

**Community Capacity and Wildfire Protection:  
Indicators of rural, low capacity communities**

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# Community Capacity and Wildfire Protection: Indicators of rural, low capacity communities

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## **Update as of September 23, 2003**

Based on our research to date, we are suggesting the use of Housing and Urban Development (HUD) Income Limits and County revenues for this study. We feel HUD Income Limits would provide us with a strong understanding of poverty issues using factors of income, wage, and housing affordability. We are also recommending using County Revenues and rural/urban classification information as way to illustrate the level of resources within counties.

### **HUD Income Limits**

Constraints on finding county-level data for some of the indicators listed above led us to Housing and Urban Development (HUD) Income Limits and County revenues (available through the Census.) While we can determine 150% or 185% of the poverty level for individual assistance programs, we have not been able to find county-level data on the percentage of households or individuals that fall within various percentages of the poverty level.

HUD Median Family Income Limits are provided for family sizes of one to eight persons and a formula is provided to calculate income limits for larger family sizes. The Median Family Income Limit estimates are based on the U.S. Census Bureau median family income estimates with a combination of Bureau of Labor Statistics earnings and employment data and Census Divisional P-60 median family income data. Fair Market Rents are also included within the adjustment. Income limits data is provided at the county level, as well state, census tract, and by MSA.

<http://www.huduser.org/datasets/il/fmr03/index.html>. Income limit groups include:

- **Low-income** families are defined as families whose incomes do not exceed 80 percent of the median family income for the area.
- **Very low-income** families are defined as families whose incomes do not exceed 50 percent of the median family income for the area.
- **30 percent of the area median income** is defined as an income targeting standard in the 1998 Act Amendments to the Housing Act of 1937; to avoid inconsistencies with other income limits, it is defined as 60 percent of the four-person family very low-income limit, adjusted for family size, but not allowed to fall below the state Supplemental Security Income (SSI) benefit level for one-person households
- **Income limits are adjusted for family size.**
- **Income limits** are adjusted for areas with unusually high or low family income or housing-cost-to-income relationships.

*More information on income limits can be found at <http://www.huduser.org/datasets/il/fmr03/BRIEFING-MATERIAL-3-1-03.doc>.*

### **County Revenues**

This is available through the US Census and is compiled every 5 years. The most recent report on line is 1997 but new data will be available soon. County revenue data could be used together with county population (to give per capita revenues) and/or rural/urban classifications. We could also use county revenues over time to show increases/decreases.

*“Poverty, in the context of wildfires, means people and communities unable, because of inadequate financial or nonfinancial resources, to take the steps necessary to protect themselves, their families, their homes, and other assets from the risks of wildfire.” (Wildfire and Poverty Report, CWCH 2001)*

## **Executive Summary**

Wildfires intensify poverty by having a pervasive, disproportionately negative impact on those households and communities lacking adequate resources to reduce the flammability of nearby wildlands, fire-proof homes and other structures, respond quickly when wildfires occur, and recover from economic losses resulting from fires.<sup>1</sup> In order to further examine the relationship between wildfire and poverty, the Program for Watershed and Community Health (PWCH) has initiated a project to help rural communities in the Pacific Northwest build their capacity to access fire protection services and implement strategies to mitigate risk and increase readiness.

To better understand the relationship of wildfire and poverty, we use this paper to explore indicators of poverty and community capacity that might contribute to a community’s risk to wildfire. This paper provides a summary of poverty indicators used by various agencies and organizations as well as definitions for low capacity communities and rural/urban classifications. We also provide recommendations for indicators that will identify low capacity communities that could be used by agencies and organizations making decisions about how grants are allocated and how communities at risk are prioritized.

This paper will be used in support of a proposal we are currently developing aimed at illustrating the distribution of National Fire Plan funds and programs, indicators of poverty and limited capacity, and the Wildland-Urban Interface (WUI) risk. This paper explores indicators that can be used at a regional or statewide level to illustrate this relationship.

## **Methodology**

This paper provides a framework for assessing the indicators of poverty and community capacity and the role they play together and individually in meeting fire protection goals within a community, neighborhood, or at an individual level. There are varying definitions of these terms, and no consistent method to measure poverty and community capacity in the context of wildfire. This paper provides information on the types of indicators used to measure poverty by federal agencies and other organizations, as well as indicators of community capacity and wildfire risk. We also suggest preliminary recommendations for indicators to assess poverty and capacity in the context of wildfire.

Indicators of poverty, community capacity and risk will vary depending on the scale that they are used. At a regional level (counties in Oregon and Washington), we will use measurable indicators to understand poverty, access to fire protection resources, as well as a layer illustrating wildland-urban interface risk. Within a community, it is essential that residents, leaders and service providers be engaged in determining available resources their risk to wildfire.

Communities may be defined at a geographical, political, social, or cultural context. A regional planning or mapping approach could leave out specific types of communities such as mobile workers, and people living in unincorporated areas. It should be noted that the project objectives defined in this paper are aimed at understanding wildfire and poverty at a regional level. We also intend to use a similar method of understanding demographics, economics, and access to fire protection resources at a local level when interacting with specific communities.

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<sup>1</sup> (Wildfire and Poverty Report, CWCH 2001)

The next steps section of this paper describes how findings from this process could result in regional and community mapping processes. The regional mapping process would bring together information on fire risk, poverty, and capacity. This will utilize Federal Register communities at risk, insurance fire hazard rating information, and poverty indicators derived from Census data. The community mapping process would take into consideration broad indicators but rely on a public involvement process to gather information and identify priorities for action.

## Review Process

PWCH and the National Network of Forest Practitioners (NNFP) distributed the first draft of this background paper to community forestry organizations, state and federal agency representatives, and local community members. Sharing the draft background paper provided an opportunity for diverse perspectives and comments on what the most appropriate indicators of poverty are in the context of wildfire. There were a number of areas where reviewers had similar comments, as described below:

- **Identify alternative indicators of poverty:** Reviewers suggested that typical indicators of poverty such as a percentage of per capita income or poverty guidelines could distort the actual levels of poverty in a given area. For example, per capita income does not take into account that wealthy new comers may distort an average per capita income in a community with a high level of poverty. Additionally, transfer payments (e.g., welfare, medicare/medicaid, unemployment, pensions, investments, and dividends, etc.) are considered as income, further masking the level of poverty.
- **Include a measure of housing price to wage:** Several reviewers commented that indicators of housing and wage would “help tell us how hard it is for people to meet basic needs like housing.”
- **Consider scale:** Use census at the tract or block level, not the county level. This will distinguish the rich town/cities from the outlying rural areas.
- **Identify alternative methods to identify fire risk or wildland-urban interface:** Several reviewers commented that the Federal Register “Communities at Risk” list was not an appropriate layer to use for determining risk on national scale because each state used their own criteria to identify towns and cities at risk. The concern focused on lack of consistent methods in determining “communities at risk.”

## Recommendations

We recommend using a combination of indicators to assess the capacity of a rural community to prepare for, respond to, and recover from wildfire events. This analysis should also consider the level of risk within target communities. Census data can be used at a broad level to compare statistics within a region, state, or local area. This information will be easy to use and incorporate within a mapping process to identify communities with low capacity. Information related to access to fire protection resources could be obtained at state, county, or local level and used to identify gaps in services within rural poor communities.

In order to identify those communities at risk from wildfire and poverty, we have outlined three areas to consider in a mapping process. These include 1) poverty (using information on poverty thresholds, income, and employment), 2) capacity (organizational structure and fire protection resources (type of district, number of fire trucks, and existing prevention programs), and 3) risk (data on the wildland-urban interface). Following are the indicators we recommend using for this analysis

### ***Poverty***

- At least 150% of the federal poverty guidelines (or greater) (Census)
- Ratio of housing price to wage
- Unemployment data (Bureau of Labor Statistics)
- Rural/Urban classification/typology (Economic Research Service - rural typology codes, Rural-urban Continuum Code, and other data)

*Sources: U.S. Bureau of the Census, Sonoran Institute's Economic Profile System, Northwest Area Foundation's Indicator Website, USDA Economic Research Service, and the Bureau of Labor Statistics.*

### ***Capacity***

- The Insurance Services Office Public Protection Classification
- Identification of fire protection resources (leadership, volunteer, full-time, or unprotected fire districts, number of fire trucks, staff, etc.)
- Evidence of fire protection and prevention programs (E.g., community fire plan, wildfire mitigation plan, hazardous fuels reduction programs, etc.)
- Success in receiving grants or other funding for preventative activities.

*Sources: Forest Service, Bureau of Land Management, National Fire Plan recipients and types of programs, Office of the State Fire Marshal, and Insurance Services Office.*

### ***Risk***

- There are varying sources of information for determining the wildland-urban interface and fire risk. This includes the 2001 Federal Register list of "Communities at Risk," as well as vegetation and fuels maps, maps of the wildland-urban interface, among other efforts. Current and nationally available data should be used for this layer.
- Historical fire occurrences within or adjacent to the community.

*Sources: USDA Forest Service, Bureau of Land Management, State Departments of Forestry and/or Natural Resources*

## Introduction

This paper provides a framework for understanding the role community capacity plays in meeting fire protection goals and reducing fire risk within a community, neighborhood, or at an individual level. We examine the different indicators of poverty that are used by various agencies and organizations. We then provide recommendations on identifying gaps in fire protection services among low capacity communities and developing strategies to help meet the needs identified by low capacity communities.

To build capacity for communities to access resources, action must occur within the agencies and organizations responsible for allocating and administering grant programs. Communities must also state their need and desire for assistance and willingness to collaborate. The current mechanisms for decisions about where grant funds go may favor communities with high value homes, better fire protection services, and, generally higher capacity to implement projects that reduce the risks to homes and communities. High capacity communities have greater property values at risk, experience managing grants and programs, and past successes in implementing fire protection programs.<sup>2</sup>

Low capacity communities may not have the organizational structure to successfully compete for grants or the financial resources to meet cost-shares often required with these types of programs. Furthermore, while there are some grant programs that provide assistance to poor communities, the determinants of poverty are not consistent among agencies. Therefore, a community member who does not fall below the federal poverty level but does not have the financial resources to protect their home is not eligible for assistance programs.

Identifying a set of indicators to use in determining the relationship between wildfire and poverty will help a number of agencies and organizations, as well as the communities at risk:

- Federal and state agencies making decisions about how funding priorities are set can recognize the limited capacity of different rural communities.
- Community forestry, emergency management, and other organizations can find common ground to address community capacity and fire protection.
- Rural communities with limited capacity will have a stronger voice in advocating for their needs because their status will be recognized by federal and state agencies and organizations.

In the context of wildfires, poverty impacts the capacity of a community or an individual to protect their home from disaster.

This paper provides a summary of poverty indicators used by various agencies and organizations as well as definitions for low capacity communities and rural/urban classifications. We conclude with recommendations for indicators that will identify low capacity communities that could be used by agencies and organizations making decisions about how grants are allocated and how communities at risk are prioritized.

This paper refers frequently to community capacity, poverty, the wildland-urban interface, and rural communities. To provide a basis for their use in this paper, we have included definitions for these terms at the end of this paper (see the Appendix).

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<sup>2</sup> (Wildfire and Poverty Report, CWCH 2001)

# Indicators of Poverty, Capacity and Risk

## Poverty Indicators

There are many agencies and organizations that use poverty indicators, primarily based on census data, as a way to illustrate community need, or provide exemptions or credit to poor areas. Following are examples of indicators used by federal and state agencies and organizations to determine communities dealing with poverty.

### *U.S. Census Bureau*

The U.S. Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is poor. If a family's total income is less than that family's threshold, then that family and every individual in it is considered poor. The poverty thresholds do not vary geographically, but they are updated annually for inflation using the Consumer Price Index. The official poverty definition counts money income before taxes and does not include capital gains and noncash benefits (E.g., public housing, Medicaid, and food stamps). Other census data that could be indicative of “low capacity” communities include age (under 18 or over 65), persons with disabilities, citizenship or language spoken at home, (un) employment, and income.

Programs using the guidelines (or percentage multiples of the guidelines — for instance, 125 percent or 185 percent of the guidelines) in determining eligibility include Head Start, the Food Stamp Program, the National School Lunch Program, the Low-Income Home Energy Assistance Program, and the Children's Health Insurance Program.<sup>3</sup>

### *Environmental Justice: Guidance Under the National Environmental Policy Act*

The Council of Environmental Quality provides a definition of low-income populations in a report on Environmental Justice: Guidance Under the National Environmental Policy Act. Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, provides that, “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” This report states that low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census’ Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.<sup>4</sup>

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<sup>3</sup> U.S. Census Bureau. *The 2003 HHS Poverty Guidelines*. U.S. Dept. of Health and Human Services. <http://aspe.hhs.gov/poverty/03poverty.htm>.

<sup>4</sup> Council on Environmental Quality, *Environmental Justice: Guidance Under the National Environmental Policy Act* Executive Order 12898, “Federal actions to address Environmental Justice in minority populations and low-income populations,” (December 1997).



### ***Federal Emergency Management Agency***

The Federal Emergency Management Agency has adopted the Environmental Protection Agency's definition for a small and impoverished community, which must meet all of the following criteria:

- It must be a community of 3,000 or fewer individuals that is identified by the State as a rural community, and is not a remote area within the corporate boundaries of a larger city;
- It must be economically disadvantaged, with residents having an average per capita annual income not exceeding 80 percent of national per capita income, based on best available data;
- It must have a local unemployment rate that exceeds by one percentage point or more, the most recently reported, average yearly national unemployment rate; and
- It must meet any other factors identified in the State emergency management plan in which the community is located.

### ***The Oregon Progress Board***

The Oregon Progress Board is an independent state planning and oversight agency. Created by the Legislature in 1989 to keep Oregon focused on the future, the Board is responsible for implementing the state's 20-year strategic plan, *Oregon Shines*. The goals of *Oregon Shines* include quality jobs for all Oregonians, safe, caring and engaged communities, and healthy, sustainable surroundings. The Progress Board tracks outcomes for these goals through 92 indicators known as the Oregon Benchmarks. The Benchmarks are a broad array of social, economic and environmental health indicators. The benchmarks include indicators of poverty that include the percent of Oregonians with incomes below the Federal poverty level, the percent of Oregonians without health insurance based on age, and the number of Oregonians that are homeless on any given night (per 10,000).

### ***Oregon Economic and Community Development Department***

Oregon Economic and Community Development Department uses an index of eight poverty indicators to determine "distressed areas" in Oregon. Distressed areas receive priority assistance from the department. The methodology first designates entire counties as distressed based on the county-level data. For cities in non-distressed counties, the methodology designates cities as distressed based on city-level data. The indicators used in determining the distressed communities include unemployment rate, per capita personal income, average pay per worker, population change, percent of population receiving unemployment insurance benefits, industrial diversity based on distribution of employment by industry, percent of families in poverty, and employment change.

### ***Northwest Area Foundation***

The Northwest Area Foundation helps communities in Minnesota, Iowa, North Dakota, South Dakota, Montana, Idaho, Washington, and Oregon reduce poverty by providing knowledge, financial resources, products, and services. The Northwest Area Foundation has established a database for states, counties, reservations, and Native American tribes within their eight-state

region that includes information on population and demographics, poverty and income, family, housing, education, health, and crime and safety. While the poverty indicators include federal poverty level and reduced price school lunch program, the database includes additional data on teen birth rate, unemployment, value of owner occupied housing, educational attainment, and infant mortality, among others. These indicators can also be used to determine poverty and/or limited capacity.

### ***Sonoran Institute***

The Sonoran Institute has developed the Economic Profile System (EPS), an automated system for developing custom socio-economic profiles. EPS allows anyone to automatically and efficiently produce customized socio-economic profiles for any geography in the Western United States. The profile contains tables and figures that illustrate long-term trends in population, employment and personal income by industry, average earnings, business development, retirement and other non-labor income, commuting patterns, and agriculture.

The Sonoran Institute developed the EPS in partnership with the Bureau of Land Management as a tool for community-based, collaborative planning, and increased citizen participation in the understanding of the economic role of public lands. The EPS software can be downloaded for free from the Sonoran Institute web site at [www.sonoran.org](http://www.sonoran.org).

### ***USDA Economic Research Service/Rural Indicators Map Machine***

The US Department of Agriculture Economic Research Service (ERS) produces a range of data products available in different formats, including online databases, spreadsheets, and web files. The Rural Indicators Map Machine is an Internet-based mapping utility that provides a visualization of indicators for rural areas available from ERS and other government agencies. These indicators include the Natural Amenities Scale, the Rural Typology Code, the Urban Influence Code, the Rural-urban Continuum Code, the Rural-urban Commuting Area Code, population change, the unemployment rate, and median household income. You can examine the data and get information about the features on the map, move to different geographic levels, and change data layers. For example, a user can select a state, zoom into a specific county and display the data attributes of that county.

## **Capacity Indicators**

It is important to have indicators that can be quantified to understand the total population at risk from wildfire and/or in need of protection services. Indicators of poverty will provide a profile of community demographics and economy. In the context of wildfire, however, low capacity can also be determined by the current access to fire protection resources. Rural communities with limited financial resources may not have the tax base to pay for fire protection services. These communities may only have a small, volunteer fire department, few or no fire trucks, or reside in an unprotected fire district.

### ***Access to Fire Protection Resources***

These are indicators of gaps in service and limit the capacity of these communities to protect residents and property in the event of a wildfire. Information about fire protection resources may be obtained from local fire districts, the Office of the State Fire Marshal, or state departments of forestry or natural resources. While the data may not be available as readily as census data, it is an important indicator of community capacity and provides information on what resources are most needed to improve a community's resilience to wildfire. Unprotected areas could serve as an indicator of low capacity in terms of fire protection resources.

### ***Insurance Service Office – Fire Hazard Ratings***

The Insurance Services Office (ISO) is an independent organization that serves insurance companies, fire departments, insurance regulators, and others by providing information about fire risk. ISO's expert staff collects information about municipal fire-protection efforts in communities throughout the United States. In each of those communities, ISO analyzes the relevant data and assigns a Public Protection Classification (PPC) — a number from 1 to 10. Class 1 represents exemplary fire protection, and Class 10 indicates that the area's fire-suppression program does not meet ISO's minimum criteria.

A Community's PPC depends on fire alarm and communications systems, the fire department, and the water supply system. The classifications are developed with the following criteria:

- 10% fire alarm and communication systems, including telephone systems, telephone lines, staffing, and dispatching systems
- 50% the fire department, including equipment, staffing, training, and geographic distribution of fire companies
- 40% the water supply system, including the condition and maintenance of hydrants, and a careful evaluation of the amount of available water compared with the amount needed to suppress fires

The Insurance Services Office's PPC program evaluates communities according to a uniform set of criteria, incorporating nationally recognized standards developed by the National Fire Protection Association and the American Water Works Association. The PPC program provides a useful benchmark that helps fire departments and other public officials measure the effectiveness of their efforts — and plan for improvements.<sup>5</sup> The PPC program could serve as one indicator of a community's limited capacity to deal with wildfire protection.

## **Risk Indicators**

The Forest Service, individual states, and other agencies are currently developing other layers to describe wildland-urban interface risk using vegetation and fuels models. As information on the wildland urban interface is dynamic, this indicator should be chosen so that it reflects the most appropriate data. This information may also be strengthened by state level data that includes state

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<sup>5</sup> Insurance Services Office, Public Protection Classification, <http://www.isomitigation.com/fire1.html>.

mapping efforts or historical information on past wildfire events that took place within or adjacent to communities.

The Federal Register identifies wildland-urban interface communities within the vicinity of federal lands that are at risk from wildfire. The Secretaries of Agriculture and the Interior were directed to consult with states and Native American tribes to develop the list of wildland-urban interface communities within the vicinity of federal lands that are at high risk from wildfire. This notice provides an update to the initial list of “Communities at Risk,” urban wildland interface communities in the vicinity of Federal lands that are at high risk from wildfire published in the Federal Register on January 4, 2001.<sup>6</sup>

## Recommendations

We recommend using a combination of indicators to assess the capacity of a rural community to prepare for, respond to, and recover from wildfire events. This analysis should also consider the level of risk within target communities. Census data can be used at a broad level to compare statistics within a region, state, or local area. This information will be easy to use and incorporate within a mapping process to identify communities with low capacity. Information related to access to fire protection resources could be obtained at state, county, or local level and used to identify gaps in services within rural poor communities.

In order to identify those communities at risk from wildfire and poverty, we have outlined three areas to consider in a mapping process. These include 1) poverty (using information on poverty thresholds, income, and employment), 2) capacity (organizational structure and fire protection resources (type of district, number of fire trucks, and existing prevention programs), and 3) risk (data on the wildland-urban interface). Following are the indicators we recommend using for this analysis

### *Poverty*

- At least 150% of the federal poverty guidelines (or greater) (Census)
- Ratio of housing price to wage
- Unemployment data (Bureau of Labor Statistics)
- Rural/Urban classification/typology (Economic Research Service - rural typology codes, Rural-urban Continuum Code, and other data)

*Sources: U.S. Bureau of the Census, Sonoran Institute's Economic Profile System, Northwest Area Foundation's Indicator Website, USDA Economic Research Service, and the Bureau of Labor Statistics.*

### *Capacity*

- The Insurance Services Office Public Protection Classification
- Identification of fire protection resources (leadership, volunteer, full-time, or unprotected fire districts, number of fire trucks, staff, etc.)

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<sup>6</sup> Federal Register, Vol. 66, No. 160, (August 17, 2001), Notices, [http://www.fireplan.gov/communities\\_at\\_risk.cfm](http://www.fireplan.gov/communities_at_risk.cfm)

- Evidence of fire protection and prevention programs (E.g., community fire plan, wildfire mitigation plan, hazardous fuels reduction programs, etc.)
- Success in receiving grants or other funding for preventative activities.

*Sources: Forest Service, Bureau of Land Management, National Fire Plan recipients and types of programs, Office of the State Fire Marshal, and Insurance Services Office.*


### ***Risk***

- There are varying sources of information for determining the wildland-urban interface and fire risk. This includes the 2001 Federal Register list of “Communities at Risk,” as well as vegetation and fuels maps, maps of the wildland-urban interface, among other efforts. Current and nationally available data should be used for this layer.
- Historical fire occurrences within or adjacent to the community.

*Sources: USDA Forest Service, Bureau of Land Management, State Departments of Forestry and/or Natural Resources*

## **Next steps**

We propose to illustrate the relationship between wildfire and poverty and to demonstrate where service delivery gaps exist. The use of Geographic Information Systems (GIS) and participatory community mapping could play key roles in developing recommendations for future policy and allocation of funding, as well as in determining community action. We propose to coordinate a regional mapping effort to understand the relationship between wildfire and poverty and where services are currently being provided for fire prevention. We also propose to work with regional partners and community organizations to develop a participatory mapping process to assist communities in identifying their wildfire risk and fire prevention activities.

This process would show where fire protection programs and services have been allocated in the past and indicators of poverty and limited capacity  illustrate where the gaps in services for fire protection exist. We hope to build an understanding of how previous federal and state fire prevention funds have been allocated and the degree to which low-income households/regions have or have not received fire prevention resources. Specific tasks could include the following:

1. Coordinate with the US Forest Service, Bureau of Land Management, and other Federal and State agencies and organizations to identify existing sources of information on wildfire risk.
2. Identify where fire prevention programs and funds have been allocated in the past within Oregon and Washington. These programs and funds may include Community Assistance or Fire Prevention and Safety grants through the National Fire Plan, or other programs such as the Economic Action Program, Firewise Communities and FireFree.
3. Establish a set of indicators from those outlined in this paper to determine poverty areas. These indicators will be based on those used by federal agencies and other organizations in determining communities, neighborhood, or specific regions in need of fire protection.
4. Visually demonstrate areas with indicators of low capacity, areas where fire protection services are being provided through National Fire Plan grants and the Economic Action Program, among others, and where gaps in service delivery exist.

5. Document indicators of poverty, communities at risk, and distribution of National Fire Plan and Economic Action Program funds in the Northwest.

### **Community Mapping**

The methodology described above will provide a perspective on the relationship between wildfire protection and poverty within Oregon and Washington. Once community activities begin, a similar mapping process can be undertaken with community members to best identify indicators of poverty within neighborhoods, special districts, or another appropriate scale. Data used in this process may include the indicators outlined in this paper. However, the community mapping process should identify specific community assets and provide an opportunity for the community to voice their thoughts, ideas, and concerns about their risk to wildfire. Community assets can include financial, organizational, and human resources. These assets can be identified through interviews, public meetings, or other forums.

Another method to assess capacity could be achieved by identifying the potential workforce by measuring historical unemployment rates and historical employment within the forest industry. Conducting an inventory of existing community forestry and economic development activities and programs will provide the community with an understanding of where resources could be leveraged to organize activities related to wildfire protection.

Agencies and organizations can use indicators of low capacity communities to understand where services are needed and to develop strategies to augment fire protection resources in those areas. Communities can use similar tools to identify their risks, assets, and begin to develop strategies to become more resilient to wildfires. A collaborative environment between agencies, organizations, and communities can also lead to more successful implementation of fire prevention programs.

## Appendix

This paper refers frequently to community capacity, poverty, the wildland-urban interface, and rural communities. To provide a basis for their usage, we include definitions for these terms below. We chose these particular definitions because of the context they provide for this project.

### Community capacity

Community capacity is the collective ability of residents in a community to respond to external and internal stresses, to create and take advantage of opportunities, and to meet local needs. Community capacity in relation to wildfire addresses a community's ability to mitigate wildfire threats, respond to active wildfire, and mitigate post-fire damage. This includes the ability to implement risk-reduction strategies, including hazardous fuels reduction, firefighting, and restoration activities.<sup>7</sup> In relation to wildfire, low capacity communities may have more difficulty in accessing resources, implementing strategies, and meeting local objectives for fire protection

### Poverty

National poverty data are calculated using the official Census definition of poverty, which has remained fairly standard since it was introduced in the 1960s and is useful for measuring progress against poverty. Under this definition, poverty is determined by comparing pretax cash income with the poverty threshold, which adjusts for family size and composition. *Poverty thresholds* are the statistical version of the poverty measure and are issued by the Census Bureau. They are used for calculating the number of persons in poverty in the United States or in states and regions. *Poverty guidelines* are the administrative version of the poverty measure and are issued by the Department of Health and Human Services. They are a simplification of the poverty thresholds and are used in determining financial eligibility for certain federal programs.<sup>8</sup>

### Wildland-Urban Interface

1. "The urban-wildland interface community exists where humans and their development meet or intermix with wildland fuel." This definition is found in the Federal Register Vol.66, Thursday, January 4, 2001, Notices; and in "Fire in the West, the Wildland/Urban Interface Fire Problem", A Report for the Western States Fire Managers, September 18, 2000.
2. "The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuel." This definition is found in the National Wildfire Coordinating Group Glossary and the 10-year Comprehensive Implementation Plan.

### Urban and Rural Classification

For the 2000 U.S. Census, the Census Bureau classifies "urban" as all territory, population, and housing units located within an urbanized area (UA) or an urban cluster (UC). It delineates UA and UC boundaries to encompass densely settled territory, which consists of core census block groups or blocks that have a population density of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile.

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<sup>7</sup> Community Capacity definition from: Response to the Federal Register notice "Urban Wildland Interface Communities within the Vicinity of Federal Lands that are at High Risk from Wildfire" (Vol. 66, No.3; Thursday Jan. 4, 2001, [www.americanforests.org/downloads/fp/AFpolicyviews/fedregltr.pdf](http://www.americanforests.org/downloads/fp/AFpolicyviews/fedregltr.pdf))

<sup>8</sup> The Institute for Research on Poverty, University of Wisconsin-Madison, <http://www.ssc.wisc.edu/irp/faqs/faq3.htm>

The Census Bureau's classification of "rural" consists of all territory, population, and housing units located outside of UAs and UCs. The rural component contains both place and nonplace territory. Geographic entities, such as census tracts, counties, metropolitan areas, and the territory outside metropolitan areas, often are "split" between urban and rural territory, and the population and housing units they contain often are partly classified as urban and partly classified as rural.<sup>9</sup>

## References

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