

A White Paper by



Reducing Wildfire Risks to Communities

Solutions for Controlling the Pace, Scale, and Pattern of Future Development in the Wildland-Urban Interface

It will be difficult to control the rising costs, damages, and dangers related to home development in the WUI unless there are negative financial consequences for private land management decisions that increase risk, and positive financial rewards for decisions that reduce risk.

FALL 2014

Reducing Wildfire Risks to Communities

Solutions for Controlling the Pace, Scale, and Pattern of Future Development in the Wildland-Urban Interface

FALL 2014

PUBLISHED ONLINE:

<http://headwaterseconomics.org/wildfire/reducing-wildfire-risk>

ABOUT HEADWATERS ECONOMICS

Headwaters Economics is an independent, nonprofit research group whose mission is to improve community development and land management decisions in the West. Other research of wildfire can be found here: <http://headwaterseconomics.org/wildfire/fire-research-summary>

CONTACT INFORMATION

Ray Rasker | ray@headwaterseconomics.org | 406-570-7044



P.O. Box 7059
Bozeman, MT 59771
<http://headwaterseconomics.org>

TABLE OF CONTENTS

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----|
| EXECUTIVE SUMMARY | 1 |
| THE PROBLEMS | 2 |
| Problem #1 – The Cost and Dangers Related to the WUI Are Rising with Climate Change and More Home Development | 2 |
| Problem # 2 – Firefighting Costs Are Borne by Federal and State Agencies, Not by Local Governments Who Permit New Residential Developments | 3 |
| THE TRENDS | 4 |
| Recent History | 4 |
| The Future | 6 |
| ATTEMPTS SO FAR | 8 |
| SOLUTIONS NOT YET TRIED | 9 |
| LOCAL SOLUTIONS | 10 |
| Improved Comprehensive Land Use Plans and Community Wildfire Protection Plans | 10 |
| Full Disclosure of Fire Risk for Potential Home Buyers | 11 |
| ADMINISTRATIVE SOLUTIONS | 12 |
| Bill State, County, and Local Governments for Their Share of Firefighting Costs | 12 |
| Shift More Fire Suppression Responsibility to the Local Level | 13 |
| Redirect Federal Financial and Technical Aid to Improved Land Use Planning | 14 |
| Buy Land and Development Rights | 15 |
| Refuse to Risk Firefighter Safety by Initiating Early Involvement in Planning | 16 |
| Map Fire Risk | 17 |
| LEGISLATIVE SOLUTIONS | 17 |
| Develop New Federal Legislation | 17 |
| APPENDIX – Forest Service Programs Aimed at Fire Risk Reduction | 19 |

EXECUTIVE SUMMARY

Wildfires are increasingly expensive and dangerous, burning homes, and consuming agency budgets. A large portion of the costs and risks are related to the need to defend private homes next to federal lands. Attempts to mitigate include voluntary landowner education to increase survivability of homes, and fuel reduction to reduce fire severity. While essential, these approaches alone are insufficient for the magnitude of the growing wildfire problem, which is exacerbated by a warming climate and continued home building. To fully address future wildfire risks, we need to debate and adopt ideas for how best to alter the pace, scale, and pattern of future home development.

Getting the incentives right is essential. There should be negative financial consequences for private land management decisions that increase risk, and positive financial rewards for decisions that reduce risk. We offer nine ideas:

Local solutions can be acted on by city and county government. They are: (1) improved integration of wildfire mitigation plans into county comprehensive land use plans and; and (2) mandatory disclosure of fire risk to potential homebuyers.

Administrative solutions, which can be acted on by federal land managers, include: (3) bill state and local governments for their share of firefighting costs to create a powerful incentive for improved local land use planning; (4) shift more fire suppression responsibility to local governments; (5) provide technical and financial assistance for land use planning to local governments, prioritized according to local actions to reduce fire risk; (6) buy land or development rights on the most dangerous areas; (7) improve firefighter safety through improved public education and active participation in county land use planning; (8) map of fire risk using national standards, with incentives for added detail by local governments.

Legislative solutions (9) would require action by Congress. We outline a number of principles that would be essential to incorporate into legislation aimed at reducing the costs and risks associated with home building on fire-prone lands.

The ideas are presented as a starting point for a national dialogue on wildfire and reducing risks and costs to communities through improved land use planning. We welcome comments and additional ideas.

Past land management practices and climate change have increased the costs and risk of destructive wildfires, and continued home development in the Wildland-Urban Interface (WUI) significantly increases a number of challenges. Defending homes from wildfire is expensive and dangerous. The cost of defending homes uses valuable resources that instead could be utilized for active management of wildland fuels. WUI development makes it difficult to use fire as a method for fuels reduction; and the ability of individual homeowners to make properties fire-resistant, while important, does not address future development or suppression costs. To control the rising costs, damages, and dangers related to home development in the WUI, solutions must change the pace, scale, and pattern of future home development on fire-prone landscapes. To date little attention has been devoted to this subject.

The purpose of this report is to begin a dialogue about solutions to the risk and costs associated with home development on fire-prone lands by focusing on ways to control the pace, scale, and pattern of future development in the WUI.

We begin by briefly describing the problems, illustrating long-term trends, and discussing solutions tried so far. We then offer nine possible solutions, ranging from better local land use planning, to administrative changes within land management agencies, and new federal legislation.

The ideas presented are a starting point and we welcome comments, revisions, and other suggestions.¹

THE PROBLEMS

Problem #1 – The Cost and Dangers Related to the WUI Are Rising with Climate Change and More Home Development

Long-term trends indicate the costs and dangers associated with defending homes in the WUI will continue to increase.² In the West, 84 percent of the WUI is not yet developed, the housing market has picked up once more, and with climate change as an accelerator, there is an urgent need to find solutions that impact the pattern, scale, and pace of future development in the WUI.³ Changing where homes are developed in the future can reduce dangers, damages, and costs, including the amount of money agencies spend to defend homes from wildfire.

¹ In January 2014, a diverse group with experience in wildland fire met for two days in Jackson, Wyoming to discuss possible solutions to future development in the WUI. Headwaters Economics hosted the meeting. The group, now called the Wildfire Solutions Forum, consists of federal land managers (both Washington, D.C. and field); land use planners (town, county, and planning consultants); academics, including law, public policy, and forest ecology; individuals involved in wildfire and hazard mitigation preparation and planning; a land trust representative; fire marshal; deputy state forester; former staff member of the Congressional Research Service; several former Congressional staff; and representatives from the insurance industry and non-profit conservation organizations. Many of the ideas presented in this paper originated in the Jackson Wildfire Solutions Forum. The Jackson gathering was covered in the press: “A wildfire forum takes radical approach to protecting wildland-urban interface,” High Country News, February 6, 2014: <http://www.hcn.org/blogs/goat/behind-closed-doors-wildfire-solutions-forum-takes-radical-approach-to-protecting-wui-from-wildfire>. This effort is part of Headwaters Economics’ ongoing efforts to find solutions. Some of the ideas presented in this report are among proposed solutions that can be seen at: <http://headwaterseconomics.org/wildfire/fire-suppression-costs>.

² For details, see report *The Rising Cost of Wildfire Protection*, written for Headwaters Economics in 2013 by Ross Gorte, Ph.D., retired Senior Policy Analyst for the Congressional Research Service: <http://headwaterseconomics.org/wildfire/fire-cost-background>.

³ We define the WUI as private land within 500 meters of forested federal land: http://headwaterseconomics.org/wphw/wp-content/uploads/PGude_2008_Forestry.pdf. Other definitions exist, including a broader definition of WUI consisting simply of land where homes are at risk from wildfire. An exact definition of WUI is less important than an acknowledgment that the vast majority of land where wildfire can pose a risk to property is not yet developed.

Problem # 2 – Firefighting Costs Are Borne by Federal and State Agencies, Not by Local Governments Who Permit New Residential Developments

Communities are not controlling future development on fire-prone lands because the bulk of the firefighting costs are paid for by federal taxpayers and not at the local level (county and community), where the land use decisions are made.⁴ The Forest Service, the Bureau of Land Management, the Federal Emergency Management Agency, and state governments pay the bulk of the firefighting costs. Meanwhile, communities either financially benefit—or perceive to benefit—from tax revenues from new residential developments.⁵

When a county commission is considering a new subdivision or a plan for new homes, one of the things it should consider is whether it can afford its share of the potential firefighting costs. But that is not part of their calculus right now. If it were, it could change the pattern of development in the future because it would create a strong incentive for improved land use planning to reduce risk.

It will be difficult to control the rising costs, damages, and dangers related to home development in the WUI unless there are negative financial consequences for private land management decisions that increase risk, and positive financial rewards for decisions that reduce risk.

The Office of Inspector General (OIG) of the U.S. Department of Agriculture agrees that more financial responsibility by local governments would create an incentive to minimize fire risk by using land use planning regulations. The report states: “If state and local agencies became more financially responsible for WUI protection, it would likely encourage these agencies to more actively implement land use regulations that minimize the risk to people and structures from wildfire,” and “Mandatory zoning and building regulations may be needed to compel landowners to take the actions necessary to protect their homes and property from wildfire.”⁶

The Cost of Defending Homes from Wildfire Is 30% or More of Total Wildfire Costs

When the U.S. Department of Agriculture’s OIG asked land managers what portion of firefighting costs were attributable to the defense of private property, some estimated it ranged between 50 to 95 percent.* Recent detailed analysis of fires with and without homes in the California Sierras, in Montana, and in Oregon by Headwaters Economics resulted in estimates of about 30 percent of the cost of fire suppression being attributable to the defense of homes.**

* U.S. Department of Agriculture. Office of Inspector General. November 2006. Audit Report: Forest Service Large Fire Suppression Costs. Report No. 08601-44-SF (OIG 2006).

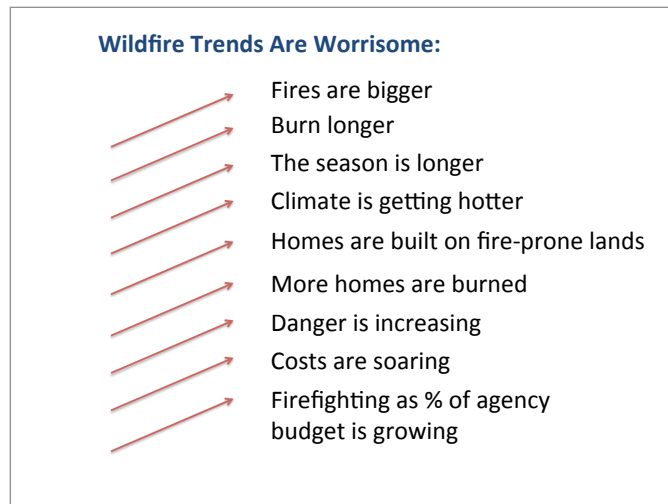
** Headwaters Economics studies on cost of defending homes can be found here: <http://headwaterseconomics.org/wildfire/fire-research-summary>.

⁴ Would county officials be less reluctant to impose regulations if there was a strong financial motive to do so? The Denver Post reported a good example of the difficulty of getting local governments to enact protections against wildfire. Despite recent devastating losses in the Black Forest Fire near Colorado Springs, county officials were reluctant to toughen fire codes, to the frustration of the local fire chief: “One year later, Black Forest residents and experts wary of fire danger” http://www.denverpost.com/news/ci_25921027/one-year-later-black-forest-residents-and-experts.

⁵ A number of studies have shown how the expense to local governments to provide services for new residential developments often exceeds revenues from new taxes receipts. For example: <http://www.farmland.org/documents/Cost-of-Community-Services-08-2010.pdf>.

⁶ According to the Office of Inspector General (2006), U.S. Department of Agriculture: <http://www.usda.gov/oig/webdocs/08601-44-SF.pdf>.

THE TRENDS



RECENT HISTORY

↑ **Wildfires are bigger and burn longer, and the fire season is longer**

In part due to a changing climate, during the last decade the average acreages burned have increased from 44 acres to 88 acres per fire. The average fire also burns twice as long.⁷ Since the 1970s, the length of the fire season has increased by over two months.⁸ According to a 2014 report by the Forest Service, “In the West, climate change and other factors have contributed to hotter, drier, and longer fire seasons, on average 60 to 70 days longer than in the prior decade.”⁹

↑ **More homes are built on fire-prone lands**

Since 1990, 60 percent of new homes in the U.S. have been built in the WUI. Also, 40 percent of total single-family homes in the U.S. (46 million homes) are in the WUI.¹⁰ Close to 65 million acres of WUI are adjacent to or near National Forests and national grasslands.¹¹

In the West,¹² more than 1.9 million homes have been built in the WUI, yet only 16 percent of the WUI is developed.¹³

⁷ Data from the National Interagency Fire Center: http://www.nifc.gov/fireInfo/fireInfo_stats_totalFires.html.

⁸ According to Tom Tidwell, U.S. Forest Service Chief, in June 2013 U.S. Senate testimony: http://www.energy.senate.gov/public/index.cfm/files/serve?File_id=e59df65c-09c6-4ffd-9a83-f61f2822a075. See also: <http://www.fs.fed.us/aboutus/budget/2015/FS15-FS-Budget-Justification.pdf> (pg. 9-1).

⁹ USDA Forest Service, Fiscal Year 2015 Budget Justification, March 2014. <http://www.fs.fed.us/aboutus/budget/2015/FS15-FS-Budget-Justification.pdf> (pg. 9-5).

¹⁰ International Code Council, Blue Ribbon Panel Report on Wildland Urban Interface. April 4, 2008. <https://inawf.memberclicks.net/assets/blueribbonreport-low.pdf>. Note that the above statistics do not include estimates of WUI development since 2008. In 2008, 115 million single-family homes existed in the U.S., of which 46 million were in the WUI. From 1990 to 2008, 17 million homes were constructed, of which 10 million were in the WUI.

¹¹ Budget Justification of the Forest Service, FY2015 (pg. 9-30, also 9-5) <http://www.fs.fed.us/aboutus/budget/2015/FS15-FS-Budget-Justification.pdf>.

¹² The West is defined here as Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

¹³ <http://headwaterseconomics.org/interactive/wui-development-and-wildfire-costs>.

↑ More homes are burned

Since 1990, the average number of structures burned per year has more than tripled. On average, 932 structures were burned by wildfire per year in the 1990s, compared to 2,970 per year in the 2010s (and more than 5,000 per year in 2011 and 2012).¹⁴

↑ Danger is increasing

Firefighter deaths continue to rise. In the 1990s, the average number of firefighter deaths per year was 17.2, rising to 19.3 per year in the 2000s, and 34 in 2013 (including 19 at Yarnell, Arizona).¹⁵

↑ Firefighting costs are soaring

Wildfire appropriations to the Department of the Interior and to the Forest Service have tripled: \$1 billion per year on average in the 1990s, \$3 billion on average annually from 2002 to 2012.¹⁶ Fires are more expensive because of increased fire severity, driven by fuel buildup and climate change, and because it is expensive to defend the increasing number of homes from wildfire.

Other factors also likely contribute to rising costs, including firefighting tactics and equipment,¹⁷ and forest health, such as insect and disease outbreaks that affect tree mortality.¹⁸

↑ Firefighting is consuming agency budgets and robbing money from other projects

In 2014, wildfire management appropriation has grown to 51 percent of the Forest Service's budget, up from 17 percent in 1995.¹⁹ Only 16 percent of the WUI in the West is developed. If 50 percent of the WUI were to become developed, the cost of defending those homes could equal or exceed the Forest Service's entire budget.²⁰

¹⁴ Data on structures burned are based on figures from National Interagency Fire Center, InciWeb, and International Organization for Standardization. In 2013, 2,135 structures were lost to wildfire according to CRS Report R43077, Wildfire Management: Federal Funding and Related Statistics. March 5, 2014. <http://nationalaglawcenter.org/wp-content/uploads/assets/crs/R43077.pdf>. Figures reported include all structures; most are homes.

¹⁵ Trend figures from National Interagency Fire Center: http://www.nifc.gov/safety/safety_HistFatality_report.html; the 34 deaths in FY 2013 figure is from CRS Report R43077 Wildfire Management: Federal Funding and Related Statistics. March 5, 2014: <http://nationalaglawcenter.org/wp-content/uploads/assets/crs/R43077>. Other firefighter mortality figures are available from the National Fire Protection Association: <http://www.nfpa.org/research/reports-and-statistics/the-fire-service/fatalities-and-injuries/firefighter-fatalities-in-the-united-states>.

¹⁶ A number of agencies incur wildfire costs. From FY1991 through FY1999, average Forest Service and Department of the Interior wildfire protection appropriations were \$0.92 billion annually, while in the past decade (FY2002 through FY2012), wildfire protection funds for these agencies have averaged \$3.13 billion annually. FEMA's fire management assistance grants averaged \$71.2 million annually between 2002 and 2011, more than triple the FEMA wildfire assistance in the 1990s. States spent \$1.43 billion on wildfire programs in 2010. See <http://headwaterseconomics.org/wphw/wp-content/uploads/fire-costs-background-report.pdf> (page 5), and CRS Report RL33990, Federal Funding for Wildfire Control and Management. According to the Congressional Research Service, \$3.9 billion was appropriated for wildfire management in FY2014. <http://nationalaglawcenter.org/wp-content/uploads/assets/crs/R43077.pdf> March 5, 2014.

¹⁷ For examples of the costs of air tankers, see National Interagency Fire Center: http://www.nifc.gov/PIO_bb/Background/2012FFAircraftFactSheet.pdf.

¹⁸ Useful resources on forest health include National Insect and Disease Maps: <http://www.fs.fed.us/foresthealth/technology/nidrm.shtml> Forest Health Protection Mapping and Reporting: <http://foresthealth.fs.usda.gov/portal#> and the National Forest Health Monitoring Program: <http://fhm.fs.fed.us/>.

¹⁹ <http://www.fs.fed.us/sites/default/files/media/2014/34/nr-firecostimpact-082014.pdf>.

²⁰ Firefighting appropriations average \$3 billion per year, which is more than 50% of the Forest Service's FY2013 budget. Estimates of the cost of defending homes range from 50-95% according to the USDA Office of Inspector General, to 30% according to Headwaters Economics studies in CA, OR, and MT. Assuming a conservative estimate that 30% of the firefighting budget goes to the protection of homes, if 50% of the WUI were developed (rather than 16% currently), then the cost to defend homes would equal \$3 billion. (This assumes constant proportionality between firefighting costs and the percent attributable to

Agencies have to continually shift money from other departments (“fire transfers” or “fire borrowing”) to pay for the rising costs of fire suppression. For example, in FY2013 the Forest Service transferred \$505 million from other departments to pay for fire suppression.²¹ As a result, a number of programs, including fuels reduction efforts, are not funded.²² A recent report illustrates that much of the money transferred to fire suppression comes from the National Forest System, negatively affecting on-the-ground management activities. For example, from 2001 to 2004, funding for vegetation and watershed management declined by 22 percent (in real terms); by 17 percent for wildlife and habitat management; by 67 percent for capital improvements and maintenance; and by 13 percent for recreation management.²³

According to the Forest Service, “Given the growth and severity of fires in recent years, and the frequency of catastrophic fires that risk life and property, combined with an ever-expanding wildland-urban interface (WUI), the suppression costs have exceeded amounts provided in annual appropriations seven times since 2002, requiring the Forest Service to transfer funds from other programs to cover these costs.”²⁴

THE FUTURE

↑ **Climate change will increase fire activity, acres burned, and costs**

According to a recent government climate report: “Scientists estimate that by the year 2050, wildfire activity is expected to double in the Southwest, Pacific Northwest, Rocky Mountains Forest, and the Eastern Rockies/Great Plains regions.”²⁵

A few recent examples illustrate the impact of climate change on areas burned and the cost of defending homes from wildfire. In Montana, recent fire and climate records indicate that a one degree F increase in summer temperature is associated with a more than doubling in acres burned and in the cost of defending homes from wildfire.²⁶ In the Sierras of California, a one degree F increase in summer temperature is associated with a 35 percent increase in area burned. The cost of defending homes from wildfires in this region was on average \$82,000 per home, but as high as \$400,000 to \$600,000 per home for some fires.²⁷

defense of homes.) The OIG report is available from: U.S. Department of Agriculture. Office of Inspector General. November 2006. Audit Report: Forest Service Large Fire Suppression Costs. Report No. 08601-44-SF. (OIG 2006).

<http://www.usda.gov/oig/webdocs/08601-44-SF.pdf>. Headwaters Economics studies on cost of defending homes can be found at: <http://headwaterseconomics.org/wildfire/fire-research-summary>.

²¹ See quote from Agriculture Secretary Tom Vilsack: <http://www.minnpost.com/earth-journal/2014/06/us-budget-fighting-wildfire-natural-disaster-one-recurring-every-year>.

²² For a state-by-state description of programs not funded because of “fire transfers,” see: <http://www.fs.fed.us/publications/forest-service-fire-transfer-state-impacts.pdf>.

²³ <http://www.fs.fed.us/sites/default/files/media/2014/34/nr-firecostimpact-082014.pdf>.

²⁴ USDA Forest Service, Fiscal Year 2015 Budget Justification, March 2014. <http://www.fs.fed.us/aboutus/budget/2015/FS15-FS-Budget-Justification.pdf>.

²⁵ Future projections are from: <http://www.globalchange.gov/news/climate-change-and-wildfires-what's-connection> and <https://blog.epa.gov/science/2013/08/climate-change-and-wildfires-whats-the-connection/>; and from the journal Atmospheric Science (Volume 77, October 2013): <http://www.sciencedirect.com/science/article/pii/S1352231013004573>. An analysis of the effect of climate on forest fires, including a review of recent literature, is also available from the Union of Concerned Scientists: http://www.ucsusa.org/global_warming/science_and_impacts/impacts/climate-change-development-patterns-wildfire-costs.html.

²⁶ Headwaters Economics: <http://headwaterseconomics.org/wildfire/montana-wildfire-costs> based on a study conducted for the Montana State Legislature, using a sample of 18 fires and daily weather records.

²⁷ Headwaters Economics: <http://headwaterseconomics.org/wildfire/northern-california-homes-and-cost-of-wildfires>. These estimates are based on mean May-October temperatures and take into consideration variation in precipitation.

↑ There is a high potential for much greater home development in the WUI

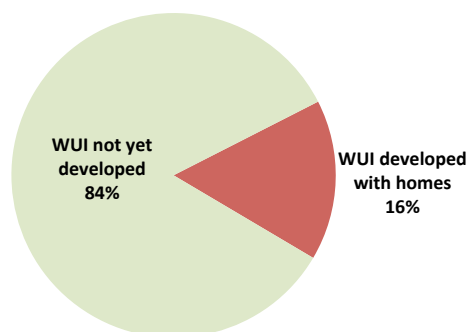
Homes in the WUI drive up costs and risks related to wildfire. Already 40 percent of all housing units in the U.S. are located within the WUI,²⁸ yet there is potential for much more WUI development.

In the West, 16 percent of the WUI is developed, with more than 1.9 million homes covering 3,837 square miles (almost 2.5 million acres). This means 84 percent of the WUI in the West is not yet developed (see table), amounting to 19,759 square miles (almost 13 million acres). In some states, the potential for further development is high: for example, 91 percent of the WUI in Montana is not yet developed; 89 percent in Oregon; 84 percent in Arizona, 83 percent in California; 80 percent in Colorado.²⁹

The table and figure below show the amount of WUI that is developed with homes, state-by-state and West-wide. For a sortable county-by-county table, see: <http://headwaterseconomics.org/interactive/wui-development-and-wildfire-costs>.

| | Developed WUI (square miles) | Undeveloped WUI (square miles) | Percent Developed | Total Homes in the WUI |
|------------|------------------------------|--------------------------------|-------------------|------------------------|
| Arizona | 71 | 374 | 16% | 52,701 |
| California | 799 | 3,846 | 17% | 490,255 |
| Colorado | 355 | 1,423 | 20% | 117,472 |
| Idaho | 229 | 1,597 | 13% | 43,454 |
| Montana | 277 | 2,666 | 9% | 43,136 |
| Nevada | 21 | 202 | 9% | 20,970 |
| New Mexico | 101 | 547 | 16% | 27,387 |
| Oregon | 612 | 5,130 | 11% | 179,451 |
| Utah | 27 | 381 | 7% | 15,733 |
| Washington | 1,325 | 3,211 | 29% | 951,468 |
| Wyoming | 18 | 382 | 5% | 5,900 |
| West-Wide | 3,837 | 19,759 | 16% | 1,947,927 |

Home Development in the Wildland-Urban Interface (WUI) in the West



²⁸ Estimates of the number of homes in the WUI varies: 40% according to International Code Council, Blue Ribbon Panel Report on Wildland Urban Interface. April 4, 2008. <http://www.iawfonline.org/NWUI/BlueRibbonReport-Low.pdf> and 30% according to U.S. Forest Service Chief Tom Tidwell, in Senate testimony, June 2013: http://www.energy.senate.gov/public/index.cfm/files/serve?File_id=e59df65c-09c6-4ffd-9a83-f61f2822a075 citing 2013 Forest Service General Technical Report RMRS-GTR-299.

²⁹ For sources, methods, and an interactive tool showing percent of WUI developed, by state and county, see: <http://headwaterseconomics.org/interactive/wui-development-and-wildfire-costs>.

ATTEMPTS SO FAR – While Important and Helpful, These Efforts by Themselves Are Insufficient for the Magnitude of the Problem

Forest Thinning, Fuels Reduction – Important, But Not Enough

A reason why wildfire seasons are becoming more severe is a buildup of forest fuels from historic levels. One way to reduce wildfire risk is by reducing fuel loads, especially in and around the WUI. The Healthy Forest Restoration Act directed that half of federal fuel reduction funds be used in the WUI. This increased the amount of treatment in the WUI. (For example, in FY2008, 70% of funds were used in the WUI compared to 37% in FY2001.) However, fuel treatment in the WUI increases costs, and results in fewer fuel treatments on other lands.³⁰

While more can be done to reduce fuel loads, there are not enough resources to accomplish this significantly. According to agency estimates, about 230 million acres of Forest Service and Department of Interior lands are in need of treatment (mechanically or through prescribed burning) because they are at risk from ecological damage from wildfire due to excessive fuel loads (75 million acres are at “high” risk, plus 156 million at “moderate” risk). Yet, on average less than three million acres are treated per year, which is insufficient to reduce risk significantly.³¹

It is unlikely that the acres treated will increase dramatically given budgetary and political constraints. In addition, having to treat fuels in the WUI illustrates the opportunity cost: continued home development on fire-prone lands will continue to hamper the agency’s ability to treat lands with heavy fuel loads that are at risk of damage from fires.

Voluntary Landowner Education – Essential for Safety, but Will Not Control Future Costs

A great number of efforts are aimed at increasing the survivability of structures by creating defensible space around homes, clearing flammable materials, using flame-retardant building materials, and other means. One of these programs, Firewise, is effective at increasing safety and reducing the risk to homes. However, we found no evidence of a relationship between this program and firefighting costs.³² Therefore, while efforts like these are important for reducing risk and increasing safety related to existing structures, they are not necessarily effective at reducing costs associated with future development.

Landowner education efforts are essential and important, yet there is still a long way to go. At least 70,000 communities are at risk from wildfire.³³ Of these, less than two percent are designated as Firewise communities. Less than three percent of the 46 million at-risk homes have been inspected by insurance companies for wildfire survivability (and only 2% of policies were cancelled due to lack of homeowner follow-up). Community Wildfire Protection Plans (CWPP) have been developed by 21 percent of the at-risk communities and less than 10 percent of these communities have a WUI development code.³⁴

³⁰ See CRS Report R40811, Wildfire Fuels and Fuel Reduction.

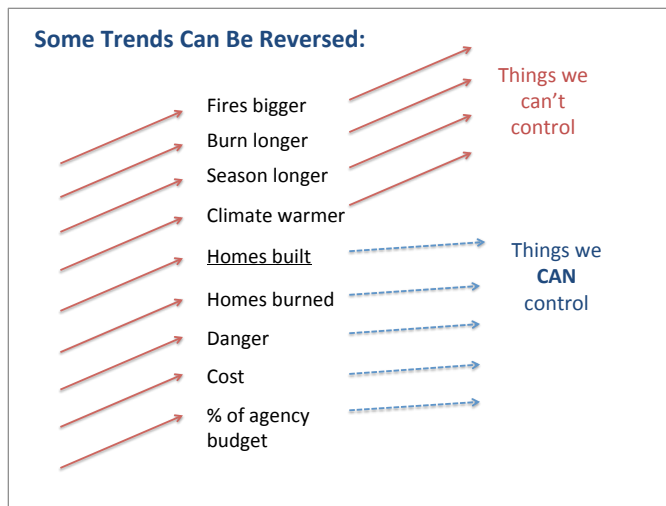
³¹ See <http://headwaterseconomics.org/wphw/wp-content/uploads/fire-costs-background-report.pdf>. More can be found in the 2011 CRS Report RL33990: <http://www.fas.org/sgp/crs/misc/RL33990.pdf> (pages 17-18).

³² See <http://headwaterseconomics.org/wildfire/firewise> for a summary, copy of journal article manuscript, and interviews with Incident Commanders on the merits of this program.

³³ National Association of State Foresters’ Communities at Risk Report: <http://www.stateforesters.org/current-issues-and-policy/2013-communities-risk-report>.

³⁴ All figures in this paragraph are from the International Association of Wildland Fire (IAWF) WUI FACT SHEET, August 1, 2013: <http://www.iawfonline.org/>. The number of communities at risk is from U.S. Forest Service Chief Tom Tidwell, U.S. Senate testimony, June 2013: http://www.energy.senate.gov/public/index.cfm/files/serve?File_id=e59df65c-09c6-4ffd-9a83-f61f2822a075 and from the National Association of State Foresters. Mr. Tidwell estimated 21% of at-risk communities have CWPPs (IAWF puts this estimate at 11%). Some fire officials believe the 70,000 count is likely an underestimate. The figures used here, therefore, only illustrate the small percentage of participation in various voluntary programs to reduce fire risk.

SOLUTIONS NOT YET TRIED – Controlling Costs and Risk by Influencing Future WUI Development



The wildfire problem is growing and one area where trends can be controlled is to create incentives for future home building away from fire-prone lands.

Below are nine ideas aimed at affecting the pace, scale, and pattern of future home building in the not-yet-developed portion of the WUI. They are divided into three categories based on who has the authority to act:

LOCAL SOLUTIONS: *are in the hands of local elected officials and community members but could be facilitated by federal administrative actions.*

1. Improved Comprehensive Land Use Plans and Community Wildfire Protection Plans
2. Full Disclosure of Fire Risk for Potential Home Buyers

ADMINISTRATIVE SOLUTIONS: *can be enacted by federal land managers.*

3. Bill State, County, and Local Governments for Their Share of Firefighting Costs
4. Shift More Fire Suppression Responsibility to the Local Level
5. Redirect Federal Financial and Technical Aid to Improved Land Use Planning
6. Buy Land and Development Rights
7. Refuse to Risk Firefighter Safety by Initiating Early Involvement in Planning
8. Map Fire Risk

LEGISLATIVE SOLUTIONS: *would require action by Congress.*

9. Develop New Federal Legislation

LOCAL SOLUTIONS

Good planning by county commissions will not happen without a strong financial incentive. Therefore, federal policies that share more of the firefighting and mitigation costs at the local level, as well as reward hazard mitigation practices, are essential for improving local planning of private land use.

Local governments have the authority and responsibility to regulate future development and do so by making use of guidance and regulatory documents. These include Comprehensive Land Use Plans, Community Wildfire Protection Plans (CWPP), and Local Hazards Mitigation Plans. However, many communities are understaffed and lack the technical guidance and finances to develop plans that ensure future development is done in a way that minimizes risk to homes from wildland fire.

The National Cohesive Wildland Fire Management Strategy³⁵ encourages communities to be “fire-adapted” and encourages agencies like the Forest Service to provide resources to assist communities. (A number of these resources are listed in the Appendix to this report.) The definition of fire-adapted homes and communities needs to be expanded beyond fuels reduction near homes and use of fire-retardant building materials. Fire-adapted must also mean communities using land use planning tools (incentives for cluster development, zoning, hazard mitigation policies, landscape regulations, transferable development rights programs, etc.) to evaluate proposed developments based on fire risk.

1. Improved Comprehensive Land Use Plans and Community Wildfire Protection Plans

County comprehensive plans can be improved by integrating policy language and tools that give local governments the authority and responsibility to reject, re-direct, and re-design subdivision and home site proposals based on fire risk. This could include, for example, regulatory tools, such as zoning overlays and subdivision regulations, development and design standards, landscape regulations, transfer of development rights programs, and incentives to encourage developments away from wildfire danger.

One of the common complaints of local government is that the CWPP, hazard mitigation plan, and county comprehensive plan “don’t talk to each other.”³⁶ CWPPs can be improved by mapping fire risk related to the undeveloped portion of the WUI, and by being integrated into county comprehensive plans. Similarly, county comprehensive plans can be improved by including hazard mitigation planning and integration with CWPPs.

Needed to make this happen (actions that need to be taken by federal land managers and partners):

- Shift more of the WUI fire protection cost responsibility from the federal to the state and county levels to create strong financial incentives for improved land use planning on private lands. This means federal land management agencies could refuse to pay for structure protection, and/or that they charge states and counties for their share of WUI firefighting costs.
- Provide financial and technical assistance for land use planning, especially to rural counties with understaffed and undertrained planning staff (see Idea #5 for more details).
- Share model ordinances, comprehensive plans, and CWPPs. (See sidebar, below, for an example of a review of regulatory and land use planning tools.)

³⁵ National Cohesive Wildland Fire Management Strategy: <http://www.forestsandrangelands.gov/strategy/>.

³⁶ An illustrative example of planning documents not “talking to each other” is a community in Colorado where the CWPP calls for landscaping to create defensible space around homes, while the comprehensive plan calls for landscaping that hides the homes behind trees. While one is aimed at reducing fire risk, the other is aimed at improving visual aesthetics.

- Work with demonstration communities to learn what level of technical and financial assistance can and should be provided to be effective, and to develop an estimate of the costs of providing assistance. Share lessons learned between communities.
- Link levels of community federal financial assistance to planning performance; i.e., the more the community does to reduce fire risk, the higher the levels of federal assistance. The financial assistance could derive from existing programs or new ones created to assist community land use planning. (See Appendix for examples from the Forest Service.)
- Map fire risk, either comprehensively by a federal agency, or with resources for communities to do this to a consistent level of detail. Create incentives to encourage mapping; e.g., offer higher levels of planning assistance to communities who conduct detailed risk mapping. (See Idea #8 for more detail).

Recent Studies Illustrate the Difficulty of Local Land Use Planning to Reduce Fire Risk Without the Necessary Financial Incentives

The National Fire Protection Association commissioned a study, produced by Clarion Associates, called *Addressing Community Wildfire Risk: A Review and Assessment of Regulatory and Planning Tools*. The study offers a good overview of the number of regulatory and land use planning tools available to communities to reduce fire risk. It also highlights the difficulty communities have in implementing tools available to them, and shows how good land use planning is the exception rather than the rule.

<http://www.nfpa.org/~media/Files/Research/Research%20Foundation/rfwuiregulatoryassessment.pdf>

A recent Headwaters Economics report, *Local Responses to Wildfire Risk and Costs: Case Studies and Lessons Learned*, illustrates the difficulty communities have had in employing local zoning ordinances, building codes, setback requirements, or other approaches to reduce wildfire costs.

<http://headwaterseconomics.org/wildfire/western-case-studies>.

In 2014, Headwaters Economics, Clarion Associates, and Wildfire Planning International are working with a community in Colorado to assist with land use planning to reduce fire risk to future home development. This experience will help other communities by providing a demonstration community and an estimate of the technical and financial resources needed. It also will help guide federal land managers if there is to be a shift in how they provide community assistance.

2. Full Disclosure of Fire Risk for Potential Home Buyers

When a homeowner buys land in a floodplain, the information must be fully disclosed to the potential buyer and lender. This is not the case with fire. Full public disclosure of fire risk—at the time of title search—could influence potential landowners, lending institutions, and insurance companies.

Needed to make this happen:

- Make mapping of fire risk mandatory (see Idea #8). Identify different levels of risk.³⁷ Create a long-term dedicated fund to frequently update risk mapping.
- Require disclosure through the lending institutions (requires legislation, see Idea #9).
- Partner with the insurance industry to rank and disclose risk.³⁸

³⁷ For example, see the Colorado Wildfire Risk Portal: <http://www.coloradowildfirerisk.com/> and recommendation by the Colorado Wildfire Insurance and Forest Health Task Force for permanent funding for risk mapping (page 14): http://www.dora.state.co.us/taskforce/Documents/FINAL_REPORT_WITH_APPENDICES.pdf.

-
- Federal or state agencies could produce coarse scale maps that are improved with more detail by local governments, neighborhood associations, and private fire risk mapping companies (see Idea #8).

This idea is closely tied to Idea #5 to redirect some of the existing federal land management budget towards land use planning assistance. For example, the Forest Service spends more than \$1 billion on fire preparedness (see Appendix). Could some of that money be used to assess fire risk on the undeveloped portion of the WUI? The mapping could be conducted by a federal agency (Forest Service, FEMA, etc.) on a coarse scale, and resources could be allocated to communities to allow them to hire private companies who conduct risk mapping at a consistent level of detail.³⁹

ADMINISTRATIVE SOLUTIONS

The Forest Service and Department of the Interior could make a number of agency-level management decisions that would achieve two important goals:

- Increase the responsibility of county government for defending homes from wildfire.
- Offer technical and financial support for land use planning assistance that is tied to a community's actions to direct future development away from the most dangerous areas.

3. Bill State, County, and Local Governments for Their Share of Firefighting Costs

County and local governments currently enjoy a firefighting subsidy from federal agencies such as the Forest Service, BLM, and FEMA. State governments also often benefit from federal suppression efforts or from FEMA, which provides assistance to governments after disasters. As a result, there is no financial incentive at the local, county level to curtail the building of more homes on fire-prone lands. If state, county, or local governments were consistently billed for a larger share of the WUI firefighting costs, it would provide a powerful financial incentive for improved land use planning and for mapping and public disclosure of fire risk (Ideas #1 and #2). The future bills received by local governments for fire suppression costs from the federal government could be on a sliding scale, depending on the degree of preventative measures taken by the community.

Needed to make this happen:

- Analysis of the legal ramifications. For example, it appears that the federal government already has authority to bill states for firefighting on nonfederal land, except where a specific agreement for federal responsibility exists. Given that land use planning is within the jurisdiction of both states and local governments, a long-term federal policy that charges both fairly would be most desirable.
- Analysis of where and at what level of government this has been tried in the past, and of its effectiveness.⁴⁰
- Significant upfront warnings to state, county, and local governments that this could and may occur, including agency managers notifying elected officials of the proposed dangers and financial consequences of proposed development. The warnings could include explicit estimates of fire suppression costs related to proposed developments.

³⁸ See Colorado Wildfire Insurance and Forest Health Task Force report for example of proposal to have insurance companies involved in identifying wildfire risk.

³⁹ Examples of private companies include CoreLogic: <http://www.corelogic.com/products/wildfire-risk.aspx>; and Anchor Point: <http://www.redzonesoftware.com/products/rzrisk>.

⁴⁰ For example, there is already a mechanism in place for the Forest Service to share costs with states. To what extent have states been able to force county governments to pay for their share of the firefighting costs to protect housing development that they approved?

4. Shift More Fire Suppression Responsibility to the Local Level

State, county, and local governments will more closely consider fire risk when approving future development if they are responsible for defending homes from wildfire. In some parts of the West, for example, the Forest Service no longer offers structure protection. As one District Ranger noted: “We no longer do structure protection—that is the county and town’s responsibility. We turn our sprinklers towards the forest, they turn theirs towards the homes.”⁴¹

In reality, the situation is more complex. The Interagency Standards for Fire and Fire Aviation Operations, also known as the Red Book, states that it is the Forest Service’s role to prevent wildland fire from reaching structures if it is prudent and safe to do so. The Red Book also states that “Fire suppression actions on structures that are outside of federal jurisdiction, outside the scope of wildland firefighting training, or beyond the capability of wildland firefighting resources are not appropriate roles for the Forest Service” (pg. 5-16). However, the agency is allowed to be involved in structure protection if engaged by local governments, when operating within a unified command, or when rendering emergency assistance (pg. 5-17). Yet, the Red Book also states “Local governments assume financial responsibility for emergency response activities, including structure protections, within their jurisdictions” (pg. 5-18).⁴²

One conclusion that could be drawn from the Red Book and on-the-ground actions is that *in principle* structure protection is a local responsibility, but *in practice* the Forest Service often incurs significant risk and costs associated with defending private property.

A mechanism exists for sharing the cost of fighting wildfires and assigning responsibilities among the federal agencies and nonfederal governments and tribes. These Master Cooperative Wildland Fire Management Agreements, or simply Master Agreements, are designed to share firefighting costs among federal entities and other governments. Master Agreements set the general framework for how to fight fires and pay for them, and Cost Share Agreements spell out the specifics for who pays for different elements of individual fires. However, there is a disincentive for county or local governments to agree to sign cost share agreements if, in the end, the vast majority of the cost of defending homes in the WUI is borne by the Forest Service, BLM, FEMA and state firefighting agencies.

Needed to make this happen:

- There must be strong coordination between all levels of government jurisdiction and clear acknowledgement of responsibilities and costs.
- Federal land management agencies need to stop sending mixed signals. For example, the Red Book implies that structure protection is not a Forest Service responsibility, yet leaves open the possibility that the agency can spend money and resources to do just that. Federal land managers state that structure protection is a local responsibility, yet continue to spend federal dollars to protect homes from wildfire. This sends a clear message that if local governments do nothing to reduce risk, the federal government will still act to protect private property.
- Provide clear public identification of firefighting and cost responsibilities during the time when county governments are permitting new home developments in the WUI.

⁴¹ Personal communication, Dale Dieter, Jackson Ranger District, Bridger-Teton National Forest. This comment was made in the context of the importance of coordination and clear communication of responsibilities between federal and local firefighting authorities.

⁴² Interagency Standards for Fire and Fire Aviation Operations (“Red Book”), 2014. Department of the Interior, Department of Agriculture. http://www.nifc.gov/policies/pol_ref_redbook_2014.html.

- If a new residential subdivision is proposed in a high-risk area, and the risks are known by federal land managers, these managers need to publicly declare that a risk exists; i.e., federal land managers need to do a better job of sharing fire-risk information at the time that a new subdivision proposal is being reviewed by the county planning department and commission.
- Create incentives for signing Master Agreements and Cost Share Agreements.⁴³ For example, higher levels of financial and technical assistance (see Idea #5) could be provided to communities that sign Master Agreements.
- Create disincentives for not signing Master Agreements. For example, withhold aid or reduce levels of Payments in Lieu of Taxes (PILT) or other federal payments⁴⁴ if Cost Share Agreements have not been signed.

5. Redirect Federal Financial and Technical Aid to Improved Land Use Planning

The National Cohesive Wildland Fire Management Strategy has identified “Growth Management, Land Development and Zoning Laws” and “Assisting Communities at Risk” as high-priority Critical Success Factors.⁴⁵ Much of the assistance to communities is for programs that help develop Community Wildfire Protection Plans and that help communities reduce the risk from wildfire, including Firewise,⁴⁶ Ready Set Go,⁴⁷ Living with Fire,⁴⁸ the Fire Adapted Communities Learning Network,⁴⁹ and others. More emphasis could be placed on land use planning for the undeveloped portion of the WUI to reduce fire-related risk. By “land use planning” we mean going beyond the type of planning normally found in a Community Wildfire Protection Plan to include tools such as zoning, landscape and subdivision regulations, and growth management policies.

Various federal programs that currently help non-federal entities control wildfire hazards could be modified so that they: (1) assist communities with land use planning, encouraging development away from the WUI (see Idea #1); and (2) offer financial support as an incentive, giving preferential treatment to communities that have directed development away from the WUI.⁵⁰

The Appendix lists Forest Service programs that could potentially be expanded to include community assistance in land use planning. For example, a portion of the more than \$75 million (FY2014) within the State and Private Forestry program could potentially be modified this way to buy at-risk lands (Forest Legacy Program), to develop model land use policies and ordinances, or to contract with private land use planning consultants to assist communities (Forest Stewardship Program).

In addition, could some of the budget (\$1.5 billion) and staff of the National Forest System be devoted to financial and technical assistance for community land use planning? Could some of the \$1 billion devoted to Preparedness in the \$2.2 billion Wildfire Management program be used to map the best (or worst) possible locations for future home sites?

⁴³ This idea is covered in more detail in our 2009 White Paper called Solutions to the Rising Costs of Fighting Fires in the Wildland-Urban Interface. <http://headwaterseconomics.org/wphw/wp-content/uploads/HeadwatersFireCosts.pdf> (pg. 31).

⁴⁴ This idea has been considered by the U.S. Senate. For more details on how payments to counties could be modified to reward building away from fire-prone lands, see page 42 of http://headwaterseconomics.org/wphw/wp-content/uploads/Reform_County_Payments_WhitePaper_LowRes.pdf.

⁴⁵ National Cohesive Wildland Fire Management Strategy: <http://www.forestsandrangelands.gov/strategy/>.

⁴⁶ <http://www.firewise.org/>.

⁴⁷ <http://www.wildlandfirersg.org/>.

⁴⁸ <http://www.livingwithfire.info/>.

⁴⁹ <http://www.fireadapted.org/region/fac-learning-network.aspx>.

⁵⁰ An example of preferential treatment as a reward for local action exists in the Community Wildfire Protection Plans. CWPPs are authorized and defined in the Healthy Forest Restoration Act (HFRA). HFRA directs that half of federal fuel reduction funds need to be used in the WUI, that the boundaries of the WUI can be defined locally, and that priority consideration must be given to fuel reduction efforts identified in a CWPP: <http://www.stateforesters.org/files/cwpphandbook.pdf> (page 4).

In addition, some large-scale federal coordination and funding programs (e.g., Landscape Conservation Cooperatives) could include WUI considerations in their funding and/or assistance.

Programs mentioned above, such as the Forest Legacy Program and Forest Stewardship Program, have politically active constituencies that may resist funds being diverted for other purposes. One option is to create a new program called the Community Planning Assistance Program. If fire suppression costs could be treated like other natural disasters and funded through FEMA, this would eliminate some of the “fire borrowing” challenge that currently exists (where fire preparedness funds are instead used for suppression). If fire preparedness funds could be used as they are intended to be (for fire risk reduction), then a portion of the \$1 billion Preparedness Program could help fund this new program (for example, 3% would create \$30 million per year to fund the new Community Planning Assistance Program).

Needed to make this happen:

- Expand the scope of financial and technical assistance programs (see Appendix for a list from the Forest Service) to offer assistance in land use planning. One option is to create a competitive application process for communities willing to improve their land use planning and local regulatory framework. Another is to create a new program, the Community Planning Assistance Program.
- Document the undeveloped portion of the WUI, identify fire risk associated with existing and potentially developed WUI lands, and make this information available to the public.
- Assess the risk, dangers, and costs associated with future development.
- Expand the mission of federal coordination and assistance efforts to include considerations of the undeveloped portion of the WUI.
- Learn from other federal funding programs that require local performance standards in exchange for financial and technical assistance (e.g., HUD, EPA Sustainable Cities Initiative, National Floodplain Insurance Program). For example, desirable elements to implement from NFIP include mapping of risk; higher local cost responsibility; rewards for better land use planning; and community ratings based on risk so that those with higher ratings receive more assistance.
- Congress should fund response to fire like other natural disasters, through FEMA, freeing up money in the Preparedness Program to be used for risk reduction, including funding of the new Community Planning Assistance Program.

6. Buy Land and Development Rights

In some cases, it is less costly to buy the land or development rights than to defend future homes from wildfires.⁵¹ Land purchase programs, such as the Land and Water Conservation Fund (LWCF), the Forest Legacy Program (which also uses LWCF funds), the Community Forest and Open Space Conservation Program, and others, could be used for this purpose.

New funds also could be developed for this purpose, at the federal or local level. For example, Flagstaff, Arizona, passed a bond measure used for fuels reduction.⁵² Although not the same as purchasing land or development rights, Flagstaff illustrates that it is possible to inform local citizens to the point that they will vote to tax themselves to reduce wildfire risk. It is possible that open space bonds, which are commonly used for trails, parks, and open space protection, could also be used to purchase land or

⁵¹ In the Sierra Nevada of California, the cost of defending homes in some wildfires was as high as \$400,000 to \$600,000 per home: <http://headwaterseconomics.org/wildfire/northern-california-homes-and-cost-of-wildfires>.

⁵² The story of Flagstaff’s bond and fuel reduction efforts, how it helped in a recent wildfire, and was used to leverage additional federal dollars, was covered by Governing magazine: <http://www.governing.com/news/headlines/gov-flagstaff-wildfire-prevention-funding-bonds.html>.

development rights on fire-prone lands to prevent them from being developed, thereby reducing fire risk. One advantage of successful local efforts is that they can be used to leverage additional funds from state and federal sources.

Needed to make this happen:

- Identify and prioritize lands where the cost of purchase would likely be less than the cost of defending homes from wildfire.
- Modify criteria for purchasing land or development rights; e.g., allow LWCF money to be used to buy land that would reduce fire risk and save money. This could include modifying the criteria for the Forest Service’s Forest Legacy Program (\$51 million in FY2014) to allow purchase of land or development rights from private landowners.

7. Refuse to Risk Firefighter Safety by Initiating Early Involvement in Planning

At the time that a development is proposed, agency firefighting staff could declare whether the proposed location of homes poses a significant fire risk, publicly announce the danger, and state that they will refuse to risk firefighter lives if a fire breaks out. For example, the Jackson, Wyoming Fire Marshal has declared some developments “suicide subdivisions” and has given public notice that they will not risk firefighter safety to defend the homes in case of a wildfire.⁵³

In another example, a recent Montana county resolution declares that firefighters are not expected to risk their lives to save homes. Specifically, the resolution states: “The Lewis and Clark County Commission hereby confirms support for prioritizing fire protection services based on the threat posed to firefighters.” And, “Homes in the Wildland/Urban Interface will not dictate fire suppression tactics, strategies, or the location of fire lines.”⁵⁴

The Interagency Standards for Fire and Fire Aviation Operations, the Red Book, states clearly “the Forest Service holds that no structure is worth the risk of serious injury to an employee in an attempt to protect that structure or facility from fire” (pg. 5-18).⁵⁵

Needed to make this happen:

- Reinforce to the public the existence of a safety first ethical code among firefighters.
- Continued public education: make repeated public statements that not all fires can be fought and not all structures can be protected.
- Educate the public on potential fire risks early on in the development process, especially during the times when county governments are evaluating whether to permit new home developments in the WUI.
- Make public education and participation in county land use planning as it relates to fire risk part of local federal land manager job responsibilities (for example, Forest Service District Rangers).

⁵³ Personal communication, Kathy Clay, Battalion Chief Fire Marshal, Jackson Hole Fire/EMS, Jackson, Wyoming.

⁵⁴ See: http://montanafirechiefs.com/assets/%5Cdept_1%5Cdocs%5CLewis%20and%20Clark%20Co%20Resolution%202013-101.pdf and <http://www.coloradoan.com/story/news/2014/05/24/montana-co-says-firefighters-save-homes/9554517/>.

⁵⁵ http://www.nifc.gov/policies/pol_ref_redbook_2014.html.

8. Map Fire Risk

If potential home buyers, insurance companies, and lending institutions were made fully aware of the fire risk of an undeveloped parcel of land at the time of title listing, then a different pattern of home development might emerge.⁵⁶

Use national standards to identify and map wildfire risk. FEMA or another federal agency could map fire risk. Conversely, the mechanism could be federal standards or protocols that are agreed to among the states. Or, coarse scale mapping could be produced by federal (or state) agencies, and neighborhood-level detail of fire risk could be added to the maps by neighborhood associations and local governments.

Additionally, the maps could be funded by the federal government but generated using private technologies developed by Google, CoreLogic, Anchor Point, or a similar commercial source.

Needed to make this happen:

- Clarify what tools exist and how to apply them.
- Analyze whether identification of fire risk would make a difference in county government's permitting of development, or in land purchase decisions by homeowners, or whether it would affect insurance rates enough to dissuade development.

LEGISLATIVE SOLUTIONS

9. Develop New Federal Legislation

Potential principles, some mentioned earlier as necessary for the ideas to work, include:

- A. Provide a mechanism for federal land managers to bill county governments for the counties' share of the firefighting costs.
- B. Make it the responsibility of a federal entity to identify the fire risk (mapping) for potential new development in a way that is consistent and continually updated.
- C. Promote federal involvement in local land use planning. (One of the benefits of the National Flood Insurance Program is that the federal government provides incentives and resources to communities based on the community's ability to reduce risk from flooding. The federal government is motivated to do this because it carries the risk of the insurance policies.)
- D. Authorize and direct federal entities (e.g., Forest Service) to provide financial and technical assistance to communities, but based on local performance that is measured by the community's demonstrated ability to affect the pace, scale, and pattern of development in the undeveloped portion of the WUI.
- E. Involve an element of full disclosure of risk for potential home buyers.

⁵⁶ At the county level, if full disclosure of fire risk is made before elected officials approve a new development, then this information might serve as a basis for a government breach of duty lawsuit, based on local government liability for failure to plan for reasonably foreseeable disasters. The risk of a lawsuit could be enough to dissuade county commissions and planning departments from allowing building on the most dangerous lands, and could serve as a powerful incentive for better land use planning.

-
- F. Authorize all programs that distribute federal funding for conservation (e.g., LWCF) to purchase lands at risk from home development to reduce wildfire risk.

Additional potential elements of new legislation:

- G. Involve banking—e.g., one cannot qualify for an FDIC-insured loan from a commercial bank if the proposed home will be built on an identified high fire-risk area.
- H. Discourage rebuilding in the same high-risk place or require that building occurs with conditions.
- I. Eliminate mortgage tax deductions for new homes built on land identified as being at high risk for wildfire.

Note: Headwaters Economics is conducting research, to be completed by early Fall 2014, to draw lessons learned from the National Floodplain Insurance Program, with insights on best-practice ideas that could be applied to new legislation to reduce wildfire risk.

APPENDIX – Forest Service Programs Aimed at Fire Risk Reduction

The National Cohesive Wildland Fire Management Strategy encourages communities to be “fire-adapted.” This appendix explores whether a number of existing Forest Service programs could be used to assist communities with land use planning.⁵⁷ It would require enhancing the definition of “fire-adapted” to include private lands planning tools and policies. Also needed are fire-risk mapping and realignment of incentives and cost responsibilities to help direct future private land development in the WUI away from the most at-risk lands.

State and Private Forestry (\$230 million)

One of the functions of this program is to assist private landowners, generally through the states, with maintaining their forests. The Forest Service acknowledges that private forest landowners are under increasing pressure to sell and subdivide their lands (pg. 4-28 of Forest Service Fiscal Year 2015 Budget Justification). Three particular S&PF programs (listed below, totaling \$75.4 million) could potentially be modified to assist with land use planning:

Forest Stewardship Program (\$22.4 million)

This program is focused on private land management and conservation. Could the program be directed in part towards partnering with an organization such as the American Planning Association to assist private landowners with developing model land use policies, ordinances, and other tools to prevent the subdivision of the most fire-prone forest lands into residential subdivisions? Could the Forest Service contract with private land use planning consultants to assist at-risk communities?

Forest Legacy Program (\$51 million)

One of the functions of this program, now funded through the Land and Water Conservation Fund, is to help “mitigate development in the wildland-urban interface” (pg. 4-33). Could the criteria for use of LWCF funds be modified to include purchase of land or development rights from private landowners for the purpose of preventing development to reduce wildfire risk? To what extent is this already occurring and can it be expanded?

Community Forest and Open Space Conservation (\$2 million)

This program delivers grants to local government, tribes, and non-profits to acquire forestlands to establish community forests. Could the selection criteria include prevention or redirection of future WUI development to reduce wildfire-associated risk?

National Forest System (\$1.5 billion)

Three challenges have been identified under this program: (1) provide stable funding for wildland fire suppression; (2) increase “active management of Federal lands” to, in part, reduce fire risk; and (3) to work with nonfederal lands managers, including private landowners, to reduce the risk of fire. Can the definition of “reducing risk to fire” be expanded to include land use planning on private lands? Could some of the budget and staff of the National Forest System be devoted to financial and technical assistance for community land use planning to alter the pace, scale, and pattern of future WUI development?

⁵⁷ Program descriptions and dollar amounts are from USDA Forest Service, Fiscal Year 2015 Budget Justification, March 2014: <http://www.fs.fed.us/aboutus/budget/2015/FS15-FS-Budget-Justification.pdf>. Dollar figures in terms of FY2014 annual appropriations, rounded figures.

Wildfire Management (\$2.2 billion)

Through this program “the Forest Service protects life, property and natural resources on National Forest System (NFS) lands and an additional 20 million acres of adjacent State and private lands through fee or reciprocal protection agreements” (pg. 9-1).

Preparedness Program (\$1 billion)

In FY2014, \$680 million was dedicated to suppression, while more than \$1 billion was dedicated to preparedness. Could a portion of the preparedness dollars be used for detailed mapping of fire risk in the undeveloped portion of the WUI? Could the definition of “informed risk” (pg. 9-3) and “creating fire-adapted communities” (pg. 9-6) be expanded to assist communities not just by protecting existing structures, but by informing the best possible location of future structures?

