

Applicant (Agency) Contact Information

State	North Carolina		
State Forester	Wib Owen		
Address	North Carolina Division of Forest Resources 1616 Mail Service Center Raleigh, NC 27699-1616		
Phone	919-733-2162 x202	E-Mail	Wib.Owen@ncmail.net

Project Information

Project Name	Enhancement of NCDFR's Fire Environment Program					
Project Lead	Gary Curcio	Phone	919-810-5623	E-Mail	gary.curcio@ncmail.net	
Abstract of Project Proposal						
<p>NC is now recognized as one of the fastest developing and urbanizing states in the nation. Many homes, businesses and other man-made structures and human development are now at the forests' edge or are intermingled within NC's forests. This magnifies the wildland urban interface (WUI) challenge. This challenge cannot be solved simply overnight. It requires the commitment to a long-term, multifaceted, comprehensive effort whereby hazardous fuels [built-up from past storms, bug killed trees and lack of prescribed fire] need to be reduced in the spatial continuum of forests and man-made structures. This can be accomplished by utilizing state of the art technology (GIS & Internet) to develop an effective fire intelligence system and a more informative Information & Education Outreach program. Natural resource agencies would have the tools to assess forest burning conditions, and educate the public of the benefits to use prescribed fire. Healthy forests are less prone to catastrophic wildfires. This would maximize the effective & efficient use of a finite interagency resource pool for prescribed fire or wildfire suppression. This Fire Environment Program represents just one component of the NCDFR's long-term strategy to deal with the abnormal build-up of natural forest fuels which has placed NC's forests & communities in the forests at a much higher risk.</p>						
Partnering Agencies and Groups/Organizations	<ol style="list-style-type: none"> 1. US Forest Service – National RAWS Program, & NC National Forests 2. USDOJ – Bureau of Land Management (Remote Sensing Support Unit), US Fish & Wildlife Service –Wildlife Refuges & National Park Service - The Great Smokies National Park 3. Department of Defense – Fort Bragg, Sunny Point Military Ocean Terminal, Camp Lejeune, US Air Force, & US Navy Bomb Ranges 4. NC Nature Conservancy 5. Duke University Office of Duke Forest 6. NC State University School of Forestry 7. NC Dept. of Insurance - Volunteer Fire Departments 8. National Weather Service 9. NC State Climate Office 10. Regional Climatic Centers – Southern & Western 11. NC Cooperative Extension Service 12. NC Forestry Association 13. NC Division of Air Quality 					
Project Location	This project is statewide and can serve as a model template for other states.					
Expected Completion Quarter	The project would run for three years beginning in 2008 through 2010					
Total Federal Funding Request	\$317,000 [\$100,000 will be used for RAWS maintenance]					
Total Proposal Budget (including match)	Project Income Sources					
	Organization*	Grant	DFR Match	Match	Match	Total
	Dollars	\$317,000				\$317,000
	Donations					
	In Kind Services		\$317,000			\$317,000
	Total	\$317,000	\$317,000			\$634,000

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Explanation of project:

This project concentrates on the enhancement of the Fire Environment through current state of the art technology. Having a quality network of WUI-Fire Danger RAWS and the appropriately trained staff elevates NC's fire environment program. Fire intelligence is being optimized. The opportunities to conduct successful, contained, prescribed burns with minimal escapes and best smoke dispersion will increase with better fire intelligence. NFDRS when appropriately applied gives an excellent assessment of burning conditions and the potential resource needs for prescribed fires. This grant will perpetuate better intelligence information to support fuel reduction burns. Better planning and pre-positioning of resources to support prescribed fire mitigation efforts will be a direct result. Under the auspices of NFDRS Fire Environment Branch, positive interaction amongst the various programs and field units will offer improved chances of greater success.

This project continues to build on the Interagency WUI - Fire Danger RAWS network previously funded in part with National Fire Plan Funding. It adds new WUI - Prescribed Fire RAWS at the higher elevations in the NC mountain region, and also updates data collection platforms on aging special mission WUI RAWS. It also allows for the continued training of (1) personnel in the care & maintenance of the WUI Fire Danger Station network, (2) certified burn bosses on how to use the weather station network and the National Fire Danger Rating System to assess burning conditions, and (3) DFR staff in the new NCDFR Smoke Management Program using GIS Technology. All this is being done so sound strategic planning can be facilitated to promote forest health and WUI protection. Having an intra-structure of equipment for fire intelligence system and personnel trained in its use and interpretation, it permeates the daily assessment of burning condition across the state to natural resource agencies, VFD's and the WUI Interface. Thereby it provides critical information to support "Go" or "No-Go" decisions in WUI Prescribed Fires & Protection.

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Evaluation Criteria Discussion:

1. National and Regional Relevance (check all that apply)

- Fractured Forests
- Wildland Fire and Forest Fuels
- Changing Markets
- Forest Health
- Water Quality and Quantity

2. Prioritization

This project is a high priority for DFR. It is ranked #2 out of the 24 proposals prepared. It ranked high because:

- It will maintain the constant flow of quality fire weather data for wildland fire intelligence (especially communities at risk) to maximize the effective use and the logistical placement of finite resources for prescribed fire opportunities.
- Fire Danger Rating Indexes and levels will be part of a comprehensive set of criteria to be used in deciding whether to allow WUI prescribed fires and their prevention measures during high fire danger.
- It will minimize the impact of hazardous smoke incidents as determined by real time weather observations from the WUI-Fire Danger network and the WUI Prescribed Burn RAWS, and it will better assess fuel availability through the use of NFDRS.
- It will support the need for placing WUI-Prescribed Burn RAWS at burn sites where weather is needed during the burn.
- It will fill gaps in fire intelligence gathering in the NC Interagency WUI-Fire Danger RAWS network with the special mission WUI-RAWS & Duff Moisture Meters, and continue the development of the web site with the State Climate Office providing 24/7 coverage to assess burning conditions.
- Training program for all burn bosses and VFD's will be improved in order to elevate the knowledge and application of NFDRS and VSMOKE)
- It will continue to support the developing Southern Wildfire Risk Assessment, Fire Wise and CWPP efforts and elevate the protection for communities at risk through fire intelligence to support prescribed fire or protection from wildfire.
- Capability within each Region of NC will be improved through the use of Quick Deploy Smoke Monitoring Units to provide up to date information to the general public during smoke advents due to forestry activities.

3. Meaningful Scale

This project provides benefits to every part of the state, as well as to the southern region and national level planning efforts. Having a quality network of WUI-Fire Danger RAWS and the appropriate trained personnel, this can elevate the fire intelligence to optimize the opportunities to conduct successful, contained, prescribed burns with minimal escapes and best smoke dispersion across NC's landscape. NFDRS when appropriately applied gives an excellent assessment of burning conditions statewide and the potential resource needs for prescribed fires. This grant will offer better intelligence information to support fuel reduction burns because of the availability of these stations to provide critical weather information and NFDRS providing the assessment on fuel conditions. This will allow for the finite natural resource agency personnel and their associated equipment to be optimized. Better planning and pre-positioning of resources to support prescribed fire mitigation efforts can be facilitated.

4. Collaboration

By taking the lead in this effort the NCDNR can provide other natural resource agencies and community property owners the best fire intelligence to assess burning conditions for WUI prescribed fire use. The reliability of fire intelligence starts with the quality of the WUI-Fire Danger network. As the present system is becoming more proven, non-traditional users are now becoming users and contributors. The State Climate Offices, National Weather Service, Regional Climatic Centers, Division of Air Quality, and others are now looking and using the WUI-FD Station network weather data. Also, with the use of Dispersion Modeling the WUI-Fire Danger network becomes more critical in evaluating smoke plume concentrations when considering the health and safety effects of WUI-Reduction Burns. This project facilitates the collaboration of the strategic partners as everyone has need for the best fire and smoke intelligence possible.

5. Outcomes

- Prescribed burners, fire fighters and the local communities are better informed on current and predicted burning conditions & weather.
- Fire danger adjective rating is more reliable and is an information source for resource positioning and staffing for hazard reduction burns. It promotes better preparedness for prescribed fire use and the strategic placement of prescribed fire resources.
- The archiving of weather data and GIS WUI information is producing more accurate prescribed fire planning, fire danger rating, and WUI adjective rating to support personnel and equipment budget requests.
- In time, local weather and fire danger becomes better characterized through the analysis of archived data. This provides an opportunity to refine acceptable "prescribed burning windows". This will be accomplished by analysis of NFDRS indices and historical prescribed fires. Percentiles and logistical regression will assist in determining the best indices for prescribed fire business.
- The WUI / Fire Danger Station network with current research can give an insight as to the availability or consumption of the forest duff (organic soils) and their contributions to smoke production. This, in turn, informs the agencies of the potential and impact to the safety and health of the general public.

6. Technology

This project will be introducing and utilizing current technology and programs in particular GIS, and web based products and database management. The NCDNR can ensure the optimum utilization of a finite personnel and equipment by augmenting, sharing and networking its basis for fire intelligence and databases. Through a perpetual stream of quality weather data, and activity databases, burning conditions can be correctly assessed and the Southern Wildfire Fire Risk can be better supported and can thereby be implemented. Therefore, high risk WUI communities can be better protected with natural resource equipment being strategically positioned for wildfires or mitigated by prescribed fire use. The information from the interagency WUI-Fire Danger RAWS network can identify the windows of opportunity to conduct prescribed burns and minimizes smoke events. This will be displayed utilizing web based and GIS technology.

7. Integrated Delivery

This project brings together various agencies in NC as is indicated by the strategic partnering agencies. It also fosters better integration of several programs and units within NC-DNR. The implementation of the individual project units of the Fire Environment and Wildland Urban Interface Project requires and necessitates the positive interaction among the NCDNR Forest Protection Units to address fire readiness, fire danger, fire weather, fire prevention, mitigation of fuel accumulation, wildland urban interface adjective rating, hazard reduction burning, Geographic Information System database layering, & fire research. Of most importance it fosters and embraces the Southern Fire Risk Assessment Project and gets information to the Division and to the public. It certainly

builds upon and supports the effort to develop long lasting fire intelligence. We will be working not harder, but smarter. It fosters individual work units to integrate their efforts for the purpose to promote healthier watersheds, enhance community protection, and diminish risk and consequences due to severe wildland fires.

8. Leverage

NC's natural resource agencies responsible for protection and management of NC's ecosystems will be sharing information, commitment of their time and agency resources for this project. All recognize the opportunity that this project provides to coordinate better in order to meet the WUI challenge. Even though the NCDFR is taking the lead responsibility for this project, its impact reaches beyond one agency. The challenge is before all natural resource agencies and requires an interagency effort and a commitment of in kind services. The project's strategic partners have endorsed this project as one way to meet the demands being placed on NC's forests.

9. Influence Positive Change

This project's foundation supports the concept of being well informed. It is essential that the NCDFR Fire Environment / Forest Protection Program be a leading advocate to conduct workshops to train persons, agencies and the public in the proper application, use, and interpretation of weather observations, Fire Danger Rating, and the Southern Wildfire Risk Assessment. The success of this project starts with a quality, well-maintained WUI-Fire Danger station network. This project facilitates, propagates and perpetuates interagency communications, coordination, and effective prescribed fire management. In this way the wildfire hazard is minimized, as well as the impact to communities at risk while the health of NC's forests is promoted.

10. Timeliness

This project will have an immediate impact as timely results will be completed within the first year and subsequent years. Below are task to be completed:

- Requisition all stations and supporting equipment to improve fire intelligence within year one.
- Provide equipment to facilitate a 1st Responders Maintenance Support Unit for a quality interagency WUI / Fire Danger RAWS network and portable WUI-RAWS onsite stations.
- Upgrade the Data Collection Platforms on the NCDFR special mission WUI-RAWS, coordinate with NESDIS and the USFS National RAWS Program for ID codes, transmit frequencies, and enrollment into the national WUI-RAWS maintenance agreement.
- Prepare station software program and maintain stations for on demand deployment as well as PM 2.5