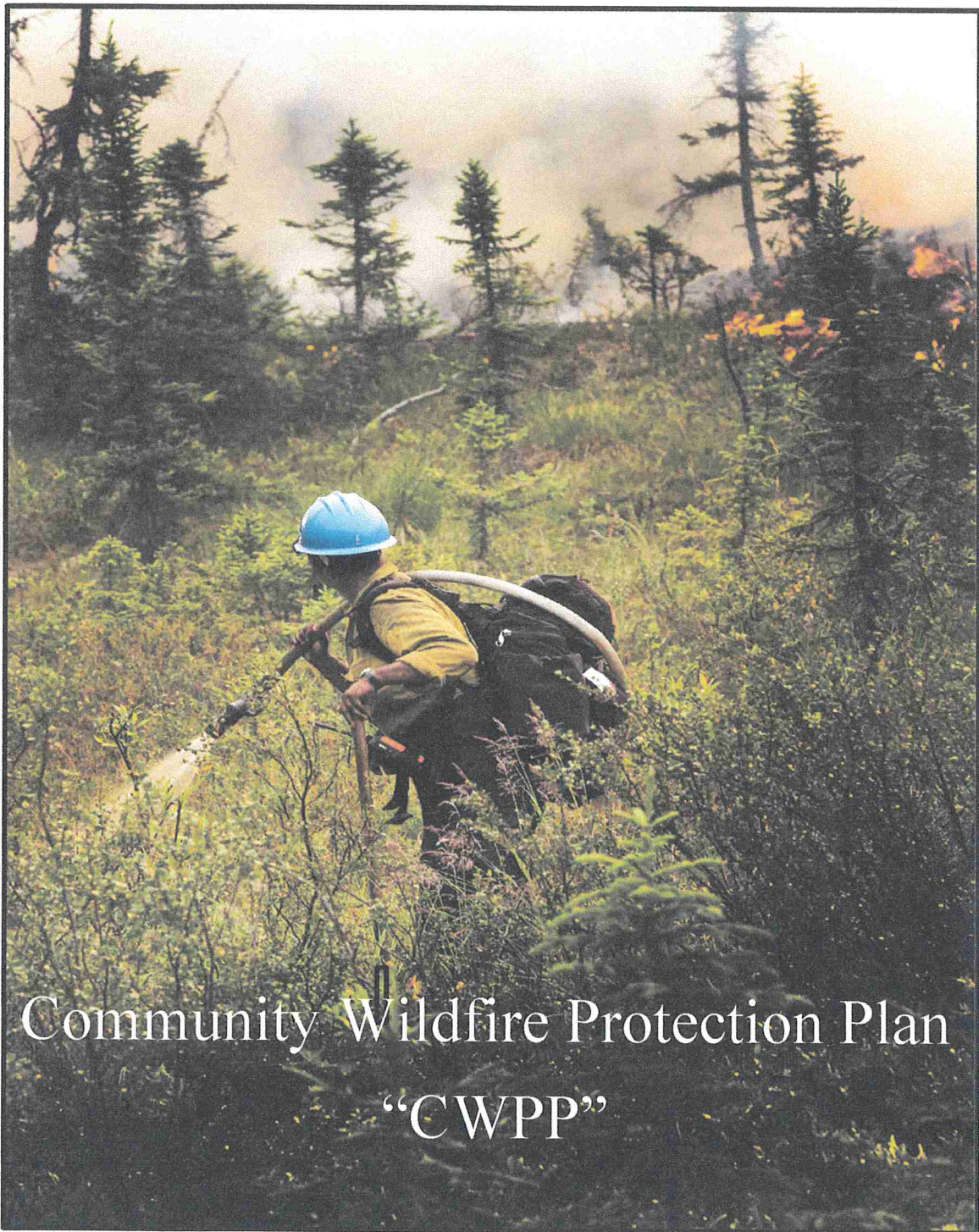


Matanuska-Susitna Borough



Community Wildfire Protection Plan
"CWPP"

Update – September 2021

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Executive Summary

The Matanuska-Susitna Borough (MSB) is one of the fastest growing regions in the State of Alaska. The population boom has caused significant increase in new construction for both homes and business, resulting in a rapidly growing wildland-urban interface (WUI). Wildfire risk has increased in recent years due to increased human activities, multiple spruce beetle infestations, and climatic changes that have led to warmer, drier summers. While the MSB government has been working to protect individuals, communities, and properties through FIREWISE and Hazard Fuel Reduction programs, a need for improved collaboration and the establishment of Community Wildfire Protection Plans (CWPPs) specific to communities has become a top priority. To grow accustomed to the CWPP process and develop the methodology necessary for developing future community level CWPPs, it was decided a MSB umbrella (area wide) CWPP would be a logical first step, with more community specific plans developed later. The MSB community has experienced first-hand the devastation caused by several catastrophic wildfires in the past 25 years, Miller’s Reach Fire in 1996, Sockeye Fire in 2015, and the McKinley Fire in 2019. As a result, this is a highly motivated effort intended to galvanize community members, property owners and government agencies against the threat of wildfires.

Introduction

The MSB is 25,0258 square miles in size, roughly the size of the state of West Virginia. It includes 3 incorporated cities and 26 individual community council areas and nine Fire Service areas. The most densely populated region is located in the southcentral portion of the borough. This area is often referred to as “the core” and includes the cities of Wasilla, Palmer, and Houston plus several surrounding community council areas. The remaining borough population spreads out from this core area along two major corridors: the north-south George Parks Highway and Alaska Railroad corridor and the east-west Glenn Highway corridor. A small portion of the population is located along major river corridors. As of 2021, over 20% of the state’s population resides in the borough¹. The state’s population grew by 0.3 percent on average each year from 2010 to 2019, with most of the growth in the borough.

See **Appendix 1** for a map of the MSB.

See **Appendix 2** for a map of Borough-Recognized Community Councils.

See **Appendix 3** for a map of the Fire Service Areas.

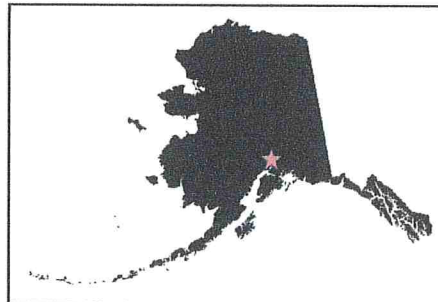


Figure 2 – State of Alaska / MSB

¹Alaska Department of Labor and Workforce Development, Research and Analysis Section. Alaska Population Overview 2019

Over the past several decades, the MSB has experienced significant population growth in the core area. The boroughs growth rate¹ was the fastest at an average of 1.9% annually between 2010-2019 which is more than six times the state average. In regions with the heaviest population growth, land that has historically been covered with native, undisturbed forest regimes (including regions of dense black spruce) is quickly being converted into wooded subdivisions and business properties. As more development occurs, the WUI continues to grow, increasing the number of individuals and structures at risk of being impacted by wildfire.

Most wildland fires that occur in the MSB are human caused and most of these fires are located within the WUI. These fires have the potential to threaten life and property because of their proximity to habitation. The Alaska Interagency Fire Management Plan has mapped all areas in the MSB into one of four fire protection designations or levels: Critical, Full, Modified or Limited. See **Appendix 4** for a table describing the different levels and a map of the MSB fire protection designations.

Only a small portion of burnable land in the MSB is designated as either Modified or Limited and very few fires are ignited in these regions. Few wildfires in the MSB were managed as one of these two lower priority categories. Instead, most wildfires were managed as Critical or Full priority wildfires.

Fire risk has increased in recent years due primarily to continued spruce beetle infestations. Some damage has also been noted from the hemlock sawfly and the aspen leaf miner. These infestations have impacted an estimated 380,000 acres of forest in Alaska.¹ Ground surveyors documented close to 4,120 acres in the Matanuska-Susitna Borough with ongoing spruce beetle caused mortality. Dead and dying spruce trees present a wildfire hazard when standing because they can support intense, rapidly moving crown fires. These insect-killed trees also present a hazard after they have fallen because they can support very intense surface fires. Wildfire in either fuel type is exceedingly difficult for firefighters to control by direct attack. While spruce beetle outbreaks are natural events, the magnitude of spruce mortality during historic episodes was typically much less than the current infestation in which mortality rates have been much higher. **Appendix 5** illustrates observed spruce beetle damage from 2015 to 2018.

Community Background

Location

The MSB lies in the heart of southcentral Alaska, encompassing roughly 25,000 square miles of rolling lowlands, mountains, lakes, rivers, and streams. It is bordered on the north and west by the Alaska Range, to the east by the Talkeetna Mountains, to the south-east by the Chugach Mountains and to the south by upper Cook Inlet and Knik Arm. The southern border also lies adjacent to the Municipality of Anchorage, Alaska's largest urban area.

¹ Alaska Department of Labor and Workforce Development, Research and Analysis Section. Alaska Population Overview 2019

² Alaska Department of Natural Resources, Division of Forestry; 2020 Annual Report, page 24-26

History

The first people to arrive in Alaska came across the Bering Land Bridge nearly 20,000 years ago. When European contact occurred, around 260 years ago, the Athabaskan Dena'ina (aka Tanaina) Indians were settled in southcentral Alaska including the region now known as the MSB. In 1867, the United States purchased Alaska from Russia which had claimed it as its own during the 1700s. The Klondike Gold Rush brought thousands of prospectors and entrepreneurs to Alaska in the late 1800s and early 1900s. Gold was discovered in the Hatcher Pass area of the MSB in the early 1900s and it, along with coal mining and the construction of the Alaska Railroad helped grow and sustain the local population. During the Depression a U.S. government *New Deal* program brought a group of farmers to the Palmer area to establish an agricultural region in southcentral Alaska.

World War II brought the next population boom with millions of dollars spent on the Alaska-Canada Highway and the build-up of military bases and infrastructure in Alaska due to its proximity to Japan. Construction of the regional road system and continued farming efforts spurred population growth in the MSB through the 1950s and 1960s. Alaska became the 49th State of the Union, in 1959. The 1970s brought significant population growth and an economic boom to the entire state due to the construction of the 800 mile long Trans-Alaska pipeline. Today, the MSB is rapidly changing and has the fastest growing population and economy in the state; however, traditional lifestyles such as farming, gold mining and subsistence living continue in certain parts of the region.

Demographics

The following figures are all from 2019 U.S. Census data¹ unless otherwise noted.

Population² – 108,317

Race – 82.5% white; 6.9% Alaska Native; 1.3% African American; 1.7% Asian; 0.4% Pacific Islander; 5.2% Hispanic¹

Gender - 52% male and 48% female

Age – 6.8% under 5; 26.4% under 18; 54.1% are 19-64; 12.7 over the age of 65

Total housing units – 42,120

Unemployment rate – 7.2%

Total employer establishments – 2,398

Total employment -19,923

Median household income - \$75,493

Population per square mile – 3.6

Residents living below poverty level – 9.6%

¹2019 United States Census Bureau

²Matanuska-Susitna Borough

Economy

In 2019, 15% of Alaska's population was in the Matanuska-Susitna Borough¹. Growth measures including employment, population, business formation, in-migration, highway counts, and new homes being built all point to the borough. The MSB economy is diverse, and residents are employed in a variety of retail, professional services, city, borough, state, and federal occupations. MSB residents supply a significant workforce to other portions of the state with 45% of the labor force commuting to Anchorage for employment and another 11% commuting elsewhere in the state. This means that while a large percentage of the workforce travels outside the MSB for employment, most of their earnings are invested or spent within the MSB.



Figure 4 – New Emergency Operation Center (EOC) / Dispatch (Mat Com) in Wasilla

Critical Facilities

In the MSB, facilities are considered critical if they are necessary for the health and welfare of the community particularly during disaster response and recovery. Critical facilities include hospitals, health clinics, law enforcement offices, fire and ambulance stations, and emergency dispatch centers (Figure 4). Most schools, senior centers and community centers are critical due to their designation as emergency shelters in the MSB Emergency Operations Plan. Critical transportation systems include airports and airstrips, highways, railways, bridges, ferry terminals and docks. Utility systems for water, electricity and natural gas are essential, as are sources of heating fuel. Communication towers and fiber optic systems for telephone, cell phone, radio and television transmission are also critical. Military installations and hazardous material facilities also fall within the definition of critical. Facilities vital to the local economy and for providing supplies include shopping centers, manufacturing facilities and warehouses. Correctional detention centers are important for securing the inmate population. Historic and cultural assets also require special considerations. **Appendix 6** shows a map of critical facilities in the MSB. Individual CWPPs developed specifically for each community council area will include a more comprehensive list of critical facilities.

¹AK Dept. of Labor and Workforce Development, Research and Analysis Section. AK Pop. Overview 2019

Transportation

The George Parks and Glenn Highways, as well as the state-owned Alaska Railroad provide the primary transportation routes to, from, and across the MSB. The railroad line runs roughly parallel to the George Parks Highway with a short and rarely used spur to the City of Palmer. Efforts are underway to develop an additional rail-line between Point Mackenzie and Houston. The project is under construction.

Commercial airlines serve the Ted Stevens International Airport located in nearby Anchorage. Across the MSB there are over 200 hundred private and public airstrips for small, wheeled planes as well a seemingly endless number of lakes for float plane landings.

Palmer and Wasilla each have a Municipal Airport; however, there are no scheduled flights. Private aircraft owners and small flightseeing operations utilize both airports as well as the many small unpaved airstrips scattered throughout the Borough. The State Division of Forestry (DOF) bases its wildland firefighting air operations out of the Palmer Municipal Airport. The Borough contains more private airstrips per capita than any community of similar size in the U.S.

Planning Process

The planning process described in *Preparing a Community Wildfire Protection Plan – A Handbook for Wildland – Urban Interface Communities* was used for the original development of this CWPP. That process involves the following steps:

- Step One: Convene Decision Makers
- Step Two: Involve Federal / State Agencies
- Step Three: Engage Interested Parties (LEPC/Emergency Services/Forestry)
- Step Four: Establish a Community Base Map
- Step Five: Develop a Community Risk Assessment (All Hazards Mitigation Plan)
- Step Six: Establish Community Priorities and Recommendations
(All Hazards Mitigation Plan)
- Step Seven: Develop an Action Plan and Assessment Strategy
- Step Eight: Finalize Community Wildfire Protection Plan

Convene Decision Makers, Involve Government

Agencies and Engage Interested Parties

Core Team

The core team responsible for developing the MSB umbrella CWPP included representatives from: MSB Department of Community Development – Land and Resource Management; MSB Department of Emergency Services; MSB Department of Planning and Land Use; MSB Office of Information Technology – Geographic Information Systems (GIS); the State of Alaska – Division of Forestry (AK-DOF).

Collaborators

The following listed collaborators in the 2021 revision received a electronic copy of the draft MSB umbrella CWPP 2021 Revision and were asked to submit comments, concerns and/or corrections: the MSB Local Emergency Planning Committee (LEPC).

Potential Stake Holders

Potential stake holders include government agencies, business and property owners, tribal entities, non-profits, and/or community members who may be interested in or who may be asked to participate in CWPP goals and objectives. They include but are not limited to: AK Dept of Transportation (ADOT); AK-DOF; AK Dept of Fish and Wildlife (ADF&G); AK Mental Health Trust Authority (AMHTA); AK Railroad; AK State Parks; Alexander Creek Inc.; Chickaloon Moose Creek Native Assn.; Chickaloon Village Traditional Council; City of Houston; City of Palmer; City of Wasilla; Cook Inlet Regional Inc. (CIRI); Eklutna Inc.; Enstar; Knikatu Inc.; Matanuska Electric Assn.(MEA); Matanuska Telephone Assn.(MTA); Montana Creek Native Assn.; MSB; MSB community councils; Palmer Soil and Water Conservation District; University of Alaska (U of A); U.S. Dept. of Agriculture (USDA): Forest Service (USFS), Natural Resources Conservation Service (NRCS), and State and Private Forestry Region 10 (SPF); and U.S. Dept of the Interior: Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM) - Alaska Fire Service (NFS), National Park Service (NPS), and U.S. Fish and Wildlife Service (USFWS).

Community Involvement

In 2019, during the development of the Updated MSB All-Hazards Mitigation Plan, a survey was conducted to assess attitudes, concerns, and recommendations about hazard vulnerability and mitigation strategies, including wildfire. A public survey regarding hazard mitigation was posted on the Borough website from June 5 to July 31, 2019. The public was advised of the survey via mailers sent to boards, Borough staff, and Community councils.

Survey results related to Wildfire Protection:

- Public education and awareness such as outreach programs, public service announcements, and notices to residents and property owners were determined to be extremely important (57%) and very important (33%), respectively, to inform the public about natural hazards and the actions necessary to avoid potential injury or damage.
- Natural resource protection actions to include forest management in addition to minimizing losses were determined to be extremely important (38%) and very important (44%) respectively, to preserve or restore the functions of natural systems.
- Emergency service actions such as warning systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems were determined to be extremely important (80%) and very important (17%), respectively, to protect people and property during and immediately after a hazard event.

- Also noted were the following:
 - Need for more frequent updates to the public during an event.
 - More public education is needed.
 - The Borough needs to develop a plan to address the spruce beetles and the standing dead spruce.

Government agencies, business and property owners, tribal entities, non-profits, and community members will be asked to participate in assessment, planning and decision making during the development of individual CWPPs.

Establish a Community Base Map

Community Wildfire Protection Plan Boundary

Since this plan is intended to be an umbrella plan for the entire MSB, the CWPP boundary is the MSB boundary. After this umbrella plan is approved, individual CWPPs could be developed for the 3 city and 26 community council areas. Populated areas that fall outside of community council boundaries will either be grouped with an adjacent community council area or have its own CWPP; this decision will be based on community needs, population, fuel types, topography, and other relevant information.

Wildland-Urban Interface Boundary

The WUI boundary established for this umbrella CWPP is based on recommendations from the Healthy Forests Initiative and Healthy Forests Restoration Act Interim Field Guide. It was determined that MSB community council boundaries would not be used for developing the WUI boundary since they often include large segments of land that are uninhabited. Instead, all parcels with at least one assessed structure were buffered a half- mile and minor irregularities were corrected. The core team reviewed a map of this buffered area and determined that it would suffice as an initial WUI boundary. This boundary is not final and as individual CWPPs are developed this boundary will likely be modified based on specific community conditions and concerns. A map of the WUI can be viewed in **Appendix 7**.

Community Wildfire Risk Assessment

Fire in Alaska³

Fire is an essential part of the ecology of the spruce forests in Alaska and is the primary agent of change in northern boreal forests. Fires, along with floods, are responsible for optimal spruce and birch regeneration in southcentral Alaska. Both the black and white spruce depend on ground fire to clear organic layers and expose mineral soil seedbeds.

³ Much of the History of Fire in Alaska paragraph was originally compiled by the Kenai Peninsula Borough and used with permission.

Black spruce is at least partially dependent upon stand replacement fires because the seeds are released when the cones are opened by heat from a fire. Without fire, organic matter accumulates, and ecosystem productivity can decline. Fire rejuvenates these natural systems and processes. It removes insulating organic matter and elicits a warming of the soil, enhancing productivity. Nutrients are added both because of combustion and by increased decomposition rates due to warming caused by greater exposure to solar radiation. Outbreaks of tree-killing insects are a natural characteristic of boreal forests like those in the MSB and promote many important ecological processes. Although vulnerable tree species and age classes must be present for insect outbreaks to occur, climatic events are often the trigger of the insect population increases and subsequent tree mortality.

Natural fire cycles and the diversity of forest age classes have been modified through wildfire suppression activities for decades in Alaska. This has resulted in large continuous fuel types associated with extreme fire behavior. By prescribing timber harvesting and managed fuel reduction treatment, forest managers can provide a diversity of vegetation and timber types that contain a range of age classes, approximate natural stand replacement mechanisms and forest successional processes, provide a variety of wildlife habitats and reduce the risk of catastrophic wildfire.

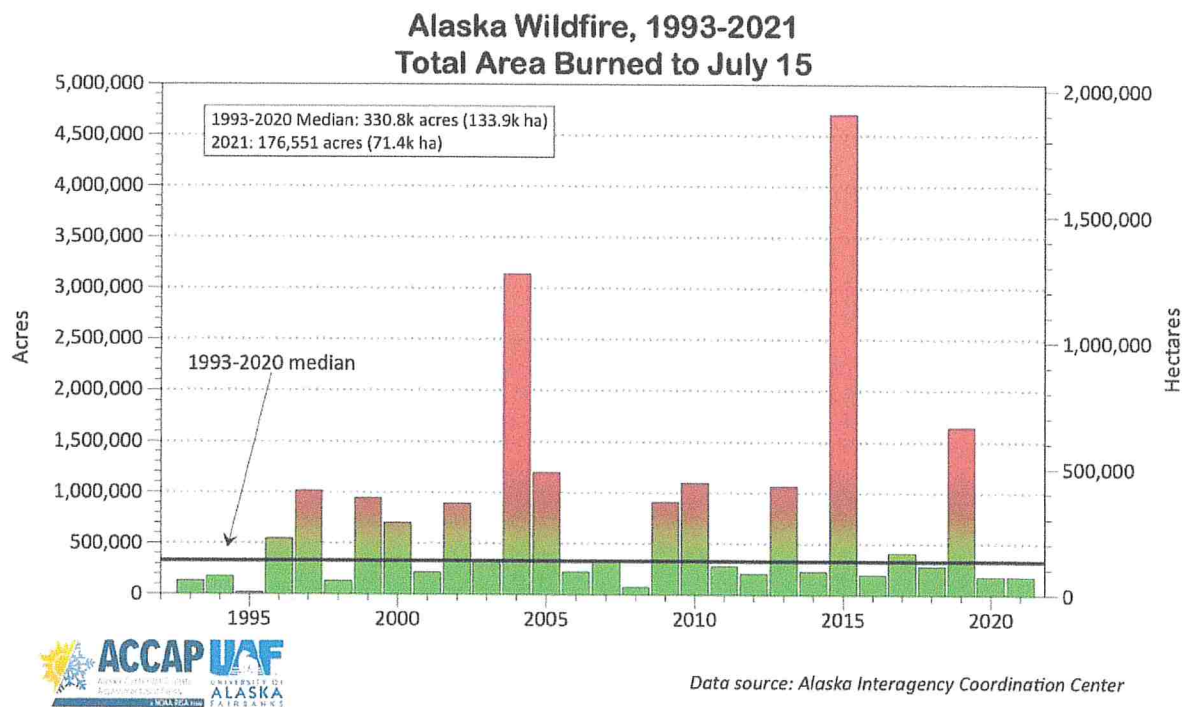


Figure 5 – Historic Fire Data

Fire History in MSB

From 1990 to 2020, the MSB experienced 3,040 wildfires that burned over 66,437 acres. Twenty of these fires were over 100 acres in size. Between 2002 and 2016, 75 fires were natural cause, and 1465 were human caused. The human caused wildfires most often started from trash burning, land clearing, children playing with fire, slash burning, debris burning and campfires.⁴

The Miller's Reach Fire was the largest and by far most destructive wildfire and started on June 2, 1996. This wildfire started near the City of Houston on Millers Reach Road and spread rapidly due to dry, warm, and windy conditions. The fire, which came to be known as the Miller's Reach Fire, destroyed 344 structures, and burned over 37,366 acres in the Houston-Big Lake area. Alaska Governor Knowles issued a State Disaster Declaration and President Clinton signed the Federal Disaster Declaration (AK- 1119-DR) which provided the State of Alaska with Federal Disaster relief funding for the incident. As a result of the actions taken by fire responders, there were no human casualties and over 1,000 structures were saved. The fire suppression effort cost \$16.5 million, commercial structure loss amounted to \$9.2 million, residential structure and personal property loss (not counting land depreciation) was \$51.1 million, public utility companies lost \$1.2 million in infrastructure and Alaska Native corporation landowners lost \$250,000 in commercial timber.⁵

The Point Mackenzie Fire on May 26, 2006 was started by an arcing power line. The fire burned 461 acres and destroyed three structures. One structure directly threatened was saved.

The Susitna River Fire occurred in June of 2007. This wildfire was started by lightning and consumed nearly 8,500 acres. Fortunately, it was in a sparsely populated area and all the 21 structures that were directly threatened were saved.

On June 14, 2015, the human caused, Sockeye Fire started. This was a large urban interface wildfire exacerbated by record high temperatures caused widespread damage to the community of Willow and surrounding areas. The wildfire damaged or destroyed at least 50 private homes and/or secondary structures resulting in 175 residents and hundreds of animals seeking refuge in temporary shelters. This area was a large dog mushing community. This fire burned 7,220 acres.

See Map of Historical Borough Wildfires, **Appendix 8**.
Fire causes and counts, **Appendix 9**.

⁴ State of Alaska Division of Forestry - Fire Starts Dataset 1990-2006

⁵Nash, Charles E. and Associates and J. Duffy. 1997. Miller's Reach Fire Strategic Economic Recovery Plan. Matanuska-Susitna Borough Planning Department

The McKinley Fire started 18 miles north of Willow on the Parks Highway on August 17, 2019. 52 primary residences, 3 commercial structures and 84 outbuildings were destroyed. This human-caused fire consumed 3,288 acres. This fire was fueled by record warm temperatures, strong winds, low humidity, and dry thunderstorms.

During the same time, a 1318 acre, Deshka Landing Fire burned 5 miles south of Willow. No structures were lost in this fire.

Fire Season / Weather Patterns

Historically, May and June have been the most active months for wildfires in southcentral Alaska; however, starting in 2007, the official start of the fire season was changed from May 1 to April 1 due to the frequency of earlier fire starts in recent years. During the official fire season, AKDOF burn permits are required from April 1st to August 31st for open burning and burn barrels.

In spring, the previous year’s dead grasses and other non-woody vegetation is exposed by melting winter snow and dried by longer daylight hours and wind. Before new vegetation has grown enough to “green up”, these flashy or fast burning fuels (figure 7), combined with warmer temperatures and dry conditions, often create higher fire danger levels and “Red Flag Alerts”. After spring “green-up” the fire danger in the grass model subsides and wildfire concern shifts to the ignition potential of black spruce fuels. July and August are wetter months with August being the wettest month of the year, but in recent years, summers have been drier with more fire starts in these months than historically. Most of the large wildland fires in the MSB have occurred in the dense black spruce forest types and are often associated with windy conditions. Recent years have brought many temperature extremes to Alaska, including the warmest year (2016), the warmest month (July 2019), and the warmest day for our area (July 4, 2019). Warmer springs and earlier snow melt have lengthened the wildfire season.

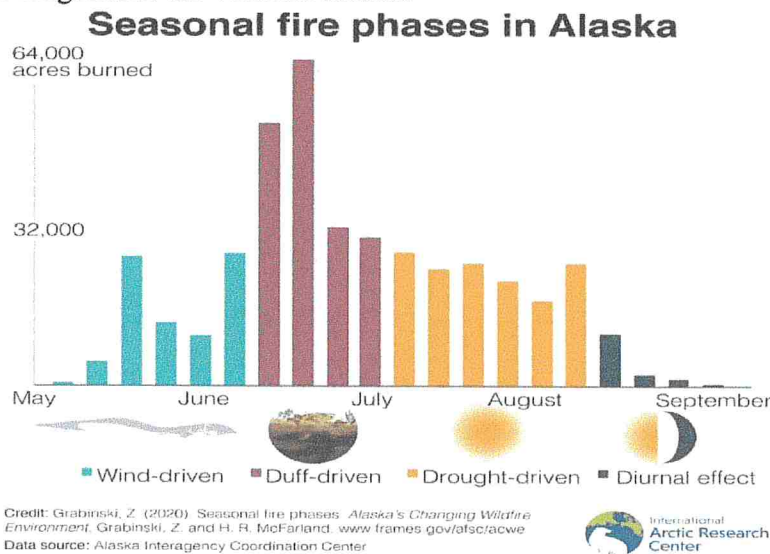


Figure 6 – Seasonal fire phases in Alaska

Hazard Fuels and Wildfire Risk Assessment

In 2004, the MSB in cooperation with the AK-DOF and private forestry consultants began vegetation (fuel) mapping, wildfire hazard and risk assessment, the development of public safety and education strategies, and fuel reduction projects to protect life, property, and essential infrastructure from the threat of wildfire.

Fire hazard assessment is based on prediction of fire behavior, intensity, and the likely effectiveness of fire suppression tactics. Fire hazard assessment involves analysis of fuel types and topography (slope and aspect). Fire risk, or ignition potential assessment is based on the probability a fire could occur, historic fire starts data, local knowledge of land uses and weather patterns. In the MSB, hazard level determinations are supported by photo interpreted vegetation types (fuels), site specific field observations, fire behavior modeling conducted by state and federal wildfire specialists, and wildfire data compiled by AK-DOF.

Predicting potential wildfire behavior and its effects are important tasks of wildfire management. Information regarding fuel properties, fire behaviors, and fuel load data are used to formulate surface fire spread models and to predict fire intensity. Different kinds of fire models are used in fire science. The criteria for choosing a fuel model includes the fact that the fire burns in the fuel stratum best conditioned to support the fire. Fuel models used for determining fire hazard and risk within the MSB include the standard 13 Anderson Fuel Models tabulated by Rothaermel (1972) and Albini (1976), and the Canadian Forest Fire Danger Rating System (CFFDRS). The standard 13 Anderson Fuel Models represent severe fire behavior that pose greater control problems and most accurately describes the potential for extreme fire conditions. The selection of fuel models is limited to fuel groups represented by Anderson and CFFDRS to maintain a reasonably simple procedure for field use situations based on observation and local fire history.

Since the MSB has chosen to implement projects prior to fully developing a supportive GIS data structure, an interim methodology to evaluate and prioritize projects has been necessary. Research and analysis of assessment methodology used by other wildfire mitigation programs, including the Kenai Peninsula Borough and the Municipality of Anchorage, was examined to help develop the MSB Fuel Reduction Project Priority Assessment Form. This form is used to evaluate and prioritize projects on a weighted scale. Evaluations are based on existing resource data and field analysis. This method numerically evaluates four primary components; fire hazard, fire risk, values at risk, and project effectiveness, that are commonly found in other fire mitigation program assessments with the addition of a project effectiveness rating to qualify priority projects. The project assessment form is used to help analyze variables within a half-mile radius of each proposed hazard fuel reduction project. Variable attributes were limited in scope to those with metrics that could be analyzed and quantified given the current level of base information available. As additional base information is compiled it can be used to further refine the assessment form analysis.

Current Wildfire Hazard Mitigation Efforts

Managed Hazard Fuel Reduction

The Fuel Reduction Program is managed by the MSB Land and Resource Management Division. The goal of the program is to reduce the threat of wildfire by providing at least 400 acres of managed fuel reduction treatment per year on both private and public lands across the MSB, while generating economic opportunities for the private sector through competitive bids for cutting contracts.

Fuel reduction lowers fire intensity, enhances control efforts, and reduces the threat of wildfire to identified values at risk. Treatment typically occurs along road corridors, on lands adjacent to subdivisions, and in areas bordering important public facilities, such as schools, airports, and fire stations.

Fuel reduction involves the cutting and chipping of hazardous forest fuels, typically dense black and white spruce stands and/or trees killed by insects, disease, and fire. Cutting prescriptions consist of fully cleared fire breaks or partial cuts that leave the hardwood component of the forest standing. Partial cuts are prescribed whenever possible because they provide an aesthetically pleasing, park-like clearing, while still providing fire safety.

Individual fuel reduction projects are either mechanical treatments or manual treatments. Mechanical treatment projects are completed using heavy machinery including track and wheel mounted equipment. These projects are bid on by the private sector and the contracts are administered by the MSB Land and Resource Management Division. Manual fuel reduction projects are accomplished by hand labor provided by one or more wildland firefighting crews under a cooperative agreement between the MSB and AKDOF. Projects are administered by AK-DOF.

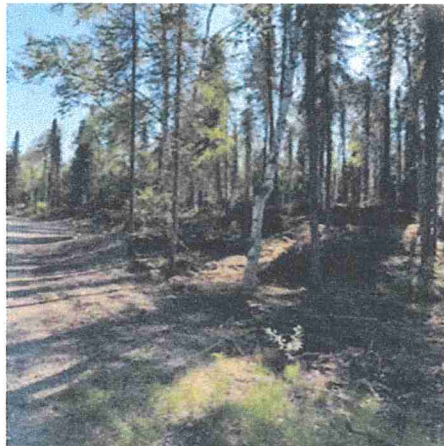


Figure 6 – 2021 Fuel Reduction Project on Lynx Lake Road

To date individual fuel reduction projects have been identified, planned, and accomplished based on fire hazard and risk assessments performed on a prioritized basis. The success of the program is a result of collaboration between communities, individual property owners, various agencies, fire crews, and contractors.

Recent fuel reduction projects include Byers Lake Campground, South Rolly Campground, Sheep Creek Campground, Caswell Creek Campground, Montana Creek Campground, Susitna Landing Campground as well as DOF crew work in the Little Susitna Public Use Facilities remote sites. Fuel breaks on Nancy Lake Parkway and Lynx Lake Road are completed or in process.⁶ See **Appendix 14 and 15** for a Prioritized List of Managed Fuel Reduction Projects and a description of those projects.

Three disposal sites have been established around the borough for the disposal of any woody debris: particularly spruce beetle kill logs and branches, no stumps. The Central Landfill in Palmer accepts woody debris with no limit on amount, 7 days a week. The Willow and Big Lake Transfer Stations accept 5 cubic yards per visit and are open 5 days a week. This project is supported by DOF and is free to the public.

Firewise – Public Education on Structural Ignitability and Defensible Space

The Firewise Program is managed by the MSB Department of Emergency Services and is tasked to educate the public on Firewise concepts. Concepts of the home ignition zone, defensible space, ignition proofing structures, and fire-resistant vegetation are introduced to homeowners during home visits, as well as during presentations to clubs, community councils, homeowner association meetings, etc. Staff members are available to provide free wildfire risk ratings to individuals across the borough. Over 1000 home visits were completed between 2005-2018. Fifty home visits were completed the summer of 2021. The information provided comes from the national, Firewise USA program, as well as from the Alaska Wildland Fire Coordinating Group, a coalition of local, state, and federal agencies.



The National Wildland/Urban Interface Fire Program, which is directed and sponsored by the National Wildfire Coordinating Group. It is intended to reach beyond the fire service by involving homeowners, community leaders, planners, developers, and others in the effort to protect people, property, and natural resources from the risk of wildland fire - *before* a fire starts. The Firewise Communities approach emphasizes community responsibility for planning safe communities as well as effective emergency response. It also focuses on individual responsibility for safer home construction and design, landscaping, and maintenance.

The Firewise USA program is administered by NFPA and co-sponsored by the USDA Forest Service, the U.S. Department of the Interior, and the National Association of State Foresters. The national Firewise USA recognition program provides a collaborative framework to help neighbors in a geographic area get organized, find direction, and take action to increase the ignition resistance of their homes and community and to reduce wildfire risks at the local level. Any community that meets a set of voluntary criteria on an annual basis and retains an “In Good Standing Status” may identify itself as a Firewise Site. In 2006, the Horseshoe Lake area was designated as Alaska’s first official Firewise USA Community, and as of September 2020, there are currently only two nationally recognized Firewise communities in Alaska.

⁶Alaska Department of Natural Resources, Division of Forestry; 2020 Annual Report, page 24-26

GIS Data Development and Analysis

Most wildfire mitigation programs in Alaska and elsewhere have developed, collected, and compiled resource data into a GIS database to assess fire hazard, fire risk and values at risk over large geographic areas. These datasets are used to identify and prioritize values at risk and aid in identifying areas of concern that would benefit from wildfire mitigation projects. These datasets require considerable input, time, and expense to complete.

The MSB GIS Division, in cooperation with MSB Land and Resource Management Division, MSB Department of Emergency Services, is continuing to develop GIS datasets that are important for wildfire mitigation efforts; these include a dataset of all fuel reduction project locations and another for the majority of Firewise site visits. High resolution vegetation mapping is ongoing. The Fuel Reduction Program relies most heavily on GIS data development and analysis; specifically for the conversion of hardcopy vegetation mapping into a digital dataset, determination of the number of acres affected by each fuel reduction project and the development of public notice maps. The vegetation data, when completed, will be used to help determine which areas in the MSB have the highest wildfire hazard and risk, particularly in the WUI. This information will help the MSB prioritize areas for new fuel reduction projects and help the public better understand which regions have the highest fire hazard and risk.

Local Firefighting Capacity – Emergency Preparedness

By Alaska Statute, the AKDOF has fire protection responsibility for state, private, and municipal lands, whereas the BLM, NPS, USFS, and USFWS have legal responsibility for fires on federal lands. However, the AK-DOF has a contractual agreement with the BLM-AFS, under which the federal government coordinates and provides wildland fire protection on state and private Lands in the northern half of the State.



Figure 7 – DOF-AK Retardant Drop

By utilizing cooperative agreements, the fire management agencies fight fires within their designated areas on all land ownerships. This tactic reduces response time and duplication of facilities and services, thereby increasing safety, efficiency, and cost effectiveness. The AK-DOF also has cooperative agreements with numerous local government and volunteer fire departments.

In the MSB, the AK-DOF is based in the City of Palmer and shares a cooperative agreement with the MSB, the City of Palmer, the City of Houston to provide wildland fire protection through a unified command system. Any response outside the MSB fire service areas must be authorized by the MSB Director of Emergency Services on a case-by-case basis.



Figure 8 – Response Vehicle from West Lakes Fire Department

The AK-DOF is directly responsible for all wildland fires on state, private, and municipal lands outside these fire service areas and has joint responsibility with the MSB inside these fire service areas. State and local initial attack resources for the MSB and AK-DOF are listed below:

Alaska Department of Forestry, Initial Attack Resources, Mat-Su Area

Facilities: Dispatch Center, Fire Warehouse, Retardant Base

Apparatus (Fire Vehicles-43

- (1) Engines – Type 4
- (6) Engines – Type 6
- (5) Engines – Type 7
- (12) Command & Support
- (14) Specialty Vehicles
ATVs, UTVs, Fire Support Trailers
- (3) Reserve Engine – Type 4
- (2) Reserve Engine – Type 6

Aircraft

- (1) Air Tankers – Type 1
- (1) Helicopters – Type 2 (Contract)
- (1) Air Attack Fixed-Wing/Aero Commander
- (1) Retardant Ship/Convair 580 (Contract)
- (1) Logistics Fixed-Wing/DHC-2 Beaver

Fire Staff Total (136)

- Type 1 Interagency Hotshot Crew – 1 (22 Person)
- Type 2 Initial Attack Crew -1 (22 Person)
- Initial Attack (14)
- Emergency Firefighter – Temp Staff (65)
- Area Forester (1)
- FMO (1)
- AFMO (1)
- Prevention Staff (4)
- Fire Support Staff (6)



MSB on-call responder firefighters provide fire protection in 8 borough and 2 city fire service areas. The fire departments of the City of Palmer, and the City of Houston provide fire protection within their individual city limits and have mutual aid agreements with the MSB. The primary function of all fire departments is structural protection with some limited fire responses as a supporting role with the AK-DOF. The MSB also provides borough-wide emergency medical services.

A list of resources is listed below:

MSB Firefighting Resources

Stations 29 plus 6 EMS only stations

Apparatus

Engines	32	(37,450 Gallons)
Tenders	26	(74,550 Gallons)
Brush Trucks	25	(7,895 Gallons)
Ambulances	18	
Specialty Apparatus	46	(Includes ATV's, rescue vehicles, aerials, boats, and support vehicles)

Emergency Response Personnel⁵

Total	289
Firefighters	219
Medics	70

Homeowners who live outside fire service area boundaries need to be extremely proactive in their landscaping decisions, development of defensible space, building construction materials, and fire use habits. “How fast can my house run?” is a question that all residents should ask themselves when considering the effects of wildfire. Individuals must take personal responsibility to create defensible space and ember proof their homes. While national standards for defensible space recommend a 100-foot buffer of defensible space, it should be remembered that this is a *minimum*, and very topographically dependent. Special care should be taken to build or retrofit structures with fire resistant and fireproof materials so that any wildfire with its blowing embers does not erase all the owner has labored to build.

Creating defensible space and posting address numbers, among other things, helps firefighting responders be more effective in defending homes if preparation is done *before* an event. The “Ready, Set, Go!” program, “3 ways to help Local Emergency Responders get to you Faster” and “Smart 911/Community Connect” are also being used in the Borough to educate homeowners on emergency preparedness, **Appendix 10, 11 and 12.**

⁵ Current Active Responders for July 2021 from MSB Emergency Services Recruitment & Retention

Community Priorities and Recommendations

The priorities and recommendations below are from the 2020 MSB All-Hazards Mitigation Plan and represent a collaborative effort by MSB Emergency Services, Land and Resource Management, Planning, and Public Works, plus the cities of Houston, Palmer, and Wasilla. Many recommendations have already been or are in the process of being implemented while others have not yet been focused on or need revision. Individual CWPPs will address community specific priorities and recommendations.

Priority 1: Reduce the fire danger in the WUI (Wildland Urban Interface)

Recommendation 1.1: Support the Spruce Beetle Program (short range).

- Identify areas of fuel loading in the wildland/urban interface.
- Clear hazard trees in proximity to homes in partnership with State DOF and private sector businesses and landowners.
- Establish a means for homeowners to dispose of cleared brush in cooperation with the MSB landfill and transfer sites.

Recommendation 1.2: Qualify the Matanuska-Susitna Borough as a Firewise community (short range)

- Bring the concept of defensible space to every subdivision in the Borough.
- Assist homeowners in clearing fire hazards from around their homes.
- Create demonstrations of Firewise landscaping at public buildings.

Recommendation 1.3: Sensitize children to wildland fire issues (short range).

- Develop a partnership with the School District.
- Reinforce concepts of Firewise through summer library programs and nontraditional learning opportunities.

Priority 2: Improve the fire suppression capability of Borough firefighters.

Recommendation 2.1: Ensure sufficient resources are available (ongoing)

- Continue Borough Assembly appropriations to support necessary fire suppression capabilities throughout the Borough, including areas beyond the borders of current fire service districts.
- Support engineering study of dry hydrant system and update equipment
- Identify and improve alternate road access for fire suppression equipment.
- Require that subdivisions have more than one entry road.
- Continue recruitment of responders
- Continue training and exercise activities on all levels
- Continue researching and applying for grant support

Recommendation 2.2: Assure access to water sources and ingress/egress routes for fire equipment and for the public.

- Support engineering study of dry hydrant system
- Identify and improve alternate road access for fire suppression equipment • Require that subdivisions have more than one entry road
- Add water supply tanks to reduce travel time

Priority 3: Use the Borough Assembly’s legislative power to institutionalize fire mitigation measures in Borough code.

Recommendation 3.1: Encourage development of a Borough building code (Long range).

- Adopt fire safety building standards for materials and construction.

Recommendation 3.2: Eliminate the sale and use of fireworks in the Borough (Short and long range).

- Enforce borough code banning fireworks.
- Increase signage and advertising to alert the public to the illegality and danger of fireworks.

Recommendation 3.3: Reduce fuel wood on Borough lands with salvage sales of beetle infested/killed spruce. (New in 2020)

Action Plan and Assessment Strategies

Information gathered through community meetings for the All-Hazards Mitigation Plan and 2019 Horseshoe Lake CWPP in addition to other work done by the Borough and the AK-DOF has identified preliminary action plan ideas (listed below) for emergency preparedness, public education, and hazard fuel reduction. When individual area CWPPs are developed, community participants and planning team members will need to identify community specific goals, actions, and assessment strategies; coordinate individual property owner vs. agency roles and responsibilities; define project priorities and funding sources; plus develop timetables for implementation and success measurements.

See **Appendix 13** for Borough Mitigation Action Plan
(from Matanuska-Susitna Borough All-Hazards Mitigation Plan 2020)

See **Appendix 14 and 15** for a Prioritized List of Managed Fuel Reduction Projects and a description of those projects.

Appendix 16 - Glossary

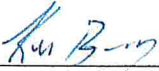


”Spruce the Moose” AK-DOF new prevention mascot

Declaration of Agreement and Concurrence


The following representatives have reviewed this Matanuska-Susitna Borough umbrella **Community Wildfire Protection Plan – September 2021 Update** and support efforts to reduce the threat of wildfires, improve wildfire preparedness and expand wildfire education.

22 SEPT 21
Date



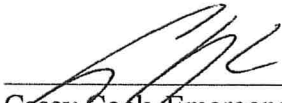
Ken Barkley, Emergency Services Director
Matanuska-Susitna Borough

22 SEPT 2021
Date



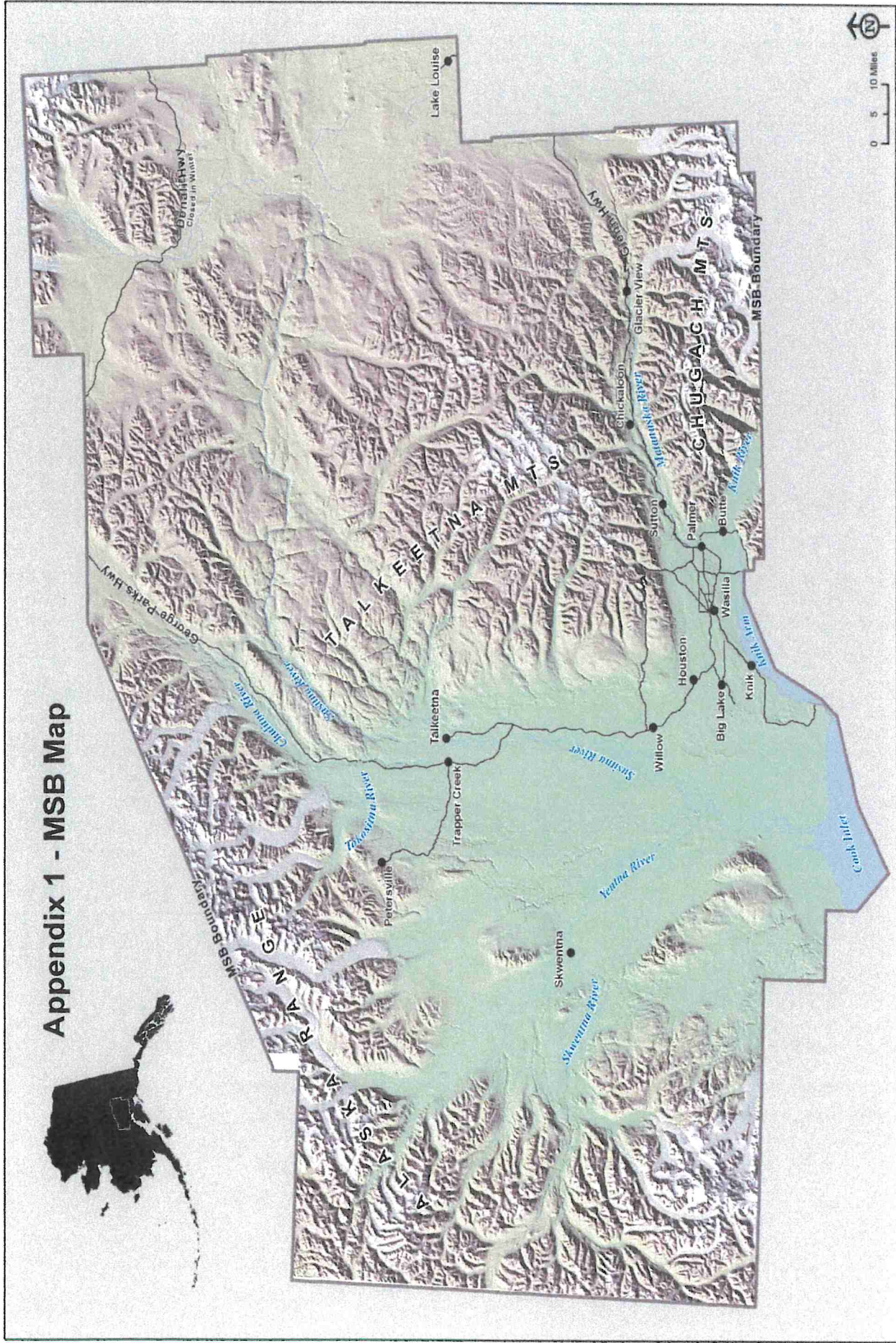
Stephen Nickel, Area Forester
Alaska Division of Forestry
Mat-Su/Southwest Area Office
State of Alaska Department of Natural Resources

9/22/21
Date

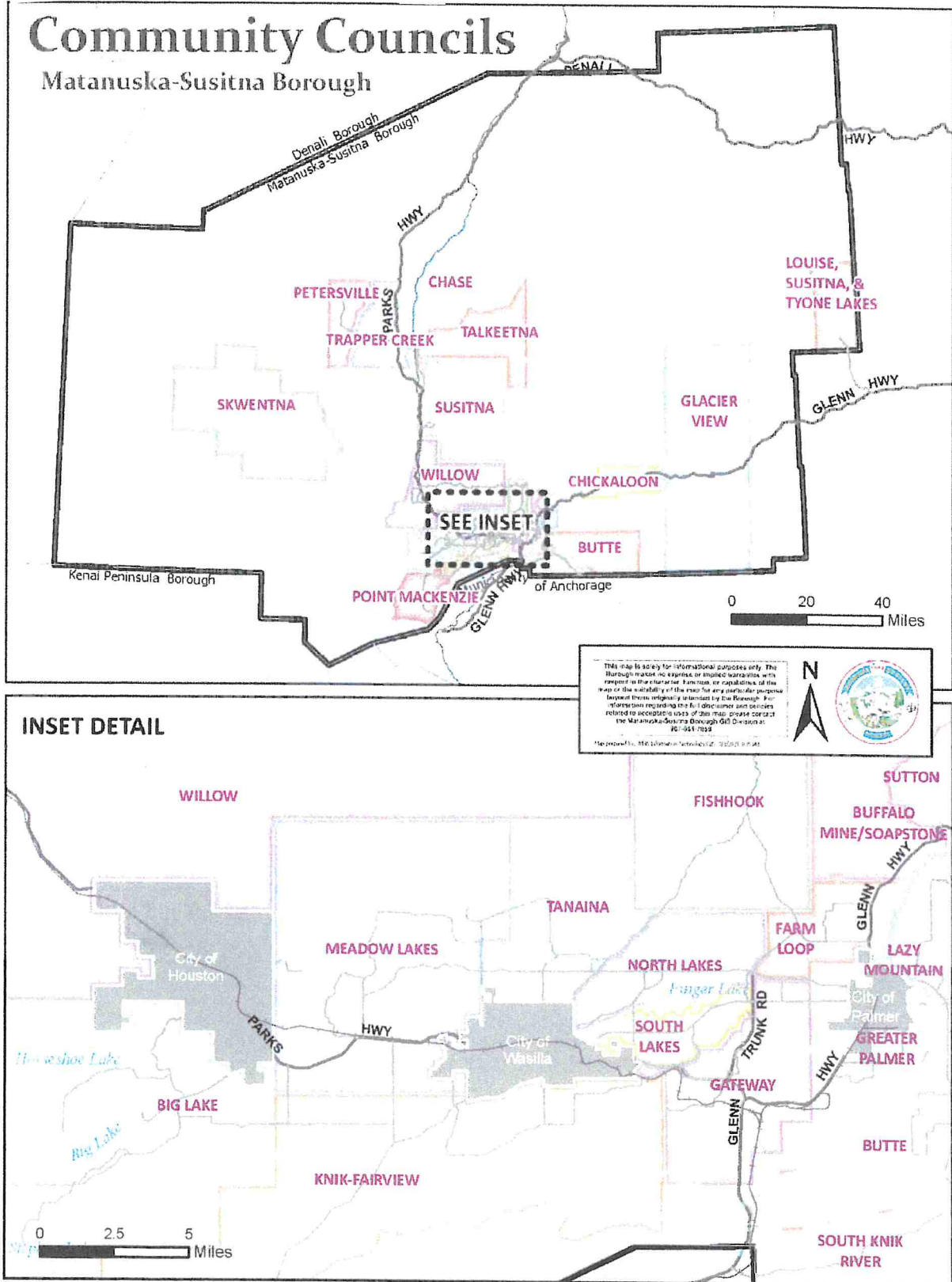


Casey Cook, Emergency Manager
Matanuska-Susitna Borough

Appendix 1 - MSB Map



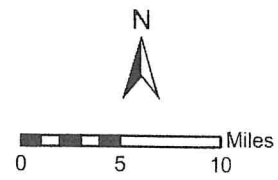
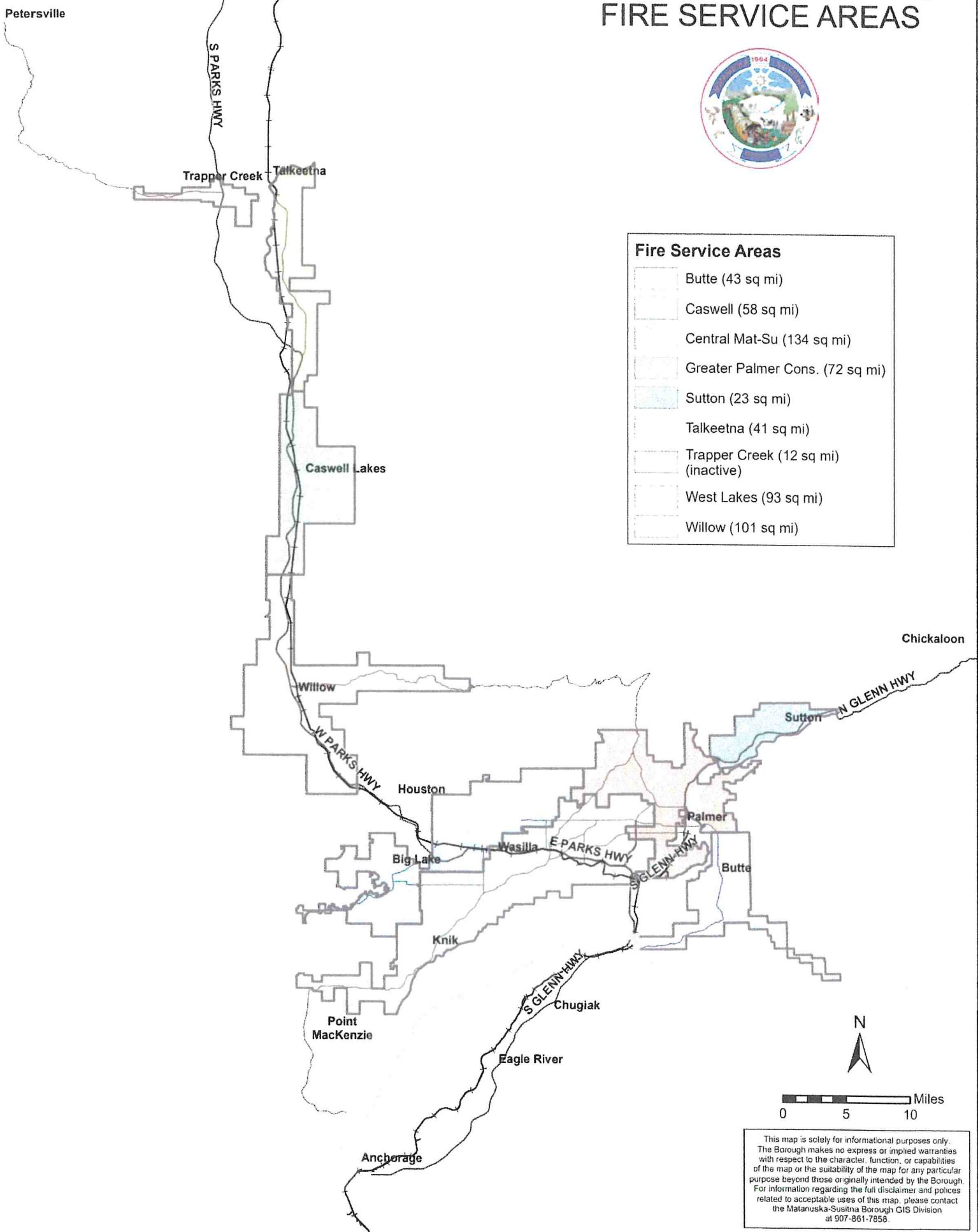
Appendix 2 – Borough-Recognized Community Councils



Matanuska-Susitna Borough FIRE SERVICE AREAS



Fire Service Areas	
	Butte (43 sq mi)
	Caswell (58 sq mi)
	Central Mat-Su (134 sq mi)
	Greater Palmer Cons. (72 sq mi)
	Sutton (23 sq mi)
	Talkeetna (41 sq mi)
	Trapper Creek (12 sq mi) (inactive)
	West Lakes (93 sq mi)
	Willow (101 sq mi)

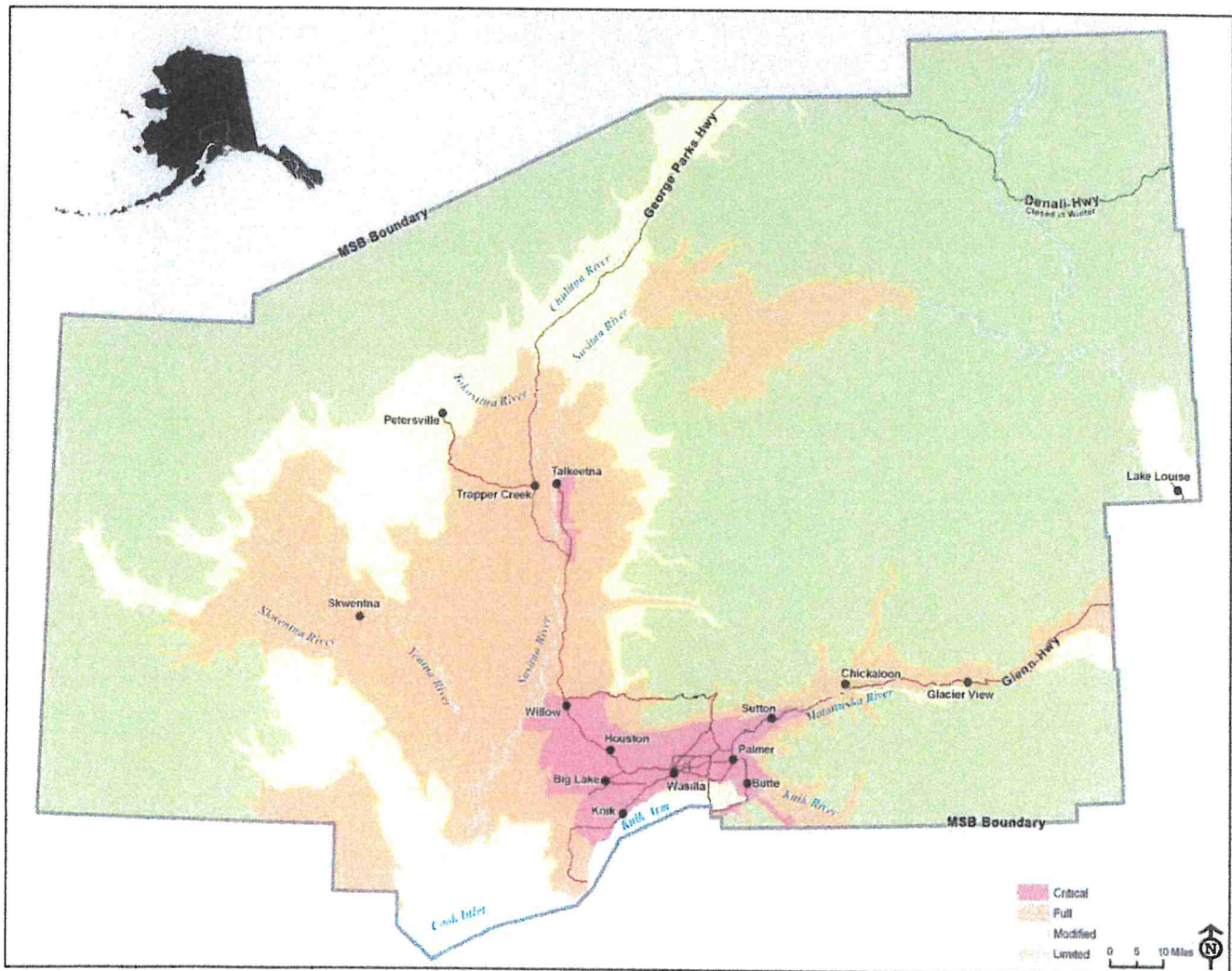


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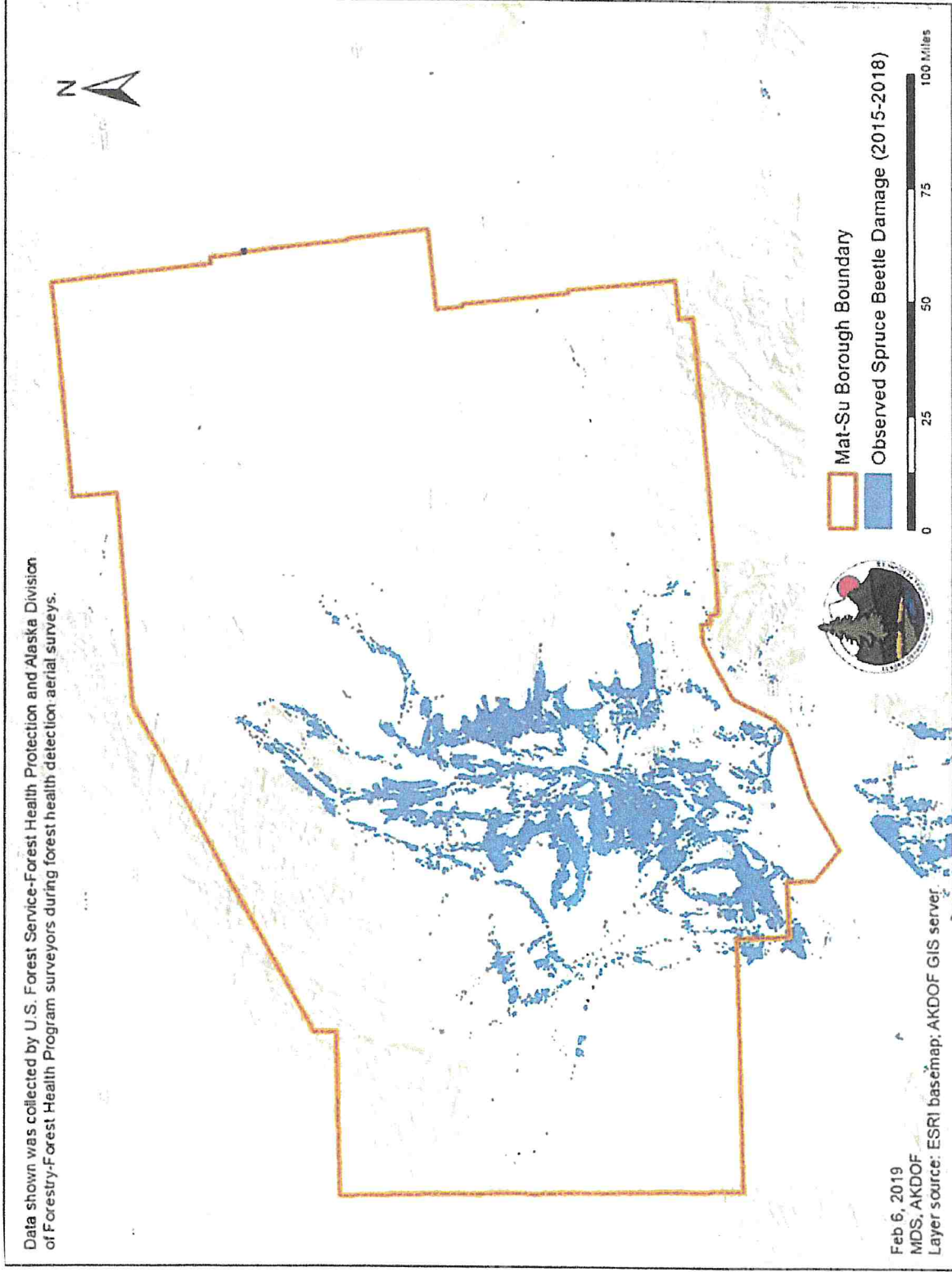
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Appendix 4 - AK-DOF Fire Protection Designations / Map

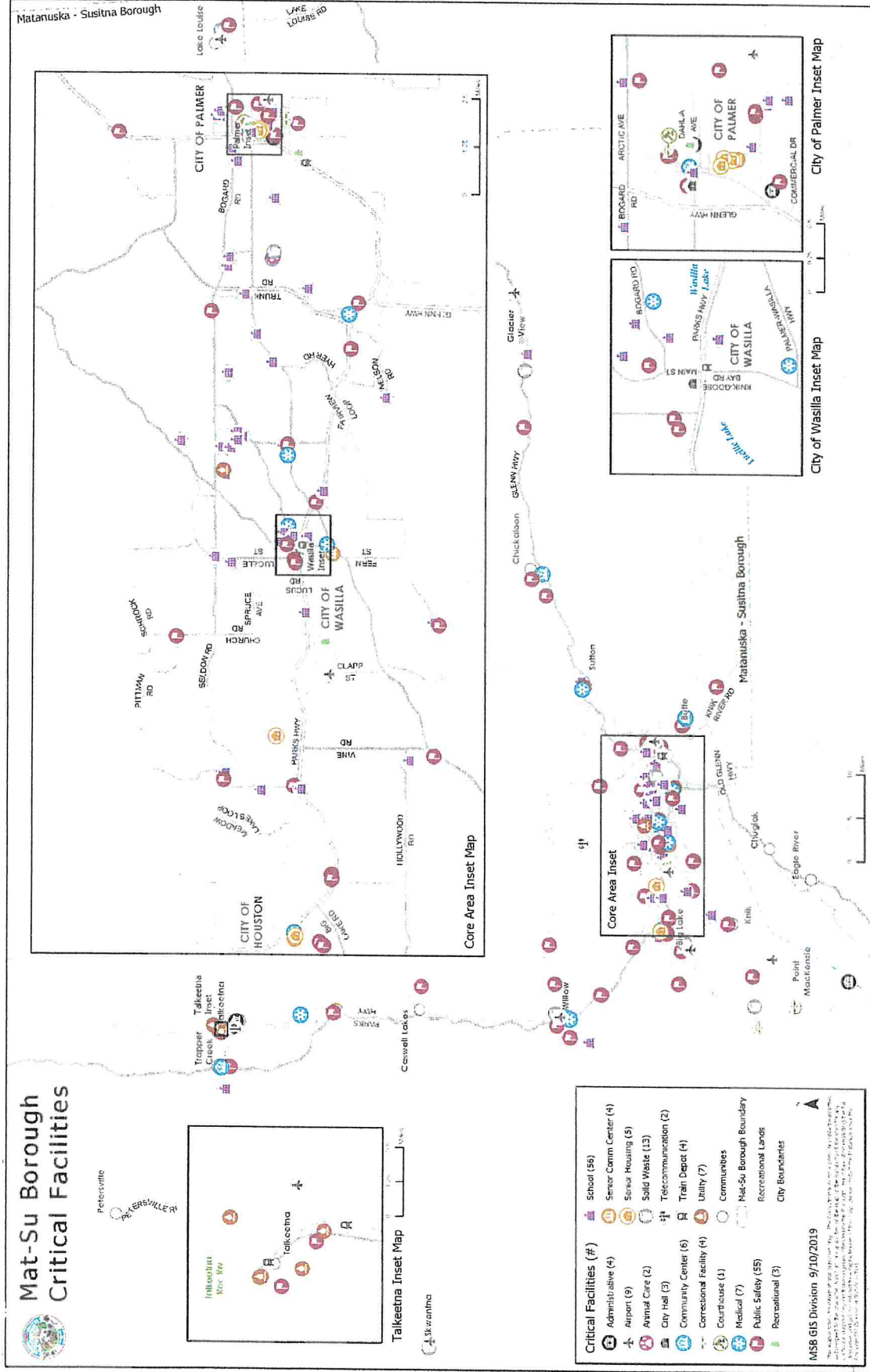
Critical Protection	Suppression action provided on a wildland fire that threatens human life, inhabited property, designated physical developments and structural resources such as those designated as National Historic Landmarks. The suppression objective is to provide complete protection to identified sites and control the fire at the smallest acreage reasonably possible. The allocation of suppression resources to fires threatening critical sites is given the highest priority.
Full Protection	Suppression action provided on a wildland fire that threatens uninhabited private property, high-valued natural resource areas, and other high-valued areas such as identified cultural and historical sites. The suppression objective is to control the fire at the smallest acreage reasonably possible. The allocation of suppression resources to fires receiving the full protection option is second in priority only to fires threatening a critical protection area.
Modified Protection	Suppression action provided on a wildland fire in areas where values to be protected do not justify the expense of full protection. The suppression objective is to reduce overall suppression costs without compromising protection of higher-valued adjacent resources. The allocation of suppression resources to fires receiving the modified protection option is of a lower priority than those in critical and full protection areas. A higher level of protection may be given during the peak burning periods of the fire season than early or late in the fire season.
Limited Protection	Lowest level of suppression action provided on a wildland fire in areas where values to be protected do not justify the expense of a higher level of protection, and where opportunities can be provided for fire to help achieve land and resource protection objectives. The suppression objective is to minimize suppression costs without compromising protection of higher-valued adjacent resources. The allocation of suppression resources to fires receiving the limited protection option is of the lowest priority. Surveillance is an acceptable suppression response as long as higher valued adjacent resources are not threatened.



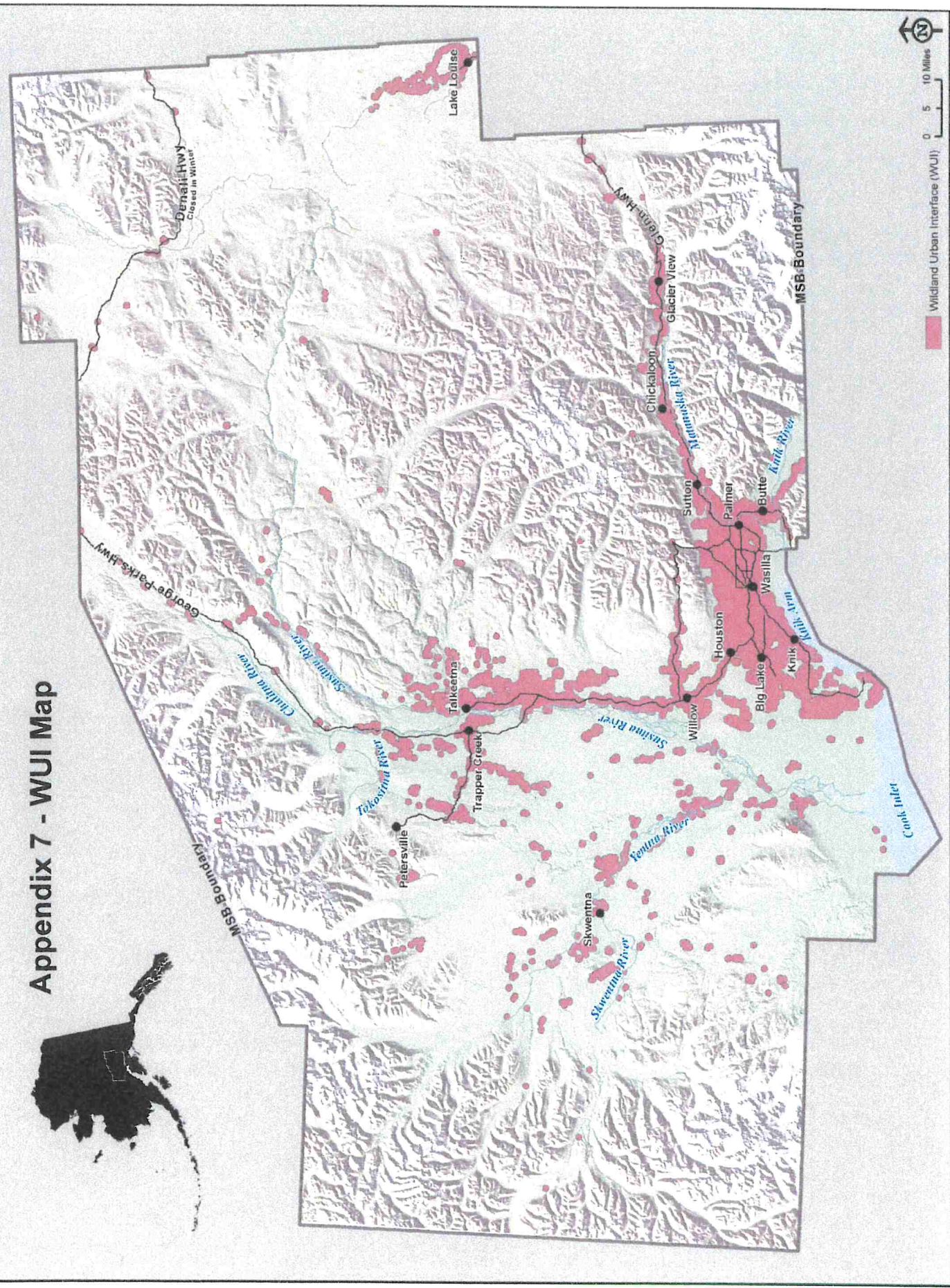
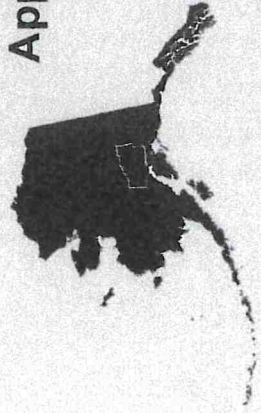
Appendix 5 – Spruce Bark Beetle Areas



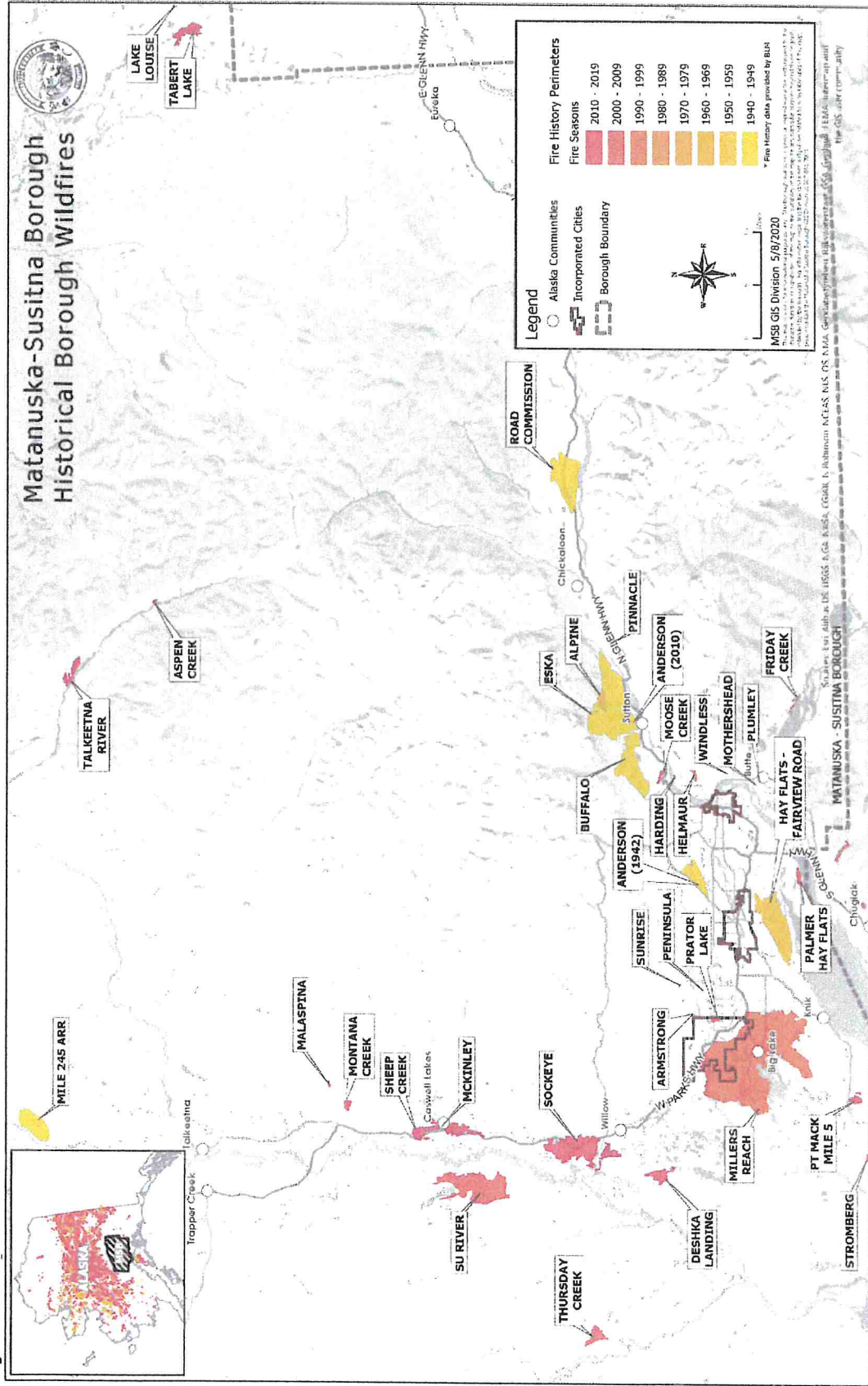
Appendix 6 – MSB Critical Facilities Map



Appendix 7 - WUI Map



Appendix 8 – Historical Fires in the MSB



Appendix 9 – MSB Wildfire Causes, Severity Rating Days, Fire Restriction Days

General Fire Causes

Year	2015-2019		2015-2019												Total	
	5 Year Total	5 Year Aver.	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct.	Nov.	Dec.		
Coal Seam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lightning	23	5	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Volcanic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Campfire	54	11	0	0	0	1	1	1	2	0	0	0	0	0	0	5
Smoking	4	1	0	0	0	0	2	0	0	0	0	0	0	0	0	2
Debris	124	25	0	0	0	10	8	0	0	1	0	0	0	0	0	19
Incendiary	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equipment	41	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad	0	0	0	0	0	2	2	1	5	1	0	0	0	0	0	11
Children<12	15	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Juvenile 12-17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous	87	17	0	0	0	0	7	2	2	1	0	0	0	0	0	12
Undetermined	68	14	0	0	0	2	5	0	1	0	0	0	0	0	0	8
TOTAL	422	84	0	0	0	15	25	5	10	3	0	0	0	0	0	58

5 Year Average per 1000 people

Year	2015-2019		2020
	5 Year	2020	
Campfire	0.51	0.05	
Smoking	0.04	0.02	
Debris	1.16	0.18	
Incendiary	0.06	0.00	
Arson	0.00	0.00	
Equipment	0.38	0.10	
Railroad	0.00	0.00	
Children<12	0.14	0.00	
Juvenile 12-17	0.00	0.00	
Miscellaneous	0.82	0.11	
TOTAL	3.11	0.46	

2020 Fire Severity Rating Days

2020	Low	Mod	High	Very High	Extreme	Total
	April	25	0	5	0	0
May	0	8	23	0	0	31
June	16	5	9	0	0	30
July	15	10	6	0	0	31
August	15	13	3	0	0	31
TOTAL	71	36	46	0	0	153

2020 Fire Restriction Days

2020	ADV	SUS	CLO	Part SUS	"SUS"	"CLO"	"ADV"
	# of days with ONE or MORE sub-areas SUS	# of days with ONE or MORE sub-areas SUS	# of days with ONE or MORE sub-areas SUS	# of burn permit suspension days	# of burn closure days	High wind advisory with no SUS or CLO	# of days with ONE or MORE sub-areas SUS
April (30d)	0	0	0	0	0	0	0
May (31d)	0	26	0	1	0	0	0
June (30d)	0	0	0	0	0	0	0
July (31d)	0	0	0	0	0	0	0
August (31d)	3	3	0	0	0	0	0
TOTAL	3	29	0	1	0	0	0

Legend

Appendix 10

Ready, Set, Go!

Wildland fire preparedness in partnership
with your local fire department



Powered by the
IAFC



Ready - Be Ready

Talk to local fire department personnel about preparing your home for wildland fire threat. Work to prepare your property by creating defensible space.

- Harden your home with ignition resistant materials.
- Clean up or relocate combustible material from around your home.
- Keep grass mowed short.
- Trim trees and bushes, allowing ample space between your home and landscape vegetation.

Set - Be Alert

Prepare a Go Bag and include items such as:

- Prescription medication
- Emergency supplies
- Important documents
- Pet food and pet medications

Create your own Action Plan

- Plan and practice multiple exit routes from your home and neighborhood.
- Assign a meeting place in case you are separated.
- Make sure you're familiar with your local emergency notification and evacuation systems.

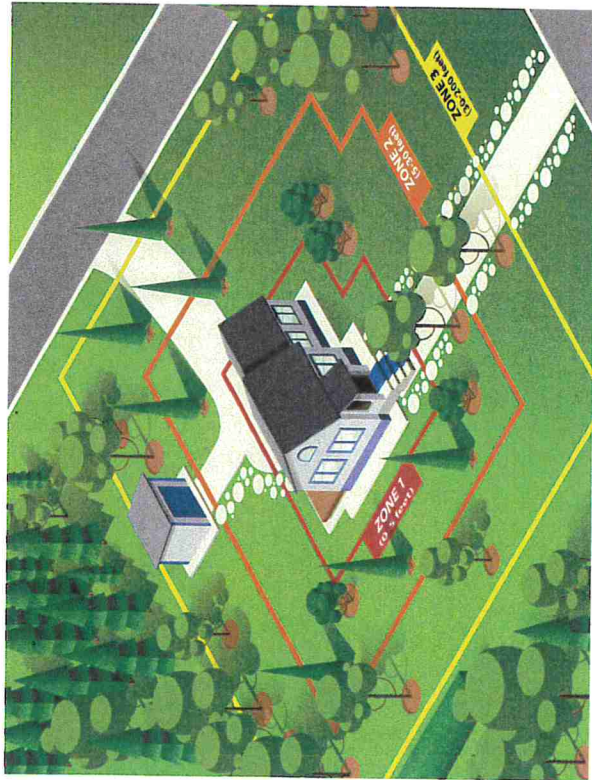
Go! - Act Early!

- Remain alert and keep yourself informed of the situation.
- Get your Go Bag and leave well before the impending threat reaches your community or neighborhood following a planned, accessible route.
- Cooperate with local authorities during evacuation and re-entry processes.



A fire adapted community is a human community consisting of informed and prepared citizens collaboratively planning and taking action to safely coexist with wildland fire.

www.wildlandfireRSG.org



Defensible space greatly increases your safety and reduces fire damage!

Defensible space is a buffer zone created by the removal of weeds, brush and other natural vegetation between structures and the wildland-urban interface (WUI). Creating defensible space can decrease fire damage to structures and allow space for firefighter operations.

Special consideration should be given to wind-driven embers, which can travel up to a mile ahead of the flame front. Take care to regularly inspect or replace outside screens and ventilation points.

ZONE 3

30-200 feet around your home or to property line

- Create and maintain a minimum of 10 feet between the tops of trees.
- Remove ladder fuels to create a separation between low-level vegetation and tree branches to keep fire from climbing trees.
- Remove dead trees and shrubs.

ZONE 2

5-30 feet around your home or to property line

- Use non-wood, low-growing herbaceous vegetation. Succulent plants and ground covers are good choices.
- Create vegetation groups, or "islands," to break up continuous fuels around your home.
- Remove ladder fuels to create a separation between low-level vegetation and tree branches to keep fire from climbing trees.
- Remove leaf and needle debris from the yard.
- Keep grass and wildflowers under 4 inches in height.
- Move trailers/recreational vehicles, storage sheds and other combustible structures out out of the zone.

ZONE 1

0-5 feet around your home or to property line

- Use hard surfaces such as concrete or noncombustible rock mulch around home.
- Clean roofs and gutters of dead leaves, debris and pine needles.
- Store firewood and other combustible materials away from your home, garage, or attached deck.
- Trim back touching or over-hanging branches from the roof to a distance of at least 10 feet.

IADC's Wildland Fire Programs are funded in cooperation with the USDA Forest Service and through a DHS/FEMA/AFG/FP&S grant awarded FY 2018. This institution is an equal opportunity provider. This publication was made possible with support from the USDA Forest Service. This institution is an equal opportunity employer.

3 ways to help Local Emergency Responders get to you faster.

To serve our community even better, we are rolling out 2 new programs to protect our residents and their property.

Community Connect and Smart 911 are free, secure and easy to use platforms that allow you to share critical information about your household. This aids dispatchers and emergency response personnel when responding to your residence. By providing information about your household that you feel is important for us to know about at the time of an Emergency, we can ensure you and everything you care about is protected to the best of our ability.



1. Post Your Address Numbers

Per Mat-Su Borough Code 11.20.060, Property owners are required to post the assigned street address number on the addressed building and in a location that is visible from the street.

- Address numbers should contrast with the background and be no less than four inches on height.
- Reflective, aluminum signs are best. If you have a long driveway, please post numbers on the house and at the bottom of the driveway.

Make your own sign; or contact one of these local companies.

A1 Signs - 907-373-6737

B Original Signs - 907-376-3083

DG Signs - 907-746-5196

Horseshoe Lake Road Firewise – 907-354-8734

JOLT Construction – 907-892-5658

Sign King - 907-373-2604

Contact Mat-Su Borough Addressing at (907)-861-5400 if you have questions about your address.

2. Smart 911

Smart911 helps 9-1-1 call takers and all first responders in making faster and better decisions, shorten response times, and save lives.

- Anyone can create a Smart911 Safety Profile for free at [Smart911.com](https://smart911.com) or on the [Smart911 mobile app](#). They can include special driving directions, safety information, phone numbers, home and work addresses, family member information, photos, medical conditions, disabilities, even pet information.
- Your safety profile is free, private, and secure. Add as much or as little to your profile as you want. It's up to you, and your information will only be seen if you must call 9-1-1.



<https://smart911.com/>



3. First Due - Community Connect

Community Connect is a secure, easy to use platform that allows you to share critical information about your household that will aid fire responders and emergency response personnel if called to your residence in the Mat-Su Borough.

- Create an Account**
Sign up for free and get started doing your part. It just takes an email, phone number and address.
- Enter the Information that matters most**
Provide valuable information that can help us assist more effectively during an emergency.
- Help Fire & EMS Responders when seconds count**
That's it! Just keep your account updated when things change so we can always be prepared.



Community
Connect



<https://www.communityconnect.io/info/ak-matsuborough>

Call 907-861-8000 if you need assistance

Appendix 13 – Borough Mitigation Action Plan 2020 (From All-Hazards Mitigation Plan)

Action	Description	Priority	Responsible Department	Potential Funding	Timeframe	Benefit-Costs/Technical Feasibility	2020 Update
1	Identify areas of fuel loading in the WUI	High	DOF	Borough Planning, Emergency Services, participating Borough communities, DOF	2020-2025	Identification of hazard areas facilitates design and prioritization of mitigation actions.	Ongoing as new information becomes available. Figure 32 identifies observed spruce-bark beetle damage in the Borough from 2015 to 2018.
2	Clear the hazard trees in proximity to homes in partnership with the DOF, private sector businesses, and land owners.	High	DOF	DHS Preparedness Technical Assistance Program, HMGP	2020-2025	National statistics state that there is a \$10 benefit for every \$1 spent on wildfire mitigation.	Obtaining funding is a priority for DES.
3	Encourage subdivisions and neighborhoods to qualify as nationally recognized Firewise Communities.	High	Borough DES Manager	HMGP, FEMA, Homeowners Associations, Community Councils	2020-2025	Residents in a Firewise Community commit to maintaining Firewise standards. This is the most sustainable form of wildfire mitigation.	Horseshoe Lake became the first Firewise community within the Borough to have a CWPP in 2006. Their plan was updated in 2019. Other communities are encouraged to evaluate their needs.
4	Ensure sufficient firefighting resources are available.	High	Borough Fire Chief	DES, PDM, HMGP	Ongoing	Sufficient fire suppression resources enable the saving of lives and property. Firefighting capability is a factor in a community's fire rating.	The Borough regularly evaluates, maintains, and improves firefighting resources, including hiring and training new personnel. The Borough spent roughly 17% of its budget on emergency services in 2019.
5	Develop and maintain CWPP's (Community Wildfire Protection Plans) for Community Council areas in the Borough.	Medium	Community Councils	Borough Homeowners Associations, Community Councils	Ongoing	Community Wildfire planning identifies and prioritizes areas of risk and engages landowners in actively protecting their property.	Horseshoe Lake became the first Firewise community within the Borough to have a CWPP in 2006. Their plan was updated in 2019.

Appendix 14 - Prioritized List of Managed Fuel Reduction Projects

Project priority was assigned first by whether a project is located within a "Community at Risk" as listed in the Federal Register (66 FR 753) and secondly by project score.

Project Priority	Project Name	Acres	Lat.	Long.	Community	Project Type	Project Score	Community At Risk
1	Schrock Road	10.32	61° 38' 15.60" N	149° 30' 2.41" W	Meadow Lakes	Fuel Break	87	Yes
2	Burma Road N. #2	18.88	61° 30' 12.00" N	149° 57' 6.49" W	Big Lake	Access/Egress	79	Yes
3	Horseshoe Lakes #3	28.37	61° 34' 5.03" N	149° 56' 19.38" W	Big Lake	Access/Egress	75	Yes
4	Wolf Road	15.26	61° 34' 44.03" N	149° 49' 42.69" W	Big Lake	Access/Egress	73	Yes
5	Horseshoe Lakes #4	13.97	61° 33' 49.31" N	149° 57' 24.79" W	Big Lake	Access/Egress	71	Yes
6	Armstrong Road	12.51	61° 37' 53.23" N	149° 47' 1.44" W	Houston	Access/Egress	86	Yes
7	Little Su River Campground Mech.	10.34	61° 37' 49.66" N	149° 25' 51.03" W	Houston	Fuel Break	84	Yes
8	King Arthur Road	14.11	61° 37' 17.82" N	149° 46' 53.97" W	Houston	Access/Egress	79	Yes
9	Nancy Lake Pwky - DOF Project	not yet determined	61°40' 45.60" N	150° 3' 1.77" W	Willow	Access/Egress	not yet determined	No
10	Serenity Heights	34.25	61° 47' 18.72" N	150° 5' 33.51" W	Willow	Access/Egress	87	No
11	Sylvan Road	37.61	61° 34' 26.48" N	149° 37' 31.64" W	Wasilla	Fuel Break	82	No
12	Infinite Road	8.55	61° 38' 15.91" N	149° 28' 55.88" W	Tanaina	Access/Egress	75	No
13	Wilmington Drive	6.06	61° 37' 45.31" N	149° 27' 13.34" W	Tanaina	Fuel Break	75	No

Appendix 15 - Fuel Reduction Project Descriptions

1. Schrock Road Mechanical Fuel Reduction Project

Reduce hazardous forest fuels by constructing a 100-foot-wide fuel breaks along a portion of Schrock Road and perimeter segments of DNR owned Tract B1 located on the western edge of the Meadow Lakes community and near the eastern edge of the Tanaina community. The intent of the project is to protect human life, property, and infrastructure including adjacent residential subdivisions and an emergency access/egress route in the event of a wildfire by reduction of hazardous forest fuels. Proposed treatment will include mechanically cutting and chipping/mulching of hazardous fuels (Black and white spruce seedling, sapling and pole-sized tress, ladder fuels on mature white spruce trees, and dead and down woody material). Live, healthy hardwood trees (aspen, birch and cottonwood) and saw-timber sized white spruce trees will be retained, where present, to create shaded fuel breaks with a predominant hardwood component. Live, mature spruce trees would be retained on site, but would be manually pruned by the AK-DOF Fire Crew (separate contract) to remove ladder fuels.

2. Burma Road North #2

Reduce hazardous forest fuels by constructing a 100-foot-wide shaded hardwood fuel break bordering a segment of Burma Road located north of Kuster Road and extending the existing fuel reduction treatments to protect this ingress/egress route. Project is located entirely on MSB ownership. Proposed treatment will include mechanically cutting and chipping/mulching of hazardous fuels (white and black spruce) and retaining treated material on site. White spruce sawtimber trees will be pruned of ladder fuels.

3. Horseshoe Lake Mechanical Fuel Reduction Project #3

Reduce hazardous fuels by mechanically and/or hand cutting and chipping hazardous fuels (live and dead standing and down trees) and retaining live hardwood species (birch, aspen and cottonwood), where present, to create a shaded hardwood fuel break on private, MSB, and Alaska Mental Health Trust Authority (AMHTA) properties bordering Horseshoe Lake Road. The intent of the project is to protect human life, property, and emergency access/egress in the event of wildfire by reduction of hazardous fuels.

4. Wolf Road Mechanical Fuel Reduction Project

Reduce hazardous fuels by mechanically cutting and chipping/mulching dead, standing and down trees, and retaining live hardwood trees (birch, aspen and cottonwood), where present, to create shaded hardwood fuel breaks. The Wolf Road project is proposed on private property southeast of Wolf Road. The project is designed to protect human life, property, and infrastructure and emergency access/egress in the event of wildfire by reduction of hazardous fuels, fire slash that resulted from the 1996 Miller's Reach Fire.

5. Horseshoe Lake Mechanical Fuel Reduction Project #4

Reduce hazardous fuels by mechanically and/or hand cutting and chipping hazardous fuels (live and dead standing and down trees) and retaining live hardwood species (birch, aspen and cottonwood), where present, to create a shaded hardwood fuel break on private, MSB, and State properties bordering West Camp Drive. The intent of the project is to protect human life, property, and emergency access/egress in the event of wildfire by reduction of hazardous fuels.

6. Armstrong Road, City of Houston, Mechanical Fuel Reduction Project

Reduce hazardous fuels by constructing a shaded hardwood fuel break through black spruce timber bordering segments of Armstrong Road to protect the important emergency ingress/egress route. Project is located entirely on privately owned lands. Proposed treatment will include mechanically cutting, chipping/mulching and removing hazardous fuels (black spruce), and retaining wood chips on site.

7. Little Susitna River Campground Trail and Shaded Hardwood Fuel Break

Reduce hazardous forest fuels (spruce component plus dead and down woody material) by constructing a shaded hardwood fuel break and new hiking trail surrounding the Little Susitna River campground. Project will be performed by private contractor using mechanical fuel reduction methods. The intent of the project is to protect life, property, and emergency access/egress in the event of wildfire by reduction of hazardous forest fuels.

8. King Arthur Drive Mechanical Fuel Reduction Project

Reduce hazardous fuels by constructing a shaded hardwood fuel break through dense black spruce, white spruce, and mixed spruce/hardwood stands bordering segments of King Arthur Drive. The project is designed to protect human life, the important ingress/egress route, and nearby residential subdivisions. Project is located entirely on private ownership. Proposed treatment will include mechanically cutting, and chipping/mulching of hazardous fuels (seedling, sapling and pole sized spruce trees), and retaining wood chips on site.

9. Nancy Lake Parkway-DOF Fire Crew Project

Project will be completed by a DOF Fire Crew to mitigate hazardous fuels (dense concentrations of black and white spruce and beetle-killed spruce). The project is divided into four separate tasks. The first involves treating approximately 139 acres to create a 100-foot shaded fuel break along six miles of the Nancy Lake Parkway, with the intent of protecting the access/egress route and providing an example of fuel reduction and defensible space treatment to the public. The second will create a 100-foot protective buffer south-east of South Rolly Lake campground by treating 2.5 acres of black spruce. The third will provide treatment of a limited number of high-risk fuels in the South Rolly Lake Campground, which is approximately 32 acres in size. This project was completed in 2019. The fourth will involve removal of a limited number of high-risk fuels in a 50 ft buffer along the first 2.5 miles of the Red Shirt Lake trail and a more significant amount of hazard fuel remove along the last half mile where the trail drops elevation into a forest type with a high black spruce component. This project will be described in detail in the Western WUI Grant Application to be submitted by DOF (Norm McDonald) to Arlene Weber-Sword, Alaska Fire Plan Coordinator, in September 2008.

10. Serenity Heights Mechanical Fuel Reduction Project

Reduce hazardous fuels by constructing fuel breaks within dense spruce dominated timber stands bordering Serenity Heights and adjacent subdivided residential properties accessed primarily by Gratiot Drive, located at mile 73 on Parks Highway. The intent of the project is to protect human life, property, and the emergency ingress/egress routes. Project is located on State of Alaska and private ownership. Proposed treatment will include mechanically cutting, chipping and removal of hazardous fuels (spruce), and retaining and protecting hardwood tree species, where present.

11. Sylvan Road Mechanical Fuel Reduction Project

Reduce hazardous forest fuels by constructing a 200-foot-wide shaded fuel break inside the perimeter of the Alaska Mental Health Trust Authority (AMHTA) parcel C1 on Sylvan Road. The intent of the project is to protect human life, property, and infrastructure including several residential subdivisions and the Sylvan Road access/egress route in the event of a wildfire by reduction and removal of hazardous forest fuels. The project also fulfills AMHTA land management principles by reducing the threat of catastrophic wildfire to AMHTA land, timber assets and property values.

12. Infinite Road Mechanical Fuel Reduction Project

Reduce hazardous forest fuels by constructing a 100 ft wide shaded fuel break along the east side of Infinite Road on privately owned Tract B2 and Lot 4 located in the community of Tanaina. The intent of the project is to protect human life, property, and infrastructure including nearby residential subdivisions and an emergency access/egress route in the event of a wildfire by reduction of hazardous forest fuels. Proposed treatment will include mechanically cutting and chipping/mulching of hazardous fuels (Black spruce seedling, sapling and pole-sized trees and dead and down woody material). Live, healthy hardwood trees (aspen, birch cottonwood) will be retained, where present, to create shaded fuel breaks with a predominant hardwood component.

13. Wilmington Drive Mechanical Fuel Reduction Project

Reduce hazardous forest fuels by constructing 100 ft wide shaded fuel breaks along the perimeter of the University of Alaska (UA) owned tract located north of W. Wilmington Drive and west of N. Dartmoor Street in the community of Tanaina. The intent of the project is to protect human life, property, and infrastructure including adjacent residential subdivisions and emergency access/egress routes in the event of a wildfire by reduction of hazardous forest fuels. Proposed treatment will include mechanically cutting and chipping of hazardous fuels (under-story spruce component plus dead and down woody material) and retaining healthy, live trees including spruce and hardwood species (aspen, birch cottonwood) to create shaded fuel breaks with a predominant hardwood component. Mature spruce trees would be retained on site but would be manually pruned by the DOF Fire Crew (separate contract) to remove ladder fuels.

14. Individual homeowner mitigation opportunities for fuels reduction, Firewise tree removal.

15. Mobile woodchipper to access neighborhoods and communities.

16. Access and egress roads into communities with only one access road.

17. Existing fuels reduction project along Little Su to Houston/Willow Parkway, developed from Sockeye Fire. State has it ready to go, but no money.

Appendix 16 - Glossary

Boreal Forest - A broad band of sub-arctic, mixed forest dominated by spruce, aspen, and birch with areas of muskeg, stretching across northern North America, Europe, and Asia.

Burning Ban - A declared ban on open air burning within a specified area, usually due to sustained high fire danger.

Community Councils - Nonprofit, voluntary, self-governing associations composed of residents located within geographical areas designated as community council districts by the MSB assembly.

Cooperative Agreements - Written documents between multiple governmental agencies (for example state and federal) to aid one another or share resources during emergencies.

Critical Protection - Suppression action provided on a wildland fire that threatens human life, inhabited property, designated physical developments and structural resources such as those designated as National Historic Landmarks. The suppression objective is to provide complete protection to identified sites and control the fire at the smallest acreage reasonably possible. The allocation of suppression resources to fires threatening critical sites is given the highest priority.

Crown Fire - A fire that advances from top to top of trees or shrubs more or less independent of a surface fire.

Defensible Space - A zone where fuels have been cleared, reduced, or altered to act as a barrier between an advancing wildfire and values at risk. Usually, the first zone is a 30 foot wide vegetation management zone around a structure, although fuels should be thinned beyond the first zone in high risk areas.

Evacuation - An organized, phased, and supervised withdrawal, dispersal, or removal of civilians from dangerous or potentially dangerous areas, plus their reception and care in safe areas.

Extreme Fire Behavior - When a wildland fire is influenced by adverse winds, fuels, adverse topography, or any combination of the above. High rates of spread, spotting, and thermal outputs are associated with extreme fire behavior.

Fire Behavior - The manner in which a wildland fire reacts to the influences of fuel, weather, and topography; how fuels ignite, flames development, and fires spread.

Fire Break - A gap in vegetation or other combustible material, man-made or natural, that will stop or slow an oncoming wildland fire.

Fire Hazard - A fuel complex, defined by volume, type condition, arrangement, and location, that determines the degree of ease of ignition and of resistance to control.

Fire Prevention - Activities such as public education, community outreach, law enforcement, and reduction of fuel hazards that are intended to reduce wildland fire and the risks it poses to life and property.

Fire Risk - The chance of fire starting, as determined by the presence and activity of causative agents.

Fire Risk Rating - Evaluation of a dwelling and its immediate surrounding to determine its potential to escape damage by an approaching wildland fire. Includes the fuels and vegetation in the yard and adjacent to the structure, roof environment, decking and siding materials, prevailing winds, topography, fire history, etc., with the intent of mitigating fire hazards and risks. Also called a Home Assessment.

Fire Season – 1) Period(s) of the year during which wildland fires are likely to occur, spread, and affect resources values sufficient to warrant organized fire management activities. 2) A legally enacted time during which burning activities are regulated by federal, state, or local authority.

Fire Suppression - The work of containing or fighting a wildfire, beginning with its discovery and continuing until the fire is extinguished and mop-up is completed.

Fuel Group - An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics. General fuel groups are grass, brush, timber, and slash.

Fuel Loading - The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area. This may be available fuel (consumable fuel) or total fuel and is usually dry weight.

Fuel Management - Act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological, or manual means, or by fire, in support of land management objectives.

Fuel Model - Simulated fuel complex for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified.

Fuel Mitigation - Manipulation or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control (e.g., lopping, chipping, crushing, piling and burning). synonym: Fuel Treatment Fuel Modification or Fuel Reduction.

Fuel Type - An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause a predictable rate of spread or resistance to control under specified weather conditions.

Fuel break - A natural or manmade change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled.

Full Protection - Suppression action provided on a wildland fire that threatens uninhabited private property, high-valued natural resource areas, and other high-valued areas such as identified cultural and historical sites. The suppression objective is to control the fire at the smallest acreage reasonably possible. The allocation of suppression resources to fires receiving the full protection option is second in priority only to fires threatening a critical protection area.

GIS - Geographical Information Systems, a computer application used to store, view, and analyze geographical information and create maps.

Hand Crew - Several individuals that have been organized and trained and are supervised principally for operational assignments on an incident.

Hazard Assessment - Assess hazards to determine risks. Assess the impact of each hazard in terms of potential loss, cost, or strategic degradation based on probability and severity.

Hazard Fuel - A fuel complex defined by kind, arrangement, volume, condition, and location that forms a special threat of ignition and resistance to control.

Ignition Risk - The probability of fire to start or spread at a specific location.

Limited Protection - Lowest level of suppression action provided on a wildland fire in areas where values to be protected do not justify the expense of a higher level of protection, and where opportunities can be provided for fire to help achieve land and resource protection objectives. The suppression objective is to minimize suppression costs without compromising protection of higher-valued adjacent resources. The allocation of suppression resources to fires receiving the limited protection option is of the lowest priority. Surveillance is an acceptable suppression response as long as higher valued adjacent resources are not threatened.

Mitigation - Those activities implemented prior to, during, or after an incident which are designed to reduce or eliminate risks to persons or property that lessen the actual or potential effects or consequences of an incident. Mitigation measures can include efforts to educate governments, businesses, and the public on measures they can take to reduce loss and injury and are often informed by lessons learned from prior incidents.

Modified Protection - Suppression action provided on a wildland fire in areas where values to be protected do not justify the expense of full protection. The suppression objective is to reduce overall suppression costs without compromising protection of higher-valued adjacent resources. The allocation of suppression resources to fires receiving the modified protection option is of a lower priority than those in critical and full protection areas. A higher level of protection may be given during the peak burning periods of the fire season than early or late in the fire season.

Muskeg - A swamp or bog formed by an accumulation of sphagnum moss, leaves, and decayed matter resembling peat.

Mutual Aid - 1) Assistance in firefighting or investigation by fire agencies, without regard for jurisdictional boundaries. 2) An agreement made between like governmental bodies (such as federal, state, and municipal) to provide assistance to each other in times of emergencies.

Preparedness - 1) Activities that lead to a safe, efficient, and cost-effective fire management program in support of land and resource management objectives through appropriate planning and coordination. 2) Mental readiness to recognize changes in fire danger and act promptly when action is appropriate. 3) The range of deliberate, critical tasks, and activities necessary to build, sustain, and improve the capability to protect against, respond to, and recover from domestic incidents.

Prevention - 1) Activities directed at reducing the incidence of fires, including public education, law enforcement, personal contact, and reduction of fuel hazards (fuels management). 2) Actions to avoid an incident, to intervene for the purpose of stopping an incident from occurring, or to mitigate an incident's effect to protect life and property. Includes measures designed to mitigate damage by reducing or eliminating risks to persons or property, lessening the potential effects or consequences of an incident.

Response - 1) Movement of an individual firefighting resource from its assigned standby location to another location or to an incident in reaction to dispatch orders or to a reported alarm. 2) Activities that address the short-term, direct effect of an incident, including immediate actions to save lives, protect property, and meet basic human needs.

Safety Zone - An area clear of flammable materials used for escape in the event an area outflanked by wildfire. Safety zones may be constructed as integral parts of fuel breaks.

Shaded Fuel break - Forested areas where tree density has been thinned and the remaining trees pruned to reduce the fire potential. Some crown canopy is retained to make a less favorable microclimate for surface fires.

Slash - Debris resulting from such natural events as wind, fire, or snow breakage; or human activities such as road construction, logging, pruning, thinning, or brush cutting. It includes logs, chunks, bark, branches, stumps, and broken understory trees or brush.

Suppression - All the work of extinguishing or confining a fire beginning with its discovery.

Surface Fire - Fire that burns loose debris on the surface, which includes dead branches, leaves, pine needles and low vegetation.

Topography - An accurate and detailed description of a place, including land surface configuration, both manmade and natural. Topography can be described in terms like "level", "steep", "broken", or "rolling".

Values At Risk - Property, structures, community infrastructure, natural and culture resources, and economic, environmental, and social standards that may be impacted by a wildfire.

Wildfire/Wildland Fire - Any fire which threatens to destroy life, property, or natural resources, and 1) is not burning within the confines of firebreaks, or 2) is burning with such intensity that it could not be readily extinguished with ordinary tools commonly available.

Wildfire Suppression - An appropriate management response to wildfire, escaped wildland fire or prescribed fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire.

Wildland - An area in which development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities. Structures, if any, are widely scattered.

Wildland Urban Interface (WUI) - The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.