

A Collaborative Approach to Community Wildfire Hazard Reduction

Marc Titus¹ and Jennifer Hinderman²

Abstract—This paper highlights the very successful collaborative approach to community wildfire hazard reduction being used in the 5 county NW Region of the Washington State Department of Natural Resources. NW Region cooperators have created a successful model to help affected communities reduce their risks to wildland fire. Identified high risk communities have been approached by a multi-agency team with Firewise education and hazard assessment methodology. Participating communities have received mini-Firewise workshops, community hazard assessments and hazard mitigation planning assistance. By working collaboratively with communities, local fire districts, County Conservation Districts, County Fire Marshal's Offices and Departments of Emergency Management, as well as other State and Federal fire managers, dramatic results in the Region have been achieved. The Firewise Communities/USA model has been used to guide communities through a nationally recognized process of risk assessment, mitigation planning and community specific outcome based solutions. Community fuels reduction efforts have focused on the creation of defensible space and shaded fuel breaks, reducing structural ignitability, as well as implementation of forest stewardship and greenbelt plans. Community recognition by the Firewise Communities/USA program is the measure of success.

Introduction

The Washington State Department of Natural Resources (WADNR) is responsible for wildfire protection on 12.7 million acres of private and state forest land. While fire can play a beneficial role in the forest ecosystem, it can also be a destructive force that endangers our natural resources, our property, and even our lives.

In today's firefighting in rural and forested areas of the state, traditional boundaries between those fighting wildfires and those battling structural fires overlap giving way to the common need to help one another. The Wildland Urban Interface (WUI), where "the trees meet the eaves," is an area of great concern to the wildland fire fighting community. It is in this area, the WUI, that fire prevention and education activities can have a great positive impact.

By educating property owners and community groups on loss mitigation strategies in the WUI, fire managers from all agencies can influence positive changes in a very hazardous element of the fire ground (the WUI). It is this social change, the change from passive to active behaviors, that can create home sites and communities that are more resistant to loss or damage caused by wildfires. In addition, as property owners and communities become more educated, the dangers associated with firefighting in the WUI can be greatly

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¹ Washington Department of Natural Resources, NW Region Wildfire Prevention Coordinator, Sedro Woolley, WA. marc.titus@wadnr.gov

² Skagit County Conservation District, Firewise Program Coordinator, Mount Vernon, WA.

diminished. Toward these efforts, the NW Region of the Washington Department of Natural Resources has embarked on a WUI wildfire education campaign that has been very successful.

The Northwest region of Washington Department of Natural Resources is located in northwest Washington State, west of the Cascade Crest and just south of the Canadian Border (Figure 1). It covers a 5 county area north of Seattle that includes Whatcom, Skagit, San Juan, Island and Snohomish counties. Puget Sound and the San Juan Islands add considerably to this region's diversity.

Risk Assessment

Using the Wildland Urban Interface Fire Hazard Assessment Methodology and risk assessment components from NFPA 299 (now NFPA 1144), the WADNR, NW Region conducted a systematic wildfire risk assessment. Recent census data was queried to identify potential WUI areas. These landscape areas were assessed for risk using a representative sample scored against NFPA 299 criteria. Hazard levels were identified and subsequently mapped using census polygons. The rating scale as defined by NFPA 299 was utilized resulting in hazard ranking from Low to Extreme (Figure 2).



Figure 1—Washington State Department of Natural Resources Regions

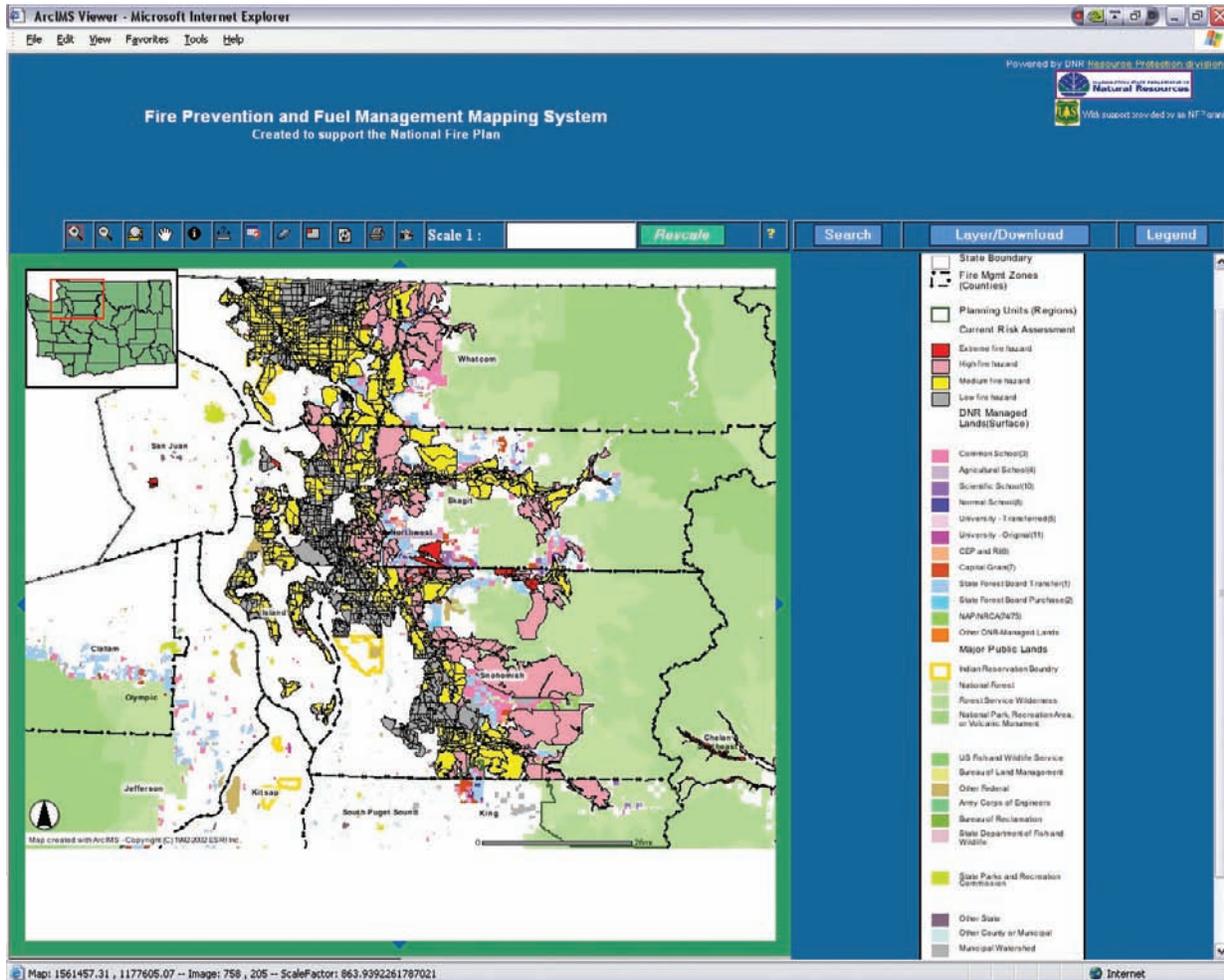


Figure 2—Risk Assessment. The first phase to identifying Landscapes of Similar Risk

Landscapes of Similar Risk

Under the Healthy Forests Initiative and the Healthy Forests Restoration Act (HFRA), the requirement to identify at-risk communities and conduct Community Wildfire Protection Planning (CWPP) was defined. Using guidance provided by the National Association of State Foresters, WADNR used its most recent Wildfire Risk Assessment to identify Landscapes of Similar Risk. Members of local fire management agencies assisted with this effort along with County Departments of Emergency Management, Fire Marshal's Offices and other local state and federal fire managers in the spring of 2004. They took the current regional risk assessment and consolidated risk assessment boundaries down to the landscape level. Landscapes risks were not restricted by county borders, therefore a true landscape was considered. These landscapes were named and digitized to create a GIS map layer (Figure 3).

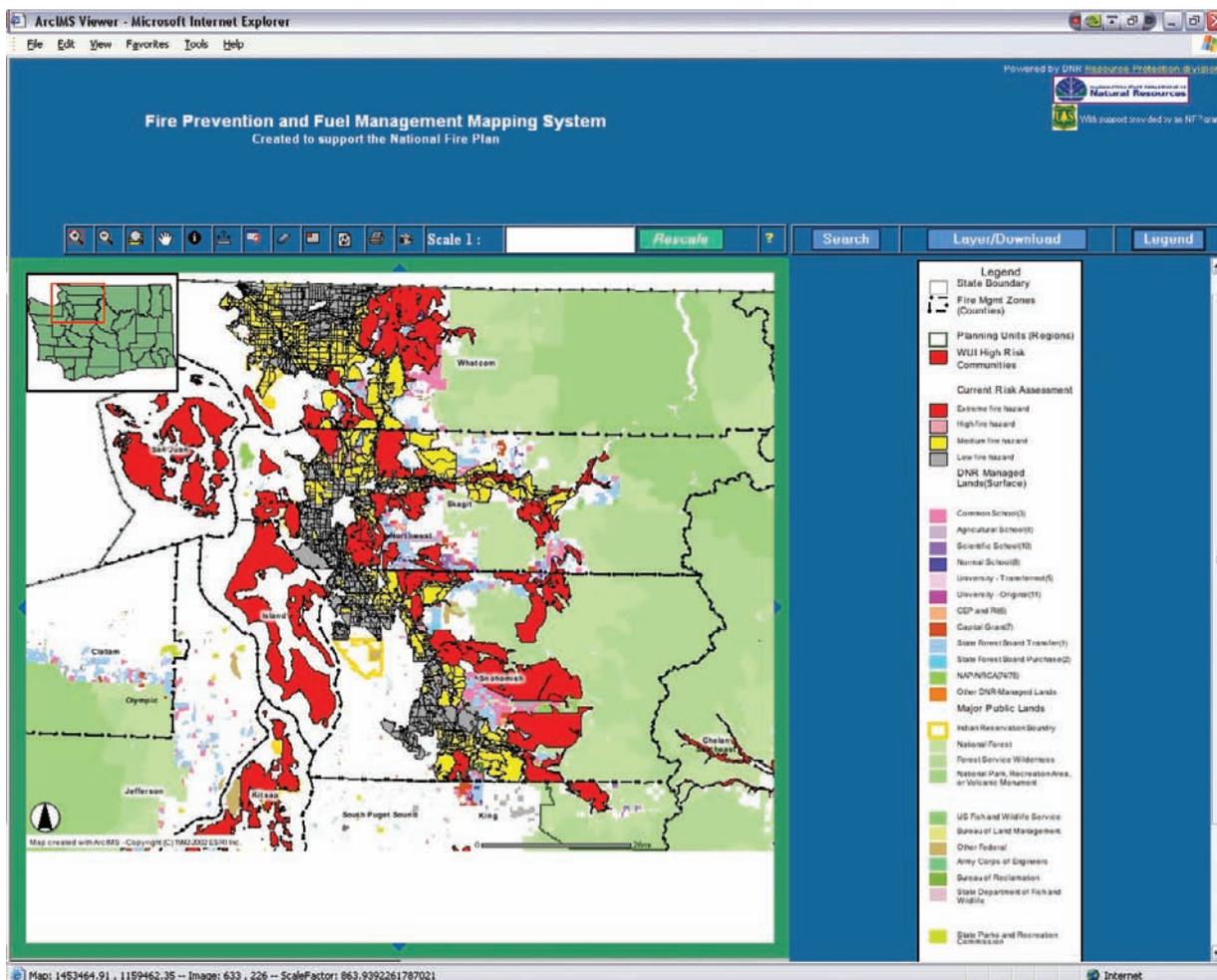


Figure 3—Landscapes of Similar Risk. Identified by regional fire managers through a collaborative process.

Prioritize With RAMS (Risk Assessment & Mitigation Strategies)

RAMS is a computer software program designed to systematically perform landscape level risk assessments (RA), prioritize landscapes and plan mitigation strategies (MS). Federal agencies, as well as WADNR, have adopted RAMS to prioritize, plan and track fire prevention activities. A component of RAMS is the communities' module. This module allowed us to perform a systematic assessment of our landscapes of similar risk using the following standard criteria:

- Fuels Hazard
- Ignition Risk
- Historical Fire Ignition
- Fire Return Interval
- Values, and
- Protection Capability

Inter-Agency Collaboration

A critical component of the National Fire Plan, as well as HFRA, is inter-agency cooperation. This component was also critical to the success of our WUI prevention & education program. Generally speaking, in Western Washington where catastrophic wildland fire incidents are not an every day occurrence, it is difficult to convince WUI residents that they have a fire problem. Residents have been more receptive to Firewise education when addressed by a multi-agency team of fire and education professionals.

In the WADNR NW Region, strong inter-agency relationships were created to facilitate the WUI Prevention & Education program. Partner agencies were identified based on concurrent agency missions. For example, the mission of the Skagit Conservation District is *to provide voluntary, incentive based options that support working landscapes while protecting and enhancing our natural resource land base*. This mission, along with the Skagit Conservation District's experience in community education and outreach make them an ideal collaborator. Funding and support from the local Skagit County government and Title III funds make it possible for the Conservation District to play a vital role in WUI prevention and education.

County Fire Marshal's Offices and Departments of Emergency Management are examples of other agencies whose missions align with the DNR in Community Wildfire Prevention efforts. Partnering with other Federal and State fire managers is important as well. The local fire department is the final key to a successful community wildfire prevention program.

With this multi-agency team, a strong, coordinated message can be delivered to WUI residents. It becomes very apparent to residents, when speaking with one voice, that there really is a fire problem. As understanding comes, residents are more receptive to mitigation strategies and an effective education campaign can begin.

Working With At-Risk Communities

Once the team is assembled and roles and responsibilities have been decided, steps to initiate contact with targeted at-risk communities can begin. There are two ways that contact is initiated between a community at risk and an agency representative. The agency can target a community they have determined is a priority for outreach efforts. In this situation the first and most important step is to get the community to recognize that there is an ignition risk and then take ownership for that risk. This is often the most difficult part of the education process, but is much easier with a multi-agency team. Another way is when the community initiates contact with the agency, seeking guidance in dealing with their fire problem. This situation circumvents the hurdle of getting the community to recognize and take ownership of their fire problem because at that point they have already done so. In either scenario, developing a relationship with, and an understanding of, the community is crucial to determining how to move forward in the process.

Initial stages of developing a relationship with a target community require an effort on the agency's part to understand the demographics of that community. This includes such factors as community size, community governance, resident lifestyles and any other characteristics of the community that play into its' abilities to respond to a wildfire issue. For example, a community that has

well established governance may be able to enforce a covenant that requires fire resistant roofing materials on new construction or any other Firewise type of practice; whereas a community without well established governance may not be able to enforce such a rule, they may only be able to suggest it. In cases like this, the agency representative would want to tailor outreach approaches in the community to reflect these concerns. Understanding the community and making the approach specific to that community will allow for a more successful result.

Community Leadership

Another important aspect of developing a relationship with a community is to identify a “community spark plug.” This term refers to a member, or members, of the community who has taken on a leadership role or has the most interest and/or concern for the matter. The role the community spark plug fills is crucial to the dissemination of information in the community. This person is the front line contact for agency representatives to communicate with a community. They are an integral component of all WUI prevention programs. They could, for example, be the person who gets permission from the community board for the wildfire experts to do a presentation for the community. Having a member of the community take personal responsibility to bring forward the message and draw in other community members opens the door for further outreach opportunities. In a successful model, there will always be an individual or group of people who will emerge to fill this role.

The Workshop

In order to reach the community as a whole and disseminate information, it is best to host some sort of informational meeting or workshop (Figure 4). Whether the community solicits an agency for a presentation or vice versa, it is most effective to bring the presentation to the audience. Including the presentation as part of some other event that’s already scheduled will be more effective because the audience is already there. For example, scheduling a presentation as part of a regularly attended board meeting won’t require any extra time of the community members.

No matter what you call your meeting or workshop, there are some important aspects to consider. First, the community should be approached by a team of experts which should include but aren’t limited to the local fire district, any wildfire and/or forestry experts that have jurisdiction in the area, and a county fire marshal or warden. A team of experts can provide informational presentations of all aspects of wildfire and can deliver a more powerful message than just one person representing one agency. This also allows for shared responsibility in communicating information to the community and allows for use of a wider range of resources. Even though the experts hosting the meeting may be federal or state representatives, the focus of the presentation should be local.

Using materials available at the Firewise website, a tailor-made presentation can be easily created. At a minimum, the workshop should address the community fire problem, information on what makes homes burn (structural ignitability) and information on mitigation strategies in the Home Ignition



Sixty-five Shelter Bay residents gathered at the Clubhouse for a Firewise presentation on ways homeowners can lower the risk of wildfire damage to their properties. The Skagit Conservation District and the Washington State Department of Natural Resources provided the presentation.

Figure 4—Mini-Firewise Workshop.

Zone (the home and its immediate surroundings). With this basic toolbox, property owners can, if they choose, begin to make an impact where the impact is needed, at the home. If the workshop can convince property owners that they can greatly reduce their homes potential ignitability, then we have begun the necessary paradigm shift. If property owners in the community begin to manage their home ignition zones and reduce structural ignitability then the community is well on its way to a better outcome when a wildfire does occur.

A good way to get the community to respond to a presentation and initiate follow-up contact is to offer free technical assistance. One way to do this is to offer home assessments where all homeowners that are interested receive individual attention and expert advice on their home ignition risk. Making it easy for the community to access these resources will result in a more positive and successful response. After the workshop, an introduction to the Firewise Communities/USA program can provide the process and motivation for a community to become firewise.

A Collaborative Approach to Community Wildfire Hazard Reduction: Shelter Bay Community Case Study

The community of Shelter Bay is located in western Washington, on Fidalgo Island in western Skagit County, just outside the small town of La Conner (Figure 5). Fidalgo Island was identified by the Washington State Department of Natural Resources as a high-risk area for wildfire due to various physical characteristics of the landscape and the proximity of homes to the wildlands. The community consists of just over 900 lots, as well as greenbelt tracts, community beaches, and recreational areas (Figures 6 & 7). Shelter Bay homes

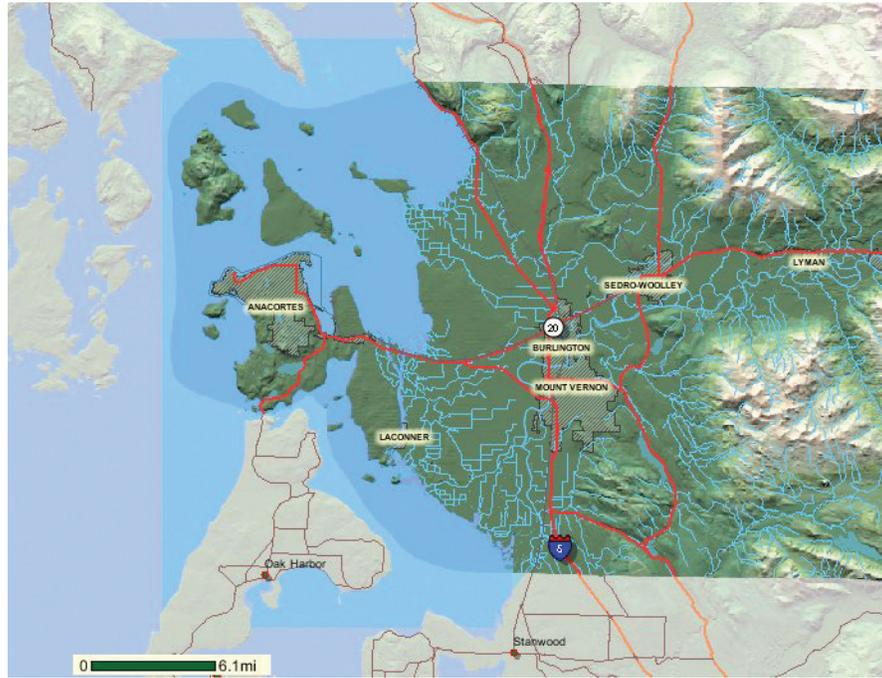


Figure 5—Shelter Bay is located just outside La Conner, WA.

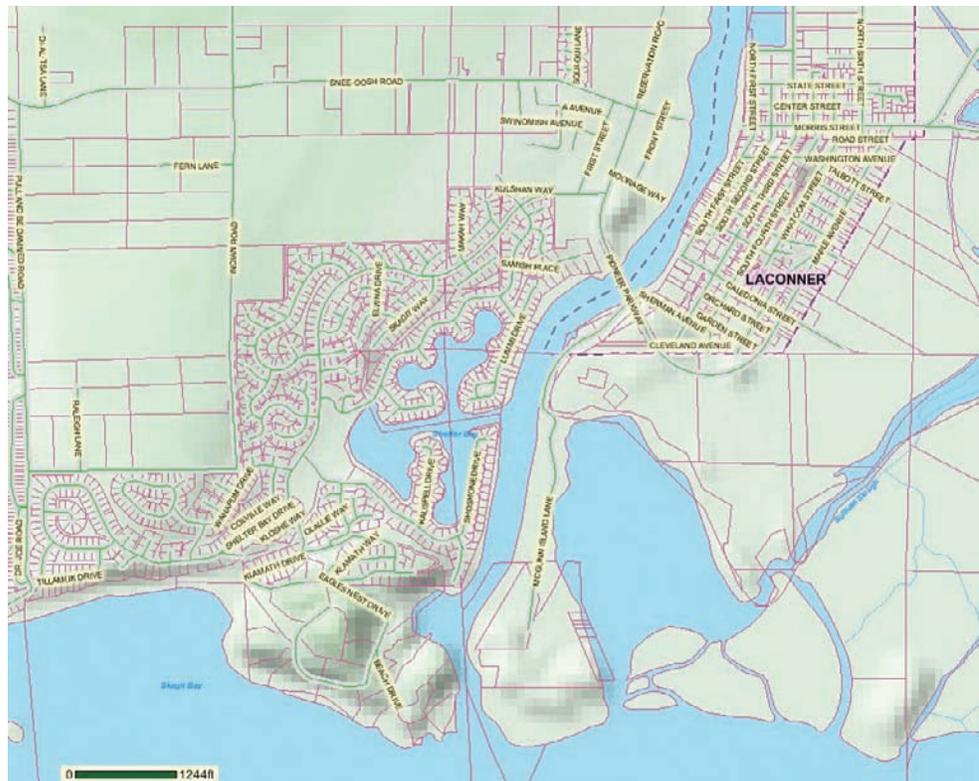


Figure 6—Shelter Bay Parcels.

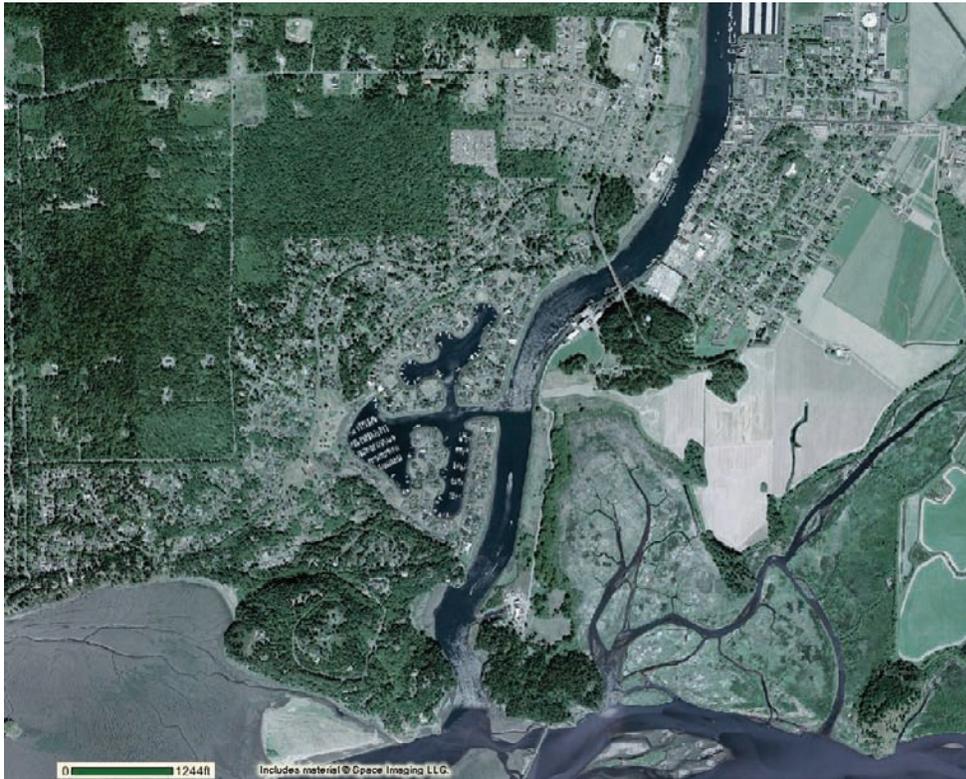


Figure 7—Shelter Bay Aerial Photo.

and streets wind through a maze of steep and hilly topography. Interspersed throughout the homesites are varying acreages of designated greenbelt. These greenbelts make up approximately $\frac{1}{4}$ of the community's acreage. The greenbelts vary in their fuel models and range from grass and dense brush to heavy timber. Enough ladder fuels are present in the greenbelts to cause single-tree and group-tree torching that could result in ember showers on adjacent homes. Shelter Bay Community has well established governance that allows the management of community issues through the use of standing committees. For example, the greenbelt committee deals with management issues in the greenbelt such as views, pruning, thinning and tree topping. There are building and lot committees that handle issues with building and construction covenants, rights, and restrictions. When the Firewise committee was approved, it was appropriate that it become an ad hoc committee to provide advice to and interface with other committees in the community. The Firewise Committee is dedicated to reducing the ignition potential and increasing awareness of WUI issues in the community.

They contacted the wildfire experts in the region, including the Skagit Conservation District (SCD), the Washington State Department of Natural Resources (WADNR), and the Skagit County Department of Emergency Management/Fire Marshal's Office (DEM, FMO). Together these agencies are responsible for promoting the Firewise program throughout the county and the region. The stakeholders also included the Shelter Bay Community at large, the local fire chief and a Skagit County Commissioner. Once the community made contacts, the multi-agency team was able to guide the community in their actions.

It started with a Firewise presentation in conjunction with an already scheduled information session to answer questions about the ongoing use of the goats for greenbelt cleanup. The purpose of the presentation was to educate the community on the wildfire hazard and emphasize personal responsibility and defensible space regarding protection of private property. This presentation was developed and lead by SCD and DNR. Also present were the Skagit County Fire Marshal, the district fire chief, and one of the Skagit County Commissioners.

Each representative had a specific role and perspective to offer the community as well as specific resources for wildfire safety. The SCD was able to effectively communicate the idea of personal responsibility and mitigation strategies for around the home. The SCD took on the responsibility of being the direct line of communication to the community as a whole, as well as individual landowners in offering them technical assistance and free home assessments. The DNR was able to offer expertise in fire behavior and communicating the risk situation. The fire chief provided perspective on local fire fighting resources and current fire fighter capabilities. The fire marshal was able to provide a regulatory perspective, building code information and discuss outdoor burning regulations. The County Commissioner was there to offer support of the program, recognizing the importance of our/their efforts and provide encouragement. This approach not only allowed for all aspects of fire safety to be addressed in an initial presentation, but also as the community moves forward with their Firewise mitigation measures, this multi-agency team can offer a comprehensive set of resources to aid the community. Sixty-five community members attended the presentation. This collaboration continued and will continue to be an effective way of guiding the Shelter Bay Community through the Firewise process.

Once the relationships between agency representatives and the community were established, the multi-agency team was able to assist the community with moving forward in their pursuit of Firewise actions. This began with a Community Hazard Assessment for the Shelter Bay Community. The hazard assessment addressed the various aspects of wildfire hazards throughout the community on a community-wide scale. These hazards were analyzed and addressed with a final recommendation of creating an action plan to establish mitigation measures.

From here, the residents that had become active and interested in the Firewise process formed an ad-hoc Firewise Committee of 11 members in order to follow through with an action plan and pursue projects, as well as national recognition through the Firewise Communities/USA program. As the community had already completed a major project in reducing the fuels in their greenbelts, they were already well on their way to meeting the requirements of becoming a recognized Firewise Community. Their second project (currently under way) is a Firewise demonstration landscape. The community picked one highly visible area of greenbelt as their project site. Between the Conservation District and the WADNR, the site was evaluated and a planting design was created that met the objectives of the community: Firewise, wildlife habitat enhancement. Currently a final plan is being developed that addresses these goals and objectives as well as the planting design and plant list, and provides resources on such aspects of the project as proper planting methods and proper pruning techniques etc. Once this project is established, the community hopes to use it as an education tool. They also hope to pursue further Firewise planting projects within the other greenbelt areas.

As these ideas developed, so did the need for additional community organization. With the guidance of the Conservation District and the WADNR, the Firewise Committee is currently working on developing a comprehensive five-year action plan for their community. This action plan will be included as part of the community's comprehensive emergency management plan. Also, as part of the requirements of being a Firewise Community, they are planning a Firewise education event at the end of April where they will showcase their Firewise demonstration planting area and invite the community to celebrate their Firewise Communities/USA recognition status.

As the Shelter Bay community continues to build upon their first years' accomplishments, momentum continues to build as well. Their most recent accomplishment was a covenant change to prohibit the use of cedar shake roofs on all new construction (& re-roofing projects where greater than 50% of the roof is replaced), opting to support more fire resistant roofing materials to be used. This represents a major accomplishment and a significant understanding of the wildland fire problem in the community. As the committee finalizes the 5-year action plan, it is assured that their success will continue.

Shelter Bay Community was recognized as a Firewise Community/USA for the year 2005. Requirements of 2006 recognition will be met by May 2006.

Firewise Communities/USA

The Firewise Communities/USA is a recognition program designed and maintained to give communities the maximum flexibility in creating outcome based site specific solutions to identified wildfire hazards. Briefly the program involves:

- Enlist a wildland/urban interface specialist to complete a community assessment and assist with the creation of a plan that identifies achievable solutions to be implemented by the community.
- Form a Firewise Committee which promotes and maintains the FWC/USA program and monitors and reports progress.
- Observe a Firewise Day annually that is dedicated to a community Firewise project or education event.
- Invest a minimum of \$2.00 per capita on community Firewise Projects
- Submit an application that documents compliance with recognition requirements and renew annually to maintain status.

It provides community members with the knowledge necessary to maintain an acceptable level of fire readiness, while ensuring firefighter safety during a wildland fire emergency. The program draws on a community's spirit, its resolve, and its willingness to take responsibility for its ignition potential.

By implementing the FWC/USA as described, it truly becomes a self-perpetuating program. All of the training, education and tools for a community to take action are provided. Ongoing support by the multi-agency team is needed, but becomes less and less time consuming the more a community learns. Support activities will always be necessary, but the community leadership is always at the forefront. The local fire department needs to stay engaged as the resident expert on emergency management, but this is a good relationship to foster as it provides a solid link between the community and Emergency Management Services.

Conclusion

Wildfire incidents do not have to be large, nor span many days to be catastrophic. Losing just one home in the Wildland Urban Interface becomes a significant, life changing problem for those involved. It has been shown that with proper preparation, a home does not have to become fuel for a wildland fire. Reducing structural ignitability by focusing on the home ignition zone is the easiest way for homeowners to mitigate wildfire hazards in their community. Every home that has been prepared in this way has a much greater chance of surviving a wildland fire incident. After all, a home that doesn't ignite is a home that doesn't burn.

The NW Region of Washington State Department of Natural Resources, in keeping with our agency mission and mandate, embarked on a collaborative WUI wildfire education campaign that has been very successful. After using national standards to identify at-risk communities, the FWC/USA program was utilized to engage community groups. It is a model that allows agency interaction with the greatest number of communities at a time. With proper preparation and a collaborative environment, fire management agencies can greatly impact communities in the WUI, thereby creating behavioral changes designed to mitigate losses in communities due to a catastrophic wildland fire event. NW Region has been a leader in implementation of FWC/USA in Washington state and has contributed to Washington's 2005 #2 ranking in the nation of recognized communities (Figure 8).

Success has been largely due to excellent inter-governmental and inter-agency relationships, a shared vision and the desire to succeed. The collaborative environment has been achieved through hard work and commitment of all parties and continues to be a model that other areas of the state and the nation are striving to emulate.



Figure 8—Firewise Communities/USA Sites.