Municipality of Anchorage

Community Wildfire Protection Plan

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by

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Contributions to the Municipality of Anchorage Community Wildfire Protection Plan were made by Jennifer M. Klugh, Jason T. Kohler, Michelle Weston, Thomas G. Kempton, Bridget C. Bushue, Frank V. Cole, local residents and a host of agency staff from within and outside of Alaska. Jennifer M. Klugh serves the Anchorage Fire Department as the Firewise education specialist and supporting public information officer. She works with private residents to implement Firewise principles and leads the Wildfire Mitigation Office in education and outreach. Jason T. Kohler is the aviation manager and fuels specialist for the Anchorage Fire Department. His experience in wildland firefighting and helitack lends a high level of expertise and skill to the AFD Aviation Program. He also coordinates wildland fire training for all AFD personnel. Michelle Weston, deputy chief of administration, is in a key leadership position for AFD by directing all support functions for the department. In her previous position as forester with the Wildfire Mitigation Office, she co-wrote the original Anchorage Wildfire Program strategic plan: a primary component of this Community Wildfire Protection Plan. Thomas G. Kempton, battalion chief, is the primary public information officer for the Anchorage Fire Department and supervises the Wildfire Mitigation Office. His role extends to the Alaska Type I and II Incident Management Teams as information officer on state and national wildland fires. Bridget C. Bushue, division chief of public affairs, supports education and communication between AFD and the community. Frank V. Cole serves the State of Alaska Division of Forestry as the fire behavior and fire weather coordinator. His work involves fire weather interpretation and prediction along with analysis of statewide and local fire weather. He serves incident management operations across the state of Alaska and the nation.

Sue Mitchell of Inkworks provided editing, design, and layout for this document. Her insightful contributions made this document into a readable and useful publication.

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Trees killed by spruce bark beetles contribute to the wildland fire hazard fuel load, causing greater fire intensity and reducing the fire suppression capability of ground crews.

Executive Summary

The Municipality of Anchorage Community Wildfire Protection Plan is a collaborative effort in response to the 2003 Healthy Forests Restoration Act (HFRA). The HFRA directs communities exposed to wildland fire to conduct a risk assessment and create a hazard fuel mitigation plan. Anchorage and its surrounding communities have been designated as "urban wildland interface communities within the vicinity of federal lands that are at high risk from wildfire" (Federal Register 2001). Through collaboration with other municipal departments and federal, state, and local agencies, the Anchorage Fire Department (AFD) has been working to mitigate the risks and hazards of wildland fire in the municipality. This process of developing a Community Wildfire Protection Plan (CWPP) for local communities will document that work and serve as the catalyst for future projects.

AFD has been working with its interagency partners for many years to educate the community about the potential for wildland fires. Community awareness has increased since the disastrous 1996 Miller's Reach Fire in the Matanuska-Susitna Borough (454 structures lost) and from the recent spruce bark beetle epidemic and resultant dramatic increase in hazard fuels. Just after the Miller's Reach Fire, AFD was awarded $200,000 from the Federal Emergency Management Agency (FEMA) to initiate an intensive public education campaign in the Municipality of Anchorage (MOA), focusing on defensible space preparation for homeowners. In 1997, AFD received a $400,000 Project Impact Grant from FEMA to continue the wildland fire awareness program. In 2001, the MOA started receiving additional federal funding to mitigate wildland fire through Firewise education, hazard fuel reduction projects, and improving AFD's wildland fire response capability.

Many hazard fuel reduction projects have been accomplished since 1997 on the residential and neighborhood levels. Although the community has experienced several significant wildland fire events in recent years (including the 2 ½-acre Dowling Fire in 2003 and the 50-acre Otter Lake Fire in 2006), we have been very fortunate in not having had any loss of life or property from a wildland fire.

Residents played a key role in establishing priorities for wildland fire preparedness and mitigation strategies in this community-based fire plan. During the 2007 initial planning process, AFD collaborated with the community councils in the Anchorage Bowl, Chugiak–Eagle River, and Turnagain Arm areas. Within those broad geographic areas, community council involvement ensured that neighborhood values formed the foundation of the Community Wildfire Protection Plan.

To make wildfire preparedness a part of community life for the long term, AFD retains dedicated staff and resources to implement the plan's high-priority objectives during the next three years and beyond. Building a sustainable program that will last beyond the current funding through federal appropriations is a critical element in the plan. AFD continues to partner with the Federation of Community Councils to engage the interest and participation of local residents to become prepared and to treat public forests to reduce risk. AFD continues to improve its wildland fire suppression capability through training and tactical response planning.

The wildland-urban interface exists throughout the Municipality of Anchorage; it is not limited to the perimeter of the developed area. Exposure to wildland fire is dependent upon the vegetation type, its respective fuel loading, the proximity of homes to one another, and the fire suppression response capability.

1 Introduction

The Anchorage Fire Department (AFD) is dedicated to being prepared for wildland fire by cultivating awareness in the community, reducing hazardous forest fuels, and improving its fire suppression response capability. By developing the Community Wildfire Protection Plan (CWPP), AFD is documenting its progress in mitigating the risks and hazards of wildland fire and projecting its goals for the next three years.

The national Firewise Communities/USA program has served as the template for developing the local Anchorage Wildfire Program. Firewise Communities/USA encourages wildland fire preparedness through partnerships within a neighborhood facilitated by local agencies. Key principles involve preparing the home to resist ignition from a wildland fire, preparing the family to find safe shelter during a fire, and engaging neighbors to help one another. AFD uses the existing Federation of Community Councils (www.communitycouncils.org) to communicate with residents and to plan hazard fuel reduction projects.

The Healthy Forests Restoration Act (HFRA), enacted by the United States Congress in 2003, emphasizes the need for federal agencies to collaborate with communities to reduce the risk of destructive wildland fires. The HFRA recognizes that a successful CWPP depends on involvement of local governments, local fire districts, state entities, and other agencies that manage lands within and around the community. Through this process, communities have the opportunity to influence where and how federal agencies implement fuel reduction projects on federal lands and how federal funds are distributed for projects on nonfederal lands, as is the case in the Municipality of Anchorage (MOA). The MOA has received federal grants and appropriations to mitigate the risk and hazard of wildland fire since 1996. There are three requirements for a complete CWPP as described in the HFRA:

1. **Collaboration**: A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.
2. **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.
3. **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.

The HFRA emphasizes that priority for federal assistance will be given to communities that have identified treatment areas through a CWPP. The objectives of the CWPP are to (1) help local fire districts, local governmental agencies, and residents identify lands that pose a severe wildland fire threat; (2) decide how to reduce hazard fuels on those lands while improving forest health; and (3) improve

firefighting response capabilities. Completing this document shows that a community has a plan to implement projects and therefore is well-suited to receiving federal and state grants.

The existing Anchorage Wildfire Program is consistent with these requirements for a CWPP. AFD staff partnered with local, state, and federal agencies to develop a formal plan in 2001. AFD established the Wildfire Mitigation Office and hired dedicated staff to promote Firewise homes and treat hazardous forest fuels. At the residential level, Firewise practices help keep the home from catching fire and keep the family safe during a wildland fire. AFD initiated the Anchorage Fire Exposure Model (AFEM) to assess risks and hazards in order to prioritize fuel reduction projects. Where private property meets public property, forest management helps keep fire from crossing these boundaries. These program elements are integrated into AFD fire suppression operations through the annual wildland fire refresher and multiagency simulation exercises.

The HFRA requires strong community involvement and commitment so that local knowledge and perspectives are included in the plan. To meet this requirement, 20 community councils have been directly involved in this process, along with individual residents at additional community meetings. Other entities such as Chugach State Park, MOA Heritage Land Bank, MOA Parks and Recreation Department, MOA Anchorage School District, U.S. Forest Service Chugach National Forest, Bureau of Land Management Campbell Tract, the public at large, and local leaders were contacted for input into the final plan. Annual reviews by the AFD staff, agency partners, consultants and community council members will provide updates to the plan, document project accomplishments, and schedule additional projects. AFD identified action items to initiate and continue mitigating wildland fires in the wildland–urban interface. This comprehensive list includes programmatic elements completed since 2001 and projections for the next three years.

The potential for loss of life and property is directly related to the risk of ignition and the hazardous fuels that support fire. Case studies show that people and structures can survive a wildland fire when Firewise principles are implemented. The Anchorage Fire Department provides technical support to create Firewise homes as a key objective of the Anchorage Wildfire Program. The independent and self-reliant nature of Alaska residents forwards their capacity for individual preparedness. AFD uses Firewise Communities/USA and Emergency Watch to harness this energy. As shown in the cases of the 2003 Cedar Fire and the 2001 Cerro Grande Fire, homes themselves become the primary fuel supporting wildland fire.

Conner's Lake and bog area near Jewel Lake Road, Anchorage.

Firewise-compliant homes, private and public forest stewardship, and a well-trained fire suppression force are critical elements to our community's survival during a wildland fire. The MOA CWPP addresses the Anchorage Fire Department's role in mitigating wildland fire through partnerships and preparedness.

2 Planning Process

A CWPP enables a community to clarify and refine its priorities for protecting life and property in the wildland–urban interface. This collaborative process unites federal, state and local governments with other interested parties to discuss mutual concerns in the wildland-urban interface. In addition, these groups can review the risk and create a plan for action. The CWPP process allows all interested parties to become involved and to address challenges such as local wildland firefighting capabilities; defensible space around homes, public buildings, and other improvements; and how to prioritize land management activities on public lands. A CWPP can be incorporated into a Firewise program and used by working groups, individual property owners, fire departments, and government wildland fire management personnel.

The 2004 handbook *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities* was a guide for completing the Municipality of Anchorage's Community Wildfire Protection Plan.

2.1: Step-by-Step Process

The handbook provides eight steps to guide the development of comprehensive fire plans for the respective community council areas throughout the municipality:

Step 1: Convene decision makers
Step 2: Involve federal agencies
Step 3: Engage interested parties
Step 4: Establish a community base map
Step 5: Develop a community risk assessment
Step 6: Establish community hazard reduction priorities and recommendations to reduce structural ignitability
Step 7: Develop an action plan and assessment strategy
Step 8: Finalize the Community Wildfire Protection Plan

Step 1: Convene Decision Makers

The Anchorage Wildfire Steering Committee developed the initial wildland fire mitigation plan that is the foundation for this CWPP. This team of interagency experts also provided oversight to subcommittees focusing on Firewise education, wildland fire suppression, hazard fuel reduction projects, and community risk assessment. Currently, the Anchorage Fire Department's Wildfire Mitigation Office performs the daily tasks to implement Firewise education and hazard fuel reduction. Support from additional AFD staff is critical in providing the synergy between Firewise and fire suppression operations. Major program decisions are currently made within AFD through consultation with agency partners and municipal management staff. To formalize this Community Wildfire Protection Plan for the

Municipality of Anchorage, authority is granted from the mayor; the fire chiefs for Anchorage, Girdwood and Chugiak; and the area forester for the Alaska Division of Forestry.

Step 2: Involve Federal Agencies

Managers and field staff from the Alaska Division of Forestry, U.S. Forest Service, Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, and U.S. Army Ft. Richardson have participated in developing and implementing the Anchorage Wildfire Program. Their technical support continues to improve operational standards and procedures for the three focal elements of the program: education, hazard fuel mitigation, and wildfire suppression capability.

Step 3: Engage Interested Parties

AFD and partner agencies have attended many community council meetings, homeowner association meetings, local events, and corporate safety meetings. Local residents have expressed sincere interest in learning about wildland fire risk and homeowner preparedness. Many of these local voices have participated in steering committee meetings, raising local issues and concerns, providing valuable suggestions, and offering constructive criticism to improve program delivery to the community. AFD returns to community council meetings regularly to further engage residents and local leaders while accepting suggestions to develop and maintain an effective community fire plan.

Step 4: Establish a Community Base Map

The Municipality of Anchorage has a comprehensive set of mapping layers that detail a number of physical attributes across all land ownerships. Available through the internet, municipal mapping layers support land ownership boundaries, satellite imagery, topography, and streets and addressing, among many other datasets.

Step 5: Develop a Community Risk Assessment

In assessing the exposure of Anchorage area neighborhoods to wildfire, AFD staff use a suite of tools to evaluate fuel types, potential fire behavior, likely ignition sources, value loss potential and fire suppression capability. These tools include several computer models along with field reconnaissance and cooperative planning with Alaska Division of Forestry. The Anchorage Fire Exposure Model (AFEM) yields a picture of exposure to wildfire risk. This model analyzes many of the datasets used in the community base map in combination with expected fire behavior.

Step 6: Establish Community Hazard Reduction Priorities and Recommendations to Reduce Structural Ignitability

The AFEM evaluates the vegetation (or fuel) with respect to its expected fire behavior. Forest treatment projects are prioritized based on these variables, population density, and the potential for a fire ignition. Firewise principles are integrated into the Anchorage Wildfire Program through individual home assessments, available to all area residents. Homeowners are provided with a list of recommended actions to reduce the potential for a structural ignition. The Firewise principles are the backbone of mitigating wildland fire at the urban interface: they are described in all of the educational media published by AFD.

Step 7: Develop an Action Plan and Assessment Strategy

The municipality is divided into three major areas: Anchorage Bowl, Turnagain Arm, and Chugiak–Eagle River. Within these three areas, assessments and action plans are specified at the community council level with reference to the Anchorage Fire Exposure Model (AFEM). By using this existing structure, AFD is able to work with cohesive neighborhoods to plan forest treatment projects and extend Firewise principles directly to the residents.

Step 8: Finalize the Community Wildfire Protection Plan

The draft plan will be routed through the leaders of participating organizations to attain consensus on strategies and actions identified. The final plan will be available to the public and published widely. Implementing and updating will be an ongoing process within each community council area.

2.2: The Core Team

Since the formal inception of the Anchorage Wildfire Program in 2001, Anchorage Fire Department staff has worked in cooperation with other municipal departments and agency representatives from local, state, and federal organizations. Initially, a multiagency group (Steering Committee) developed a plan of action for mitigating wildland fire risks and hazards in the wildland-urban interface of the Municipality. That plan has adapted to technical advances in fire and fuel management, wildland fire training, public outreach, and the changing community.

2001 Steering Committee: Original Membership*

Harry Kieling	Municipal Manager	Municipality of Anchorage
Dr. Richard Dworsky	Director, State and Federal Grants	Municipality of Anchorage
John Fullenwider	Fire Chief	Anchorage Fire Department
Hal Wiley	Deputy Chief, Operations	Anchorage Fire Department
Sue Rodman	Forester	Anchorage Fire Department
Michelle Weston	Forester	Anchorage Fire Department
Bill Sobers	Executive Director	Anchorage Soil & Water Conservation District
Bill Beebe	Fire Management Officer	Alaska Department of Natural Resources, Division of Forestry
John See	Director, Urban and Community Forestry	Alaska Department of Natural Resources, Division of Forestry
Ken Bullman	Area Forester	Alaska Department of Natural Resources, Division of Forestry
Al Meiners	Superintendent	Alaska Department of Natural Resources, Chugach State Park
Kelly Kane	Fire Specialist	USDA State and Private Forestry

*Many of these members now serve in different capacities or with different agencies.

3 Community Profiles

This section is excerpted from the Anchorage 2020 Comprehensive Plan.

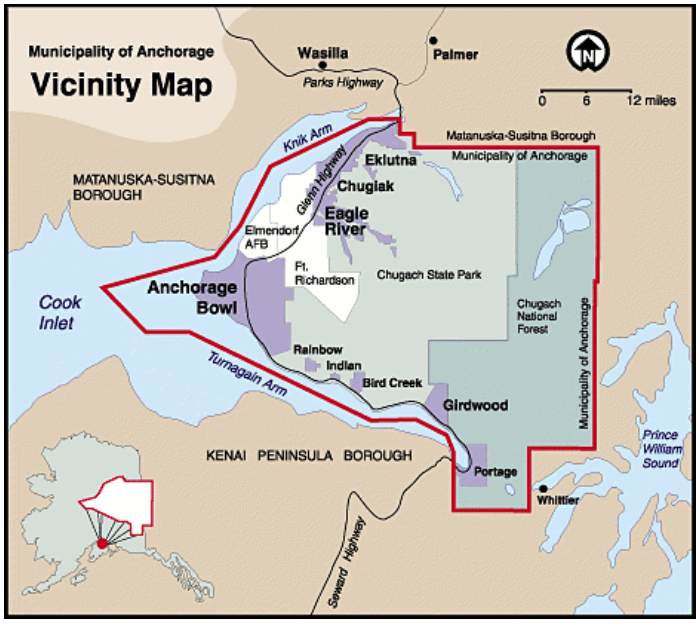
3.1: Anchorage

Anchorage is located in southcentral Alaska at the head of Cook Inlet. It lies about 1,400 air miles northwest of Seattle. The Municipality of Anchorage encompasses 1,955 square miles between northern Prince William Sound and upper Cook Inlet. The area consists of mostly rugged mountainous terrain and coastal plains. Only 10% of the municipality is inhabited; 84% of the total land base is within the Chugach National Forest and Chugach State Park.

Most residents live in the Anchorage Bowl, which covers approximately 100 square miles and is surrounded by Chugach State Park, Turnagain Arm and Knik Arm of Cook Inlet, Elmendorf Air Force Base, and Fort Richardson Military Reservation. Anchorage residents outside the bowl either live on military reservations, farther north in the suburban/rural community of Chugiak–Eagle River, or in small settlement areas along Turnagain Arm.

History

Early inhabitants in the Anchorage area were the Eklutnas, a small group of Athabaskan Indians. The village of Eklutna is near the northern end of the municipality. The earliest Caucasians in the area were Russian fur traders and missionaries, later followed by gold prospectors and traders passing through on their way to other gold deposits. Some stayed to prospect the area, resulting in a few mining camps and small settlements along Turnagain Arm, most notably Girdwood. However, Anchorage was not established until the federal government decided to build a railroad from the tidewater community of Seward to the interior gold mining community of Fairbanks.



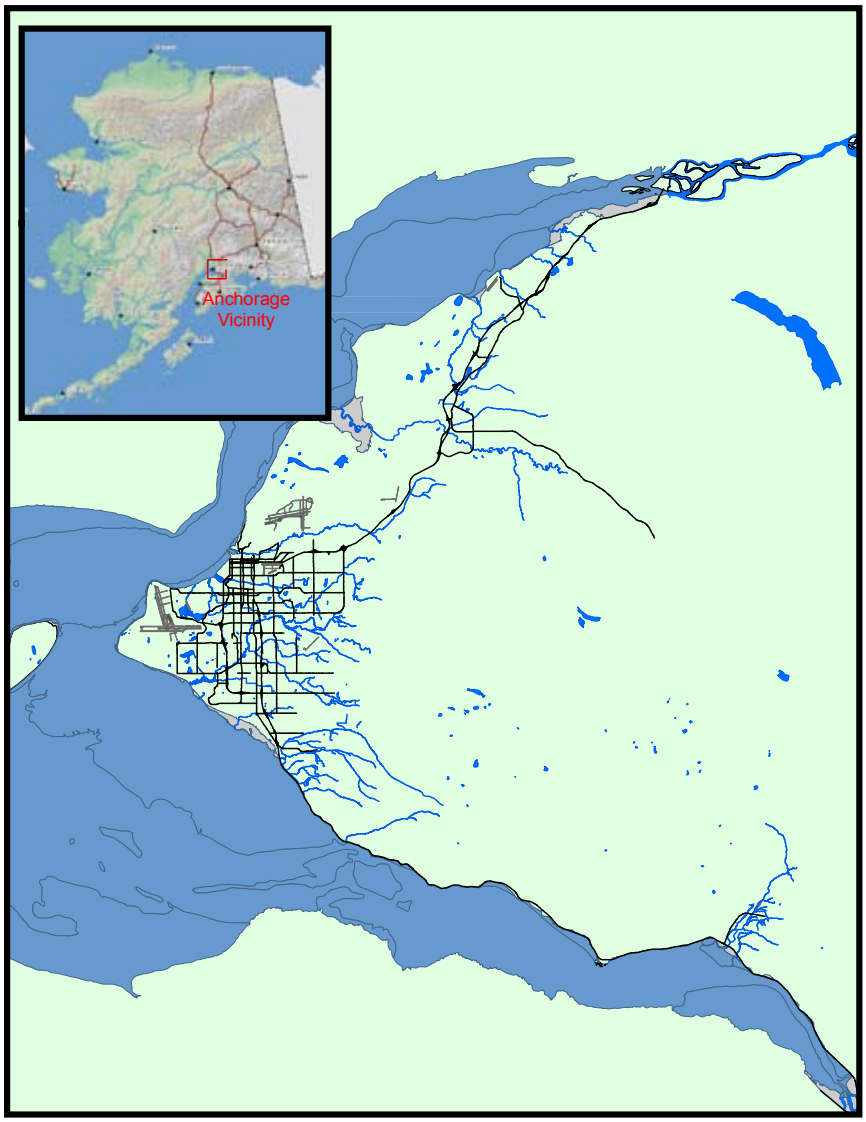
The city of Anchorage was founded when the government established the field headquarters for the construction of the Alaska Railroad at Ship Creek in 1914. Shortly thereafter, a tent city was set up along the shores of the creek by people seeking work on the railroad or business opportunities associated with it. The following year, a townsite auction of 600 lots established the downtown grid pattern that is still in place today. Anchorage incorporated as a city in 1920.

During World War II, Anchorage's strategic location made it well positioned for defense support facilities serving the North Pacific. This advantage resulted in the building of Elmendorf Air Force Base and U.S. Army Fort Richardson. During the same period, construction of the Glenn and Alaska highways gave Anchorage an overland link through Canada to the Lower 48. Anchorage's strategic location continued to play a valuable role during the conflicts in Korea and Vietnam and throughout the rest of the Cold War era. It remains a vital national security asset today.

Culture and Demographics

For most of its history, Anchorage grew as a community of immigrants: newcomers from outside the state and Alaska Natives from rural areas within the state. At the time of the 1990 census, approximately one-quarter of Anchorage's residents were born in Alaska.

For decades, a seasonal boom-bust economy and military personnel rotations have made Anchorage a fast-growing town of transients. Anchorage's diverse demographics are characterized by racial and ethnic minorities accounting for 27% of the population. Alaska Natives make up eight percent of the total population and are the largest minority group.



Economy

Anchorage is the State's primary transportation, communication, trade, service, and finance center. Anchorage is home to 42% of the state's population and accounts for 47% of the employment. Nine of the 10 largest private employers are headquartered here. More than 70% of the state's legal, business, engineering, and management service employment is based in Anchorage.

Transportation

Anchorage's transportation system is made up of several major elements, including the Port of Anchorage, Ted Stevens Anchorage International Airport, and the Alaska Railroad terminal. Access to the Interior is provided by the Glenn and Parks highways, and access to the Kenai Peninsula is provided by the Seward Highway. The Alaska Railroad runs from the Port City of Seward to its terminus in Fairbanks. Anchorage is also the aviation hub for southcentral Alaska and provides commuter aviation and charter service to the western Interior.

3.2: Chugiak–Eagle River

The Chugiak–Eagle River area north of the Anchorage Bowl began to develop shortly after the 1900s, when traders and prospectors began to arrive looking for minerals and routes to the gold fields. Ekultna was the dominant settlement in the area in the 1920s. However, growth occurred closer to Anchorage with the development of the U.S. Army Fort Richardson and Elmendorf Air Force Base. Military personnel and civilians associated with military construction jobs moved into the Chugiak–Eagle River area, and commercial enterprises soon followed.

In the Chugiak–Eagle River area, local retail growth in response to the increasing population has made retail trade the area's largest employment sector. Service-related jobs and the government are the second and third largest employers in the area, respectively. A large portion of the working population commutes to the Anchorage Bowl for employment.

3.3: Girdwood

Girdwood was founded just before the turn of the century as a supply and transport center for the area's placer and lode gold mines. The mining claims operated through the 1930s, when they stopped either due to the exhaustion of lode deposits or lawsuits and presidential orders to stop the environmentally destructive hydro-mining. In the 1920s, the construction of the Alaska Railroad benefited Girdwood. Development in the Girdwood area was revived in 1949 with construction of the Seward Highway. Much of the growth and development in Girdwood since the 1950s has been associated with skiing and other recreational opportunities.

The service industry is Girdwood's largest employment sector, with the largest employer being the Alyeska Resort. The construction industry is second, and the third largest employment sector is trade, mostly associated with tourism. Girdwood's economy is likely to remain based on tourism and recreation because there are plans for additional hotels and new recreational amenities. Many of the jobs in Girdwood are seasonal and are associated with the ski industry in the winter or with tourism during the summer. Many Girdwood residents also commute to Anchorage for employment.

4 Community Wildland Fire Risk Assessment

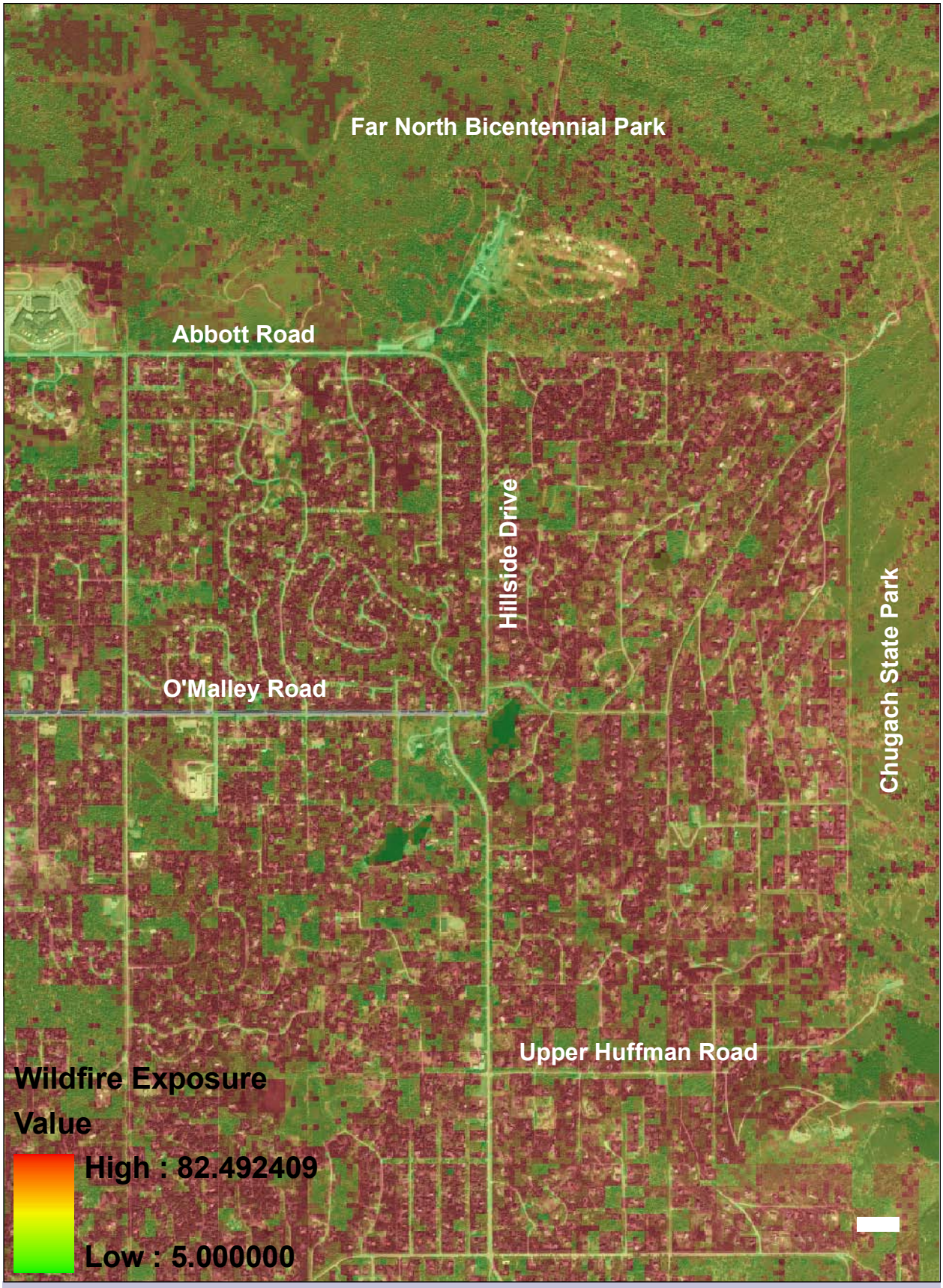
The purpose of a community risk assessment is to locate wildland fire hazards in the wildland–urban interface, to identify the values at risk, and to determine and prioritize hazard fuel reduction projects. Risk assessments also consider wildland fire occurrence, local preparedness, and wildland firefighting capabilities. The risk assessment process is ongoing and future assessments will be attached as addendums to this plan.

The Anchorage Fire Exposure Model (AFEM), created by Geographic Resource Solutions, calculates the fire exposure across designated areas within the Municipality of Anchorage, based on 30-by-30 meter pixels. Exposure is the relative ranking of a location's exposure to the impact of wildfire. The exposure is based on the cumulative effect of four components (GRS 2007):

- **Hazard**, the potential to burn, is based on the structure of forest fuels (horizontal-vertical arrangement) combined with slope and aspect to yield flame length and rate of spread. The AFEM uses nationally accepted fuel models to estimate expected fire behavior through both the Anderson and Scott and Burgan types.
- **Risk**, the potential for a fire to ignite, stems primarily from human-caused fires: residential brush burning, recreational fires, fireworks, and homeless person camps. Roads and trails are considered access for humans to ignite fires.
- **Values**, the potential for loss of life and property, include homes, public facilities, businesses, and utility infrastructure. This element does not include the monetary value associated with each structure or pixel, but rather evaluates its size and land use.
- **Suppression**, AFD's response capability, estimates how quickly water can be applied to the fire with consideration for the distance from a fire station, accessibility, and proximity to a water source.

The AFEM is used on conjunction with two other software programs that calculate fire spread at different scales. FlamMap software was developed by Systems for Environmental Management in Missoula, Montana. It models fire behavior characteristics, including spread rate, flame length, and crown fire activity, by evaluating the fuel model, wind, and other conditions at the pixel level. FarSite software applies a combination of many pixels to the designated landscape area. It models the growth of a fire across the landscape using wind and weather data, fuel types, aspect, and slope to interpret fire behavior outputs. The resulting raster maps show the extent of a fire over a specified time period. This type of output can be used to determine the best use of available fire suppression resources such as fire engines, helicopters, air tankers, and fire crews.

In evaluating each component of the AFEM, AFD has selected areas where mitigation through forest treatment may limit the area's exposure to wildfire. For example, a municipal-owned parcel that has high fuels hazard, high ignition risk, and is close to a subdivision would be prioritized for fuels reduction. Next, AFD would work with the local community to write a suitable site prescription that addresses the forest fuels and forest health while carefully adjusting for stream and riparian zone protection and aesthetic values.



Sample of the Anchorage Fire Exposure Model (AFEM) of the Anchorage Hillside area, showing wildfire exposure with an emphasis on value.

Special considerations for many neighborhoods throughout the municipality include the topography and water availability. Due to the east-west orientation of canyons and valleys, north-south road corridors are often discontinuous. This increases fire suppression response times. Water availability is severely limited because much of the wildland–urban interface has well and septic tank systems with limited pressure instead of hydrants pressurized by the municipal water system.

4.1: Community Wildfire Protection Plan Boundary

The wildland–urban interface can be described as the space where structures and other human-made development meet and intermix with the natural vegetation that often serves as fuel for a wildland fire. Wildland fire in the interface is one of the most costly and dangerous types of fires faced by fire managers today. Federal, state, and local governments place a high priority on working collaboratively to address the wildland fire threat to communities within the wildland–urban interface. Some proven methods of reducing the risk of wildland–urban interface fires include

- reducing the volume of wildland fuels in the interface area;
- breaking up the vertical and horizontal continuity of vegetation;
- instructing and educating the public on Firewise concepts;
- involving individual landowners in implementing Firewise concepts on their properties;
- developing improved wildland fire suppression capabilities and infrastructure at all levels; and
- decreasing the incidence of human-caused wildland fires through multiagency prevention efforts.

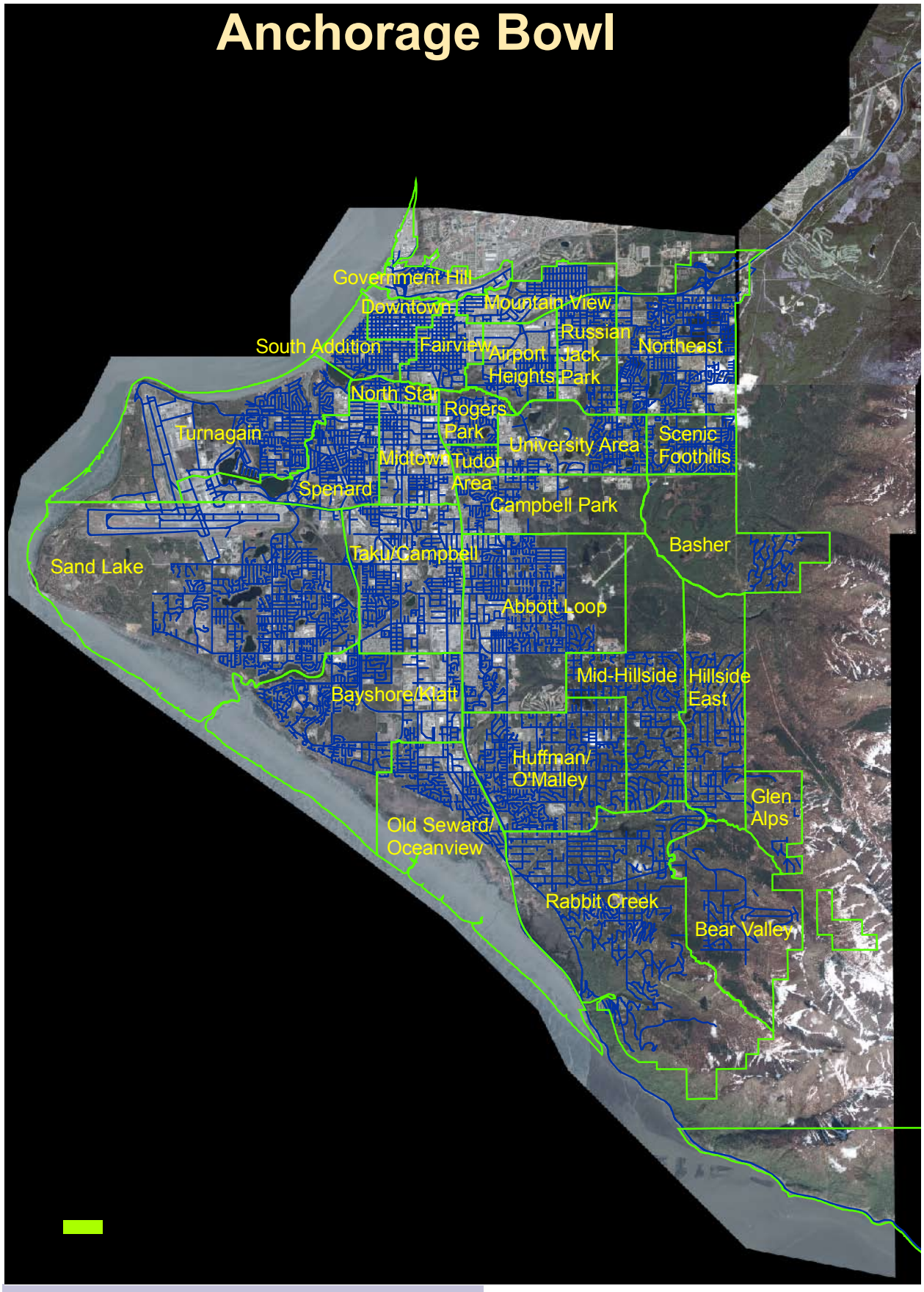
The Healthy Forests Restoration Act describes the WUI as those areas within or adjacent to an at-risk community and defaults to ½ to 1 ½ miles from the community boundaries. The MOA CWPP is designed for all neighborhoods within the Municipality of Anchorage, from Portage to Eklutna. Inside of this political boundary, additional specific risk assessments and action plans are being developed for community council areas that have a high potential for a wildland–urban interface fire, as determined by the AFEM and field reconnaissance. Other large land bases that would impact the spread and intensity of wildland fire include Chugach State Park, Bureau of Land Management (BLM) Campbell Tract, U.S. Forest Service Chugach National Forest, U.S. Army Ft. Richardson, and lands held within private ownership.

4.2: Wildland Fire Hazards in the Wildland-Urban Interface

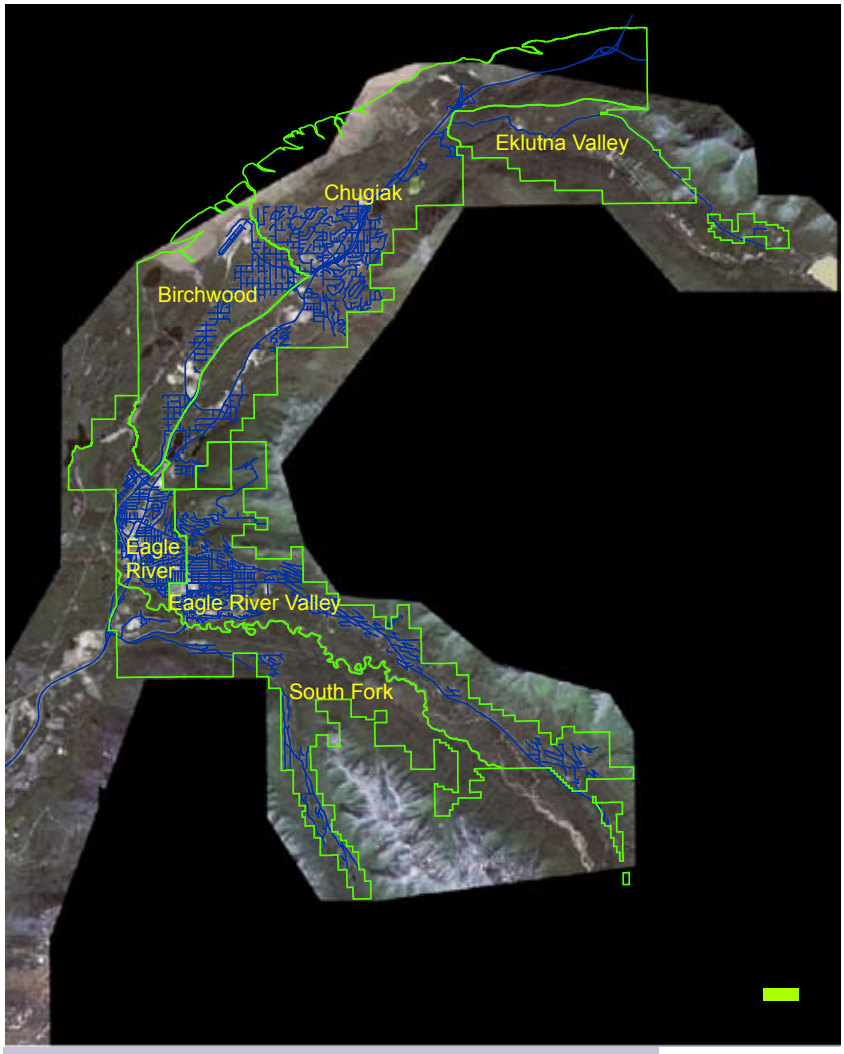
Alaska's Key Wildland Fire Fuels

- Fire-prone areas are in flat and rolling terrain below 3,500 feet in elevation.
- Homes in the boreal forest of major population centers.
- North-facing slopes are poorly drained, underlain by permafrost, and host black spruce.
- South-facing slopes are fairly well drained and typically host deciduous species.
- Rivers meander and have stringers of white and black spruce and mixed deciduous trees.

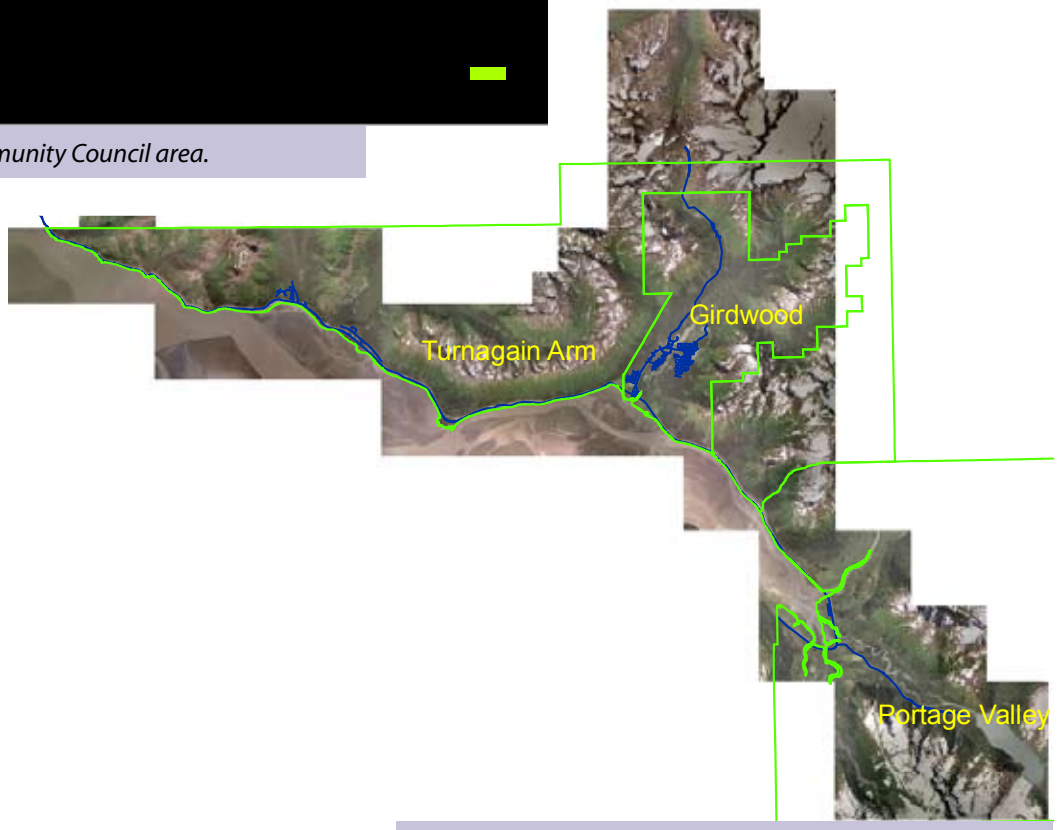
The fire "problem" at the wildland–urban interface is solely dependent upon the existence of structures within or adjacent to forests that naturally burn. Many methods of construction and materials are available to homeowners that will increase a home's resistance to an external fire ignition. These



Anchorage Bowl Community Council area.



Eagle River–Chugiak Community Council area.



Turnagain Arm Community Council area.

measures and the implementation of the Firewise principles are critical to protecting a structure from a wildland fire. Once ignited, a structure is a dense fuel that burns hot while also projecting burning embers that may ignite more brush fires or structures. This same phenomenon applies to forest fires, because burning embers are carried in front of the fire to ignite spot fires in advance of the main fire. The situation in the Municipality of Anchorage demonstrates that the extent of the wildland-urban interface, or intermix, extends throughout many developed neighborhoods. Personal and structural exposure to wildland fire exists for individual residents, considering the ignition potential from human-caused fires, the combustibility of homes themselves, and the proximity of homes to one another that can contribute to fire spread and intensity. While AFD does assume a strong responsibility to partner with public land managers to treat forested areas, homeowner preparedness through Firewise practices is also very important.

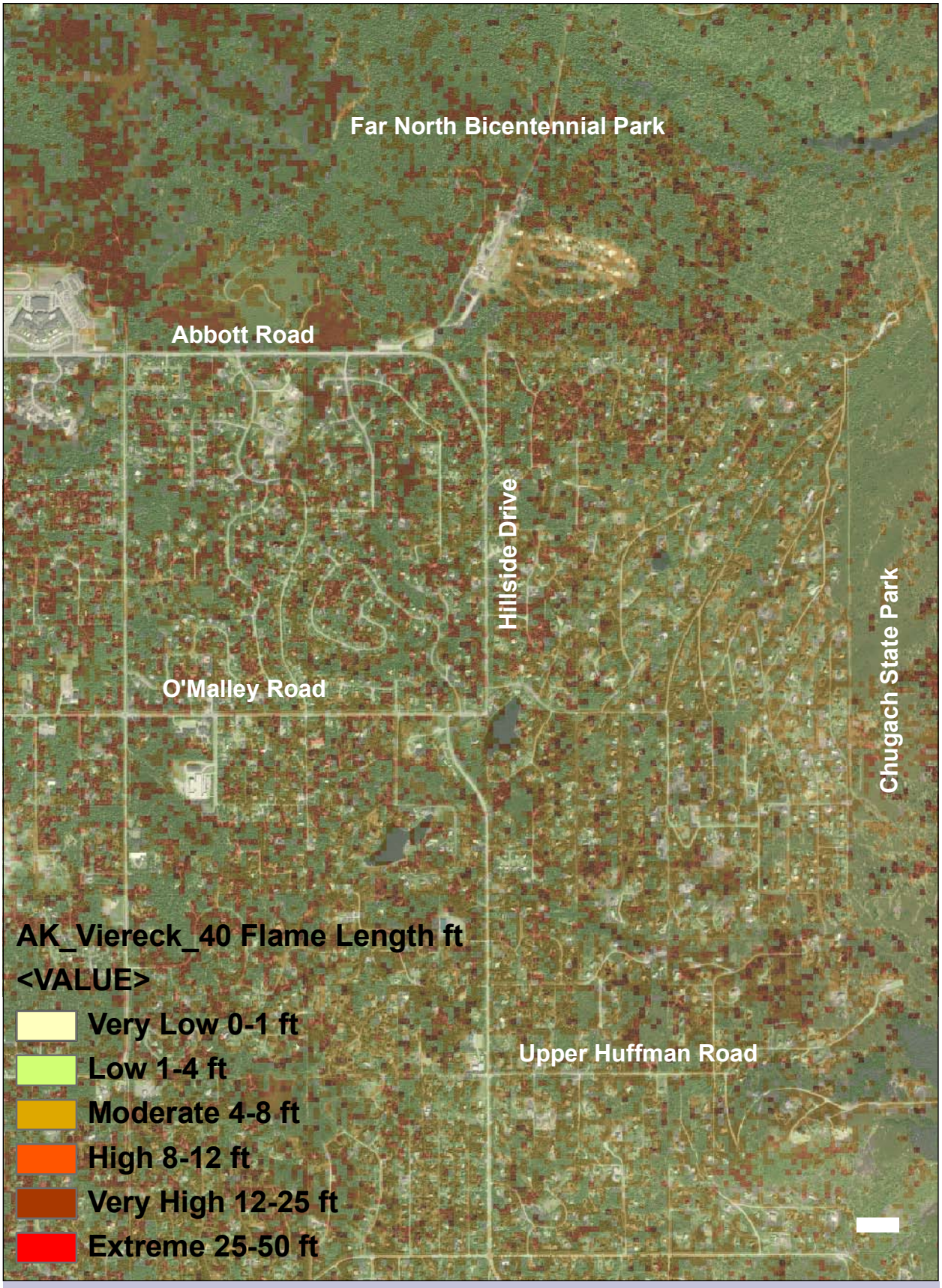
The forests across the Municipality of Anchorage represent the transition between coastal and boreal forest types. Stands of white, black, Sitka, and Lutz spruce mingle with mixed hardwoods, muskegs, and alder thickets. Hemlock is common on slopes and along the Turnagain Arm. Above treeline, expanses of tundra shrubs, herbs, and lichen coat the mountains beneath thousands of acres of glaciers.

The goal of the Anchorage Wildfire Program is for homes and people to survive a wildland fire without having an associated residential disaster.

The coniferous stands of the boreal forest support high-intensity fire due to their stand structure and chemical composition. A surface fire depends on the fuels on the forest floor, including mosses and duff layers of the soil stratum. Intermediate sized fuels such as branch wood combine with larger fuels such as logs to increase the intensity of the fire. Persistent branching of white, black, and Lutz spruce amid tall shrubs creates a ladder effect. In dry, windy conditions, a vigorous surface fire can ignite these lower branches and cause a crown fire. Lichen growth on spruce tree branches and volatile organic compounds in spruce needles contribute to the volatility of this species.

Native bluejoint reed grass (*Calamagrostis canadensis*) is the primary carrier of wildland fire in southcentral Alaska. This fuel type is most dangerous in spring, before green-up. The dry cured mat of grass resembles straw. Wind can quickly spread a small grass fire across tens of acres before firefighters arrive. Flame lengths in grass frequently exceed four feet in length, exceeding the capability of firefighters on the ground. The danger of this fuel type cannot be overestimated. It is the fuel that has caused hundreds of homes to burn throughout Alaska, including in the 2007 Caribou Hills Fire. This grass type occurs in forest openings common in the wake of the spruce bark beetle epidemic, fire, and timber harvesting. The hazard of this fuel type is easily mitigated by annual mowing. In managed areas, this species of grass may be replaced by other native grasses, although the success of this technique is still being monitored.

Black spruce stands, common on lowland and upland sites throughout the state, present a particularly dangerous fuel type. Sites are typically poorly drained and are almost always underlain by permafrost. Feather mosses dominate the forest floor in these stands; these fine fuels react quickly to dry conditions and significantly increase fire behavior. Tree branches extending to or near the ground and dead branches draped with bearded lichen contribute to the extreme flammability of this fuel type and lead to crown fires.



Upper Anchorage Hillside fire behavior map showing relative flame lengths based on the vegetation type, aspect, and slope.

White spruce typically displays less intense fire behavior than black spruce. Although more commonly found on upland sites, it also occurs in stringers and stands along river bottoms and valleys. Crown fire and torching rarely occurs in white and Lutz spruce.

Deciduous tree species include birch, aspen, and poplars. Typically these forest fuel types do not burn with high intensity but are difficult to extinguish because of deep leaf litter and longer intervals between fires. Deciduous forest species are often in mixed stands with black and white spruce. Deciduous stands exhibit less intensity and may be used as a fire break in certain conditions. However, this fuel type burns readily in late summer if dry conditions persist.

Beetle-killed spruce timber represents a dynamic fuel type. Soon after the tree dies, the red needle phase can support dangerous crown fires. Dry branches and crowns may ignite from surface fire in needles, grasses or organic layers. Five to 10 years after an infestation, the beetle-killed spruce trees fall down as the base of the tree rots from red belt fungus and/or carpenter ants and they become susceptible to wind-throw. As the forest canopy opens, bluejoint reed grass (*Calamagrostis canadensis*) invades the site. Combined with forest debris accumulating from decadent trees breaking down over time, the cumulative fuel complex is dangerous. The severe fires that burn in these heavy fuels result in ecological damage. Also, snags act as a receptor for aerial firebrands and an overhead safety hazard to firefighters. Firefighters cannot safely fight fire on the ground because they can't move through the forest and retreat to safety zones. This increases the dependence on aerial fire suppression resources such as helicopters and air tankers, often in short supply during the wildland fire season.

The potential for southcentral Alaska's boreal forest to burn is exacerbated by the extent of the spruce bark beetle epidemic, increasing the fuel loading on each acre to increase a fire's intensity. There are approximately three million acres of forested land impacted by the beetle. The U.S. Forest Service, U.S. Fish and Wildlife Service, and the Alaska Division of Forestry continue working with local government agencies to mitigate the consequences of wildland fire in these forests.

The 2006 report of Forest Health Conditions in Alaska (USDA Forest Service 2007), compiled by the U.S. Forest Service's Alaska Region and the Alaska Department of Natural Resources, stated that spruce bark beetle activity in the Municipality of Anchorage was estimated at 2,500 newly impacted acres in the Bird and Indian Creek valleys along the Turnagain Arm. Over 85,000 acres across the MOA have been impacted during the past two decades. Statewide, this impact exceeds three million acres of forest land, with over 119,000 acres of activity detected in 2006.

4.3: Value Loss Potential

Defining characteristics of the Municipality of Anchorage include its centrality of commerce, open green spaces, wildlife, and dramatic mountain views. Fire in the boreal forest that is common in the municipality is a natural force that creates and changes this ecosystem. Choosing to live in this environment places a responsibility on each resident, because fire can and will happen. Choosing to be prepared al-

lows residents to survive a fire event and sustain this lifestyle. Protecting these values must incorporate Firewise principles for homes, forest management, diligent fire response training, and a well-maintained fleet of firefighting apparatus.

Throughout the municipality, hundreds of homes are nestled in the boreal forest. The potential for fire to spread through these neighborhoods combined with the limitations of the road system and topography, creates a challenge for fire suppression. In many of these areas, fire engines are challenged by narrow gravel roads, dead ends, and steep grades. Response times and maneuverability may be considerably limited. With the potential for panic during a serious wildland fire, the risk for a vehicular accident and personal injury increases dramatically for both civilians and emergency personnel.

The AFEM evaluates only human-made improvements: public infrastructure, homes, schools and other facilities. This objective methodology allows fire management staff to plan forest treatment projects on public lands and conduct outreach to specific neighborhoods with high risk of structural loss.

4.4: Risk of Wildland Fire Occurrence

Boreal forests throughout southcentral Alaska experience wildland fire at varying intervals and intensities, depending on annual weather patterns, fire ignitions, and moisture content of the vegetation. Springtime before green-up and late summer often deliver dry weather and warm winds.

The wildland fire history data for the Anchorage Bowl and Eagle River Valley was tabulated for the period 2001 through 2006, yielding 622 calls that burned 200.3 acres (see table below). The majority of these wildland fires were of an undetermined origin. These are often instances where the fire was very small in size or already out upon arrival, making determination of the cause difficult or impossible. The misuse of fire in an unintentional way accounts for fires such as burn piles or campfires that were started for a specific, controlled purpose and became out of control. Intentional fires or those started with incendiaries accounted for 82 fires burning 12.7 acres. These fires are likely started by juveniles experimenting with fire but without any intention to cause harm. Cigarette smoking caused 65 fires over the past six year. Lightning or other acts of nature caused 26 fires, burning 18.1 acres. Fires caused by equipment accounted for 42.7 acres burned, including the 40-acre Otter Lake Fire at U.S. Army Ft. Richardson on May 23, 2006. It was caused by welding sparks that ignited grass along the railroad tracks.

Wildland Fires in the Municipality of Anchorage, 2001–2006

Cause	Number	Percent	Acres
Undetermined/Other	260	41.80	76.3
Misuse of Fire/Unintentional	176	28.30	41.2
Intentional/Incendiary	82	13.18	12.7
Smoking	65	10.45	9.3
Act of Nature/Natural	26	4.18	18.1
Equipment	13	2.09	42.7
TOTAL	622	100.00	200.3

Wildland fires in the MOA are usually human-caused. ***Human-caused wildland fires account for 96% of fire ignitions in the MOA since 2001.*** However, lightning strikes have increased in frequency in recent years, with several strikes recorded in Anchorage in 2005. In the AFEM, the risk of human-caused

fire ignition is based on the proximity of an area relative to human concentration. Roads and trails are weighted higher than areas with no access to reflect the potential for a human to ignite a fire. As shown in the risk map, ignition potential is shown as high near transportation corridors.

Alaska is a vast state, encompassing 375 million acres with approximately 220 million acres vulnerable to wildland fire. During the Alaska interagency fire management planning process in the early 1980s, Alaska was divided into four generalized geographic areas in an effort to describe fire regimes. These fire regimes are Southeast, Southcentral, Interior, and the Arctic–West Coast. Over the past 10 years, fires have burned millions of acres across these regions, with the least impact occurring in the Arctic.

The Municipality of Anchorage falls entirely within the southcentral fire regime, which is in the transition zone between marine and continental climate influences. The majority of fire starts in this regime are human-caused, but lightning is also a factor. Vegetation is a mix of tussock-tundra, conifers, and deciduous forests. The area receives an average of 60 inches of precipitation and averages 188 fires per year. Burning intensity is moderate to extreme, and resistance to control is moderate to high. This regime has a serious wildland-urban interface problem. The 1996 Miller's Reach Fire burned 37,700 acres and destroyed 454 structures. This fire demonstrated that even with road access, densely populated regions of the state can suffer disastrous consequences from wildland fire.

In the last 10 years, the State of Alaska has averaged 478 fires each year; 30% ignite from lightning strikes and 70% are human-caused (Alaska Department of Natural Resources July 2007). Lightning season starts in mid-May and generally peaks by mid-July. The majority of the human-caused ignitions occur on the road system in the southcentral and interior fire regimes.

Wildland-urban interface fires challenge suppression agencies in Alaska just as they do in other parts of the country. The most acute increase in population and subsequent increased housing density at the interface, on the road system, is occurring on the Kenai Peninsula, in the Matanuska-Susitna Borough, and near Anchorage and Fairbanks. These areas all have the classic wildland–urban interface problems associated with rapid population growth without adequate zoning or fire planning.

Key Wildland Fire Weather Factors (Stam 1999)

- There is no "typical" weather pattern for any part of Alaska.
- Weather prediction in Alaska is difficult.
- Strong high-pressure systems can dominate for days with clear skies, warm temperatures, and low humidity.
- Daily thunderstorm activity and atmospheric conditions during these periods can contribute to high-intensity, plume-dominated, blow-up fires.
- High-pressure systems can break down rapidly. Cool, moist arctic air can move in, followed abruptly by a return of high pressure and good burning conditions.
- Summer temperatures range from 50 to 85°F, with occasional readings in the 90s.
- Winds are variable, depending on local terrain. Winds can sometimes exceed 80 mph.
- Mountain ranges, glaciers, and permanent snowfields can cool air masses, causing down-slope flows.
- The 24-hour daylight in June and July decreases the normal daily differences in temperature and relative humidity. This limits "recovery" of humidity that is common in the Lower 48, where fire activity decreases dramatically during the evening hours.
- Critical weather factors are:

1. Heavier fuels will burn at 50% relative humidity.
2. Relative humidity below 30% and temperatures in excess of 80°F indicate extreme fire behavior in black spruce.
3. Winds at 20 mph and higher contribute to extreme fire behavior.

The interagency fire community in Alaska adopted the Canadian Forest Fire Danger Rating System (CFFDRS) for predicting fire danger. This interagency decision was made in the early 1990s based on the fact that the CFFDRS was developed in fuels similar to those in Alaska and at similar latitudes. The Canadian Forest Service has provided technical support to Alaska fire research projects and suppression policies.

4.5: Alaska Interagency Fire Management Plan

Virtually all forested lands in Alaska are covered by the Alaska Interagency Fire Management Plan, which was developed in the 1980s to provide a coordinated and cost-effective approach to fire management on all lands regardless of ownership. The plan is an interagency document and has been signed by all major landowners in Alaska. It classifies forested lands into four fire management categories: critical, full, modified, and limited. The fire management levels are evaluated based on the protection of human life, private property, and pre-identified high-value resources. All of the lands in the Municipality of Anchorage (except for some uninhabited areas in the Chugach Mountains) are classified as critical, full, or modified protection areas and receive aggressive initial attack.

The Big Su Fire, June 2007.

5 Wildland Fire Response Capability

The Anchorage Fire Department, Girdwood Volunteer Fire Department, and the Chugiak Volunteer Fire Department have embarked on an aggressive wildland fire preparedness program formally starting in 2001, coinciding with the first federal appropriation for wildland fire mitigation. The continued development of the urban-interface areas of the municipality in conjunction with the spruce bark beetle epidemic in southcentral Alaska has heightened the need for the Municipality of Anchorage to prepare for a serious wildland fire. Since receiving this initial funding, a host of operational and equipment improvements have been made.

Virtually all state, federal, and local government entities with wildland firefighting resources have entered into cooperative agreements or memorandums of understanding. These interagency agreements clarify agency responsibilities and enhance the rapid mobilization of interagency resources to suppress wildland fires. AFD has agreements in place with its state, federal, and local government partners guaranteeing ready access to their resources during a serious wildland fire. A similar agreement exists between the three boroughs: Municipality of Anchorage, Kenai Peninsula Borough, and the Matanuska Susitna Borough, to provide resources to one another during an emergency and to be reimbursed for services from that borough.

AFD has upgraded its response capability through training and apparatus, catalogued available natural water resources, and contracted a helicopter with a water bucket for the wildland fire season. With its mutual aid partners, AFD has conducted interagency emergency response drills that include evacuation, emergency access use, and sheltering vulnerable populations.

5.1: Apparatus and Equipment

Congressionally appropriated funding in 2001 designated $1.75 million to the Municipality of Anchorage for wildland fire equipment and response. These funds have been directed toward augmenting the suppression fleet of all three fire departments. This additional apparatus supports the primary role of the structural suppression force by adding smaller vehicles to accommodate neighborhoods with narrow roads and small-radius turnaround areas.

- KME Mini Pumper (Brush 10) is a Type III wildland engine that is more maneuverable than AFD's structural engines. It carries 300 gallons of water and includes a compressed air foam system that applies foam to structures to protect them from an approaching wildfire. It is housed at Station 10, directly adjacent to Bear Valley, and also services Rabbit Creek.
- Tender 14, with a 2,500-gallon capacity, is housed at Station 14, at the base of the Campbell Airstrip Road accessing Stuckagain Heights. This neighborhood is home to over 150 families at the end of a four-mile road with no secondary egress route. Alternate routes are limited by the Campbell Creek canyon and Ft. Richardson Army Base. Several similar limited-access neighborhoods in high fire

Brush 10, a KME Mini Pumper, is a wildland engine equipped with compressed air foam. It operates as a fully functional structural firefighting engine with the capacity to travel over challenging roads. It is housed at Station 10, Rabbit Creek.

AFD apparatus takes on the steep and narrow roads of South Anchorage.

Engine 11 sets up for a tender refilling operation during a wildland fire simulation exercise in Eagle River.

hazard areas do not have a municipal water supply: Glen Alps, Bear Valley, Eagle River Valley, and South Fork).

- Three Type VI wildland engines with 250 gallons each are staffed on high fire danger days by AFD firefighters. One of these engines is housed at Station 14 and the other two are housed at the AFD Maintenance Shop (Airport Heights). These engines serve the Anchorage and Eagle River areas.
- Two auxiliary Type VII wildland engines with 250 gallons each, also supporting wildfire mitigation projects, are housed at Station 7-1 in Sand Lake. These engines are available to AFD firefighters in a wildland fire event. They may also serve as command vehicles in that situation.

- Forestry hose, nozzles, and portable water pumps are positioned on the apparatus serving the wildland urban interface. This equipment allows firefighters to fight fire off of the road system and use water where streams provide the only source. Municipal and state parks range in size from 5 to 500,000 acres, making this type of equipment critical to wildland fire suppression efforts.
- Apparatus upgrades and wildland equipment have also been supplied to the volunteer fire departments of Chugiak and Girdwood. These departments have secured other apparatus and equipment, in addition to training, to augment their wildland firefighting capability.

5.2: Helicopter

AFD contracts a helicopter during the wildland fire season, as funding allows, to provide immediate fire response and an aerial platform for incident command. This helicopter is outfitted with a bucket for water drops that can be refilled at the nearest land or other water source. The AFD flight crew staffs the helicopter for a 60-day period beginning in May with the option to extend the contract based on fire weather danger in July.

The helicopter's primary use is in the Municipality of Anchorage, and it also provides mutual aid response to the Alaska Division of Forestry and the U.S. Forest Service. Flights are also used for aerial reconnaissance to view changing fuel types and forest stand structure because of the spruce bark beetle, planning for evacuation and mitigation projects, and assessing fire response strategies.

5.3: Water Resource Improvements and Cataloguing

The municipal water system does not extend throughout many of the neighborhoods that are in high fire danger areas. AFD has taken a proactive approach to this problem by cataloguing the potential water drafting sites such as streams and lakes that could serve as a water supply source during a wildland fire event. Guidebooks have been distributed to all AFD, Girdwood, Chugiak, and State Division of Forestry engines. The sites are inspected annually and the guidebooks updated.

5.4: Wildland Fire Training and Response

AFD has improved its firefighter response capability through wildland fire training and certifications. Also, Chugiak and Girdwood volunteer fire departments have improved their preparedness for wildland fires through increased training and Red Card certification.

All MOA firefighters are trained in basic wildland firefighting tactics and fire behavior. Also, the AFD flight crew trains in helicopter operations. AFD command staff are trained for advanced wildland fire operations, incident management, and public information. Annual wildland fire safety refresher courses are provided to all emergency response staff throughout the municipality.

Wildfire simulation drills are hosted by AFD nearly every year. These drills incorporate mutual aid response agencies such as the Alaska Division of Forestry, U.S. Forest Service, and municipal depart-

ments that would help with incident management and recovery. At each drill, the Anchorage Police Department has practiced residential evacuation procedures.

Anchorage Fire Department Booster Tank Capacity (gallons)

Community	Station	Location	Engine Capacity	Truck Capacity	Tender Capacity
Downtown	1	122 E. 4th Avenue	750	250	
Downtown	1	122 E. 4th Avenue	500		
Airport Heights	3	1100 Airport Heights	750	300	
University Area	4	4350 MacInnes	750		
Spenard	5	2207 McRae	750	300	
Northeast	6	1301 Patterson	1,000		
Sand Lake	7	8735 Jewel Lake	1,000		
Mid-Hillside	8	6151 O'Malley	1,000		2,500
Oceanview	9	1148 Huffman	750		2,500
Rabbit Creek	10	14861 Mountain Air Dr.	1,000		2,500
Eagle River	11	16630 Eagle River Rd.	1,000	500	2,500
Taku Campbell	12	7920 Homer Dr.		500	
Basher	14	4501 Campbell Airstrip Rd.	1,000		2,500
Bayshore Klatt	15	11301 Southport Dr.	1,000		
Rabbit Creek	10	14861 Mountain Air Dr.	Brush 10 (300)		
Basher	14	4501 Campbell Airstrip Rd	Brush 1 (250)		
Airport Heights	3	1100 Airport Heights	Brush 2 (250)		
Airport Heights	3	1100 Airport Heights	Brush 3 (250)		

Chugiak Volunteer Fire Department Booster Tank Capacity (gallons)

Community	Station	Location	Engine Capacity	Truck Capacity	Tender Capacity
Chugiak	31	17124 Old Glenn Hwy	1,000		2,000
			Brush 31 (325)		
Chugiak	32	19424 Inlet View Dr.	1,000		1,250
			1,000		
Chugiak	33	21616 Settlers Dr.	1,000		2,000
Chugiak	34	20581 Birchwood Spur	Brush 32 (250)		
			Brush 34 (250)		
Eagle River	35	14010 Old Glenn Hwy	1,000		2,500
			Brush 35 (325)		

Girdwood Volunteer Fire Department Booster Tank Capacity (gallons)

Community	Station	Location	Engine Capacity	Truck Capacity	Tender Capacity
Girdwood	41	Egloff Drive	800		2,000
			Rescue 41 (750)		1,750
			Utility 42 (250)		

South Fork Auxiliary Fire Department Booster Tank Capacity (gallons)

Community	Station	Location	Engine Capacity	Truck Capacity	Tender Capacity
South Fork	13	Hiland Road	Brush 13 (250)		1,500
			500		

Mechanized equipment combined with saw teams thin out forested areas to reduce fire spread while improving the vigor of residual trees.

State Forestry crews treat dense forests and prune healthy trees.

6 Wildland Fire Mitigation Strategies

Since 2001, the Anchorage Fire Department has partnered with many local, state, and federal agencies to develop an effective mitigation program that focuses on Firewise education, forest treatment projects, and effective fire suppression at the wildland–urban interface. AFD maintains that the community can experience a wildland–urban interface fire without having an associated residential disaster. Homes and lives can be protected if residents are prepared for wildland fire. As demonstrated in the 1993 Laguna Fire, the 1990 Painted Cave Fire, and the 1961 Bel Air–Brentwood Fire, along with many recent interface fires, if the structure and the surrounding home ignition zone are maintained according to the Firewise principles, the likelihood of the home surviving the fire is greatly increased.

6.1: Firewise Education

A basic concept of a CWPP is that ***the homeowner is ultimately responsible*** for making their property Firewise. Part of this responsibility is to understand the ignition potential of their home and other structures. In a wildland fire, structures are in essence a fuel source that will burn if fire is allowed to get close. Wildland fire spreads through four main processes:

1. **Conduction** is the process of the flame coming into direct contact with the structure or other fuels.
2. **Convection** preheats fuels as the heat and flame from the main fire rises and ignites fuels ahead of the flaming front.
3. **Radiation** is the process where the fire heats the adjacent fuels to a point where they will ignite without direct contact with the flames.
4. **Fire brands** are burning embers or other burning materials (such as cedar shake roofing) that are carried aloft by the wind and deposited ahead of the flaming front.

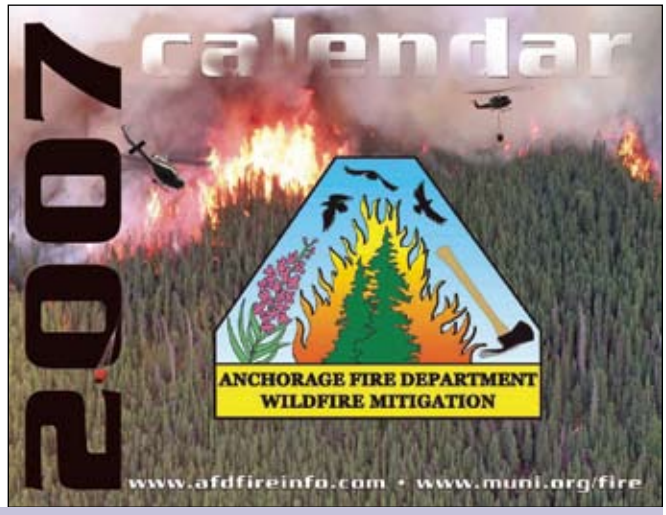
Studies conducted by the USDA Forest Service have shown that structural ignitability is the principal cause of structure loss in a wildland fire and that reducing the ignitability of structures is critical to their survival. Homeowners can make a huge difference in increasing the survivability of their homes and structures by ensuring that their property meets the following Firewise principles:

- Use noncombustible construction materials to the greatest extent possible, especially noncombustible roofing materials.
- Screen or enclose openings into structures and under porches and decks.
- Develop a defensible space around the structure that is at least 50 feet wide.
- Use fire-resistant plants for landscaping.
- Remove flammable materials from on and around the structure. If the structure is built on a slope, the defensible space must be greater on the down-slope side of the structure, corresponding to the steepness of the slope.
- Thin coniferous trees and remove lower limbs on trees within 100 feet of structures.

- Establish fuel breaks such as roads, pathways, lawns, and gardens to break up the continuity of flammable fuels within 100 feet of the structure.
- Establish a nonflammable barrier (rock garden or flower beds) around the foundation of the structure.
- Improve driveway access to facilitate personal and emergency vehicle traffic.

A structure will not burn in a wildland fire unless it is involved in the fire through one of the four processes discussed above. The main element in the success of the Firewise Communities/USA program on the national level is how the program directed the solution of wildland–urban interface fire problem toward the homeowners living there. AFD has followed suit by promoting the concept that "Wildfires happen … be ready!" If homeowners are to survive a wildland fire and keep their homes from burning, it is imperative that they take the responsibility of ensuring that their property is Firewise.

AFD's Wildfire Mitigation Office provides Firewise education to homeowners.



Firewise educational materials.

If we promote homeowner responsibility and self reliance, homeowners will understand that they are the first defense against losing their home to a wildland fire. If the home is not adequately prepared, firefighters will have trouble saving a structure from a fire. Firefighters will always do their job to the best of their ability, provided that they can do it safely. Trees, brush, firewood, and gasoline stored next to a home may create a situation where firefighters cannot do their job safely.

Reference materials for Firewise education are maintained at www.firewise.org. On the MOA website at www.muni.org/fire, AFD posts Firewise Tips, a checklist to make the home Firewise, and links to research about survivability of structures in a wildland fire.

AFD supports homeowner self-reliance through education and empowerment.

Through the Wildfire Mitigation Office, AFD provides Firewise home assessments to residents in the MOA. During these site visits, AFD recommends specific ways to implement Firewise for the home, surrounding vegetation, and family preparedness. AFD staff provide Firewise outreach and education through presentations to corporate and government safety meetings, community council meetings, and special interest groups (i.e., Rotary and Lions clubs). AFD provides classroom sessions to the Anchorage School District to complement the work of Alaska Division of Forestry's "Fire in Alaska" program for teachers and sixth graders. Presentations and learning sessions are also given to children at summer camps and other community events.

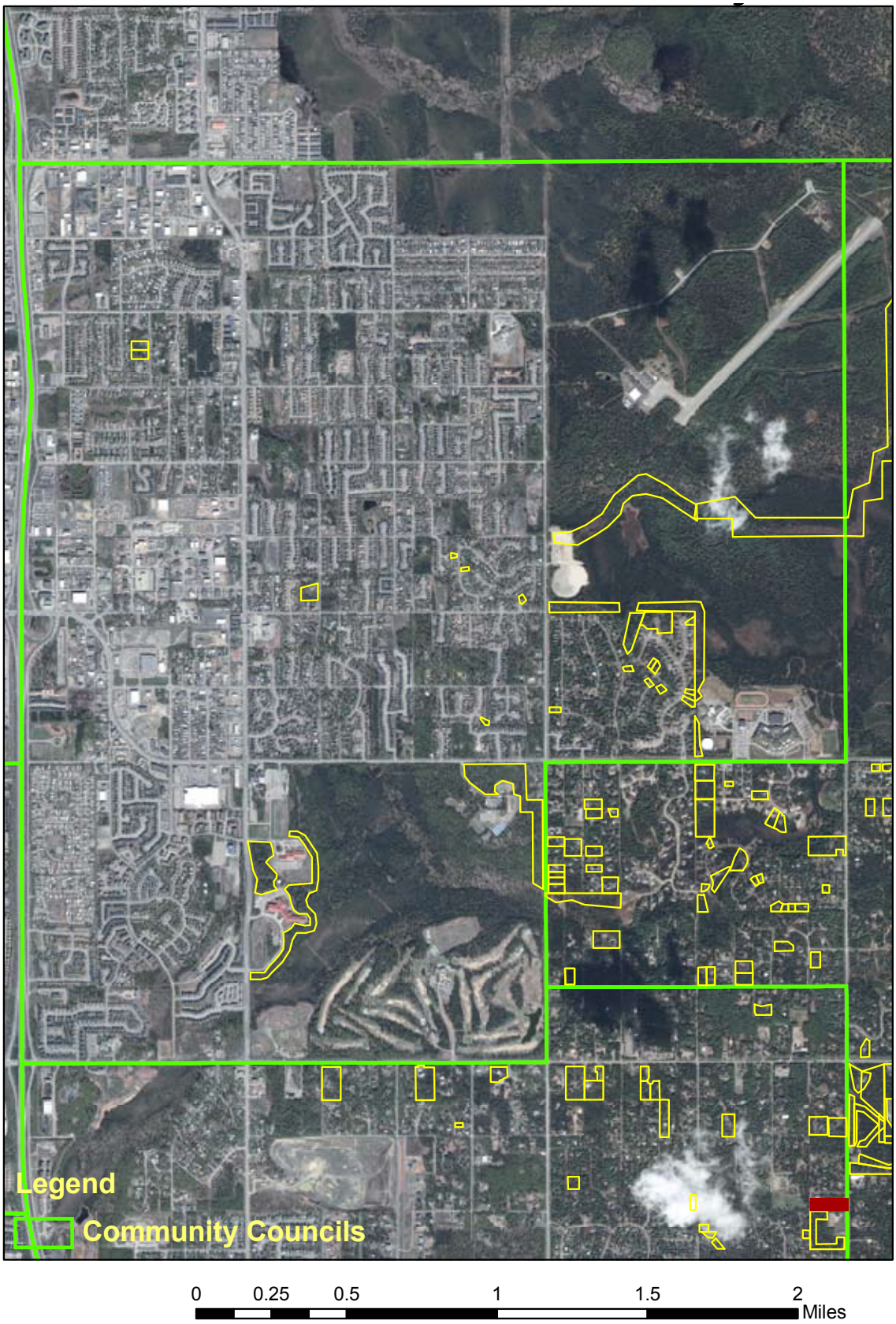
6.2: Hazard Fuel Reduction

Hazardous fuels refer primarily to vegetation. The many species of trees, shrubs, grasses, and herbs have different levels of combustibility. Of particular concern in the MOA are all species of spruce trees, blue-joint reed grass, and the organic debris that accumulates on the forest floor. Fire behavior varies in flame length and rate of spread, depending on the species composition and arrangement. Thinning trees and mowing grass significantly reduces the fire spread potential by breaking up the continuity of these fuels. Forest treatment projects that reduce hazardous fuels are most effective when conducted and maintained immediately around the structure and in forested areas next to neighborhoods.

AFD established a system to evaluate forest land to prioritize fuel treatment projects.

Forests extend throughout the MOA. Within these forests, neighborhoods have sprouted across the hills and lowlands, creating a mosaic of homes and trees. The spruce bark beetle followed the available habitat of spruce trees across thousands of acres of the Anchorage Bowl, Eagle River Valley, Eklutna, Ship Creek, Indian, Bird, and Girdwood. These vast tracts of public and private lands presented a challenge to prioritizing fuel treatment work. AFD initiated this task with a multiagency group to analyze vegetation cover types and develop a model to characterize fire behavior near residential zones.

The first step in assessing potential wildland fire behavior is to classify the fuels in the designated landscape. Through partnerships with the University of Alaska Fairbanks and consulting foresters, a vegetation



Abbott Loop Firewise Projects: These projects represent both private lands treated through the Firewise cost share tree removal program and public lands treated through AFD contract crews.

classification map was created for the MOA. In the field component of this mapping endeavor, the many vegetation types were measured for volume of fuel (tons per acre), species composition, horizontal-vertical density of vegetation, and soil characteristics. These variables were used to relate the vegetation types to fuel models using the Anderson fuel classification system. Preliminary fire behavior was modeled in a program called Farsite. Subsequent field work, modeling, and an updated classification system have increased the dependability of the models to predict fire behavior.

The evolution of modeling fire behavior lead to the development of the Anchorage Fire Exposure Model (AFEM) and the use of FlamMap. The AFEM was developed by Geographic Resource Solutions in Anchorage, Alaska. FlamMap is part of a suite of fire behavior prediction models developed through Systems for Environmental Management in Missoula, Montana. Outputs from these models help with planning and prioritizing neighborhood forest treatment projects. Field reconnaissance verifies the model outputs and is the critical tool in developing a specific site prescription for each project.

AFD maintains the Anchorage Fire Exposure Model as one tool in evaluating how wildland fire can spread across the wildland–urban interface.

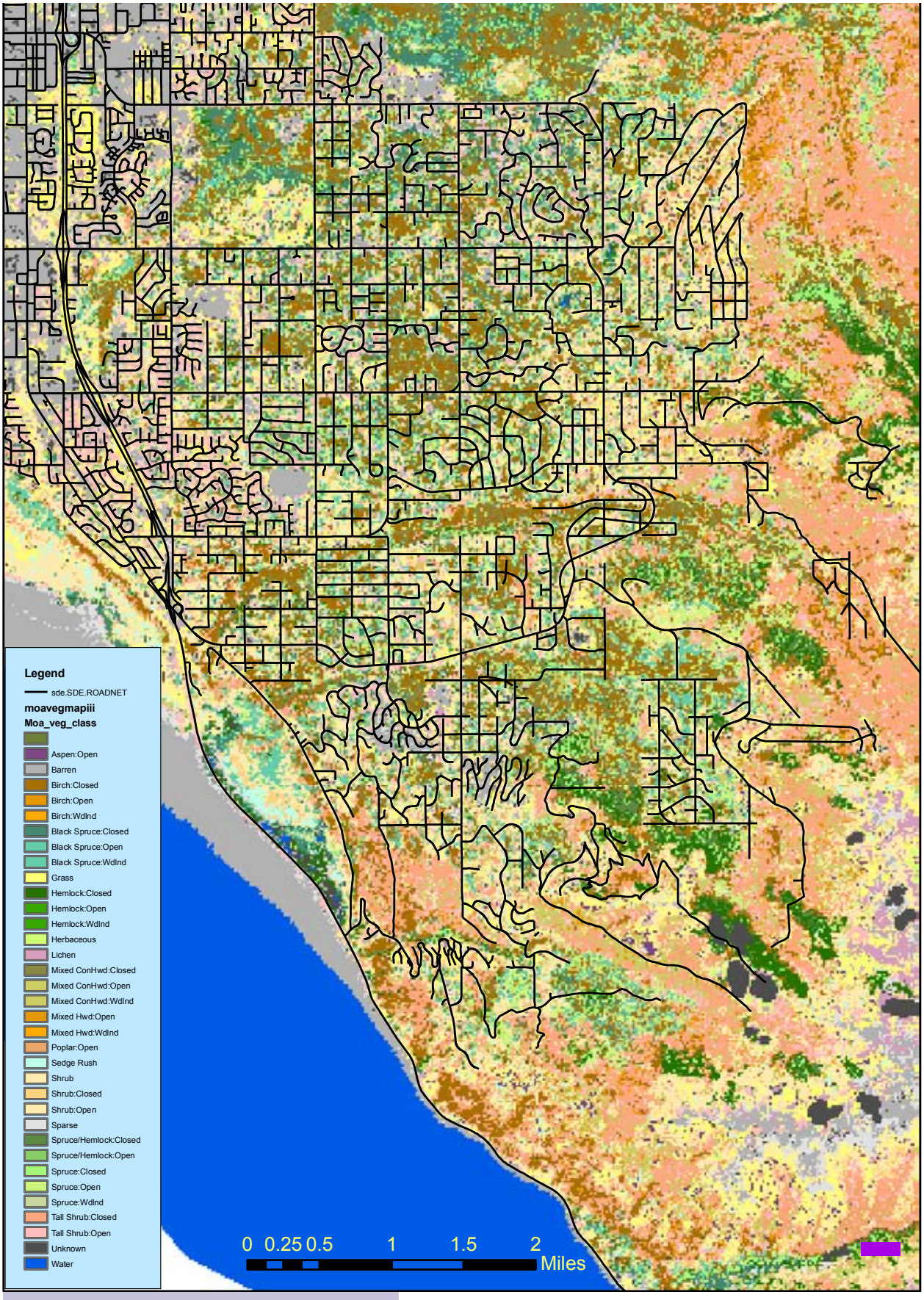
The AFEM evaluates potential fire behavior, fire ignition, values at risk, and the suppression response capability of the Anchorage Fire Department. FlamMap evaluates fire behavior at a specific location. FlamMap shows the expected flame length based on the forest fuel, slope, and likely weather conditions in each 30-meter square pixel.

AFD expects to maintain these models by updating the vegetation and property data every three to five years. As residential development changes the fuel complex of the wildland–urban interface and as forests change structure through time, the base vegetation (fuels) layer will need to be refreshed. This process involves acquisition of satellite imagery and field reconnaissance to confirm vegetation types and forest stand structure. From satellite imagery, cover types are classified on the map according to Viereck's vegetation classes for Alaska. These vegetation classes are then converted to the Scott and Burgan fuel models used to calculate potential fire behavior. Field plots confirm the accuracy of the image processing and provide additional data for fuel loading and forest stand structure.

By updating the fire exposure assessment, the community-based mitigation plans should also be updated to reflect changes in the wildland-urban interface fuel complex and in development patterns. By developing and updating these plans, fuel mitigation prescriptions and emergency preparedness tactics can be implemented.

Field reconnaissance is a critical tool used to monitor forest land for fuel loading and forest health.

Wildfire Mitigation Office staff regularly visit municipal and state lands throughout the MOA to monitor the changes in tree density, grass cover, and general fuel loading in forested areas. Forested areas are assessed for initial treatment to reduce fuels in addition to forest health. Treated areas are visited to monitor the vegetative response to thinning to evaluate when a maintenance treatment should be scheduled. Vagrant or vandal fire activity is noted on public and private lands to determine if forest treatment or other action should be taken to deter continuing malicious behavior.



AFEM South Anchorage vegetation map.

Treating forest fuels through thinning and pruning limits fire spread and intensity while providing for forest health.

Mitigating wildfire hazard through forest management is an effective way to limit fire spread within and adjacent to the wildland–urban interface. Unmanaged, dense forests are more likely to support crown fires that are very difficult to suppress. Thinning dense trees and pruning residual trees limits the potential for fire to spread from the ground into the canopy of the forest. This same treatment in the boreal forests of southcentral Alaska helps limit the spread of bark beetles by altering their preferred habitat: the bottom six to ten feet of mature spruce trees where branches are numerous and shaded by other trees.

Homeowners who request a Firewise home assessment from AFD Wildfire Mitigation Office learn the importance of structural and vegetative modifications around the home. Often, these improvements are more critical than removing large trees. However, backyard forest management and maintenance often provide necessary protection from a radiant heat ignition.

Public lands are evaluated using the AFEM, FlamMap, and field reconnaissance to determine the relative hazard presented to the neighborhood by the forest fuels. Then, an appropriate site prescription and treatment method are determined. AFD conducts extensive community outreach to involve residents in the planning stages of each project. Forest treatment projects are conducted primarily to slow the spread of fire where a forested area is next to a neighborhood. Public lands are evaluated with the AFEM, FlamMap, and field reconnaissance to determine the relative hazard presented to a neighborhood by the forest fuels. AFD works closely with the community councils to develop a meaningful forest treatment plan.

Treatment of the forest on public land is similar to that on private lands in that dead spruce trees are removed and the residual trees are thinned and pruned. The resulting trees are widely spaced and have an opportunity to grow healthier, maintaining forest cover and shade. This forest may still burn, however, fire spread is limited by the reduced amount of fuel, or tree limbs and regenerating tree seedlings. A slower moving forest fire can be more effectively suppressed by firefighters on the ground.

Treated areas are planted to native grass where the soil has been disturbed in an effort to replace the invasion of bluejoint reed grass with other native grasses that green up faster in springtime and are less likely to promote fire spread. Revegetation is also needed to keep out noxious and invasive weeds.

6.3: Comprehensive Strategic Plan

The action items described above are critical elements of the existing Anchorage Wildfire Program. These are the major programs supported by the Anchorage Fire Department in its daily operations. There are additional support projects that add depth and content to the mitigation efforts. Below is a complete list of action items that has been developed during the lifespan to date of the program. Elements are prioritized based on the judgment of AFD staff through consultation with community members, municipal administration, and agency partners.

Wildland Fire Mitigation Strategic Plan

		Priority	Timeline
Firewise Education			
⇨ Educate landowners about wildland fire & Firewise			
	• Distribute Firewise education materials	High	Annual
	• Promote Firewise principles	High	Annual
	• Provide Firewise home assessments	High	Annual
⇨ Promote individual & community responsibility			
	• Empower homeowners to make their homes and property Firewise.	High	Annual
	• Empower homeowners to mitigate fire risk (potential for ignition) through awareness and safe burning practices	High	Annual
	• Empower homeowners to mitigate hazardous fuels (vegetation, combustible materials) through forest management & Firewise principles	High	Annual
	• Empower homeowners to mitigate the potential for loss of life and property through emergency preparedness & family emergency planning	High	Annual
	• Facilitate neighborhood preparedness through collaboration (ie. Firewise Communities/USA)	High	2008
	• Provide technical resources to residents for emergency preparedness and forest management	High	Annual
	• Evaluate the applicability of property tax incentives for compliance with Firewise principles	Low	2010
	• Evaluate the applicability of wildland urban interface codes for vegetation and building construction guidelines	Medium	2002, 2009
⇨ Support fire prevention & awareness			
	• Support Firewise and Fire in Alaska teaching environments for teachers and students.	Low	Annual
	• Partner with other local, Municipal & State programs	High	Annual
	• Advocate safe burning through residential burn permits	Medium	Annual
	• Provide Firewise education to school classes, student summer camps, and youth programs	Medium	Annual
	• Address ignition potential of vagrants and vandals	Medium	Annual
	• Prohibit fireworks	Medium	Annual
⇨ Provide a forum for public participation & communication			
	• Wildfire website, email and phone number	High	Annual
	• AFD attendance at community council meetings	High	Annual
	• Presentations for homeowner association meetings, corporate safety meetings, non-profit organizations and other affiliations	Medium	Annual
Forest Treatment			
⇨ Fire Science			
	• Maintain & update vegetation classification map	Low	2007, 2012
	• Maintain & update the Anchorage Fire Exposure Model	Medium	2007, 2012
	• Identify areas with wildland fire fuel hazards	High	Annual
	• Prioritize treatment of wildland fire fuels based on the risk and hazard to life & property	High	Annual
	• Technology transfer with State, Federal and international organizations to improve efficacy of forest treatment projects	Medium	Annual
	• Monitor forested areas, treated & untreated, for stand structure and related fire behavior	Medium	Annual
⇨ Homeowner Assistance Programs			
	• Support vegetation management activities for private land owners within the home ignition zone.	High	Annual
	• Support residential disposal of brush and woody biomass.	High	Annual

		Priority	Timeline
⇨ Neighborhood Forest Treatment			
	• Support the treatment of public lands adjacent to residential neighborhoods to reduce the spread and intensity of fire.	Medium	Annual
	• Support the treatment of public lands adjacent to road corridors to provide for safe ingress and egress during a wildland fire event.	Medium	Annual
	• Support the treatment of public lands adjacent to safety zones for residents and staging areas for firefighters.	Medium	Annual
	• Seed scarified and/or masticated sites with native grasses to mitigate Calamagrostis spp. grass (to limit fire behavior) and invasive plants (to support native vegetation)	Low	Annual
	• Support the treatment of vegetation where fire ignition potential is high (near overhead power lines, homeless camps, evidence of vagrant activity).	Medium	Annual
	• Plant native white spruce trees where natural regeneration is limited	Low	Annual
⇨ Forest Stewardship			
	• Promote forest management practices among landowners that may reduce impacts of future bark beetle attacks and wildland fires.	Medium	2008
	• Promote private land forest management through Stewardship Incentives Program (State Division of Forestry)	Medium	Annual
	• Promote public land forest management through community support & grant funding	Low	2008
	• Support wood and biomass utilization technology.	Low	Annual
Wildland Fire Response Capability			
⇨ Train and equip AFD personnel in wildland fire incident management and fire suppression tactics (NFPA 299.10.4)			
	• Train AFD/OEM Administrative staff to interagency wildfire standards for logistical support	Medium	Annual
	• Train AFD Rank Personnel (Battalion Chiefs, Senior Captains, Captains) to interagency wildfire standard for engine operations	Medium	Annual
	• Increase wildfire behavior knowledge level of AFD Firefighters to interagency wildfire standards	Medium	Annual
⇨ Activate quick response to wildland fire events within the MOA			
	• Regular multiagency wildfire simulation exercises for initial and extended attack	High	Semi-Annual
	• Prepostion fire response apparatus during high fire danger periods	High	Annual
	• Review and update the AFD wildand fire response operating procedures	High	Semi-Annual
⇨ Support effective ingress and egress for wildland fire emergency			
	• Evaluate road network for access in and around residential neighborhoods and major transportation corridors	Medium	Annual
	• Determine the evacuation routes or strategies; examine incompatibilities between the current road layout and evacuation needs	High	Complete
	• Identify roads that will not accommodate fire department apparatus	Medium	Complete
	• Identify right-of-ways for improvement and/or construction	Low	Complete
⇨ Assess alternative water drafting sites where hydrants are not available			
	• Index water drafting sites for AFD resources book	High	Complete
	• Annual review of drafting sites, maintain sites as needed	Low	Annual

		Priority	Timeline
⇨ Prepare wildfire evacuation plans (NFPA 299.10.6)			
	• Supply Anchorage Police Department patrol vehicles with portable, reflective fire resistant evacuation signs	High	Complete
	• Establish criteria for ordering evacuations due to wildland fire threat	High	Complete
	• Provide basic wildfire behavior safety class for police officers	Medium	Complete
	• Promote residential evacuation preparedness	High	Annual
	• Develop a policy addressing residents who remain to protect their property	High	Complete
	• Develop a procedure to allow evacuees to return to their property after the fire threat has passed	Medium	Complete
	• Develop guidelines for non-governmental organizations for wildfire specific emergencies, as needed	Low	Complete
Post-incident Recovery			
⇨ Develop a post-incident recovery plan to address infrastructure and economic needs after wildland fire for public and private entities			
	• Establish guidelines for evaluating economic loss and recovery solutions	Medium	2008
	• Establish a response team to support recovery solutions	Medium	2008
⇨ Develop a plan to address post-fire debris management, air quality issues, soil scarification and erosion, and revegetation			
	• Establish partnerships to sponsor storage services for personal property items recovered after the fire.	Low	2009
	• Develop long-term, post-fire shelter management	Medium	2008

7. Memorandum of Agreement and Signature Page

Municipality of Anchorage—Community Wildfire Protection Plan
January 2008

Signature Page

The Healthy Forests Restoration Act requires that three primary entities must mutually agree to the final contents of a Community Wildfire Protection Plan. For the Municipality of Anchorage Community Wildfire Protection Plan, those three entities are:

- the applicable local government: the Municipality of Anchorage,
- the local fire departments: Anchorage Fire Department, Chugiak Volunteer Fire Department, and the Girdwood Volunteer Fire Department,
- the state entity responsible for forest management: State of Alaska, Department of Natural Resources, Division of Forestry.

The signatures below attest to the acceptance of the CWPP as written and mutual agreement to its final content.

The Honorable Mark Begich, Mayor
Municipality of Anchorage

12-27-07
Date

Craig P. Goodrich, Chief
Anchorage Fire Department

12-11-07
Date

Bruce M. Bartley, Chief
Chugiak Volunteer Fire Department

12-27-07
Date

William D. Chadwick, Chief
Girdwood Volunteer Fire Department

12/17/07
Date

Kenneth R. Bullman, Mat-Su Area Forester
Alaska Division of Forestry

12/27/07
Date

Appendix A: Community Fire Planning

Summary of Comments, Questions, and Discussions

Last updated May 29, 2007

Community Council	Date	Comment
Firewise Education & Home Assessment Program		
Eagle River Valley	02.14.07	Request a road sign reminder along Eagle River Loop Road to clear brush and prepare defensible space.
Eagle River Valley	02.14.07	I've done my Firewise preparations. How do I get my neighbor to do something? I'm concerned about their trees and other fuels that could impact me during a wildfire.
Hillside East, Mid-Hillside	02.15.07	Firewise education is critical. If no dollars are available for tree work, at least people can learn how to prepare their home through educational materials.
Abbott Loop	02.22.07	Make the Firewise home assessments more widely known. Many residents still do not know how the program works with the cost share tree removal.
Abbott Loop	02.22.07	How many brush fires are ignited from fireworks in the summer?
Turnagain Arm	03.06.07	Most of us have not heard about the Firewise Home Assessment program. How does it work?
University Area	03.07.07	Does AFD have a program to help homeowners? How do we learn about Firewise?
Hillside Town Hall	03.08.07	The tree work done around my home really improved my safety. The contractors took out all of the dead trees and cleaned up the slash.
Hillside Town Hall	03.08.07	The Firewise assessment provided to me by AFD helped me understand how the fire would ignite my home.
Rabbit Creek	03.08.07	Many residents do not know about the Firewise home assessment program. Some meeting attendees did have an assessment and had done tree work through the cost share program.
Bear Valley	03.14.07	How do I get rid of *Calamagrostis* spp. grass (bluejoint reedgrass)?
Chugiak	04.19.07	What are the Firewise principles?
Birchwood	04.25.07	The Firewise home assessment program allowed us to afford the tree removal necessary to make our home Firewise.
Birchwood	04.25.07	How do homeowners sign up for a Firewise home assessment?
South Fork	05.03.07	Home owners interested in the Firewise program.
Girdwood	05.21.07	Girdwood has the vegetation, proximity of homes, and tight roads to create a challenging fire situation if the weather dries out. Firewise principles will help all homeowners when dry weather conditions do happen, as they did in 2005.
Forest Treatment		
Eagle River Valley	02.14.07	Request mitigation work to be done in Chugach State Park at high use areas. For example, where river users have put ins or take outs are the same places where they typically have warming or camp fires. This is a likely ignition location for a wildfire. Many of these river users don't live in the valley are may not be aware of the wildfire risks and hazards.

Community Council	Date	Comment
Eagle River Valley	02.14.07	Road right of way needs to be treated to allow safe passage (evacuation) along Eagle River Road. Also request to pursue dialogue with DOT regarding the reconstruction of this road to increase the planned width to accommodate fire trucks during an emergency with pull outs and/or shoulder widths increased to support three vehicles abreast.
Abbott Loop	02.22.07	The tree thinning around Hanshew and Springhill schools will help keep those structures and parking lots safe from wildfire if we need to use them as safety zones for people.
Abbott Loop	02.22.07	Is the wood from neighborhood fuel reduction projects available for firewood to the local residents?
Turnagain Arm	03.06.07	With all of the beetle killed spruce in Indian and Bird, can the forest treatment happen soon to take advantage of the wood before it decays?
Turnagain Arm	03.06.07	If mechanized treatment is used in the forest, I don't want snow machines and ATVs to tear up the ground by using the skid trails.
University Area	03.07.07	Has AFD or MOA Parks considered doing any treatment in Folker Park? There are a lot of homeless folks there and a concern of fire.
University Area	03.07.07	Is there any treatment planned for the University forest areas? Homes back up to these forests. There is a high incidence of vagrant use within dense black spruce.
Rabbit Creek	03.08.07	Does AFD have a maintenance plan for residential parcels and Municipal parcels that have already been treated?
Rabbit Creek	03.08.07	What can we do about an absentee landowner who has a serious amount of fuel build up on their property in the form of dead trees and densely growing spruce?
Bear Valley	03.14.07	What is the process to request treatment in a local park to reduce the wildfire hazard of dead trees and densely growing trees?
Huffman O'Malley	03.15.07	Is firewood available from forest treatment projects?
Huffman O'Malley	03.15.07	How does AFD decide to use manual tree falling and slash pile burning versus mechanical "in woods mowing"?
Basher	03.21.07	Secure the egress route for Campbell Airstrip Road by removing spruce trees along the right of way to limit flame impingement on the road during a fire event.
Basher	03.21.07	Secure the right of ways within Stuckagain Heights by removing dead and dying spruce trees along the streets.
Basher	03.21.07	Secure the southern perimeter of Stuckagain with Chugach State Park and upgrade the northern perimeter with BLM/Ft. Richardson.
Chugiak	04.19.07	What is the anticipated impact of the birch leaf miner?
Chugiak	04.19.07	Need to treat the Ptarmigan trailhead of Chugach State Park where homes are adjacent to the park land.
Birchwood	04.25.07	There are a lot of stands of black spruce in the Birchwood area in between stands of birch. There is less public land for AFD to treat (Municipal and State). What can be done to protect the homes?
South Fork	05.03.07	Need to treat the road right of way where Hiland Road crosses the South fork of Eagle River. There is a lot of fuel in this neighborhood along with the topography to support fast fire spread.
South Fork	05.03.07	Need to treat other State parcels managed by Chugach State Park that are adjacent to subdivisions.
Sand Lake	05.14.07	Need to treat MOA lands behind Glady's Wood School.
Sand Lake	05.14.07	Need to treat Campbell Creek Greenbelt—various stretches where the dead trees are mixed with tall grasses. Vagrant behavior has been noticed; potential for fire starts.

Community Council	Date	Comment
Sand Lake	05.14.07	How do we ensure that more treatment gets done in Kincaid Park? There is so much fire danger with all of the dead trees mixed with tall grasses that fire could easily spread to the neighborhoods bordering the park.
Sand Lake	05.14.07	How can residents volunteer with fuel reduction projects in parks?
Girdwood	05.21.07	Spruce bark beetle activity in increasing in the Girdwood Valley. What can homeowners do to protect their trees?
Girdwood	05.21.07	Is there an option to work with the MOA Heritage Land Bank to remove spruce bark beetle killed trees?
Girdwood	05.21.07	Girdwood is seeing a significant amount of "orange hawkweed" invading the valley. What can be done to limit its spread?
Turnagain Arm	05.23.07	Being Firewise includes improving forest health. Where can we find more information on tree care?
Turnagain Arm	05.23.07	What are the plans for treating the dead spruce in Chugach State Park in Indian and Bird?
Turnagain Arm	05.23.07	Residents would like the wood from fire mitigation projects for local sawmills and firewood.
Wildfire Preparedness		
Eagle River Valley	02.14.07	Will there be a wildfire simulation drill in Eagle River that involves the residents? We want to practice an evacuation.
Eagle River Valley	02.14.07	Some residents are familiar with preparedness and self reliance in the event of a wildfire. They know they will have to fend for themselves. Other residents need education on this subject, especially those that live up the Eagle River Valley who might not receive any assistance for a while (into a wildfire event). Can we train more residents similar to the AWARE program?
Hillside East, Mid-Hillside	02.15.07	Evacuation planning for the family and for the neighborhood is crucial. We would like information and facilitation on how to do it.
Hillside East, Mid-Hillside	02.15.07	We would like help to establish a local framework like Emergency Watch or Crime Watch to prepare our neighborhoods for fire.
Abbott Loop	02.22.07	How will an evacuation be directed by AFD or APD?
Turnagain Arm	03.06.07	Which fire station or department will respond to Indian and Bird? How long will it take?
University Area	03.07.07	How will firefighters decide which homes to save and which ones are not saveable?
Rabbit Creek	03.08.07	How do we ensure that children and elderly people are safe in a fire event if we can't get home?
Rabbit Creek	03.08.07	What should we do if we have a cedar shake roof?
Rabbit Creek	03.08.07	How will AFD proceed during an evacuation?
Rabbit Creek	03.08.07	What items should I put in my emergency kit?
Rabbit Creek	03.08.07	How do I ensure that my home is Firewise enough to survive a brush fire?
Rabbit Creek	03.08.07	How do I make the decision to evacuate or shelter in place?
Rabbit Creek	03.08.07	How will AFD evacuate 1200 elderly residents off of the Hillside? What is the plan for elderly people and children to be evacuated during a fire?
Bear Valley	03.14.07	When is the most likely time to have a wildfire? What are the weather conditions that would support a fire?
South Fork	05.03.07	Request to remove the old "open burning prohibited" signs and replace with updated, appropriate reminders to be Firewise.

Community Council	Date	Comment
South Fork	05.03.07	Request to have a wildfire simulation drill involving South Fork residents. Would like to ensure that children home alone know what to do during a fire event. Option to do a table top drill at the school where more people could be involved in the exercise at one time.
South Fork	05.03.07	Develop a community plan for using the water resources in the South Fork area for homeowner use during permitted burning or for wildfire. Make them known and available.
Sand Lake	05.14.07	How will AFD fight fire on the South Bluff between Kincaid and Southport? There are places where access is limited?
Girdwood	05.21.07	How will the fire department respond to a wildfire in Girdwood?
Girdwood	05.21.07	Who is eligible for the Firewise home assessment program and the cost share tree removal program?
Turnagain Arm	05.23.07	What can be done about the bonfires at the end of Konikson Road in Bird on Chugach State Park land?
Turnagain Arm	05.23.07	What is the plan to treat the Heritage Land Bank property in Bird where bark beetles have killed so many trees?
Wood Lots, Burning & Brush Disposal		
Eagle River Valley	02.14.07	Keep the wood lots open every year. More people need to know about them.
Hillside East, Mid-Hillside	02.15.07	Keep the wood lots open. This is the best way for homeowners to get rid of their brush. Many people do not want to burn brush. It's safer to use the wood lots.
Abbott Loop	02.22.07	MOA needs to consider brush pick-up at curbside for wildfire and general landscaping. Many people do not have an appropriate vehicle for hauling brush.
Abbott Loop	02.22.07	As published in this month's Popular Mechanics, the concept of a plasma incinerator would account for woody material as well as all Municipal garbage.
Bear Valley	03.14.07	Will there be a wood lot in Anchorage through the coming years?
Huffman O'Malley	03.15.07	How do burn permits get issued?
Huffman O'Malley	03.15.07	Will there be a summer burn ban again? What conditions cause AFD to issue a burn ban?
Huffman O'Malley	03.15.07	Why has the traditional spring open burn period been closed for the past several years?
Huffman O'Malley	03.15.07	How can I dispose of leaves and brush in the spring?
Basher	03.21.07	Need a brush disposal method for Stuckagain. Wood lots are too far away. Suggest a conex or chipping.
Chugiak	04.19.07	What is the future of the three regional wood lots: Anchorage, Girdwood, and Eagle River?
Chugiak	04.19.07	Can we burn all year? How do the burn permits work?
Birchwood	04.25.07	How does the burn permit system work?
South Fork	05.03.07	Why is the open burn ordinance so restrictive?
South Fork	05.03.07	When will the wood lot be available? The wood lot is needed in Eagle River. Post the opening date and hours more widely.
Girdwood	05.21.07	When will the wood lot be available? The wood lot is an effective way to dispose of brush. Keep it open and open it earlier in the spring.
Girdwood	05.21.07	Can burn day approval be made specifically for Girdwood?
Turnagain Arm	05.23.07	What materials are we allowed to burn with a permit?
Turnagain Arm	05.23.07	Turnagain Arm communities need a way to dispose of brush other than hauling wood to Girdwood or Anchorage.

Appendix B: List of Abbreviations and Acronyms

AFD	Anchorage Fire Department
AFEM	Anchorage Fire Exposure Model
AIFMP	Alaska Interagency Fire Management Plan
AK DNR	State of Alaska Department of Natural Resources
BLM	Bureau of Land Management
CFFDRS	Canadian Forest Fire Danger Rating System
CWPP	Community Wildfire Protection Plan
FCCS	Fuel Characteristic Classification System
FEMA	Federal Emergency Management Agency
GRS	Geographic Resource Solutions
HFRA	Healthy Forests Restoration Act
MOA	Municipality of Anchorage
USFS	United States Forest Service
WUI	Wildland-Urban Interface
VFD	Volunteer Fire Department
WMO	Wildfire Mitigation Office

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