwellings
- Prehistoric sites with flammable architectural elements and other flammable features or artifacts
- Prehistoric sites with exposed building stone of soft or porous material such as volcanic tuff
- Culturally modified trees, including aspen art and peeled/scarred trees
- Certain traditional cultural properties (based on consultation with tribes)

Other Project-Specific Fire-Sensitive Sites:

- Other sites, based on local field conditions and Forest-specific concerns
- Other sites, based on consultation with SHPO staff
- Other sites, based on consultation with fire management staff, fire behavior specialists or fire effects researchers

Forest Archaeologists will use site assessment and monitoring data, and will consult with fire management staff, to identify known and other project-specific fire-sensitive sites for individual Forests or project areas. Fire-sensitive sites officially determined ineligible for the National Register of Historic Places do not require protection under Section 106.

APPENDIX C

LIST OF PROPERTIES THAT MAY BE CONSIDERED ELIGIBLE
FOR PURPOSES OF THIS AGREEMENT

For eligibility determinations under this Agreement, the following types of heritage resources, provided they are 50 years old or older and clearly retain integrity, may be considered eligible for the National Register of Historic Places under criterion (d) without further SHPO consultation or concurrence:

- Properties with clear evidence for the presence of structures (historic structures, pueblos, pithouses, Apache/Navajo camps, etc.)
- Properties with hundreds of surface artifacts
- Properties with clearly visible evidence of buried cultural deposits
- Properties with rock art
- Properties that clearly meet the National Register listing requirements in State historic contexts, existing multiple-property contexts, or SHPO-approved Forest-level historic contexts

Other properties will be treated as if eligible, unless the FS chooses to make a determination of eligibility in consultation with the SHPO. The FS will consult with the SHPO and with appropriate tribes regarding the eligibility of any identified traditional cultural properties that cannot be protected from project effects. The SHPO will monitor eligibility determinations and discuss any problems at the annual meeting.

APPENDIX D

AGREED-UPON STANDARD SITE PROTECTION MEASURES

Various combinations of the following protection measures, presented here in checklist form, may be approved by the Forest Archaeologist to protect sites within WUI Projects without additional SHPO consultation.

- No thinning within site boundaries
- Allow thinning within site boundaries, provided:
 - Hand thinning only
 - Fell large diameter trees away from all features
 - Hand-carry thinned material outside site boundary
- No use of mechanized equipment within site boundaries
- No staging of equipment within site boundaries
- No slash piles within site boundaries
- No ignition points within site boundaries
- Protect fire-sensitive sites:
 - Exclude from project area
 - Hand line
 - Black line
 - Wet line
 - Foam retardant
 - Structural fire shelter
 - Remove heavy fuels from site by hand
 - Prevent in-situ heavy fuels that cannot be removed from ignition (e.g., flush-cut & bury stumps)
 - Implement same protective measures for future maintenance burns
- Protect selected other sites (option)
- Allow burning over other sites
- No fuelwood cutting or vehicles within site boundaries
- Allow fuelwood cutting within sites, but no vehicles within site boundaries
- Allow fuelwood cutting in areas of continuous, low-density scatters, with post-project monitoring
- Allow construction of safety zones and additional lines in 100% surveyed areas, w/ archaeological monitor to assure recorded sites are avoided

Post-Fire Monitoring

- Monitor a minimum of 20% of protected fire-sensitive sites following treatment, FSM 2361.28.5 (all projects; list sites to be monitored)
- Monitor a minimum of 20% of sites not considered fire-sensitive (apply to at least one WUI project annually; list sites to be monitored)
- Monitor burn itself (if concerns exist about protection of certain sites)

The Forest Archaeologist may approve additional measures to further protect sites; however, if a lesser level of protection is recommended, or if it is likely that adverse effects cannot be avoided, the FS shall consult with the SHPO on a case-by-case basis as specified in Stipulation 13.

APPENDIX E

PRESCRIBED WILDLAND URBAN INTERFACE FUELS TREATMENTS

On August 8, 2000, President Clinton asked Interior Secretary Bruce Babbitt and Agriculture Secretary Dan Glickman to prepare a report and to recommend how best to 1) respond to the severe fires of the summer of 2000, 2) reduce the impacts of wildland fires on rural communities, and 3) ensure sufficient fire fighting resources in the future.

The President also asked for short-term actions that federal agencies—in cooperation with states, local communities, and tribes—could take to reduce immediate hazards to communities in the wildland-urban interface and to ensure that land managers and firefighters are prepared for extreme fire conditions in the future. This involves addressing the brush, small trees, and downed materials that have accumulated in many forests over the past century.

Reduction of fuels can be achieved in a variety of ways, including mechanical and manual thinning and the use of prescribed fire. Treatments in Wildland Urban Interface areas usually involve a two-fold approach. First and most urgent, in areas immediately adjacent to communities, thinning is used to create fuelbreaks capable of stopping or slowing a wildfire before it reaches homes and other developments. The slash that results from thinning can either be piled and safely burned or removed for fuelwood or other uses. In the areas leading up to the fuelbreaks, subsequent broadcast burning under prescribed conditions or a combination of thinning and burning can be used to reduce fuel loads in order to slow an approaching wildfire before it even reaches a fuelbreak. Both of these treatment strategies can help bring a crown fire to the ground, where it can be effectively and safely suppressed, thereby protecting life and property.

WILDLAND URBAN INTERFACE PROJECTS IN THE SOUTHWESTERN REGION

The following prescriptions were developed to guide the Southwestern Region's implementation of hazardous fuels reduction treatments in the Wildland Urban Interface.

VEGETATIVE TYPE

TREATMENT ACTIONS

Spruce-fir	Thinning, pile and burn, lopping, chipping, fuelbreaks.
Mixed Conifer	Thinning, pile and burn, lopping, chipping, fuelbreaks, broadcast burn.
Ponderosa Pine	Thinning, pile and burn, lopping, chipping, fuelbreaks, broadcast burn.
Pinyon/juniper and oak woodland	Agra-axe, hydro-axe, thinning, pile and burn, fuelbreaks, broad cast burn, crushing.
Grassland	Broadcast burn.
Sagebrush	Fuelbreaks, crushing, broadcast burn.
Chaparral	Crushing, thinning, chipping, broadcast burn, fuelbreaks.
Desert shrub	Crushing, fuelbreaks, broadcast burn.

SPRUCE-FIR

Spruce-fir stands are intolerant to fire. Fire at low intensities will kill spruce and fir if even moderate amounts of slash surround the tree base or root crown, therefore treatment in spruce/fir components will be more limited in treatment options than the other vegetative types.

Mechanical treatments will most likely be preferred to provide the spacing necessary to eliminate interlocking crowns. Stands should be treated to reach an optimal basal area of 60 to 80 square feet per acre, and the understory must be removed to eliminate the laddering effect of fire. Remaining basal area per acre may be increased above 80 square feet per acre only if the residual stand can be limbed or pruned to a height of 25 feet or more. Fire as a tool in spruce-fir forests can be utilized to create wildlife openings, diversity within stands, or enhancement of aspen. Thinning with fire in the spruce-fir type is not recommended due to the intolerance of the species to fire.

Fuelbed reduction following mechanical treatment should be accomplished through fuelwood utilization by the public, or methods other than fire to ensure protection of the residual stand.

MIXED CONIFER

Mixed conifer stands primarily contain white fir, Douglas fir, corkbark fir, limber pine, and scattered ponderosa pine. Scattered spruce will also be found in the upper transition areas, and ponderosa pine will appear more frequently in the lower transition zones of the true mixed conifer type.

Mixed conifer forests must be treated with mechanical means to reduce the current stand densities to a basal area of 40-60 square feet per acre within the areas of immediate threat. The treatment may also be feathered to increasing basal areas as distance from the immediate threat area increases. Prescribed fire may also be used initially in some areas but not in others, before some type of mechanical treatment, due to the high potential for escape.

Reducing the existing densities will most likely require multiple entries of both pre-commercial and commercial operations including the reduction of other vegetative species along with seedlings, saplings, and brush.

PONDEROSA PINE

Ponderosa pine forests will be treated with both mechanical means and prescribed fire. The recommended treatment is to reduce existing basal area, for all species present, to 40 to 60 square feet per acres within the areas of immediate threat. The treatment may be feathered with increasing basal area per acre as distance from the immediate threat area increases. Many areas will require labor intensive mechanical thinning that may be followed by piling, removing, burning, chipping, or other methods that will alter the fuels profile. Long term, continued maintenance of these treatments is essential.

Reducing the ponderosa pine densities will most likely require multiple entries of both pre-commercial and commercial operations including the reduction of other vegetative species along with seedlings, saplings, and brush.

PINYON/JUNIPER AND OAK WOODLAND

Mechanical treatment and prescribed fire will be used to reduce stands to a basal area of 40-50 square feet per acre within the areas of immediate threat. Basal area per acre will increase as treatment moves further out, and may reach a basal area of 60-60 square feet per acres. The residual stand may be in small groups, clumps, or remain unevenly spaced. Areas treated in woodland stands will provide an open stand with an open canopy combined with reproduction of grasses, and scattered forbs and shrubs.

Fuelbed material should be removed with prescribed fire or utilized with fuelwood harvest or other methods.

GRASSLAND

Many grassland areas can be effectively treated with prescribed fire without mechanical treatment. Mechanical treatments such as crushing or grinding may be desirable in high risk areas before fire is used.

SAGEBRUSH

Mechanical treatments such as crushing or grinding may be desirable in high risk areas immediately adjacent to the WUI before prescribed fire is used. Many areas can be effectively treated with prescribed fire without mechanical treatment. Fire can be used to effectively remove sagebrush from existing sites with a corresponding reduction in flame lengths on future ignitions.

To maintain a site after initial treatment and where it can be safely executed, prescribed fire should continue to be utilized.

DESERT SHRUB

Mechanical treatment and prescribed fire may be used for conversion. Through the elimination of fire, areas that were once grasslands have evolved into the desert shrub communities that are currently present. The desert shrub communities consist in part of such species as mesquite, creosote brush, cacti, tarbrush, whitehorn, saltbush, snakeweed, and grasses such as gramma, tobosa grass and sacaton. Treatments within high-risk areas should be to protect the sensitive species while returning selected desert shrub back to a more natural grassland conditions ensuring successful suppression tactics.

METHODS TO BE USED TO ACCOMPLISH PRESCRIPTIONS

FUELBREAKS – Fuelbreaks are created to help change the behavior of a wildland fire by modifying the fuel structure in an area immediately adjacent to or surrounding developments and property to be protected in the wildland urban interface. Thinning for fuel reduction in fuelbreaks is more intense due to their nearness to values to be protected and strategic location for fire control. Fuelbreaks will vary in width according to the fuel profile and topography and may range up to 500' in width.

The fuelbreaks will often be “feathered” which means they will be incrementally less dense as they move toward the developed area. A distance around the fuelbreaks will also be thinned, possible up to thousands of acres, so that a fire’s movement and intensity may be lessened as it approaches the main fuelbreak.

The arrangement of fuelbreaks will also differ. Some projects will have corridors of fuelbreaks, thinning within those breaks, and burning between them.

THINNING – Thinning reduces stand density by removing stems in the understory, midstory, and overstory. Thinning actions will vary between fuelbreaks and areas surrounding fuelbreaks. Thinning in fuelbreaks will include reducing tree density to 20' spacing between crowns to 40' spacing between groups. Thinning outside fuelbreaks will include thinning to 10' to 15' spacing between crowns. Pre-commercial thinning involves hand thinning of smaller diameter materials. Commercial thinning, accomplished through timber sales, involves larger materials.

Once thinning is accomplished, the slash will be treated in several ways, including piling the material so it can be burned. Usually < 3" material will be piled, while the > 3" material will be utilized for personal fuelwood or sold for commercial fuelwood. Piles will be burned in the fall and winter season and potentially during the summer if conditions become suitable. The actual piling of the material may be accomplished by hand or machine, where equipment such as dozers and small tractors will haul the material to piles. Slash is also pushed or dragged into windrows. Some slash may be "rough-piled" or "jackpot piled" where heavier concentrations of fuel are left where they fall and are burned on site.

Material that is large enough for commercial thinning (merchantable timber), usually > 6" may be removed to a landing using a rubber-tire skidder, or tracked vehicle. Both rubber-tire skidders and tracked skidders are used, but where slopes exceed 30%, tracked skidders are used more frequently because of their maneuverability. Whole tree skidding methods move the entire tree to the landing, then remove the branches, concentrating the slash where it can be utilized as fuelwood or burned.

LOPPING AND SCATTERING - Thinned areas not piled may be "lopped" to reduce fuel slash heights and then broadcast burned. Lopping consists of cutting smaller branches off the main stem so the height of the slash layer is reduced, which in turn allows for a less intense fire if the area is broadcast burned.

CRUSHING - Crushing involves dragging a large drum with protruding spokes or spikes over the vegetation, effectively breaking the fuel into smaller pieces. Another form of crushing uses a "brush crusher" in which a piece of equipment similar to a "weed-whacker" is attached to a tractor. The "brush crusher" is able to reduce the height of vegetation from 4' to 6' down to 6" in height. Both of these pieces of equipment are pulled or transported by either rubber tire tractors, or rubber or metal track dozers. The "brush crusher" may operate on up to a 60% slope.

CHIPPING - In the chipping process, slash is forced through a chipping machine, reducing the larger pieces of slash to small chips that are spread over the site to be burned at a later date, or left on site to naturally decompose.

HYDRO-AX AND AGRA-AX - The Hydro-ax and Agra-ax are large cutting tools attached to a "Bobcat" type tractor. They are used in the pinyon/juniper type, cutting trees off at the ground level. The trees are usually left to lay where they fall, assisting in soil retention.

BROADCAST BURNING - Broadcast burning uses fire over a designated area to consume natural or activity slash that has not been piled or windrowed. Broadcast burning may be used separately or in conjunction with mechanical methods such as thinning. Broadcast burns may be ignited by hand, by "terra-torches", torches mounted on 4-wheelers or on a flat-bed truck, or with aerial ignition. Preparation for the burn may include line building, both by hand and machine.

PILE BURNING - Pile burning disposes of hand or machine-piled slash. Piling the slash and burning during cooler, wetter, or winter conditions reduces the chance of escape and lessens the potential for damage to the remaining vegetation on site. Piles are normally ignited by hand using fuses or drip torches.

APPENDIX F

DEFINITIONS

1. **Black Line.** A fireline created by burning the organic matter and then extinguishing the fire.
2. **Broadcast Burn.** A prescribed burn over a designated area to consume natural fuels or activity slash that has not been piled or windrowed. Broadcast burning may be used separately or in conjunction with thinning.
3. **Burn Plan.** A detailed plan for conducting a prescribed burn that identifies the burn units, fire control methods, and weather condition criteria.
4. **Federal Fire Policy.** The *Federal Wildland Fire Management Policy* signed by the Secretaries of Agriculture and Interior following the 1994 wildfire season. The Federal Fire Policy guides and provides for the coordination of fire management activities of the of the Forest Service, National Park Service, Bureau of Indian Affairs, Bureau of Land Management, U.S. Fish and Wildlife Service and the the National Biological Service.
5. **Fire Prescription.** Measurable criteria that define conditions under which a prescribed fire may be ignited, set prescriptive parameters (rate of spread, intensity, flame length, etc.), guide selection of appropriate management response, and indicate other required actions.
6. **Fireline.** A narrow, linear strip, cleared of vegetation to dirt that inhibits and/or contains the spread of fire. Firelines vary in width from one foot to over 10 feet, with most being two feet in diameter or less.
7. **Fuel loading.** The nature and amount of accumulated fuels which contribute to the intensity and duration of a fire.
8. **Fuelbreak.** An area adjacent to or surrounding a Wildland Urban Interface area, where thinning and other treatments are used to substantially reduce hazardous fuels. Fuelbreaks will vary in width according to the fuel profile and topography.
9. **Hazardous Fuels Reduction.** Activities to decrease fuel loading and stand density to a manageable degree to reduce crown fires. Treatments include creation of fuelbreaks, thinning, and disposal of fuelbed materials using mechanical or non-mechanical means, as described in Appendix E.
10. **Inventory Standards and Accounting (IS&A) Form.** FS form (R3-FS-2300-4) which serves as the cover sheet for inventory reports and includes conditions of Section 106 compliance, such as site specific protection measures and monitoring requirements.
11. **National Fire Plan.** The report, *Managing the Impacts of Wildfires on Communities and the Environment, A report to the President in Response to the Wildfires of 2000*, prepared by the Secretaries of Agriculture and Interior. The report calls for action and funding in five key areas: Firefighting; Restoration and Rehabilitation of Burned Areas; Hazardous Fuels Reduction; Community Assistance; and Coordination and Monitoring.

12. **Prescribed Burn.** A prescribed fire ignited by management to meet specific objectives. A prescribed burn may involve broadcast burning over an entire area or burning of thinning slash that has been piled or windrowed. See Appendix E for a description of these techniques.
13. **Prescribed Fire.** Controlled application of fire to wildland fuels in either their natural or modified state, under specified environmental conditions that allow the fire to be confined to a predetermined area and at the same time produce the intensity of heat and rate of spread required to attain planned resource management objectives. Prescribed fire may be management-ignited (prescribed burn) or naturally-ignited (prescribed natural fire).
14. **Thinning.** Removing trees and brush to reduce stand density. See Appendix E for a discussion of thinning techniques.
15. **Wetline.** A fire line constructed using water or foam, intended to prevent the advance of fire.
16. **Wildfire.** An unwanted wildland fire.
17. **Wildland fire.** Any non-structure fire, other than prescribed fire, that occurs on undeveloped land.
18. **Wildland Urban Interface.** Those areas of resident populations of imminent risk from wildfire, and human developments having special significance. These latter areas may include critical communications sites, municipal watersheds, high voltage transmission lines, observatories, church camps, scout camps, research facilities, and other structures that, if destroyed by fire, would result in hardship to communities. These areas encompass not only the sites themselves, but also the continuous slopes and fuels that lead directly to the sites, regardless of the distance involved.