

Maine Forest Service

Forest Protection Division

Wildland-Urban Interface Communities at Risk Community Wildfire Protection Plan

Tacoma Lakes Improvement Society
Litchfield and Monmouth, Maine
2012

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(photo courtesy Buddy Potts)

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Executive Summary

The goal of the Wildland Urban Interface (WUI) assessment program is to evaluate a community for hazards in the event of a wildfire in the wildland urban interface (the area where homes intermingle with wildland vegetation). The assessment also identifies the means by which any hazards found can be mitigated. The objective is to minimize the ability of fire to move between wildland and structures, thereby reducing the threat to life and property.

In 2010 the Maine Forest Service recorded 562 wildland fires, although the actual number of wildland fires could be higher. Nearly 75% of these fires in 2010 either destroyed, damaged, or threatened structures.

During the five year period between 2006 and 2010 the Maine Forest Service recorded 1,235 wildland fires in the Southern District (which encompasses the Tacoma Lakes Improvement Society region.) burning an estimated total area of 1,043.41 acres. State law requires that the communities of Litchfield and Monmouth are responsible for paying fire suppression costs equaling up to ¼ of 1% of the state's valuation for the community before state monetary assistance begins.. Examples of historic wildfire suppression costs in Maine communities include: Allagash (1992, \$522,855.96); Garfield Plt (1991, \$305,593.83); Baileyville (1998, \$286,668.43); Freeport (1991, \$271,035.00); Dixfield (2002, \$90,338.59); Milo (2002, \$76,795.21); Bucksport (2001, \$68,650.00); Northport (2001, \$67,957.80); and Centerville (2006, \$35,703.14).

During the assessment, 68 structural and 12 vegetative sites were evaluated within the wildland urban interface area. The assessment focused on such issues as building materials, defensible space, access, road signage, and water availability. Methodology and detailed results of the assessment are found in the main body of this report. **Overall, the structures assessed within the Tacoma Lakes Improvement Society had an average score that falls into the 'moderate' risk category.**

Inadequate defensible space and flammable vegetation inside defensible space are the greatest source of Tacoma Lakes Improvement Society's elevated risk. Factors including low water availability, quality of access roads, and poor signage are also contributing factors to this risk. This report contains recommendations to rectify the identified issues, along with suggestions for building materials, low-flammable plants, and guidelines for the safe placement of firewood and fuel storage tanks for existing and newly built structures and development areas.

The factors contributing to increased fire risk in the wildland urban interface found within the Tacoma Lakes Improvement Society can be mitigated by following the strategies outlined in this report, "decreasing the risk of catastrophic fire and loss of life and property."

Introduction

Wildland Urban Interface Project Background

The Wildland Urban Interface (WUI) is the area where homes and other human-made structures meet or intermix with wildland vegetation. In the event of a wildland fire, there is a chance of fire spreading to structures found in these areas, resulting in possible loss of property and life.

Buildings located in the WUI can ignite both directly and indirectly. Direct causes result from surrounding flames coming in contact with the building causing it to ignite. Indirect causes can come from firebrands from an approaching wildfire being lofted into the air and igniting combustible roofs or surrounding vegetation, and also from radiant heat that can ignite structures and vegetation.

Wildland urban interface areas present unique challenges to fighting fires. Wildland fire fighters may not be trained to fight structural fires and structural fire fighters may be unaware of wildland fire fighting techniques. Dangerous situations combined with improperly trained personnel may result in catastrophic fires.

The Forest Protection Division of the Maine Forest Service has implemented the Communities at Risk, Wildland-Urban Interface Program. The program involves an assessment and report that specifies areas in a Community that are at risk or could be improved to avoid the danger associated with wildland fires in the WUI. In addition, the WUI assessment report includes suggested actions and projects that can greatly reduce the risk of catastrophic fires in WUI areas.

What is a CWPP?

A CWPP is a Community Wildfire Protection Plan. The development of a CWPP is a community-based forest planning and prioritization process.

The CWPP is a collaborative project that has two objectives: to identify and prioritize hazardous fuels treatments that will protect the community and to recommend measures for reducing structural ignitability.

A CWPP is a required prerequisite under the Healthy Forest Restoration Act (HFRA) of 2003 to receive hazardous fuels reduction funding. The minimum requirements for a CWPP as described in the HFRA are:

- *Collaboration:* A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.
- *Prioritized Fuel Reduction:* A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.

- *Treatment of Structural Ignitability:* A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.

Why develop a CWPP?

A CWPP can help a community clarify and refine its priorities for life, property, and critical infrastructure in the wildland-urban interface (WUI). Each CWPP is different because each plan is specific to the needs of the local community. Some possible issues that may be addressed include wildfire response, hazard mitigation, structure protection, education, and community preparedness.

Goals and Objectives

The goals of this report are to evaluate potential fire hazards in the Wildland Urban Interface (WUI) found within the Tacoma Lakes Improvement Society and identify appropriate actions to reduce/eliminate those hazards. The objectives are to decrease the chances of a wildland fire spreading to homes and other structures, ultimately saving property and lives, and also providing a cooperative mitigation to a community hazard between the Maine Forest Service, Litchfield Fire Dept., Monmouth Fire Dept., and community officials and residents.

Community Background

The Maine Forest Service has recorded 1,235 wildland fires in the Southern District (which encompasses the Tacoma Lakes region) during the five year period between 2006 and 2010, which burned an estimated 1,043.41 acres. Causes of these fires were determined to be camp fires (94), children (85), debris (333), incendiary (82), lightning (32), machinery (222), smoking (84), railroads (118), and miscellaneous reasons (185).



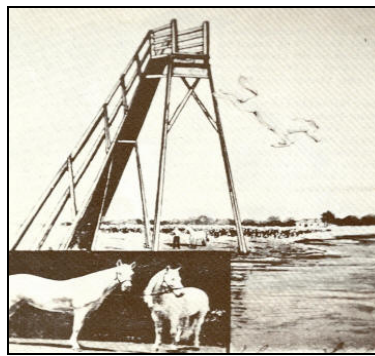
The Tacoma Lakes Improvement Society (TLIS) is a lakeshore community located in Litchfield and Monmouth (Kennebec County), Maine. Five bodies of water lie within the TLIS: Buker Pond (75 acres), Jimmy Pond (40 acres), Little Purgatory Pond (44 acres), Sand Pond (177 acres), and Woodbury Pond (436 acres).

The topography of the TLIS area varies from a low of 175 ft. (Woodbury Pond) to 682 ft. (Danforth Hill, west of Jimmy Pond). The waters of Buker Pd., Jimmy Pd., Sand Pd., and Little Purgatory Pd. drain into Woodbury Pond, which is controlled by a dam, then flow east into Cobbosseecontee Stream and into the Kennebec River.

The Tacoma Lakes are approximately 9 miles in length with depths of water up to 80 feet. Boating is accessible (two public boat launches) to the entire chain.

According to *Litchfield Yesterdays*, "In 1890 there were only thirteen cottages," (scattered along the shores of Pleasant Pd.) "By 1960 the Town Report counted 203 private cottages around the shores of Litchfield's eight ponds and Cobbossee Stream."

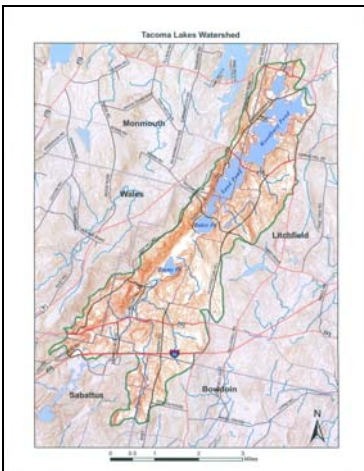
Much of the lakeshore community growth can be attributed to the Lewiston, Augusta and Waterville Street Railway which operated between 1908 and 1932 between Lewiston and Waterville. "This used to be a real happening place," according to TLIS Pres. Bruce Doyle.



(photos from *Litchfield Yesterdays*)

From *Litchfield Yesterdays*: "At the junction of Sand and Woodbury Ponds the Lewiston, Augusta and Waterville Street Railway acquired several acres of land and erected the Tacoma Inn, where dinners were served and lunches sold. Band concerts and other attractions were frequently presented. Boating, fishing, bathing and all kinds of recreations were indulged in. One of the sights to see at Tacoma Inn were two handsome white horses, 'King' and 'Queen', jumping from a high platform into Sand Pond. This rapidly became a favorite resort for cottagers and pleasure seekers."

The railway bed is now used as a snowmobile trail.



Today approximately 550 property owners live, most seasonally, on the five Tacoma Lakes. Currently, 198 lakeshore residents are members of the Tacoma Lakes Improvement Society (TLIS).

The mission of the TLIS is to protect and improve the water quality of the Tacoma Lakes and its watershed for the benefit of all (*Bylaws of the TLIS*). The Society is a not for profit lake association dependent upon volunteers for all their activities. It has been in existence for over 80 years.

According to TLIS Pres. Bruce Doyle, “There is fairly substantial public use on these waters. During the summer the 25 parking spots at the public boat launch (Woodbury Pond) are oftentimes full. The bass tournaments bring in a lot of users...6 to 12 tournaments a year now. In winter we’re seeing a lot of ice fishing and bonfire activity.”

Overview of available structural and wildland firefighting resources:



The TLIS is located in a heavily forested, rural setting and it has a fire history. Most recently, On October 1, 2010 an uninhabited shack on Jimmy Stream caught fire (later attributed to arson) and spread to the neighboring woods. As there was no road access to the camp, fire boats from the Winthrop Fire Department were deployed to suppress the blaze. “And In the 1960s,” according to TLIS Pres. Bruce Doyle, “The Whippoorwill Dance Hall (a popular Tacoma Lakes attraction) burned to the ground.”



The Litchfield Volunteer Fire Dept. operates out of two stations with a fleet of seven trucks. 28 on call responders serve the Litchfield F.D.

Litchfield residents can dispose of brush at the Transfer Station on Hallowell Road.



Monmouth’s Volunteer Fire Dept. operates out of two stations with a fleet of five trucks. On the roster are 35 responders and 10 junior firefighters.

“Accessibility, water availability, seasonal properties and narrow camp roads are always an issue. In the winter time, it is ice-covered roads with snow banks and in the spring time it is mud season. The narrow roads are an issue because one truck can plug up a road,” says Monmouth Fire Chief Dan Roy.



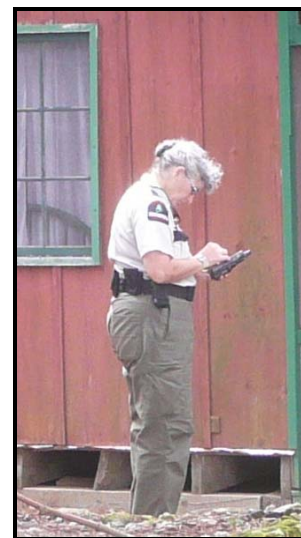
Above: Woodbury Shores has ample room for emergency vehicles to maneuver & could possibly serve as a staging area in the event of a wildfire.



Above: The state-owned Woodbury Pond Boating Facility is one possible area for a fire engine draft site.

Wildland fire response is provided by the Maine Forest Service. The MFS Saco River District is located in Gray and the Bolton Hill Southern Regional Headquarters is in Augusta. A one hour response time on the ground would be considered average. The Maine Forest Service also has helicopters stationed in Augusta and Old Town that are available for initial attack in the event of a large wildfire. Response times will be affected by availability of responders and resources.

Methodology



On September 23, 2011 MFS personnel, accompanied by Tacoma Lakes Improvement Society Pres. Bruce Doyle and Sec. /Treas. Buddy Potts, began performing structural and vegetative assessments at locations which were randomly selected within the lakeshore community. The wildfire risk assessment process was performed over three days. The structural assessments were taken in the interface regions of the community and not in community centers. The structural assessment form, developed based on NFPA Standard

1144, asks questions concerning the following major categories: elevation, slope, and aspect; roads/signage; defensible space and surrounding vegetation; building material; structural density and utility placement; and water availability and fire department response time. Vegetation assessments examine vegetation type, fuel bed depth, fuel density, and canopy cover. Once completed, the information from the assessment forms is analyzed to calculate risk for individual structures and an overall rating of the potential risk for fire in the WUI for the Tacoma Lakes Improvement Society.

Structural Factors

Each structural assessment consisted of a survey of 23 questions to determine a structure's risk from wildfire. The level of risk associated with each factor's quality was given a numeric score, and the total of these points produced an overall score (ranges from a minimum of 9 points to a maximum of 171 points). The potential risk for each structure can be categorized as "low" (9 – 42 pts.), "medium" (43 – 85 pts.), "high" (86 – 128 pts.), or "highest" (129 – 171 pts.). The structural factors assessed are discussed in detail below.

1) Elevation, Slope, and Aspect: Variations in elevation can be a concern if elevation varies greatly in a given area. This can result in increased slope. Slope is important to consider because fires can spread quickly as convection heat and embers from an approaching fire rise uphill, drying and igniting fuels. South and west facing slopes tend to be drier and warmer than north and east facing slopes due to sun exposure, generally making fires more active. A structure in an area with steep slopes (a grade of 41% or greater within 300 feet) would be assessed 9 more points than a structure on flat ground. In addition, a structure should be set back at the very least 30 feet from the top of a slope of 30% or greater. A fire is at its most intense when at the top of a hill because it gains heat and momentum as it travels up a hill. As the fire encounters flat ground the intensity will usually lessen. A structure at the top of a steep slope with no setback will bear the brunt of the fire at its greatest intensity. A building not set back from the top of a slope of 30% or greater would receive 4 additional points for a total of 13 points relating to slope.

2) Roads/Signage: Community roads are assessed for their width, condition, surface material type, proper signage and turnaround space. Roads that are unsatisfactory in these criteria may impede the access and maneuverability of emergency vehicles in the event of an emergency. Inadequate access roads may also become cut off by fire, preventing evacuation of residents and eliminating the ability of fire crews to defend lives and property. Narrow roads will not allow two emergency vehicles to pass or in some cases not allow ingress by emergency vehicles while allowing egress to fleeing civilians. Clear and consistent signage on roads, houses, and driveway entrances is important in aiding response time for fire crews. As many as 28 points can be added to a structure's assessment due to unsatisfactory road and sign conditions.

3) Defensible Space and Surrounding Vegetation: Defensible space around a structure is one of the most important factors in the WUI, as it can prevent flames and radiant heat from igniting the structure and provides room for firefighters to fight the fire.

A few trees may still be kept inside the defensible space, however falling embers may still pose a problem. Vegetation inside the defensible space, including long grass, woody debris, needle and leaf litter and ladder fuels is extremely important to eliminate as it can aid in the spread, speed, and intensity of wildfire near a structure. Inadequate defensible space and the surrounding vegetation can add 50 points to an assessment score.

4) Building Materials: Combustible building materials, such as wood siding and cedar roofing material, can greatly increase the risk of a structure fire, while fireproof materials reduce the risk of ignition. Wood shingles and vinyl siding are considered combustible and not as safe as brick, fireproof, or treated siding material.

Roofing materials are rated as either class A, B, or C based on composition and their burn time before ignition. Class A materials combust in 2 to 4 hours and are the safest if installed properly. These include asphalt, metal, slate, fiber-cement, and clay. Class B materials combust in 1 hour and include pressure treated wood shakes and shingles, and Class C materials combust in 20 minutes and are untreated wood shakes, shingles, plywood, and particle board. Although rated the best, Class A materials typically need an additional layer of insulating material, as they can conduct heat onto other surfaces. Roofing material can contribute up to 25 points on a single assessment.

5) Structural Density and Utility Placement: Open decks can create fire hazards because leaves and needles, which are prone to ignition from falling embers, often accumulate on and under them. Wood stacked on, near, or under a deck can also provide more opportunity for ignition of a wildfire.

Additional structures surrounding a home, such as sheds and garages that catch fire, can aid the spread of the fire if they are built close to one another. Outside utility tanks that are above ground can also pose a very dangerous hazard to firefighters and to structures in the event of a wildfire, as can above ground electrical wires. Improperly placed outbuildings and utilities as well as open flammable decks with woodpiles can contribute up to 15 points to an assessment.

6) Water Availability and Response Time: Proximity to pressurized hydrants and other water sources, such as dry hydrants, as well as fire department response time are considered in structural assessments. Faster response time and nearby water availability will decrease a structure's at-risk rating. Inadequate water supply and increased fire department response time can add up to 12 points to an assessment.

Vegetation Factors

Vegetation assessments were conducted in randomly selected plots to determine both susceptibility to and intensity of wildfire if it occurs in one of these areas. These assessments do not contribute to the overall Community rating, but do provide a good indication of the vegetation expected to be in the WUI areas. The four categories in the vegetative survey include fuel bed depth, fuel density, canopy cover, and vegetation type. Each attribute is rated with a "low", "moderate", or "high" rating based on how it would

contribute to the possibility of wildfire start, spread, and/or intensity. The factors analyzed in vegetation assessments are described in more detail below.

1) Vegetation Type: The type of vegetation present will influence the type of wildfire and its behavior. Hardwood trees and shrubs are more difficult to burn due to their high moisture content and lack of volatile compounds such as resins. Grasses can burn very quickly in the spring and fall when dry conditions exist. Coniferous species are the most dangerous, burning readily due to their high concentration of flammable resins.

2) Fuel Bed Depth: The fuel bed is the layer of organic matter on the forest floor. Fuel beds include the leaf litter as well as the layer of soil mixed with organic matter underneath the litter. These beds can support ground fires which are typically slow moving and hard to detect. The deeper the fuel bed depth, the longer these fires will burn. Deep fuel beds found in swamps are usually too moist to support fires, but in dry seasons they can pose a significant threat and in peat beds, fire can persist for months.

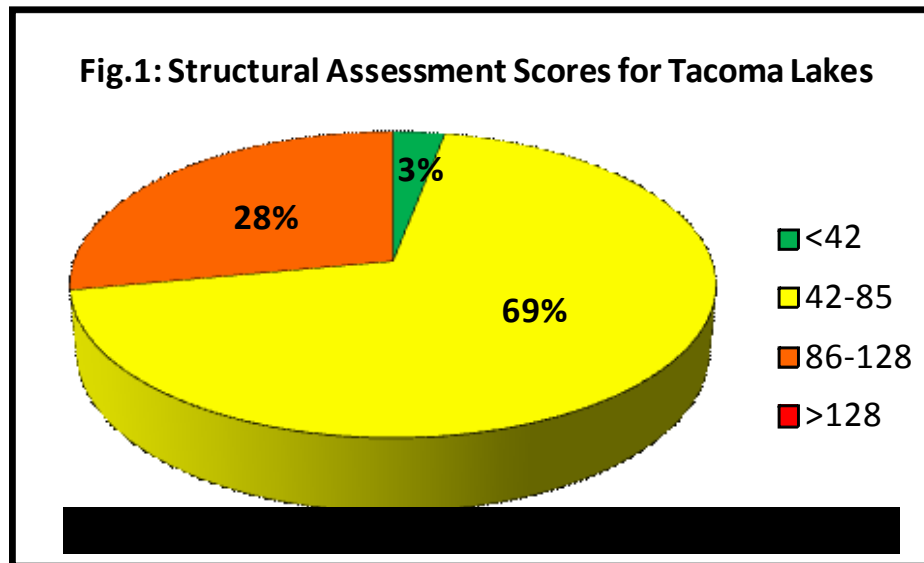
3) Fuel Density: Fuels such as downed and dying woody debris and ladder fuels can greatly contribute to the intensity and life of a wildfire. Greater density can create increased continuity in fuels, and can help wildfires move rapidly for long distances.

4) Canopy Cover: Dense canopy cover can be very hazardous in the event of a wildland fire. A canopy fire, otherwise known as a crown fire, occurs when fire reaches treetops, and is considered the most dangerous condition. In this case, the fire is typically fast moving, intense, and is very difficult to control.

Results

In Sept. and Oct., 2011, sixty-eight structural assessments and twelve vegetative assessment plots were randomly selected throughout the wildland urban interface area of the Tacoma Lakes Improvement Society in Litchfield and Monmouth, Maine. The results were then entered into the Wildland Hazard Assessment Methodology (WHAM) program to determine an overall rating of potential risk for fire in the WUI for the Tacoma Lakes Improvement Society.

Based on the assessment results; the average structural assessment score at Tacoma Lakes was 74.54 which falls into the ‘moderate’ risk level. The scores ranged from 38 to 115. The following graph illustrates the breakdown of scores by ratings.



Location and Structural Assessment Concerns

The following factors were found to be of varying degrees of concern while performing the WUI assessment for the Tacoma Lakes Improvement Society.

Elevation, Slope, and Aspect: 26% of the homes assessed were on slopes of 10% to 40%. Areas of increased slope that could promote rapid wildfire spread and should be noted by the fire department as areas of increased risk to fire spread, and by citizens as areas to increase defensible space.



Access Roads/Signage: Access is a problem found throughout the Tacoma Lakes Improvement Society. The areas around Pickeral Rd., Forest Lane, Sand Pond Lane, and Manchester Lane have particularly noticeable problems with in this category. 91% of the homes near or on the waterfront have only one access road, which is usually a single dirt lane. 25% of the roads assessed are less than 20 feet in width. Also around the five lakes within the Tacoma Lakes Improvement Society, streets with dead ends and cul de sacs are common. 68% of structures assessed were on access roads greater than 300 feet in length with no turnaround. These streets also reduce the accessibility to the area by fire equipment. Most houses did have numbers posted on houses or mailboxes. However, most (65%) were not visible from the road and should be improved. **New developments**

should ensure that roads are wide enough for rescue vehicles, have turnaround space, and more than one entrance.

Defensible Space and Surrounding Vegetation: Defensible space caused the biggest concern for safety of homes found within the Tacoma Lakes Improvement Society WUI. Only 9% had seventy-one feet or more of defensible space, the required amount for a low hazard rating. Of the remaining sampled homes, 51% had thirty to seventy feet of defensible space, which is classified as a medium rating, and 40% of homes had less than thirty feet of defensible space, which rates as a high risk for homes in the WUI. Defensible space should be considered one of the highest priorities for remediation, especially in areas of increased slope.

In addition, 22% of the homes assessed had a high rating for hazardous vegetation in the area surrounding the structure. 16% had a medium rating and 62% of structures had a low rating.



Building Materials: Siding materials throughout the Tacoma Lakes Improvement Society were predominantly combustible, however almost all homes had roofs of Class A non-combustible material. Residents should still be reminded to clear roofs of leaf litter, debris, and ensure shingles are not in disrepair. 32% of structures assessed had moderate to heavy accumulation of roof litter. It should also be noted that open wooden decks were observed at 82% of assessment sites. These additional structures elevate the at-risk level for a home because they often accumulate leaves, needles, and other debris in the same places that would accumulate embers if a wildfire were approaching. See the suggested actions section of this report for ways to reduce the risk.



Structural Density, Utility Placement, & Wood Piles: Areas where homes are built close together should try to maintain low vegetation density and good defensible space to reduce the chance for wildfire to spread from home to home.

Above ground utility tanks were quite common throughout the Tacoma Lakes Improvement Society. These homes and camps should consider the guidelines for proper spacing of these tanks found in the suggested actions section of this report.

More than half of the structures assessed had wood piles within 30 feet of the home. 7% had wood piled against or touching the structure.

Water Availability: Within the Tacoma Lakes Improvement Society, there are a few obvious sources of water available, namely Buker Pond, Jimmy Pond, Little Purgatory Pond, Sand Pond, and Woodbury Pond. The inconsistency of readily available water is an issue in need of being addressed, however. There are no pressurized hydrants, nor dry hydrants, within the lakeshore association.

In-Community Structure Examples

Good Defensible Space:



Left: This house within the TLIS has good defensible space. The grass is kept short and green. Although the siding is flammable, the roof is made of Class A shingles. This home has a good chance of surviving a fire because there is enough space between the home and adjacent vegetation that the house is not likely to ignite due to direct flame contact or radiant heat. Note the mineral strip along the perimeter of the house. There is also ample room for firefighters to safely fight a fire.

Poor Defensible Space:



Left: (example from another community) Note the lack of defensible space. The roof is constructed with Class A shingles, but the siding and small deck areas are both made of wood. There are also several highly flammable shrubs used in the landscaping. A wildfire in the area would put this house at great risk.

Poor Access:



Left: An example of poor access. This dirt road is too narrow to allow for 2-way emergency traffic flow, and lacks adequate turnaround space at the end for a large vehicle. A gravel turnaround at the end of this road and periodic gravel turnouts along its length would help remediate these issues, reducing the chances that this road will become congested in an emergency, hampering both response crews and evacuees.



Left: Narrow, one lane roads are common within the TLIS. Ideally (according to NFPA standards), roads should be no less than 20 ft. of unobstructed width with sufficient vertical clearance, allowing evacuation simultaneously with emergency response.

Vegetation Plot Assessment Concerns

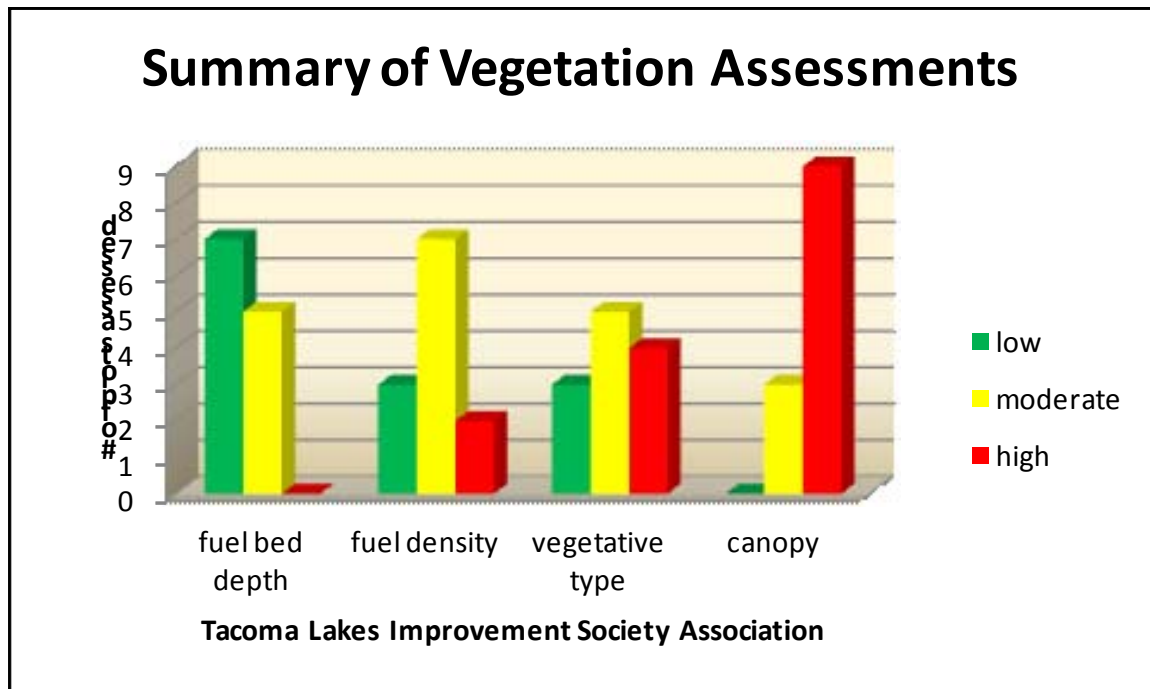
Vegetation Type: The vegetation field assessments for the Tacoma Lakes Improvement Society indicated a fairly diverse forest which, although dominated by coniferous species, has a large number of deciduous stands and many areas with a mixture of both. Stands of oak/pine and hemlock/beech were common. Here, 33% of the vegetation plots sampled were at a high-risk rating, 42% at a moderate rating, and 25% were at a low risk level. Stands dominated by coniferous trees are faster and more intense burning than deciduous.

Fuel Bed Depth: Within the Tacoma Lakes Improvement Society, 42% of the vegetation plots assessed had a medium rating with fuel beds of 3.1 – 7". These depths could support substantial ground fire. None were rated high with fuel beds of greater than 7", and 58% were rated low with fuel beds less than 3".

Fuel Density: 17% of the randomly sampled vegetation plots rated high, 58% moderate, and 25% were assigned a low rating. Areas around the Tacoma Lakes with higher density could support more intense burning and rapid fire spread.

Canopy Cover: 75% of the vegetation assessments were assigned a high rating for dense canopy cover, 25% had a moderate rating, and none had a low rating. Areas with high canopy cover could support fast moving canopy fires which are very hard to control.

See the following graph for a representation of vegetation assessments, and the accompanying map for vegetation cover type:



In-Community Vegetation Examples



Left: This area near Jimmy Pond has moderate fuel density (ladder fuels), high vegetative type (conifers), and a high canopy rating. This hemlock/beechness stand is also on a steep slope. Areas like this could support intense fires.

Above left: This type of vegetation is common within the Tacoma Lakes Improvement Society. Though a mixed forest, stands of oak and pine were predominant around the lakes.

Summary

Lack of defensible space, inadequate roads and signage, and inconsistent water availability are of the highest concerns for the Tacoma Lakes Improvement Society. Dense tree canopy and increased fuel amounts found in the unoccupied vegetation plots in the area is also a concern. By following the suggested actions to improve these areas, the potential risk for catastrophic wildland fire and loss of property and life can be greatly reduced. If actions are not taken now, they should be taken when building new developments and sub-divisions.

Suggested Actions

The following is a list of actions that can be taken to increase the safety of homes in the WUI during a wildland fire. Community residents should be encouraged to carry out some of the following actions, as homes with high risk are less likely to be a high priority for protection and less likely to survive.

Some of the following actions also apply to community and fire department officials. Current and new residents should be made aware of these suggestions whenever possible, and any new developments should apply Firewise-building practices.

Community officials and the fire department should review sources of federal and state funding for improving emergency response equipment and staff.

Increasing Defensible Space around homes:

- Maintain well-watered green lawns 30 feet around homes.
- Thin trees, especially conifers.
 - 10 feet between crowns.
 - Prune lower branches of conifers to a minimum of 15 feet.
- Remove downed and dying woody debris, leaves, needles etc. within 30 feet of homes.
- Maintain at least 30 feet of non-flammable vegetation around outbuildings.
- Trim overhanging branches from around homes.
- Have power companies prune vegetation within 10 feet of power lines.
- Replace coniferous shrubs with non-flammable plants.
- Trim branches at least 20 feet from chimneys.
- Move woodpiles out of defensible space/away from structures.

Before removing any vegetation, make sure there are no state, local or home association laws, rules or regulations that prohibit you from doing so.

Improving Structural Hazards:

- Clear gutters and roofs of dead needles and leaves.
- Remove trees along driveways and prune overhanging branches above driveways to ensure they are at least 12 feet wide with 14 feet of overhead clearance for easy access by fire trucks and other emergency vehicles.

- Structure numbers should be at least 4 inches tall.
- Clear vegetation away from house numbers.
- Have at least 100 feet of garden hose attached to an outside faucet.
- Treat combustible building materials such as decks, porches, and cedar shingles with flame retardant chemicals.
- Enclose combustible decks to avoid accumulation of dead leaves and needles.
- Replace combustible siding and roofing materials with non-combustible materials.
- Install screens over louvers, vents, and chimneys to avoid spark entrance.
- Relocate propane tanks at least 10 feet from structures. Maintain at least 10 feet of non-flammable vegetation around them. Propane tanks vent through a relief valve when they get hot. Venting gas can then ignite, consuming nearby structures.

Personal Actions:

- Have an emergency action plan in case of fire, both for individual families and for the community as a whole.
- Check fire extinguishers.
- Follow all burning rules and regulations.
- Compost leaves instead of burning.

Community Officials/Fire Department:

- Train appropriate personnel in wildland firefighting through the Maine State Wildfire Training Academy. The S130/190 course trains fire fighters in wildland fire suppression. Other courses are also available.
- Install more dry hydrants in Community. This will help to ensure adequate water availability in the event of a wildland fire in the area. The Volunteer Fire Assistance Program may be able to help with funding for additional dry hydrants.
- Expand pressurized hydrant system where feasible.
- Always encourage/incorporate Firewise building practices in new developments and subdivisions.
- Install highly visible signs on all streets.
- Widen roads to at least 24 feet wide or build turnouts to allow for 2-way emergency traffic flow and easier evacuation.
- Construct and/or improve access roads.
- Build gravel turnarounds to accommodate fire trucks.

Some Key Points:

Fuel conversion refers to the replacement of certain types of vegetation with less flammable species. This process lowers the fire hazard while maintaining some of the aesthetic values many WUI residents desire. While no plant is fireproof, there are some plants that have characteristics that minimize their flammability. A list of plants that have been approved by the Maine Forest Service for use in wildland urban interface settings can be found in appendix section of this report.

Fuel reduction is a fundamental tool for wildland fire prevention. It involves removing living and dead vegetation. Reduction can range from pruning the trees in the defensible space to thinning or clearing large tracts of wildland. This can be accomplished through the use of basic mechanical means such as saws and axes. A licensed forester should be consulted before removing any trees to ensure that trees are removed in accordance with all rules and regulations. Furthermore, only professionals should use fire or chemicals for the removal of vegetation.

Suggested Projects

Education and Outreach to Residents

Educate residents and contractors on the dangers of wildland fire and encourage them to take an active part to reduce those dangers. Promote Firewise-building principles. This can be done through workshops, presentations, etc and through the distribution of Firewise brochures, which can be obtained from the Maine Forest Service. These projects will help to ensure that any future building will be done in a manner that will prevent losses of property and lives due to wildland fire. The Community may wish to consider incorporating Firewise-building principles in its building codes, and ensure that all new subdivisions have adequate road access and adequate water supply. Requiring contractors to construct fire ponds in new subdivisions where water is not readily available, as well as constructing alternative access roads could reduce risk.

Attitudes may be the most difficult aspect of wildland urban interface fire safety to address. Throughout the state of Maine, the lack of catastrophic fire history has led to complacency. People are inclined to feel they are close enough to a fire department that even if there is a fire, they will be saved. Still others aren't even aware that there is a danger in the first place. For these reasons, educating the public about the dangers of fire is very important. Any educational program should make people aware of their surroundings and the dangers they contain.

Smokey Bear program for children grades K – 5

Teachers can contact the Forest Service and have a Ranger come to their classroom and talk about fire safety in the woods. Smokey Bear souvenirs are available as well as having Smokey Bear visit the class.

Fuel Reduction

Initiate an annual "Clean-up Day" to encourage residents to reduce fuels around their homes by removing old debris and creating or increasing defensible space. The Community could offer to pick up debris from the roadside, offer free dump days, or keep the dump open more days or longer hours to encourage this clean up. The Maine Forest Service will partner with your community in defensible space projects by providing a wood chipper and operator at no cost to the community.

Fuel reduction is important because it is often the most effective means of reducing a home's risk to damage from wildland fire, as well as one of the cheapest. It is also something that homeowners usually can do for themselves. Most homeowners already

have the tools they will need, and if they are physically able to do the work, the only cost is their time. Fuel reduction can be done by open burning of grasses and other fine fuels and chipping or removal of coarse woody debris, as well as moving woodpiles away from structures and cleaning up debris such as old lumber from around homes. The Maine Forest Service has a prescribed burning program that may be available to assist with open burning.

Fire Department Training

Firefighters not already trained in wildland fire fighting should attend the Maine Forest Service's Wildfire Academy (or equivalent). It is recommended that they complete the S130/190 courses for general wildland fire fighting and the S215 course, which specifically addresses wildland-urban interface fires. The fire department should also maintain a cache of equipment for wildland fire fighting.

Potential Sources of State Funding and Resources

Volunteer Fire Assistance Program

This is a cost-share program with federal funds administered by the Maine Forest Service. This program is intended to help rural Communities fight wildland fire. In order to be eligible, the Community must have fewer than 10,000 residents. Only wildland firefighting equipment qualifies for financial assistance. This includes dry hydrants. Open application period is usually from November 15 through December 31 each year. Contact: Alan Hammond, 287-4993.

Cooperators Assistance Program

Communities and fire organizations interested in purchasing wildland fire fighting equipment may be able to do so at reduced rates through the Maine Forest Service. Items may be available from the General Services Administration or other vendors. Communities and fire organizations should check with their local Maine Forest Service Ranger for the latest pricing and eligibility. Full payment must accompany all orders. Contact: Cheri Bellavance, 287-4990.

Federal Excess Property Program

This is an equipment loan program administered by the Maine Forest Service for fire services/communities of less than 10,000 residents. Fire related equipment is loaned to the fire service/community until the community no longer wants it. Titles for vehicles remain with the federal government. Communities are required to maintain the vehicle and provide proof of liability insurance. Applications are accepted throughout the year. Contact: Dolph Holmes, Program Coordinator, at 624-3714.

Potential Sources of Federal Funding

Assistance to Firefighters Grant Program

This is a Department of Homeland Security program. There are 2 program areas to be considered. First, there is the Operations and Safety Program. Grants issued under this program are for items such as training, equipment, fitness and wellness, and

modifications to fire stations. Second, there is the Vehicle Acquisition Program, which includes grants for items such as brush trucks, tankers, pumpers, rescue vehicles and foam trucks. All requests for vehicle grants are submitted through this program area. Applicants may only submit one application under one program area per fiscal year. The application period is usually from March 7 to April 8. For further details, visit the Department of Homeland Security, Office of Domestic Preparedness website at www.firegrantsupport.com.

Staffing for Adequate Fire and Emergency Response (SAFER) Grant Program

Part of the Assistance to Firefighters Grant Program, this program is intended to help both career and volunteer fire departments to ensure they have adequate staffing. Two activities are covered under these grants: hiring of new paid firefighters, and recruitment and retention of volunteers. If the department chooses to use grant money to add a paid position, the grant will cover a decreasing portion of the firefighter's salary, until the fifth year, at which time the department will be required to cover the full cost of the new position. For more information, visit the Department of Homeland Security's Office of Domestic Preparedness website listed above.

If you have questions or would like additional information, please contact:

Fire Chief Stan Labbe
Litchfield Fire Department
2407 Hallowell Rd.
Litchfield, ME 04350

Phone: (207)268-9307

Fire Chief Dan Roy
Monmouth Fire Department
PO Box 270
Monmouth, ME 04259

Phone: (207)933-4545

Or

Maine Forest Service – Forest Protection Division
District Ranger Matt Gomes **Phone: (207) 624-3707**

Maine Forest Service – Forest Protection Division
18 Elkins Lane – Harlow Building
Augusta, Maine 04333
Contact: Cheri Bellavance
Phone: 287 – 4990

Visit the Maine Forest Service at:

<http://www.maineforestservice.gov>

Or visit the Maine Forest Service Forest Protection Division Website at:

<http://www.maineforestservice.gov/ffchome.htm>

Or view our award-winning video entitled “Defensible Space, it could save your home from a wildfire.” at:

<http://www.maine.gov/doc/mfs/fpd/pages/wui/wui.html>

Find us on Facebook by searching for “Maine Forest Rangers”



Appendices

National Fire Danger Rating System Description

1. **Low.** Fuels do not ignite readily from small firebrands, although a more intense *-heat-* source, such as lightning, may start many fires in duff or punky wood. Fires in open cured grassland may burn freely a few hours after rain, but woods fires spread slowly by creeping or smoldering, and burn in irregular fingers. There is little danger of spotting.

The color code for Low is green

2. **Moderate.** Fires can start from most accidental causes, but with the exception of lightning fires in some areas, the number of starts is generally low. Fires in open-cured grassland will burn briskly and spread rapidly on windy days. Woods fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot. Short-distance spotting may occur, but is not persistent. Fires are not likely to become serious, and control is relatively easy.

The color code for Moderate is blue.

3. **High.** All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High-intensity burning may develop on slopes, in concentrations of fine fuel. Fires may become serious and their control difficult, unless they are hit hard and fast while small.

The color code for High is yellow.

4. **Very High.** Fires start easily from all causes, and immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high-intensity characteristics; such as, long-distance spotting and fire whirlwinds, when they burn into heavier fuels. Direct attack at the head of such fires is rarely possible after they have been burning more than a few minutes.

The color code for Very High is orange.

5. **Extreme.** Fires under extreme conditions start quickly, spread furiously, and burn intensely. All fires are potentially serious. Development into high-intensity burning will usually be faster and occur from smaller fires than in the very high danger class (item 4). Direct attack is rarely possible, and may be dangerous, except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions, the only effective and safe control action is on the flanks until the weather changes or the fuel supply lessens.

The color code for Extreme is red.

Source: Forest Service Handbook, February 1964

Maine fire-resistant plant list



This is a partial list of fire-resistant plants that are approved by the Maine Forest Service for use when landscaping within 30 - 100 feet of a structure. Using these plants within the “home ignition zone” can reduce the likelihood of a fire being carried from a forested area to the home.

These plants have characteristics that make them less likely to burn in the event of a wildfire, but no trees or plants are entirely resistant to fire. We also advise homeowners to isolate groups of plants in small “islands” of combustible fuels, so that in the event of a large wildfire, they are less likely to allow the fire to spread to a nearby structure.

If the homeowner or landscaper desires further information on how to reduce the risk of wildfire near homes, please contact the Maine Forest Service at 1-800-750-9777 or visit www.maineforestservice.gov.

Trees

Red maple – *Acer rubrum*
Sugar maple – *Acer saccharum*
Mountain maple – *Acer spicatum*
Striped maple – *Acer pensylvanicum*
Yellow birch – *Betula alleghaniensis*
Paper birch – *Betula papyrifera*
Gray birch – *Betula populifolia*
American hornbeam/Blue-beech – *Carpinus caroliniana*
Pagoda dogwood – *Cornus alternifolia*
Cockspur thorn – *Crataegus crusgalli*
White ash – *Fraxinus americana*
Green ash – *Fraxinus pennsylvanica*
Black gum – *Nyssa sylvatica*
American hophornbeam – *Ostrya virginiana*
Bigtooth aspen – *Populus grandidentata*
Quaking/Trembling aspen – *Populus tremuloides*
Pin/fire/bird cherry – *Prunus pensylvanica*
Black cherry – *Prunus serotina*
White oak – *Quercus alba*
Northern red oak – *Quercus rubra*
Black willow – *Salix nigra*
Basswood/American linden – *Tilia americana*

Shrubs

Buttonbush – *Cephalanthus occidentalis*
Sweetfern – *Comptonia peregrina*
American hazelnut – *Corylus americana*
Bush-honeysuckle – *Diervilla lonicera*
Common witchhazel – *Hamamelis virginiana*
Winterberry/Black alder – *Ilex verticillata*
Beach plum – *Prunus maritima*
Chokecherry – *Prunus virginiana*
Staghorn sumac – *Rhus hirta* (*Rhus typhina*)
Meadow rose – *Rosa blanda*
Pasture rose – *Rosa carolina*
Virginia rose – *Rosa virginiana*
Pussy willow – *Salix discolor*

Maine fire-resistant plant list

Shrubs (continued)

American elder – *Sambucus canadensis*
Scarlet elder – *Sambucus racemosa*
Highbush blueberry – *Vaccinium corymbosum*
Mapleleaf viburnum – *Viburnum acerifolium*
Arrowhead viburnum – *Viburnum dentatum*
Hobblebush – *Viburnum lantanoides*
Nannyberry – *Viburnum lentago*
Witherod/wildraisin – *Viburnum nudum*
Highbush cranberry – *V. opulus* var. *americanum* (V. o. var. *trilobum*)

Vines and Ground Covers

Bearberry/Kinnikinnick – *Arctostaphylos uva-ursi*
American bittersweet – *Celastrus scandens*
Checkerberry/Wintergreen – *Gaultheria procumbens*
Woodbine/Virginia creeper – *Parthenocissus quinquefolia*
Lowbush blueberry – *Vaccinium angustifolium*
Cranberry – *Vaccinium macrocarpon*

Perennials

Columbine – *Aquilegia canadensis*
Blue Flag – *Iris versicolor*
Violet – *Viola* species

Note: Flowering plants may generally be used, however, the use of tree bark in landscaping should be minimal and always kept moist.

Grass – All grasses are acceptable as long as they kept short and watered.

Ferns – The use of ferns should be avoided within 30 feet of a structure. In the fall, they can become flammable due to their high surface area to volume ratio.

Updated: June 29, 2010

Wildland-Urban Interface Fire Fighting Equipment List

The following is a list of equipment recommended by the Maine Forest Service to be carried by fire departments for use in wildland fires.

- 1200 feet forestry hose
- 50 feet rubber-lined hose
- 2 – 1½ inch gated wyes
- 1 – 1½inch double female fitting
- 1 – 1½inch double male fitting
- 4 – 1½in. multi-setting nozzle
- 5 – forestry spades
- 5 – Pulaskis
- 5 – fire rakes
- 1 – chain saw (16 inch bar with kit)
- 1 – 2½ inch to 1½ inch reducer
- 1 – Mark III (or equivalent) pump with kit
- Vehicle – a fire truck with off-road capabilities is recommended for reaching remote wildland with limited access.

Helpful Websites

Firewise – www.firewise.org

Firesafe Council – www.firesafecouncil.org

Int'l Assoc. of Wildland Fire – <http://www.iawfonline.org/>

Maine Forest Service – <http://www.maine.gov/doc/mfs/index.shtml>

National Fire Protection Assoc. – www.nfpa.org

National Interagency Fire Center – www.nifc.gov

National Wildfire Coordinating Group – www.nwcg.gov

Northeast Forest Fire Protection Commission – www.nffpc.org

U.S. Forest Service – www.fs.fed.us/fire/

Smokey Bear – www.smokeybear.com

Community Valuation –

<http://www.maine.gov/revenue/propertytax/sidebar/statevaluation.htm>