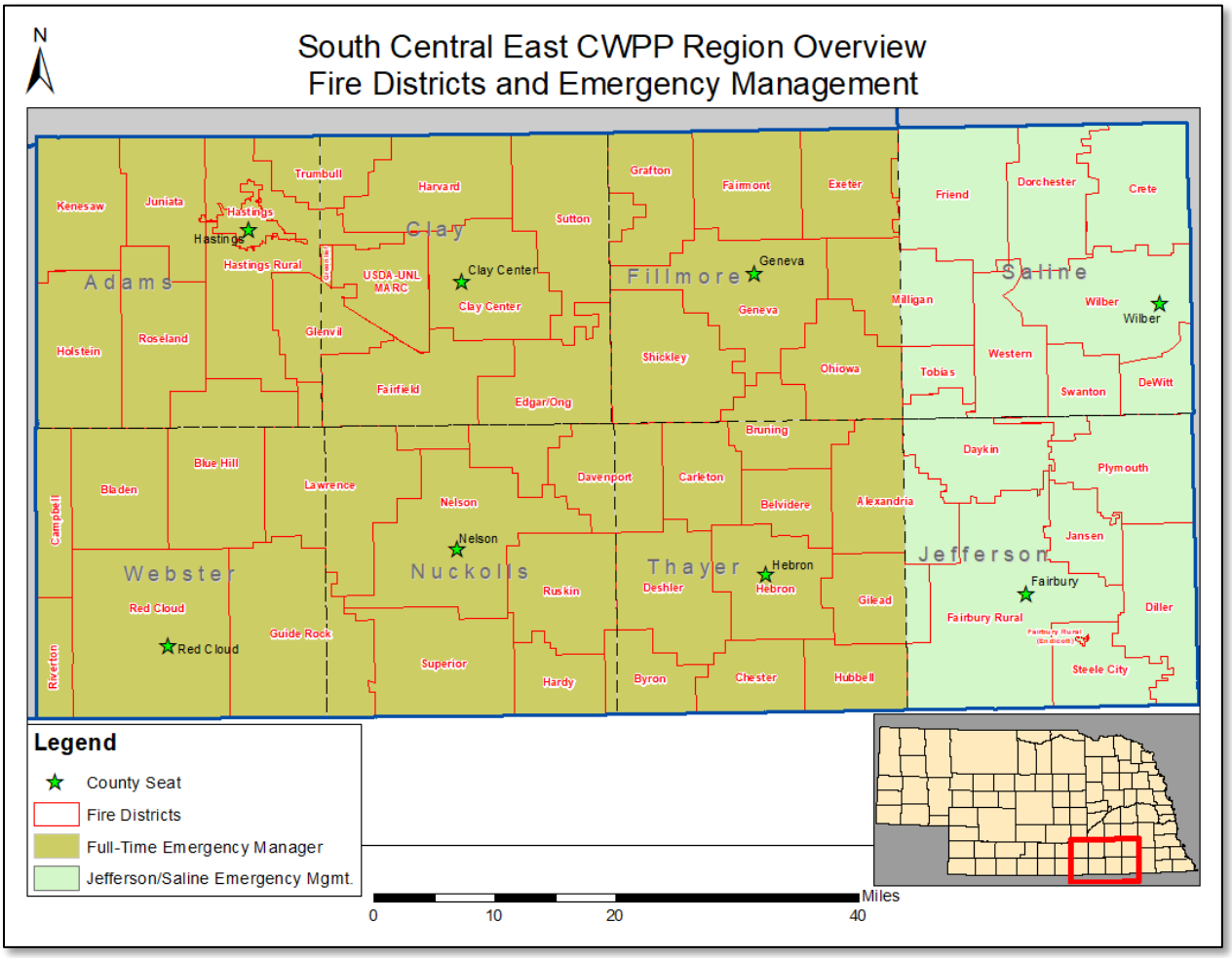
South Central East Nebraska Community Wildfire Protection Plan

FOR THE COUNTIES OF ADAMS, CLAY, FILLMORE, JEFFERSON, NUCKOLLS, SALINE, THAYER, AND WEBSTER

Photo courtesy of Kent Pfeiffer, Northern Prairies Land Trust

FEBRUARY 2022



Map 1: Overview of the South Central East CWPP Region and Emergency Management Areas.

FACILITATED BY THE

Nebraska Forest Service

IN COLLABORATION AND COOPERATION WITH

ADAMS, CLAY, FILLMORE, JEFFERSON, NUCKOLLS,
SALINE, THAYER, AND WEBSTER COUNTIES

LOCAL VOLUNTEER FIRE DISTRICTS

LOCAL AND REGIONAL EMERGENCY MANAGEMENT DIRECTORS
SOUTH CENTRAL EAST CWPP STEERING COMMITTEE

LOCAL MUNICIPAL OFFICIALS

LOCAL, STATE, AND FEDERAL NATURAL RESOURCES AGENCIES

AREA LANDOWNERS

Photo courtesy of Kyle Yrkoski, Upper Big Blue NRD

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Approved By:

Adams County Board of Commissioners

Signature: _____ Title: Chairman

Name LEE HOGAN Date: 3/15/22

Clay County Board of Supervisors

Signature: _____ Title: Chairman

Name L Wayne Johnson Date: 3/22/2022

Fillmore County Board of Supervisors

Signature: _____ Title: Chairman, Fillmore County Board of Supervisors

Name Wade Sluka Date: March 8, 2022

Jefferson County Board of Commissioners

Signature: _____ Title: Chairman

Name Mack A. Schoenrock Date: 3/1/2022

Nuckolls County Board of Commissioners

Signature: _____ Title: vice Chair

Name David Mussman Date: 03-7-2022

Saline County Board of Commissioners

Signature: _____ Title: Chairperson, Board of Commissioners

Name Russ Karpisek Date: March 15, 2022

Thayer County Board of Commissioners

Signature: _____ Title: Chairman

Name Dave Bruning Date: 2-23-22

Webster County Board of Commissioners

Signature: T.J. Vance **Title:** Chairman

Name Tyler J Vance **Date:** 3-1-22

Nebraska Forest Service

Signature: [signature] **Title:** State Forester

Name John A Erixson **Date:** 3-2-2022

Community Wildfire Protection Plan Acronyms

Acronym	Meaning
ATV	All-Terrain Vehicle
BUL	Biologically Unique Landscape
CWPP	Community Wildfire Protection Plan
FAP	Forest Action Plan
FEMA	Federal Emergency Management Agency
FEPP; FFP	Federal Excess Property Program; Firefighter Property (program)
GIS	Geographic Information System
GPS	Global Positioning System
GR	Grass fuel models
HMP	Hazard Mitigation Plan
IC	Incident Commander
LEOP	Local Emergency Operations Plan
MA, MAA	Mutual Aid, Mutual Aid Agreement
MARC	Meat Animal Research Center
MOU	Memorandum of Understanding
NEMA	Nebraska Emergency Management Agency
NFIRS	National Fire Incident Reporting System
NFS	Nebraska Forest Service
NGO	Non-Government Organization
NGPC	Nebraska Game and Parks Commission
NNLP	Nebraska Natural Legacy Project
NRCS	Natural Resources Conservation Service
NRD	Natural Resources District
PBA	Prescribed Burn Association
PF	Pheasants Forever
PL	Priority Landscape
POA	Property Owners Association
PPD	Public Power District
RH	Relative Humidity
RxB	Prescribed Fire
SEAT	Single Engine Air Tanker
SHP, SRA	State Historical Park, State Recreation Area
TL, TU	Timber-Litter and Timber Understory fuel models
UNL	University of Nebraska-Lincoln
USFS	US Forest Service
USFWS	US Fish and Wildlife Service
VFD	Volunteer Fire Department
WIRAT	Wildfire Incident Response Assistance Team
WMA	Wildlife Management Area
WUI	Wildland Urban Interface

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Introduction

The purpose of this Community Wildfire Protection Plan (CWPP) is to provide a tool for effectively managing fire and hazardous vegetative fuels and to bolster collaboration and communication among the various agencies and organizations who manage fire in the south central east portion of Nebraska. Having a CWPP in place allows the Nebraska Forest Service (NFS) to apply for federal grant dollars to cost-share forest fuels reduction treatments in at-risk areas within the boundaries of the CWPP. It also may increase opportunities for counties, municipalities, and rural fire districts to seek grant funding for activities related to fire protection.

A CWPP can help people be proactive in their approach to wildfire. All of the CWPP counties have experienced wildfires larger than 200 acres, some much larger. Historically, wildfires burned huge swaths of prairie and woodlands, destroying homes and lives. NFS data shows that between 2000 and 2020, volunteer fire departments (VFDs) in the CWPP area reported 43 fires greater than 99 acres in size that burned more than 13,235 acres. Four of those fires exceeded five hundred acres each. Because not all fire departments report every year, the actual numbers are likely much higher.[*]

These incidents demonstrate that intense fire behavior can start in rural areas, move aggressively over large expanses, and threaten population centers. For this reason, the CWPP planning team has designated the entire CWPP region as Wildland Urban Interface (WUI). Treatment to reduce dense vegetation can help lessen the risk of wildfire within the WUI. The NFS can utilize federal and state grant funding to cost-share fuels reduction treatments throughout the CWPP region.

Legislative Background

To be eligible for federal conservation cost-share funding assistance, the US government requires states to prepare action plans that lay out a strategy for forest and wildlife conservation. The Nebraska Game and Parks Commission (NGPC) published the Nebraska Natural Legacy Project (NNLP) in 2005 as the state's first Wildlife Action Plan (updated in 2011). It identified 40 biologically unique landscapes (BULs) to help prioritize where conservation work can best be directed. The South Central East CWPP region lies within the Tallgrass and Mixedgrass Prairie Ecoregions identified in the NNLP. All of the Sandstone Prairies and much of the Rainwater Basin BULs are found within this CWPP boundary (see Appendix A).

In accordance with the 2008 Farm Bill's requirement for states to conduct a comprehensive analysis of their forests, in 2011 the NFS published the Statewide Forest Resource Assessment and Strategy, known as the Forest Action Plan (FAP). This plan was updated in 2015 and 2020. Priority forest areas were identified throughout the state using the National Land Cover Dataset. This dataset represents 15 land cover and land use types including open water, development, crops, shrubs, grasslands, wetlands, and forests. Portions of the Blue Rivers, Republican River, and Lower Platte River Priority Landscapes (PLs) are located within this CWPP boundary (Map 2). A full description of the PLs is found in the Nebraska Forest Action Plan: https://nfs.unl.edu/statewide-forest-action-plan.

The Healthy Forest Restoration Act (US Congress, 2003) requires CWPPs to be developed collaboratively; identify and prioritize areas for fuels reduction and methods to reduce fuels on those areas; and recommend strategies to reduce structural ignitability. This CWPP addresses these requirements and other needs identified by stakeholders.

[*] Paid fire departments do not report their responses to NFS, but some of these departments do respond to wildfires and provide mutual aid. They report their statistics to the National Fire Incident Reporting System (NFIRS), a voluntary reporting standard that fire departments use to uniformly report on the full range of their activities, from fire to emergency medical services to severe weather and natural disasters.[1]

Plan Integration

This CWPP strives to coordinate with existing federal, state, and local plans and provides specific detail on wildfire hazards, areas at-risk from wildfire, emergency operations and capacity, and critical infrastructure. It includes an action plan addressing wildfire-specific issues including a risk assessment procedure, risk reduction measures, preparedness recommendations, training and education, fuels mitigation strategies, and a monitoring and evaluation plan.

The components of the State Emergency Operations Plan are patterned after the National Response Plan. The Nebraska Emergency Management Agency (NEMA) prepared a basic plan that details Nebraska's operational functions approach to the response and recovery phase of emergency management. It defines the roles and responsibilities of the responding and supporting agencies and organizations and defines broad policies, plans, and procedures.[2]

Each county has its own Local Emergency Operations Plan (LEOP). The content of these plans is defined by statute, which stipulates that each county's LEOP consists of specific components, including operations, organization, and responsibilities; functional annexes supporting activities critical to emergency response and recovery; technical information on response procedures; protective measures unique to a hazard; and methods for use in emergency operations. It is the responsibility of local emergency management staff to maintain the LEOP according to the guidance from the State.[2]

Each LEOP contains an 'Annex F' that covers fire services and resources. It includes a listing of county fire departments and mutual aid (MA) partners, as well as equipment lists. Fire department information is listed in Appendix G of this CWPP. Mutual aid associations are listed in Appendix F. One of the gaps common to many county-level LEOPs is a lack of wildfire-specific information. In many, fire is lumped in with hazardous materials. The information contained in this CWPP is intended to augment existing information and support these LEOPs.

Nebraska also has a state Hazard Mitigation Plan (HMP), which establishes the policies, plans, guidelines, and procedures for the Hazard Mitigation Program in Nebraska. NEMA coordinated with regional emergency management agencies, Natural Resources Districts (NRDs), and counties to update and maintain multi-jurisdictional hazard mitigation plans throughout the state.[3] All of the counties in the CWPP region are included in the Lower Big Blue NRD and Little Blue NRD HMP (see link in Appendix C).

Goals and Objectives

State Action Plan Goals and Objectives

The 2020 FAP goals and objectives are listed below:

1. Enhance and promote the role of Nebraska's forests and trees for mitigation and adaptation to the global change in climate
2. Manage trees and forest landscapes to include rural and community forest settings
3. Manage the function of forest and tree systems in Nebraska for maximum and sustained benefits
4. Improve, protect, and enhance fish and wildlife habitat in Nebraska
5. Restore fire-adapted landscapes to reduce risk of wildfire impacts on Nebraska's trees, forests, and communities
6. Manage for the health and productivity of Nebraska's trees and forests
7. Manage and build the capacity of Nebraska's trees and forests, in conjunction with the forest products industry, agriculture, and communities, which are all vital to Nebraska's economy
8. Maintain the natural environments of Nebraska including trees and forests, waterways, and rangelands
9. Manage Nebraska's forest and trees to enhance the water resources of Nebraska
10. Improve air quality and energy conservation through tree planting
11. Connect people to the state's trees and forest resources
12. Engage Nebraskans in the stewardship of trees and forests

This CWPP and the results of its implementation relate directly or indirectly to all of these. Sustainable forest management maintains natural environments and reduces negative wildfire impacts in the region's forests and adjacent communities, and it reduces threats to ecosystem health. Healthy forests and grasslands, in turn, protect air and water resources and fish and wildlife habitat, helping these ecosystems better cope with a changing climate. Communities that plan for and reduce wildfire risks and engage in environmental stewardship activities may also reap both direct and indirect economic benefits of healthy forests in fire-adapted landscapes.

Implementation of this CWPP relates directly to the NNLP goals of conserving natural communities, keeping common species common, and protecting at-risk species. Sustainably managed, fire-adapted forests include diverse habitats for both at-risk and common species. Restoring unnaturally dense forests to a more natural mosaic vegetative pattern benefits both wildlife and human communities.

CWPP Goals and Objectives

The steering committee identified the following goals and objectives that are consistent with the state FAP and specific to community wildfire protection planning in the south central east part of Nebraska. It is important to note that these are goals, not mandates. This begins the process of documenting needs and proposed solutions, which may provide new opportunities to address a variety of issues. Goals such as these can help tie grant applications directly to specifically-identified needs—a strategy that has been proven to increase the likelihood of funding. Any movement toward these goals can be considered progress. Proposed strategies and tactics to achieve these goals are included in the Action Plan section of this document and in Appendix B.

Goal 1: Reduce wildfire risk

Objectives

- Identify wildfire risks, areas of concern that contain these risks, and a range of mitigation measures to address them
- Assess risks in the areas of concern
- Mitigate risks: Implement measures to create defensible space and reduce structural ignitability

Goal 2: Support emergency response

Objectives

- Assess local response capacity
- Enhance local response capacity
- Improve firefighter readiness and safety
- Enhance communication among fire management agencies

Goal 3: Promote an informed and active citizenry for wildfire preparedness

Objectives

- Increase local knowledge of wildfire risk and prevention
- Engage stakeholders in preparedness activities that promote the use of defensible space to protect communities and resources

Goal 4: Restore fire-adapted ecosystems

Objectives

- Encourage land managers to reduce heavy understory fuels in woodlands
- Encourage land managers to control non-native invasive plant species and to actively manage prolific and aggressive native species
- Encourage land managers to use native plant species when restoring ecosystems
- Safely incorporate prescribed fire, using trained personnel and standard operating procedures

Goal 5: Enhance post-fire recovery

Objective

- Enable rapid assessments of burned lands and the implementation of stabilization techniques

Goal 6: Establish/implement a CWPP monitoring and evaluation process

Objectives

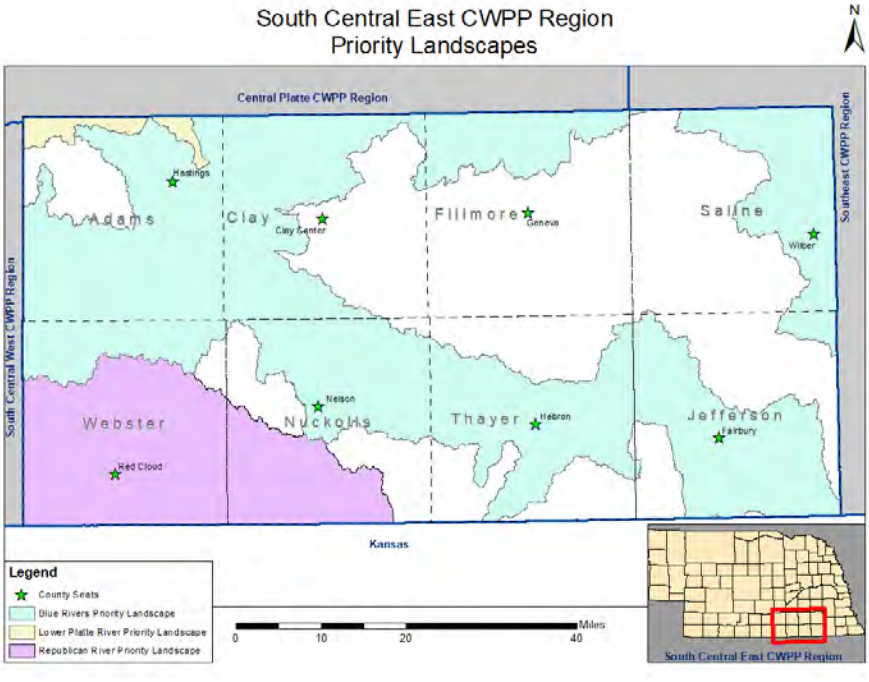
- Annually evaluate progress in implementing the CWPP and recommend changes as needed

- Monitor selected projects and activities to assess progress and effectiveness
- Improve grant eligibility by keeping planning documents up-to-date to reflect current activities and needs

Priority Landscapes

At the state level, the FAP identified PLs to help focus effort and funding on landscape-scale approaches. This CWPP region includes portions of the Blue Rivers, Republican River, and Lower Platte River PLs (Map 2). These landscapes include many locally identified 'Areas of Concern' where vegetative fuels reduction activities can be targeted (see map in Appendix A).

Unnaturally dense and unhealthy woodlands and encroachment of eastern redcedar into grasslands create extreme wildfire risk. Drought cycles are predicted to occur with increasing frequency. Communities can protect structures by reducing their ignitability, reducing the surrounding woody fuels, and improving access for emergency equipment. Priority Landscapes help focus management activities on areas most at-risk.

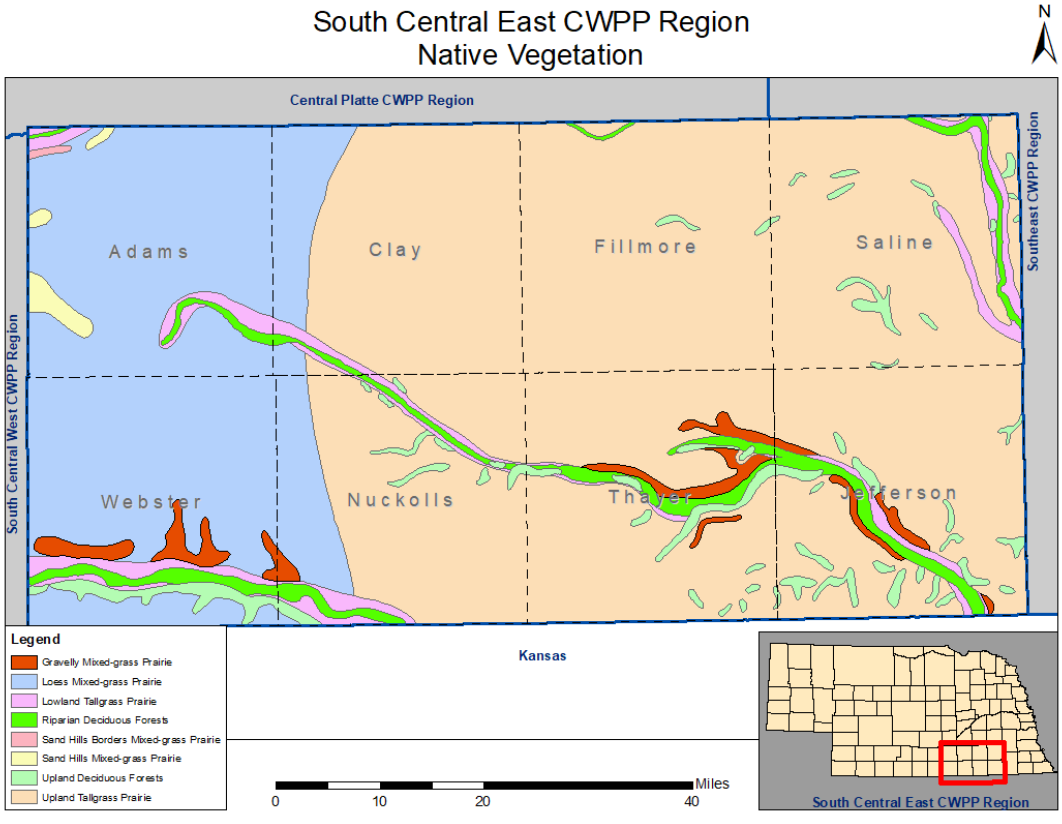


Map 2: The principal Priority Landscapes in this CWPP region are located along the Little Blue, Lower Big Blue, and Republican Rivers, plus a small part of the Lower Platte River PL in Adams County. These landscapes include many locally-identified Areas of Concern. A map of the Areas of Concern is located in Appendix A.

Vegetation Types and Areas of Concern within Priority Landscapes

The PLs contain a range of topography and vegetation types including deciduous forest (upland mixed deciduous and riparian woodlands) and several types of tallgrass and mixed-grass prairie (Map 3). Within each county, local stakeholders have identified 'Areas of Concern'—specific sites that are at greatest risk for wildfire within the larger landscapes. Most of these are located within the PLs. (See Appendix A.)

Managing the grass component of the forested areas is extremely important. Deciduous woodlands can develop a heavy grass and shrub component which, if not managed appropriately, create a hazardous fuels risk. The best management is done on a landscape basis—fuels mitigation treatments are only as effective as their weakest link. Unmanaged 'islands' within managed areas pose a significant risk to the managed lands.



Map 3: The South Central East CWPP counties are dominated by upland tallgrass prairie and Loess mixed-grass prairie, with smaller areas of other types of mixed-grass prairie. Lowland tallgrass prairie and riparian deciduous forests occur along the rivers. Patches of upland deciduous forest are scattered across the region.[4]

Process

The first step in the CWPP planning process was to establish a core working group of stakeholders to form a steering committee and planning team. Information about the purpose of the CWPP and an invitation to participate in the process was given to each of the eight county boards and their emergency managers within the region. Counties appointed individuals to the steering committee to help guide the process.

An outreach notice was sent to stakeholders and other potentially interested parties, including fire districts within the CWPP region, municipal governments, natural resources districts, federal and state agencies, state legislators, and non-government conservation organizations. The steering committee was rounded out from responses to this outreach. Containing a mix of county board appointments and volunteers, it included representatives from local and state emergency management, fire departments, NRDs, the NFS, the Natural Resources Conservation Service (NRCS), and the NGPC (See Appendix I).

For planning purposes, each county within the CWPP boundary is considered a WUI community. County officials, fire department personnel, and steering committee members identified areas of concern within each county that may be particularly at-risk from wildfire. The committee adopted CWPP goals and objectives and provided the locally focused framework for the plan.

The planning team (a subset of the steering committee) gathered pertinent data, seeking input from county officials, fire departments, and others as needed to provide background and overview information, determine local wildfire risk factors, map areas of concern, assess risks, and recommend an action plan.

The NFS sent a questionnaire to the fire departments in the CWPP region asking for current contact information, list of equipment, as well as issues, concerns, and priorities. 38 of the 57 fire departments returned the survey. Their responses appear in Appendix G, along with information obtained from Annex F of each county's LEOP for all fire departments located entirely or partially within the CWPP boundary. The fire department survey and distribution list appear in Appendix H.

A news release sent to local newspapers and radio stations described the planning process, encouraged input, and provided contact information for comments. CWPP information was posted on the NFS website and social media page to extend the outreach. The stakeholder list, outreach letters, and media releases appear in Appendix I.

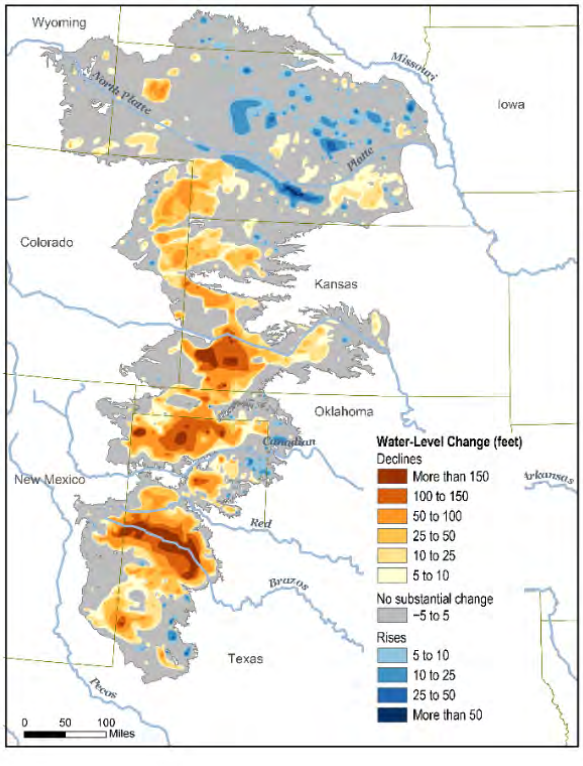
The team prepared a draft document that was released for a 30-day public review period. Comments were reviewed and incorporated into the final document. It was then sent to the county boards for signature. Final copies were provided to county boards and emergency managers. The plan is also available online at https://nfs.unl.edu/documents/CWPP/SCECWPP.pdf.

Overview

This section contains background information common to all counties within the CWPP region. Information specific to only certain areas is included in the individual county sections.

Landforms, Climate and Weather

The South Central East CWPP region lies within the Tallgrass Prairie and Mixedgrass Prairie Ecoregions. Most of this area sits atop the Ogallala Aquifer, which underlies about 175,000 square miles in eight states from Texas to South Dakota (Map 4).



Map 4: The Ogallala Aquifer underlies much of the Great Plains. This graphic[5] shows the water level change between the early 1900s and 2015.

Nebraska has a continental climate with cold winters and hot summers. Severe droughts have occurred in recent decades. Extreme wildfire years occurred in 1988, 1994, 2000, 2006, and 2012.

Weather data was obtained from the University of Nebraska High Plains Regional Climate Center[6] and Iowa State University.[7] Weather factors, including temperature, precipitation, relative humidity (RH), and wind, define fire season, as well as fire direction and speed. There are two fire seasons in this area. The early fire season occurs from snowmelt and the last spring frost (when the previous year's cured vegetation dries) until early May, then eases as vegetation greens up. The late season begins in mid to late summer as fine fuels, such as grasses and forbs, begin to dry. In most years the late season extends to mid-November, coinciding with agriculture crop harvests, leaf drop, and curing of prairie grasses. Wet springs can delay the onset of the early season, but they produce more fine fuels in ditches and across rangelands that, in late summer and fall, become tinder for sparks that can start wildfires. In drier years fine fuels can start curing by mid- to late July, but there is less growth, and consequently fewer fine fuels to catch sparks from farm equipment or motorists.

	April			July			October		
County	Max. Temp.	Precip.	Min. RH	Max. Temp.	Precip.	Min. RH	Max. Temp.	Precip.	Min. RH
Adams	63.14	2.55	37.5	88.03	3.77	57	65.19	2.00	43
Clay	63.06	2.56	40	87.65	3.83	55.5	65.26	2.20	46
Fillmore	63.50	2.55	35.5	87.82	3.55	59	65.70	2.11	43.5
Jefferson	64.22	2.82	38	88.80	4.09	57	66.60	2.14	43.5
Nuckolls	63.97	2.53	38	88.79	3.98	50	66.18	2.09	40
Saline	63.66	2.65	35.5	87.98	3.74	57	65.99	2.10	43.5
Thayer	64.14	2.69	38	88.90	3.88	53.5	66.46	2.11	42
Webster	63.97	2.39	38	89.42	3.87	50	65.94	2.04	40

Table 1: Average maximum temperatures (degrees F), precipitation (inches) and median minimum relative humidity (percent) 1982-2020 for April, July, and October for the South Central East CWPP counties. Relative humidity (RH) data interpolated from selected weather stations.[6]

Wind is a primary factor in fire spread, even where fuels are light and/or discontinuous as it is in much of the plan area. Many areas are more than half agriculture and grass fuels. Wind rosettes for April, July, and October from four stations in or near the plan area—Beatrice, Hastings, Hebron, and York—are in Appendix D.

Vegetation and Natural Communities

Native vegetation in the South Central East CWPP Region is primarily tallgrass prairie and mixed-grass prairie, with riparian deciduous forests in the drainages and patches of upland deciduous forests scattered throughout the region (see Map 3). Eastern redcedar occurs within some of the deciduous woodlands along the rivers and their tributaries, and in some areas has encroached into the prairies. Agricultural fields occupy most of the region. A land cover map[8] appears in Appendix A.

The principal deciduous tree species are eastern cottonwood, hackberry, bur oak, black walnut, silver maple, green ash, wild plum, gray dogwood, elderberry, mulberry, elm spp., and honeylocust. Most of the green ash is expected to die when the emerald ash borer, an invasive pest, moves into the region. Other woody species that are locally abundant include eastern red cedar, sand cherry, smooth sumac, and chokecherry. Riparian deciduous woodlands follow the major drainages. Most of the deciduous trees and shrubs are found in stringers and patches along the drainages with cooler, more humid environments. In general, fuel continuity in the forested areas is high. Other forested areas are primarily hardwoods that are scattered throughout the area, usually in areas of non-tillable land.

Within this CWPP region the Sandstone Prairies BUL identified within the NNLP, is found in Jefferson and Thayer Counties, south of Fairbury. According to NGPC staff, more of this type of fire-influenced habitat exists in Nuckolls and extending through Webster Counties, especially south of the Republican River.

Land Use

There are about 2,939,520 acres (4,593 sq. mi.) in the CWPP region, which includes Adams, Clay, Fillmore, Jefferson, Nuckolls, Saline, Thayer, and Webster Counties. In addition to county and municipal properties, public lands include 10,615 acres in US Fish and Wildlife Service (USFWS) Waterfowl Protection Areas; 34,641 acres at USDA/UNL's Meat Animal Research Center (MARC); 3,282 acres at the Greenlief National Guard Training Site west of MARC, 8,616 acres in 35 NGPC properties including Wildlife Management Areas (WMAs), State Recreation Areas (SRAs), and a State Historical Park (SHP); and 1,543 acres in 11 NRD-managed sites. Nebraska School Lands constitute approximately 6,351 acres in the region.[9] The remainder of the land in these counties is privately owned. Non-government conservation organizations manage 2,579 acres in seven tracts.

Agriculture (crops and livestock) is the predominant use on rural private and school lands. Residential, commercial, manufacturing, and industrial land uses dominate the region's 65 incorporated cities and villages and their immediate surroundings. Land use is primarily agricultural in the region's nine unincorporated communities. Rural residential land use exists in conjunction with agricultural operations. According to US Census data, in 2020 there were 76,916 permanent residents in the eight counties within the CWPP region.

All counties in the CWPP region except for Nuckolls have county zoning plans in place. There are currently no restrictions in any of the counties for new building construction in fire-prone areas. The City of Hastings has adopted Chapter 4 and Sections 603 and 604 of the 2018 *International Wildland Urban Interface Code*, but there are no zoning overlays adopted. Some of the zoning does address landscaping and greenbelts, but nothing specifically geared towards the WUI.

Popular outdoor recreational activities include hunting, fishing, hiking, biking, and camping at public recreation areas in the region. Over 13,000 people visit Rock Creek Station SHP and SRA annually.[10] Although no visitor numbers are available for state WMAs, NGPC staff reports significant use by recreationists. The Little Blue NRD reported annual visitation of over 1,600 at three of its recreation sites. The Lower Big Blue NRD does not track public visitation numbers at their sites.

Wildland Urban Interface

The WUI is defined as areas where homes and other structures are built on or near lands prone to wildfire. According to the 'Ready, Set, Go!' program, managed by the International Association of Fire Chiefs, the WUI is not necessarily a place, but a set of conditions that can exist in nearly every community. It can be a major subdivision, or it can be four homes on an open range. National Fire Protection Association literature states that conditions include, but are not limited to, the amount, type, and distribution of vegetation; the flammability of the structures in the area and their proximity to fire-prone vegetation and to other combustible structures; weather patterns and general climate conditions; topography; hydrology; average lot size; and road construction. The WUI exists in every state in the country, and in every county/community within the CWPP boundary. Site-specific WUI issues are listed in each county section of this CWPP.

Infrastructure

Webster defines infrastructure as: "the system of public works of a country, state, or region; also: the resources (such as personnel, buildings, or equipment) required for an activity." In the CWPP region, infrastructure includes county, state, and federal roads and bridges, communications systems, the power grid, water systems, hospitals, schools, parks and fairgrounds, public administration buildings, fire halls, public officials, law enforcement officers, and fire personnel. These systems, structures, and people are critical to regional functionality. One of the goals of community planning is to protect the basic physical and organizational structure of communities. This infrastructure, in turn, protects citizens.

Regional infrastructure expedites access to a fire by emergency responders, allows them to communicate with one another and the public, facilitates evacuations and support functions, and assists recovery efforts after the event. It is important for both local and out-of-area responders to know what facilities and resources are available and where they are located.

Emergency evacuations depend on infrastructure. Immediate evacuation destinations are likely to be in areas away from the fire that have water, power, and room for gathering. Fairgrounds and parks often make good short-term destinations, as they have large parking areas, restrooms, and electricity. In a wildfire evacuation scenario, local officials will designate immediate evacuation destinations. During prolonged evacuation periods or when homes or access routes have been destroyed, longer range planning is needed.

The Participant Profiles sections of regional HMP identify specific sheltering locations, which are primarily the mass care facilities identified in the county LEOPs. The Department of Homeland Security's website https://www.ready.gov/evacuating-yourself-and-your-family also offers some ideas.

The CWPP region is crossed by several high-tension power lines. Rural electric service in the counties is provided by the South Central Public Power District (PPD), Norris PPD, Perennial PPD, Southern PPD, and Hastings Utilities. Both cellular and landline telephone services are available regionwide. Cellular reception is spotty in some parts of the region.

Hazardous Fuels Reduction

Hazardous fuels reduction is key to decreasing risks to human life and damage to property. In terms of wildfire, hazardous fuels include any kind of living or dead vegetation that is flammable. Implementation of hazardous fuels reduction projects reduces fuels that feed wildfires, resulting in less extreme fire behavior and intensity. Fire behavior reductions include decreased rates of spread and shorter flame lengths. Fuels treatment can be accomplished via several approaches, including forest thinning, fuelbreak and firebreak establishment, prescribed fire, prescribed grazing, and implementing Firewise® practices around structures. Table 2 shows acres of vegetation treatments implemented over the past five years in the CWPP region.

Mechanical Treatment

Mechanically removing eastern redcedar can be expensive, depending on access, terrain, and tree size and density. It is often accomplished by using equipment ranging from chainsaws and hand-held weed trimmers with saw blades to ATV-mounted cutters and hydraulic shears mounted on skid-steers or tractors. As tree size, tree density, and slope increase, so do the costs.

The NFS, NGPC, and NRCS offer cost share programs to help private landowners mechanically reduce hazardous woody fuels or improve wildlife habitat and range conditions on their properties. Landowners in counties that adopt this CWPP are eligible to participate in the NFS cost share program for mechanical fuels reduction.

In addition to offering cost share assistance to private landowners, natural resources agencies also use mechanical treatments on the public properties they manage. On NGPC lands, Wildlife Division staff reports that firebreak placement moves annually. Some haying occurs, related to specific site and habitat objectives, but is infrequently applied. For state park lands, acres related to mowed areas managed specifically for public uses (i.e. campgrounds). Most tree removal work would be considered incidental on these areas, where fire is routinely applied. Fuels reduction is discussed in detail in the Action Plan section of this document.

Prescribed Fire and Prescribed Burn Associations

In recent years, prescribed fire has increased as a method of keeping woody encroachment in check, particularly in grasslands, where it can be extremely efficient for managing eastern redcedar. In forested settings where eastern redcedar is present, prescribed fire is more effective and safer when used to maintain woodlands after they have been mechanically thinned. When tree densities are reduced prior to burning, it is easier to keep the

fire on the ground, where it cleans up downed woody fuels. Crown fires are difficult to control, and they kill healthy trees.

Prescribed fire practitioners include individual landowners, groups of landowners in organized prescribed burn associations (PBAs), non-profit organizations, and public agencies. The NGPC and many non-government conservation organizations use prescribed fire as an effective land management tool on state and non-profit lands. On NGPC WMAs, all acres generally have prescribed fire applied at least once within a 5-year planning window. There are exceptions for WMAs with riparian woodlands, due to seasonal difficulties with burning in these habitats and fuel types. All prescribed burn units use haying and/or tilled firebreaks dependent on habitat context. There is also significant and routine use of prescribed fire at the Rock Creek Station SHP for maintenance of those oak-prairie savannah and prairie habitats.

The Pheasants Forever (PF) statewide Prescribed Fire (RxB) Association map shows the currently inactive Rainwater Basin PBA includes Fillmore, Nuckolls, Clay, and part of Adams Counties. The currently inactive South Central Nebraska PBA includes the rest of Adams County, Webster County, and neighboring counties west of the CWPP region. The Tri-County PBA is active, and it includes Saline County. PF reports this group burned about 400 acres in 2021, but no county-level data is available.

Estimated Acres of Vegetation Treated During the Last Five Years in the South Central East CWPP Region											
	NFS	NGPC/ W=Wildlife Div.; P=Parks Div.			Lower Republican NRD			NRCS/ Little Blue NRD			
County	**Mech.**	**RxB**	**Mech.**	**Chem.**	**RxB**	**Mech.**	**Chem.**	**RxB**	**Mech.**	**Chem.**	**Total Acres**
Adams		171 W	* W	* W					23		**194**
Clay		1,461 W	* W	* W							**1,461**
Fillmore	42	894 W	* W	* W				105	60	40	**1,141**
Jefferson		2,819 W 350 P	* W 100 P	* W, P					10		**3,279**
Nuckolls		199 W	* W	* W							**199**
Saline		300 W	* W	* W							**300**
Thayer		1,299 W	* W	* W					20		**1,319**
Webster		999 W	* W	* W	1,500	2,500	500	50	50	30	**5,629**
Total Acres	**42**	**8,492**	**100**	*	**1,500**	**2,500**	**500**	**155**	**163**	**70**	**13,522**

* These NGPC acres are variable annually.

Table 2: Estimated acres of vegetation treatment (prescribed fire, mechanical, chemical) in the South Central East CWPP Region counties during the past five years. Other treatments may have occurred, but only entities that reported treated acres are included in this table.

Prescribed Grazing and Haying

Grazing can have a positive impact on fuels reduction on both private and public lands. Many landowners who use RxB also use planned grazing to reduce the potential for fire escape and spotting on lands adjacent to the burn units. According to NGPC staff, prescribed grazing is most frequently applied on WMAs within the Rainwater Basin Wetland area. Grazing on these sites is typically done in combination with chemical application to limit perennial emergent wetland vegetation and increase annual plant production and open water areas within the larger wetland. Upland grazing is applied situationally on WMAs but is variable annually.

Targeted haying practices can also impact fuels reduction. Some private landowners hay areas adjacent to prescribed burn units to minimize the potential for spot fires. On NGPC lands, Wildlife Division staff reports that some haying occurs on WMAs, related to specific site and habitat objectives, but is infrequently applied. For state park lands, mowed areas are managed specifically for public uses such as campgrounds.

Chemical Treatment

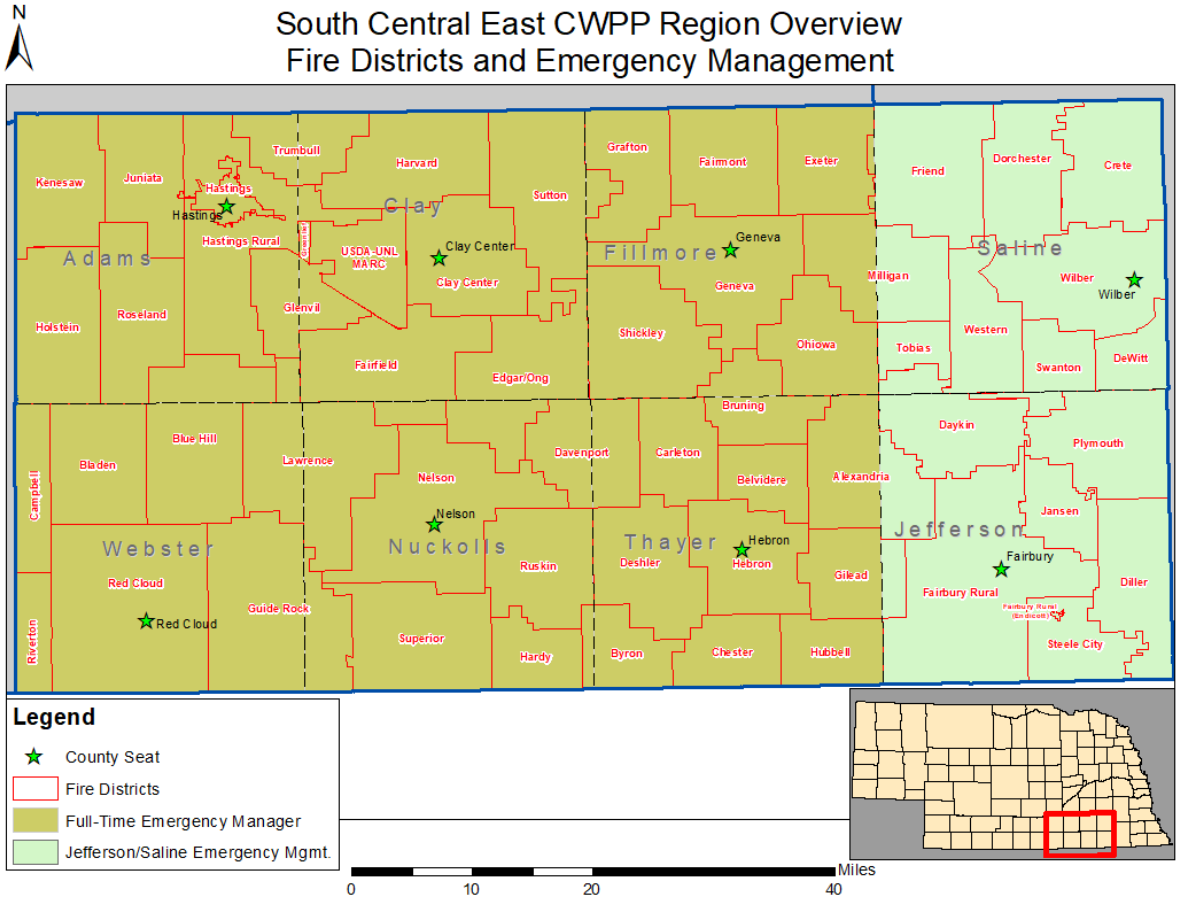
Some entities use chemical treatments to manage vegetation for habitat improvement, noxious weed control, agricultural production, or other purposes. NGPC staff notes that all of their properties are rogued and treated as needed annually for invasive plants. Many of the areas within the CWPP region are Rainwater Basin Wetlands. Chemical is periodically applied to limit perennial emergent wetland vegetation and increase annual plant production and open water areas within the larger wetland.

Emergency Management and Fire Districts

Jefferson and Saline Counties have a unified emergency management jurisdiction. The other counties each have their own full time emergency manager. Map 5 shows the CWPP's local emergency management areas. A map of statewide Local Emergency Management Areas appears in Appendix A.

There are 57 fire districts all or partially within the CWPP boundary (see Map 5). Some VFDs voluntarily report their fire responses to the NFS statewide wildfire tracking database. Reported fires by district are summarized in Table 4. Paid fire departments do not report their responses to NFS, but some of these departments, including Hastings Fire and Rescue, do respond to wildfires and provide mutual aid. They, along with over 24,000 other fire departments nationwide report their statistics to the NFIRS, a voluntary reporting system used to uniformly report on the full range of their activities, from fire to emergency medical services to severe weather and natural disasters.[1]

Each fire department in the CWPP region was asked to provide current contact information, equipment lists, and a summary of their wildfire issues and concerns. The responses received appear in Appendix G.



Map 5: Fire Districts all or partly within the South Central East CWPP Region.

Wildfire Hazard: History and Impacts

Historic Role of Fire

Prior to European settlement, large fires (started by lightning or intentionally as management activities by indigenous people) were common, and these fires kept the prairies free of most woody vegetation, except along the rivers and streams. Table 3 shows the wooded draws and ravines experience a mean replacement fire interval of 45 years, while the mean replacement fire interval for floodplain forests was 500 years (*note: the flooding-caused replacement interval for these forests may be more frequent*). The prairies in the region may have experienced a replacement fire interval of five to fifteen years prior to Euro-American influence. However, since settlement, people have become increasingly adept at suppressing wildfire. Without fire, over time, forests became densely overcrowded and woody vegetation encroaches on prairies.

		Fire Regime Characteristics			
Vegetation Community	**Fire Severity**	**% of Fires**	**Mean Interval (years)**	**Min. Interval (years)**	**Maximum Interval (years)**
Northern Great Plains wooded draws/ravines	Replacement	38	45	30	100
	Mixed	18	94		
	Surface or Low	43	40		
Great Plains floodplain	Replacement	100	500		
Northern Mixed-grass Prairie	Replacement	67	15	8	25
	Mixed	33	30	15	35
Central Tallgrass Prairie	Replacement	75	5	3	5
	Mixed	11	34	1	100
	Surface or Low	13	28	1	50

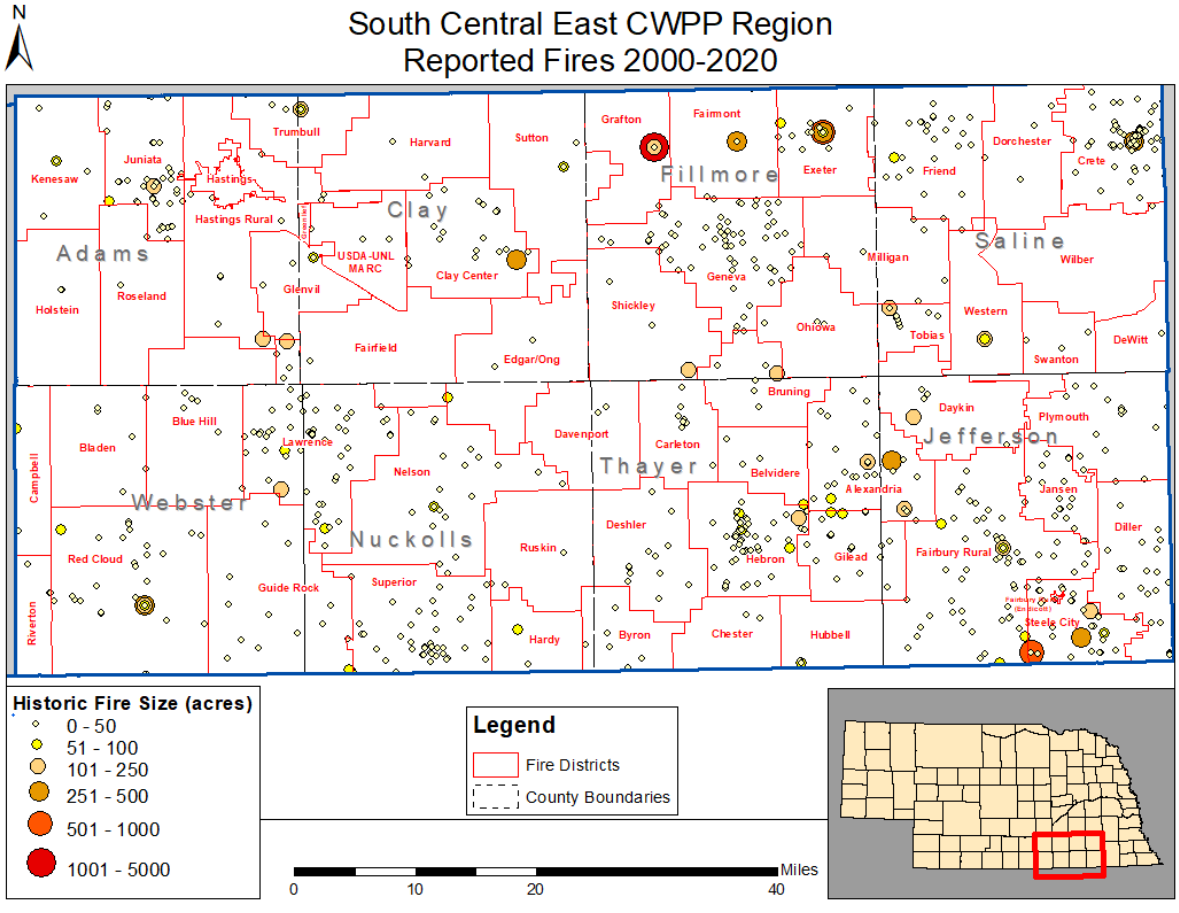
Table 3: Fire intervals for the South Central East CWPP vegetation communities.[11]

Local Fire History

Nebraska is no stranger to extremely large fires. In 1865 the US Army and ranchers intentionally set a 300-mile-wide prairie fire during a dispute with Native Americans. The fire blackened the entire section of Nebraska south of the Platte River and west of Fort Kearny. It was visible from Colorado and Kansas, and eventually burned all the way to Texas.

In the CWPP area, wildfires exceeding 200 acres in size have occurred in all of the counties, and fires larger than 400 acres have occurred in all but Adams and Thayer Counties. The largest fire reported to the NFS was 3,500 acres in the Grafton Fire District in November 2012. Map 6 shows the locations of some of the larger fires reported in the CWPP area since 2000.

In 2012, fire departments from across the state, including some in the CWPP region, provided support for major wildfires that burned nearly half a million acres in the Niobrara Valley and the Pine Ridge areas of Nebraska. As observed that year, and evidenced in historical research, rivers are not always a barrier to fire spread.[12]



Map 6: Some of the larger fires reported in the CWPP area since 2000 are shown in the map above. Departments reported 43 fires greater than 100 acres that burned over 13,000 acres.

Some fire districts voluntarily report their annual fire response data to the NFS. Table 4 shows the fire data reported by fire departments from 2000 through 2020.[13] Because the fire districts vary in their level of reporting, there is no accurate, comprehensive fire history available for the CWPP area.

Fires Reported 2000-2020 by VFDs in the South Central East CWPP Region							
Department	# Fires Human	# Acres Human	# Fires Lightning	# Acres Lightning	Total # Fires	Total # Acres	Mutual Aid Responses
Alexandria	33	1,039	1	1	34	1,039	3
Belvidere	10	123	1	7	11	130	1
Bladen	7	63	1	1	8	63	1
Blue Hill	18	190	0	0	18	190	0
Bruning	5	104	2	1	7	104	4
Byron	8	43	0	0	8	43	1
Campbell	10	183	3	101	13	284	1
Carleton	15	63	0	0	15	63	4
Clay Center	23	544	0	0	23	544	6
Crete	172	1,819	2	1	174	1,820	22
Davenport	10	32	0	0	10	32	1
Daykin	13	147	0	0	13	147	7
Deshler	26	15	0	0	26	15	6
DeWitt	9	37	0	0	9	37	0

Department	# Fires Human	# Acres Human	# Fires Lightning	# Acres Lightning	Total # Fires	Total # Acres	Mutual Aid Responses
Diller	45	321	2	4	47	325	4
Dorchester	7	43	0	0	7	43	0
Edgar/Ong	35	169	2	10	37	179	2
Steele City	42	1,791	1	1	43	1,792	1
Exeter	48	1,869	0	0	48	1,869	0
Fairbury	89	1,421	2	2	91	1,423	17
Fairmont	26	500	2	7	28	507	0
Friend	33	231	0	0	33	231	9
Geneva	98	41	1	1	99	41	8
Gilead	19	421	1	0	20	421	1
Glenvil	13	307	0	0	13	307	3
Grafton	61	3,926	0	0	61	3,926	0
Guide Rock	22	194	1	2	23	196	4
Hardy	6	2	0	0	6	2	3
Harvard	2	6	0	0	2	6	0
Hastings Rural	26	239	0	0	26	239	1
Hebron	75	621	1	3	76	624	37
Holstein	7	89	0	0	7	89	4
Hubbell	11	87	0	0	11	87	3
Jansen	22	38	0	0	22	38	7
Juniata	68	513	0	0	68	513	4
Kennesaw	26	194	0	0	26	194	5
Lawrence	71	602	2	8	73	611	8
Milligan	4	12	0	0	4	12	5
Nelson	37	872	2	61	39	933	5
Ohiowa	6	31	0	0	6	31	0
Plymouth	33	112	1	10	34	122	3
Red Cloud	59	1,113	1	1	60	1,113	12
Riverton	18	54	0	0	18	54	2
Roseland	8	11	1	1	9	11	0
Ruskin	9	25	0	0	9	25	2
Shickley	7	340	0	0	7	340	1
Superior	75	356	3	5	78	361	4
Sutton	14	126	0	0	14	126	1
Swanton	10	105	0	0	10	105	1
Tobias	11	31	0	0	11	31	2
Trumbull	8	15	13	417	21	432	4
Western	2	190	0	0	2	190	0
Total	**1,512**	**21,423**	**46**	**640**	**1,558**	**22,064**	**215**

Table 4: Fires reported by South Central East CWPP VFDs from 2000 through 2020. Departments reported a total of 39,799 volunteer hours for this period. Only departments that reported are listed. Some departments did not report every year. Actual numbers are higher. VFDs report the total number of fires and acres for their district. These figures were not adjusted for districts that include land outside of the CWPP region. In addition to VFD reported numbers, Hastings Fire and Rescue, a paid municipal department, reported responding in 2019-2020 to 23 grass fires (3 acres) and 12 mutual aid grass fire calls.

Fire Hazard

In the years since European settlement, exclusion of low-intensity ground fires and prolific regeneration of eastern redcedar have increased the fire hazard in both prairies and woodlands. During most years the majority of wildfires are small and do not burn with high intensity because of rain or quick suppression. However, in some years medium-sized and large fires occur and burn with high intensity and extreme fire behavior, posing a threat to rural homes. Often the fires are wind-driven from the southwest or northwest and can burn at a rapid rate. This situation challenges fire suppression personnel and agency managers to remain vigilant while monitoring the fire danger ratings and indices. Fuel continuity is high in the forested areas and in some of the open grasslands in this region. Fires in these areas can have a high rate of spread and, in the forests, a high resistance to control during very high and extreme fire danger.

Planning team members and local fire departments identified specific 'Areas of Concern' for wildfire response in each county in the CWPP region. These locations include the edges of municipalities and wooded areas along rivers and creeks where there are homes and other structures. Some of these areas experience heavy seasonal visitor use, have limited access and/or water availability, are high-risk ignition sources due to dense under-growth, and they often experience dry weather conditions conducive to fire ignition from lightning and hot farm machinery. The team stressed the importance of addressing fuel load reduction in mitigation plans. Areas of Concern are described in each community-specific section of the CWPP and shown on a map in Appendix A.

The entire CWPP region is included in the Blues NRD local mitigation planning area (see map in Appendix A), which has its own Multi-Jurisdictional HMP that includes a discussion of wildfire hazard (see link in Appendix C). This CWPP builds on the HMP to address specific wildfire concerns.

Fuel Moisture

Dead fuels are classified according to how fast they gain and lose moisture. They are categorized into 1, 10, 100, and 1,000-hour fuel size classes.[14] The larger the fuel, the longer it takes for the weather to affect it. Large branches (100-hour fuels) will take much longer to dry out than dead fine fuels such as grass (1-hour fuels). Once 100- and 1,000-hour fuels become dry, it also takes a long time for them to regain moisture from wetter weather. See Appendix E for more information on fuel moisture.

Fuel Models

According to the Nebraska Wildfire Risk Assessment Portal,[15] the following fuel models[16] are the most prevalent within the CWPP region:

<u>Grass Models</u>

- GR2 (regionwide) Moderately coarse continuous grass, average depth about 1 foot. Spread rate high, flame length moderate.
- GR6 (regionwide) Dryland grass about 1 to 2 feet tall. Spread rate very high, flame length very high.
- GR8 (western counties) Heavy, coarse, continuous grass 3 to 5 feet tall. Spread rate very high, flame length very high.
- GR3 (western counties) Continuous, coarse, humid-climate grass. Grass and herb fuel load is relatively light; fuelbed depth is about 2 feet.
- GR1 (Adams, Thayer) Grass is short, patchy, and possibly heavily grazed. Spread rate moderate, flame length low.
- GR4 (regionwide) Moderately coarse continuous grass, average depth about 2 feet. Spread rate very high, flame length high.

<u>Timber Models</u>

- TU1 (regionwide, along rivers and major streams) Fuelbed is low load of grass and/or shrub with litter. Spread rate low, flame length low.
- TL2 (eastern counties) Low load, compact. Spread rate very low, flame length very low.

- TL3 (Jefferson, Thayer) Moderate load conifer litter. Spread rate very low, flame length low.
- TL6 (Saline) Moderate load, less compact. Spread rate moderate, flame length low.

Full descriptions of these fuel models appear in Appendix E.

Economic Impacts

Excessive fuel loading can affect local economies in many ways. It reduces available forage, and therefore the grazing carrying capacity, for livestock and wildlife. If woody fuels are removed by uncontrolled, high intensity wildfire, other resources are affected. Intense fires may induce hydrophobic soils, which significantly increase runoff and erosion in steep terrain. Loss of grazing capacity and decreased water quality can be long-lasting problems for landowners whose livelihoods depend on livestock and/or hunting income.

A proactive approach to reducing hazardous fuels can provide jobs and generate valuable wood products such as lumber, posts, and biomass. Mechanically thinning forests reduces the hazard and risk of intense wildfire, can improve grazing capacity and wildlife habitat, and can increase the amount of precipitation that reaches streams, lakes, and the water table. Adherence to the *Forestry Best Management Practices for Nebraska* (https://nfs.unl.edu/documents/ruralforestry/NebraskaBMP.pdf) by those conducting mechanical thinning operations can reduce the potential for soil erosion from equipment use.

Emergency Operations

Responsibilities and Mutual Aid Agreements

Local fire departments are the first line of defense against wildfires on private and state lands in this planning area and statewide. During large wildfires, they rely on mutual aid (MA) agreements with neighboring jurisdictions. The 57 fire departments in the CWPP area belong to one or more of the nine MA districts that overlap the region: 3 & 33, Fillmore County, Hastings Area, Quad Cities, Saline County, South Central #2, Stateline, Thayer, and the Central Nebraska Fireman's Association. See Appendix F for a complete list of MA associations and member fire departments.

Emergency managers work closely with fire departments and law enforcement when responding to wildfires and other incidents. In addition to notification by sheriff's department personnel and/or dispatch, some jurisdictions have notification from 'Code Red' that allows them to develop groups that can be called in an emergency situation for notification of evacuations, hazardous material incidents, and any other emergency, including wildfire. This allows notification of a large geographical area or a group of people. This and similar applications are 'opt-in' programs which can be used to notify residents in the area of wildfire events but would likely not reach everyone.

The state introduced the Salamander identification card check-in system for emergency response personnel and equipment prior to the 2012 wildfires. This identification and credentialing system allows first responders (agencies, personnel, and equipment) to respond to incidents more efficiently. It streamlines the incident check-in process and tracks time spent on an incident for both personnel and equipment. The cards use bar codes that identify equipment, people and their qualifications, and can track volunteers. The Salamander Command program and the Salamander Track App are used to track incidents.

Staging Areas and Safety Zones

The forested drainages in the CWPP region are separated by expanses of grasslands and farm ground. There are abundant staging area locations in the uplands away from the drainages. Grazed pastures, green alfalfa fields, and fallow farmland can provide staging areas away from forested areas. Fairgrounds and municipal parks are generally good staging areas, depending on the particular location of a wildfire. Safety zone sites are designated by fire officials and depend upon the wildfire location and characteristics.

Roads/Bridges

In addition to the federal and state highways, the region is served by a network of county-maintained roads. Farm and ranch trails provide additional access for emergency vehicles. Restricted bridges and roads which could restrict truck/lowboy passage have not been mapped in some of the region's counties. Developing such a map has been identified as a need that should be addressed (see *Action Plan* section of this document).

Communications

Some radio compatibility issues in Nebraska were addressed after the 2012 wildfire season. Location-specific information about communications is listed in each county section of this CWPP for those entities that responded to requests for information. Gaps in cellular service exist across some parts of the CWPP region, particularly in steeper drainages.

Capabilities and Capacity

Resources to support emergency responder safety and help fire departments prepare for and respond to fire, natural disasters and non-fire emergencies can include vehicles, equipment, air support, and personnel. The resources described in this section are available to VFDs in Nebraska.

Vehicles and Equipment

A listing of apparatus and staffing for each fire district is included in Appendix G. Through the Federal Excess Property Program (FEPP) and Fire Fighter Property (FFP) program, a cooperative effort with the U.S. Forest Service, the NFS acquires and reconditions excess equipment which is no longer needed by the federal government. This equipment is then loaned to rural fire districts, which are responsible for maintenance. When no longer needed, the equipment is returned to the NFS and either re-assigned or sold, with the proceeds being returned to the US Treasury or state program. In 2021 there were 984 pieces of FEPP equipment in use by 306 rural fire districts and other emergency response jurisdictions across Nebraska, valued at $105,018,000. In this CWPP Region, there are 136 pieces of FEPP equipment, valued at $12,867,800 and housed in 40 jurisdictions.

These programs allow fire districts to obtain essential fire-fighting equipment at an affordable price. The NFS Fire Shop can provide cooperating fire districts resources to reduce vehicle maintenance costs. This includes securing parts for vehicles and providing complimentary maintenance checks. Mechanics can also provide routine vehicle maintenance at the NFS Fire Shop in Mead or fire districts may use a trusted local mechanic. Two NFS mobile repair units are available to respond to the maintenance needs of cooperating fire districts. These units can provide routine repairs and on-site support for cooperating districts in the event of catastrophic fires.

Aerial Resources

The Wildfire Control Act of 2013 enabled the establishment of Single Engine Air Tanker (SEAT) bases in Nebraska. The SEAT provides critical observation and access for remote areas. Tanker support is vital for locations away from towns and for wildfires located in difficult terrain or spreading quickly. Having a SEAT dedicated strictly to wildfire suppression provides nearby resources for quick initial attack on small fires, keeping them from growing into large catastrophic wildfires.

Permanent SEAT (Type 1) bases enhance fire aviation and initial attack capabilities. SEAT bases are staffed by NFS personnel during the fire season, working with a SEAT on contract to Nebraska through its partners at NEMA. During peak wildfire season (generally July 15-September 15) the state of Nebraska hires a SEAT for at least a 60-day contract period. NEMA pays for the aircraft's daily rate, and flight time is paid out of the Governor's Emergency fund. NFS provides the SEAT Manager who directs the entire operation. It is an interagency effort managed by NFS and paid for by NEMA.

Of the five permanent SEAT bases in Nebraska, Valentine's is the closest to this CWPP Region. The other bases are located in Alliance, Chadron, McCook, and Scottsbluff. In addition, NFS has a mobile SEAT base to support operations at airports without a permanent base. Each base houses LC 95 retardant.

Prior to the onset of fire season, the Wildfire Advisory Group assesses wildfire risk throughout the state. This committee consists of representatives from the NFS, State Fire Marshal's Office, NEMA, US Forest Service (USFS), and Great Plains Dispatch. They have two in-person meetings per year plus weekly conference calls to discuss wildfire operations, fuel conditions, and resources. The group recommends to NEMA which SEAT base is the best location to station the SEAT plane, and when and for how long the SEAT will be contracted.

The state has a long history of utilizing agricultural aerial applicators for fire suppression. These are an important resource because they are available year around, not just during the peak fire season. Aerial applicators sign up yearly to be part of this program but are not 'on call' for wildfire response. Any fire chief who decides one is needed can simply call directly to see if the applicator is available. These aircraft can only carry loads of water or foam, not the preferred and more effective retardant product. Their availability may be limited due to the pilot not being present or out spraying fields. These pilots and the aircraft are not federally 'carded' to fly missions on federal land, so they cannot be utilized on USFWS fires.

The NFS *Yellow Book* (link in Appendix K) contains detailed information about aerial resources, including:

- Contact information for state, federal and private agencies that have emergency suppression resources or can provide technical expertise in the suppression of wildfires
- Aerial Applicator and Foam Retardant Directory
- Deployment procedures and forms needed to order a SEAT
- Map of cooperating aerial applicators and SEAT base locations

Overhead Teams

In major wildfire situations, overhead teams can be called in to help VFDs. State assistance starts with the Wildfire Incident Response Assistance Team (WIRAT). This team is comprised of State Fire Marshals and the NFS. When an Incident Commander (IC) orders the team, the four closest members will respond and assist. This could include scouting the fire, ordering additional resources, establishing a communication plan, operations, communicating with aircraft, or reloading aircraft.

The team does not take over responsibility for the fire. Once a state disaster is declared by NEMA and the governor, a state-level All Hazard Type 3 Team can respond. At this point the fire is beyond the capabilities of the local IC. The team either takes control of the fire or shares the responsibility with the local IC. If the fire grows beyond their capabilities, then the Federal Emergency Management Agency (FEMA) and a Type 1 or 2 team become involved.

Training

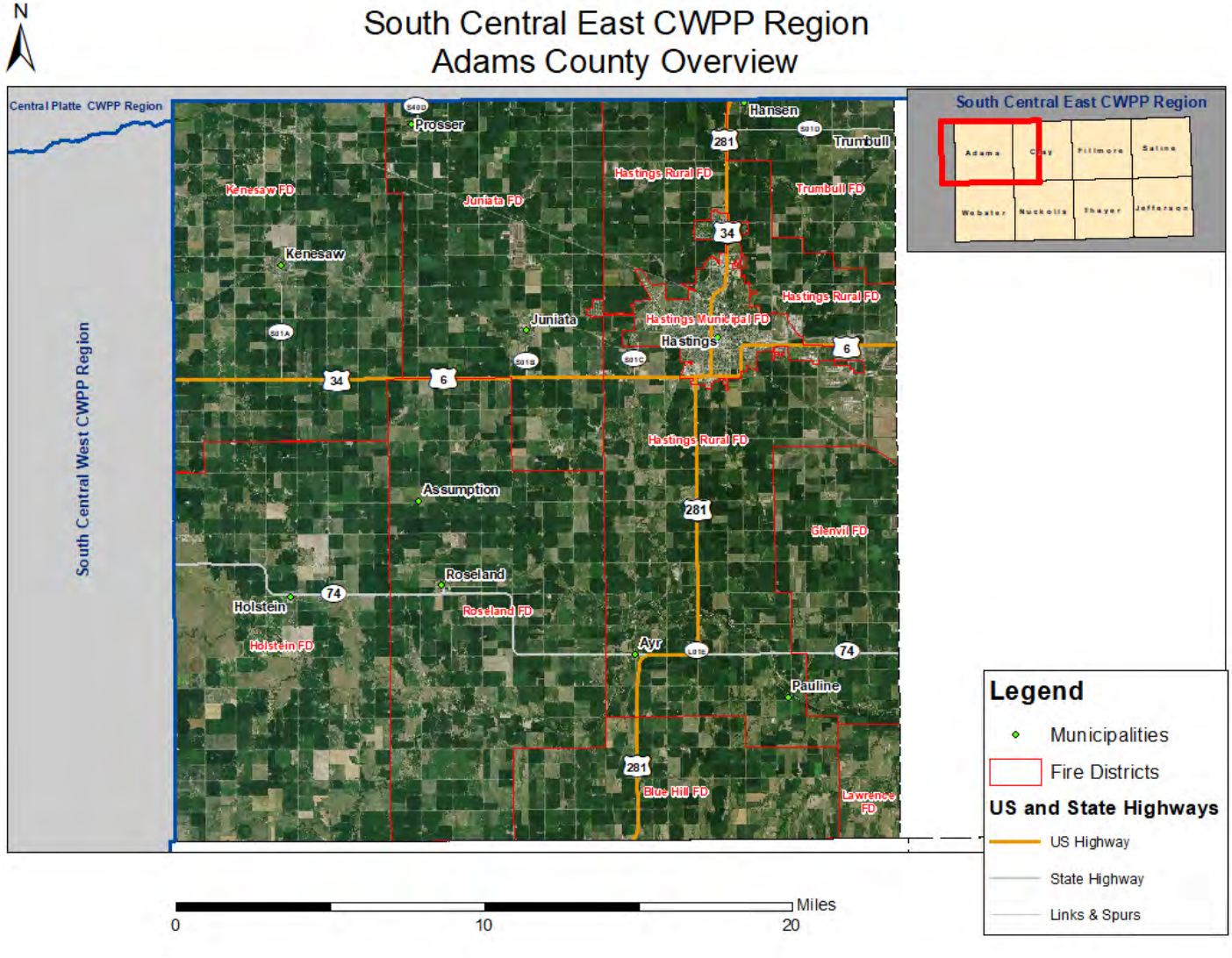
The NFS, Nebraska State Fire Marshal's Office, and NEMA provide wildland fire training through classes in communities across the state, as well as mutual aid schools and State Fire School attended by thousands of people each year. In addition, the NFS sponsors the Nebraska Wildland Fire Academy, held annually in April at Fort Robinson State Park. Launched as an interagency effort by the NFS and the USFS, the Academy provides opportunities for Nebraska volunteer firefighters to attend nationally recognized wildland fire and incident management training at little or no cost, on a schedule that doesn't require them to be away from home more than what is already required by their volunteer efforts. It utilizes the expertise of local, state, and federal firefighters to ensure the fire training needs of Nebraska and the surrounding region are met. It also enables local volunteers to enter the national red card system and develop certifications that are recognized across the nation. In 2018, NFS expanded this effort and created the Eastern Nebraska Wildland Fire Academy. This weekend event is hosted at Ponca State Park and provides valuable wildland fire classes each November.

Classes cover a variety of topics ranging from beginning to advanced firefighting techniques, Firewise® landscaping and construction, leadership, and fire prevention education. The classes offer flexibility and can be fine-tuned to meet the needs of local fire departments. NFS delivered and sponsored 2,133 course hours in 2020. Wildland fire instructors are based in Ainsworth, Chadron, and Lincoln.

Community-Specific Considerations

Topics pertinent to the entire CWPP region appear in the overview portion of this plan. For planning purposes, each county is considered a community. This part of the document contains elements specific to each county/ community. Each county section consists of a 'Community Profile' (description and fire hazard) and 'Infrastructure and Protection Capabilities' (fire districts, emergency operations, water sources, utilities, roads and bridges, and greatest concerns listed by fire departments). The HMPs contain complete critical infrastructure lists; therefore, these community sections include only a reference to the HMP link in Appendix C. Critical facilities are determined based on the discretion of the jurisdiction.

ADAMS COUNTY
564 sq. miles
2020 population: 31,205



Community Profile

Adams County forms the northwest corner of the CWPP region. It is bounded on the south by Webster County, on the east by Clay County, on the north by Hall County, and on the west by Kearney County. Incorporated municipalities include the county seat of Hastings (pop. 25,152), Ayr (pop. 92), Holstein (pop. 236), Juniata (pop. 1,082), Kennesaw (pop. 1,072), Prosser (pop. 72), and Roseland (pop. 465). Assumption, Hansen, Ingleside, and Pauline are unincorporated communities (no population data available).

Federal lands within the county include 394 acres in two USFWS Waterfowl Production Areas and 1,319 acres of the Greenlief National Guard Training Site. State lands include 165 acres in one WMA and one SRA, and approximately 1,345 acres in school lands. The Little Blue NRD manages 340 acres in three recreation areas. Other than municipal properties, the balance of the land in the county is privately owned. Non-profit conservation lands include a 209-acre Central Platte River tract owned by The Nature Conservancy.

The Little Blue River crosses most of the south end of the county, entering from north of Bladen in Webster County running north and east through Ayr and Pauline before and exiting into Clay County. The west fork of the Big Blue River rises southwest of Hansen and runs south, north, and east before exiting into Clay County south of Trumbull. Most of the county's woodlands are located along the river and creeks.

Most of Adams County lies within the Loess mixed-grass prairie vegetation zone. Patches of Sandhills mixed-grass prairie extend into the western part of the county. Riparian deciduous forests and strips of lowland tallgrass prairie follow the Little Blue River and many smaller streams. A small area of upland tallgrass prairie exists in the northeast corner of the county. In some areas, eastern redcedar has encroached into grasslands and deciduous woodlands. Agriculture crop fields cover much of the county. Grazing lands occupy most of the rougher terrain.

The WUI areas most at-risk from wildfire are the lands surrounding municipalities and recreational and residential areas along drainages where there are heavy fuels and limited access. The Hastings Fire and Rescue chief named two areas near the east edge of the city as being of particular concern due to multiple structures and a single road in and out. He stated they don't have a large threat directly in town, but they have readily available and trained resources to provide mutual aid assistance. The Hastings Rural fire chief said the Pauline area and the southeast part of their district are a concern due to travel distance and lack of water. The Kennesaw fire chief stated that the northwest part of their district has heavy fuels. The Trumbull VFD noted that there are areas in their district with difficult access, rough terrain, one way in/out, and lack of water within effective distance. The Juniata VFD stated that areas with heavy fuels are a concern. The Roseland VFD is concerned about rough terrain. Areas of concern in Adams County were identified by steering committee members, fire chiefs, or in the statewide Priority Lands analysis; a map is included in Appendix A. All of Adams County lies within the boundaries of the WUI as defined in the introduction to this CWPP.

Infrastructure and Protection Capabilities

Fire Districts and Emergency Management Area

Volunteer fire districts all or partly within Adams County include Blue Hill, Glenvil, Hastings Rural, Holstein, Juniata, Kenesaw, Lawrence, Roseland, and Trumbull. Hastings Fire and Rescue is a paid, municipal fire department. The county has a full-time emergency manager.

Water Sources

Most communities have municipal water systems. Farms and ranches are on wells. The rivers and their larger tributaries are reliable water sources. Windmills can provide water when they are operational. Ponds and stock tanks are located on farms and ranches throughout the county. During drought conditions some of the ponds may not be reliable water sources. The Hastings Rural and Trumbull VFDs listed water sources as a major concern. The Juniata and Kenesaw VFDs listed hydrants as a top concern.

Utilities/Phone Service

The Southern PPD and Hastings Utilities provide electric service to Adams County. Both cellular and landline telephone services are available. The Hastings Fire and Rescue chief reported that Verizon is the best provider in Adams County. There are dead zones of cell service near the Little Blue River, and also on the southeast side of the county. Towers are spaced at a maximum distance and sometimes calls will drop in those transition zones. FirstNet is fully built out, and provides at least as good of coverage as Verizon, with nearly the same dead zones. The City of Hastings is currently testing FirstNet for coverage.

Roads and Bridges

None of the fire departments expressed concern about roads in Adams County. The Juniata VFD noted that there are county bridges in their district that won't support equipment weight. The regional Hazard Mitigation Plan contains complete critical infrastructure lists; see HMP link in Appendix C.

Planning Considerations

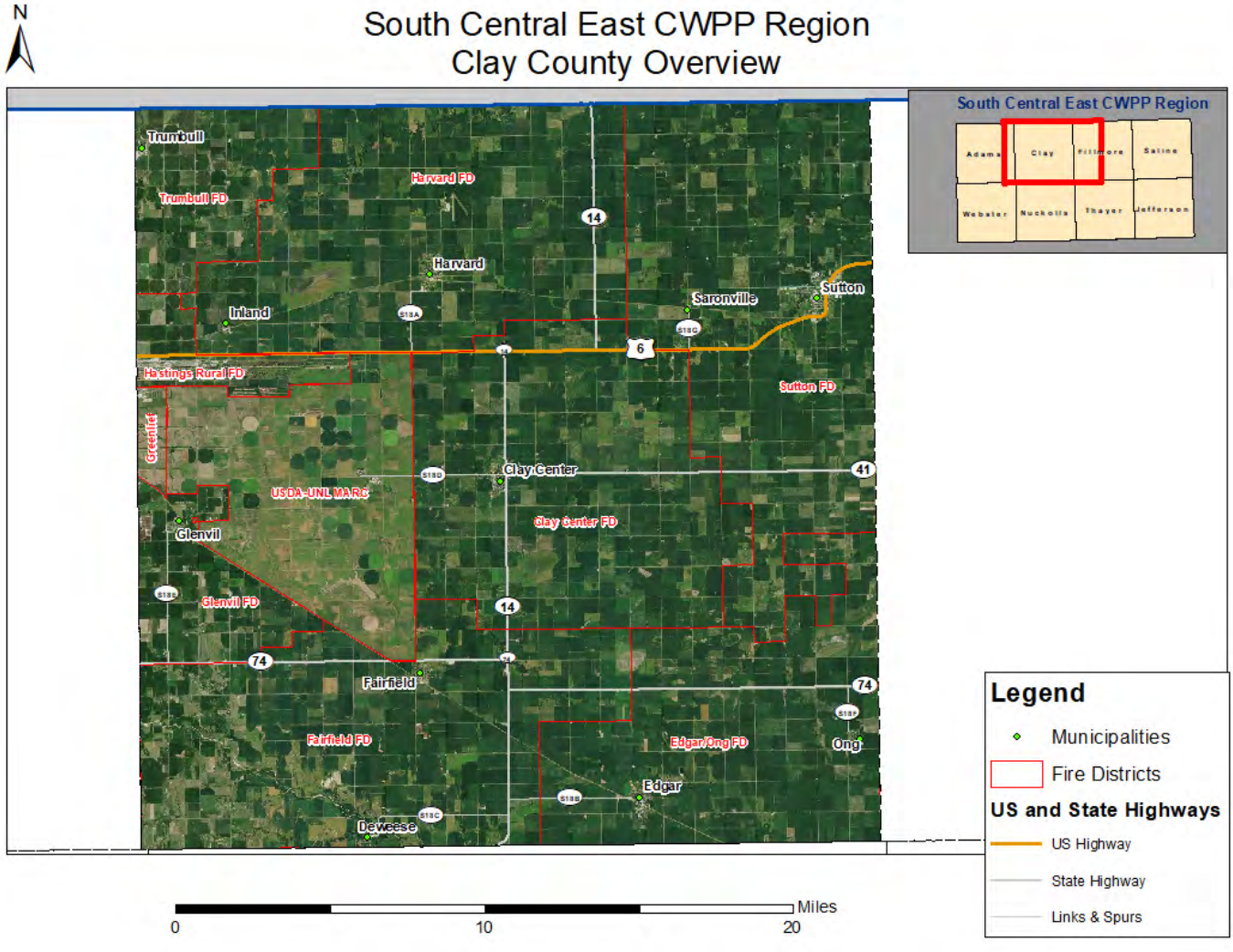
According to the HMP's Adams County Appendix, the Village of Kenesaw has a zoning ordinance that considers the role of the WUI for future development.

Greatest Concerns

The fire departments were asked to list their greatest concerns for their district, shown in the table below:

Department	**Greatest Concerns**
Blue Hill	(Survey not returned)
Glenvil	(Survey not returned)
Hastings Fire & Rescue	Homes near city limits have less defensible space. Education of elderly. Air quality. Shutting down rail line.
Hastings Rural	Having ample water and equipment
Holstein	(Survey not returned)
Juniata	(None listed)
Kenesaw	In the NW part of district, getting a fire stopped before it reaches the river
Lawrence	(Survey not returned)
Roseland	Rough terrain
Trumbull	For field fires there is an issue of having a truck capable of going in field

CLAY COUNTY
574 sq. miles
2020 population: 6,104



Community Profile

Clay County is on the north edge of the CWPP region. It is bounded on the west by Adams County, on the south by Nuckolls County, on the east by Fillmore County, and on the north by Hamilton County. Incorporated municipalities include the county seat of Clay Center (pop. 726), Deweese (pop. 65), Edgar (pop. 506), Fairfield (pop. 572), Glenvil (pop. 424), Harvard (pop. 1,087), Ong (pop. 59), Saronville (pop. 35), Sutton (pop. 1,447), and Trumbull (pop. 196). Inland (pop. 91) is an unincorporated community.

Federal lands in Clay County include 6,719 acres in several USFWS Waterfowl Production Areas and about 31,181 acres within the USDA/UNL MARC and the Greenlief National Guard Training Site. State lands include 1,460 acres in six NGPC WMAs, and approximately 80 acres in school lands. Other than municipal properties, the balance of the land in the county is privately owned. Non-profit conservation lands include 1,760 acres in five tracts managed by Ducks Unlimited.

The West Fork of the Big Blue River crosses the northwest corner of the county and the Little Blue River cuts across the southwest corner. The majority of the county's woodlands are located along these rivers and their tributaries. The eastern three quarters of Clay County lies within the upland tallgrass prairie vegetation zone; the western quarter is in the Loess mixed-grass prairie zone. Strips of lowland tallgrass prairie and riparian deciduous forests follow the Little Blue River and appear in places along other streams. In some areas, eastern

redcedar has encroached into grasslands and deciduous woodlands. Agriculture crop fields cover much of the county.

The WUI areas most at-risk from wildfire are the lands surrounding municipalities and recreational and residential areas along drainages where there are heavy fuels and limited access. Many at-risk areas are located along the Little Blue and the West Fork of the Big Blue Rivers and some of their tributaries, where topography is rough and woody fuels are dense in some places, creating high fire hazard.

The Edgar/Ong fire chief identified two locations of concern in their district: 1) along the Little Blue River where there are multiple structures and rough terrain, and 2) the Village of Ong due to multiple structures, rough terrain, heavy fuels, and approximately 30 uninhabited houses with very tall weeds and grass around the town. The Hastings Rural fire chief said that Pillen Farms along Highway 6 between Roads D and H is a concern due to heavy fuels, lack of water within effective distance, and the distance to travel from their fire station.

The Trumbull VFD noted that there are areas in their district with difficult access, rough terrain, one way in/out, and lack of water within effective distance. MARC listed their main building complex as an area of concern due to multiple structures and heavy fuels. The Sutton VFD ranked housing as a concern. According to the HMP's Clay County Appendix, Glenvil occasionally experiences small grass fires and is concerned about the risk of a larger event. Areas of concern were identified by steering committee members, fire chiefs, or in the statewide Priority Lands analysis are shown on a map in Appendix A. All of Clay County lies within the WUI boundary as defined in the introduction to this CWPP.

The most significant fire events reported in the county burned 408 acres in 2017 when powerlines sparked a fire during dry conditions and a lightning fire in 2000 which burned 200 acres and caused $28,000 in property damages. A fire in 2013 burned six square miles of grass and cropland, pushed by 45 mph winds. Fires in 2012, near the golf course, reached seven miles wide and was exacerbated by 55 mph winds. A wildfire approached Village of Ong in 2013, and while it did not enter the town, a couple of buildings near town were burned, and people reported illnesses from breathing the fire's smoke. In addition, there were accidents between vehicles and fire trucks that were responding to this incident, resulting in six injuries requiring hospitalization.[17]

Protection Capabilities and Infrastructure

Fire Districts and Emergency Management Area

Volunteer fire districts all or partly within Clay County include Clay Center, Edgar/Ong, Fairfield, Glenvil, Harvard, Hastings Rural, Sutton, and Trumbull. MARC has its own part-time, paid fire department. The county has a full-time emergency manager.

Water Sources

Most communities have municipal water systems. Farms and ranches are on wells. The Little Blue and the West Fork of the Big Blue Rivers and their larger tributaries are generally reliable water sources. Windmills can provide water when they are operational. There are small ponds and stock tanks on farms and ranches throughout the county. During drought conditions many ponds may not be reliable water sources. The Fairfield, Hastings Rural, Trumbull, and MARC fire chiefs named water sources as a top concern.

Utilities/Phone Service

Electric service is provided by the South Central PPD. Both cellular and landline telephone services are available in the county.

Roads and Bridges

The Fairfield fire chief stated that there are some bridges in their district that may not support equipment weight. The regional HMP contains critical infrastructure lists; see link in Appendix C.

Planning Considerations

According to the HMP's Clay County Appendix, access to water is a particular concern, as firefighters must drive up to 15 miles to refill their tankers. The county has expressed interest in developing four wells for water access for tankers in strategic areas around the county. Also concerning to the county are problems with the ability of firefighters to communicate during operations and residents who inadvertently start fires in shelter belt areas.

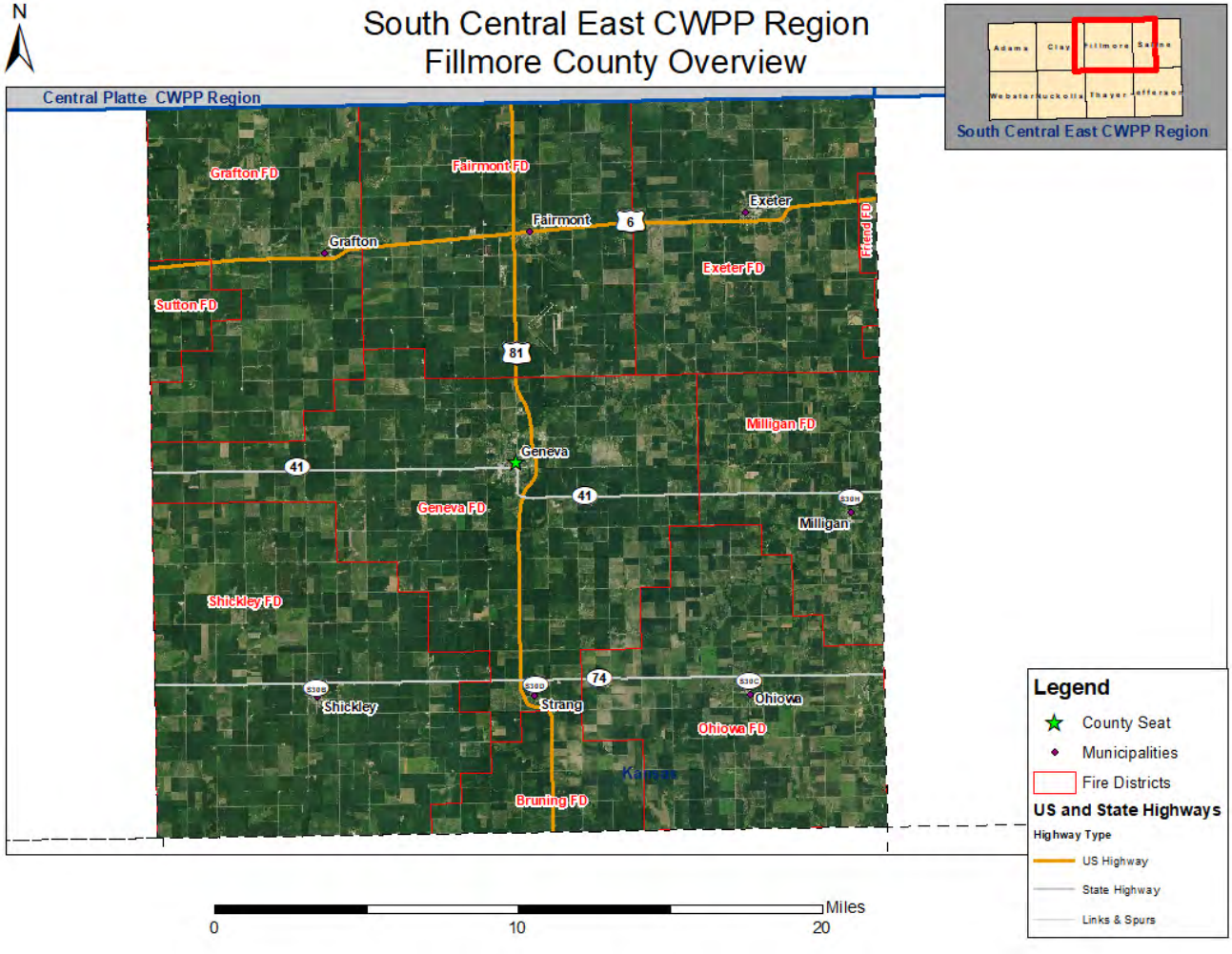
The county LEOP has designated evacuation routes, but county officials have some concern that the public may not be aware of what the routes are. The also noted that weight limits on some roads will not support certain types of large fire equipment. The county does not have a WUI Code, and property owners in the county are not encouraged or required to have defensible space around structures. There are no incentive programs for landowners to use ignition-resistant material during construction.

Greatest Concerns

The fire departments were asked to list their greatest concerns for their district, shown in the table below:

Department	**Greatest Concerns**
Clay Center	(Survey not returned)
Edgar-Ong	Reaching farm structures out of the city limits. Department needs more members.
Fairfield	Water supply
Glenvil	(Survey not returned)
Harvard	(Survey not returned)
Hastings Rural	Having ample water and equipment
Sutton	(None listed)
Trumbull	For field fires there is an issue of having a truck capable of going in field
US MARC	Large fuel mass for many miles

FILLMORE COUNTY
577 sq. miles
2020 population: 5,551



Community Profile

Fillmore County is on the north edge of the CWPP region. It is bounded on the east by Saline County, on the south by Thayer County, on the west by Clay County, and on the north by York County. Incorporated communities include the county seat of Geneva (pop. 2,136), Exeter (pop. 510), Fairmont (pop. 501), Grafton (pop. 220), Milligan (pop. 258), Ohiowa (pop. 102), Shickley (pop. 309), and Strang (pop. 27). There are no unincorporated communities in the county.

Federal lands in Fillmore County include 3,502 acres in several USFWS Waterfowl Production Areas. State lands include 894 acres in five NGPC WMAs. There are no school lands in the county. The Little Blue NRD manages 400 acres in two recreation areas. Other than municipal properties, the balance of the land in Fillmore County is privately owned.

The West Fork of the Big Blue River dips into and out of the north end of the county from York County. Major creeks include Turkey, School, and Walnut. Most of the area's woodlands are located along these streams. Nearly all of the county lies within the upland tallgrass prairie vegetation zone. Riparian deciduous forests follow the West Fork of the Big Blue River. Areas of upland deciduous forest are found north and south of Turkey Creek in the central and eastern parts of the county. Agriculture crop fields and grazing lands cover most of the county.

Locations of special concern include population centers adjacent to wildlands where topography is rough and woody fuels are dense in some areas, creating high fire hazard. The areas most at-risk from wildfire are located

along the river and major creeks. The Ohiowa fire chief named the Bruning Dam and Lone Star NRD recreation sites as of concern due to rough terrain, one way in and out, and lots of grass and trees with public access. The Shickley VFD listed WMAs/swamps as difficult access issues due to standing water not always being visible from a truck. The Grafton fire chief said the Blue River and several federal and state wildlife reserves (approx. 960 acres) in their area are a concern due to difficult access, rough terrain, heavy fuels, and lack of water within effective distance. The Sutton VFD ranked housing as a concern.

The Bruning VFD noted that the following issues are found throughout their jurisdiction: Multiple structures, difficult access, rough terrain, one way in/out, heavy fuels, and utilities. The Geneva fire chief stated that their jurisdiction is mostly row crop. The county emergency manager said that many fires in the county occur in farm fields, often started by machinery.

According to the HMP's Fillmore County Appendix, "The county's main wildfire concern is related to crop fires. The majority of the county is used for agriculture and the local planning team noted there are few natural barriers to contain wildfire events. Past events have caused significant damages to crops, livestock, roads, bridges, and power lines."

Areas of Concern were identified by steering committee members, fire chiefs, or in the statewide Priority Lands analysis are shown on a map in Appendix A. All of Fillmore County's population centers, dispersed farms and ranches, and wooded areas along the river and streams lie within the boundaries of the WUI as defined in the introduction to this CWPP.

Protection Capabilities and Infrastructure

Fire Districts and Emergency Management Area

The Bruning, Exeter, Fairmont, Geneva, Grafton, Milligan, Ohiowa, Shickley, and Sutton Fire Districts lie all or partly within Fillmore County. The county has a full-time emergency management director.

Water Sources

Most communities have municipal water systems. Farms and ranches are on wells. The West Fork of the Big Blue River and the larger creeks are generally reliable water sources. Windmills can provide water when they are operational. There are small ponds and stock tanks on farms and ranches throughout the area. During drought conditions many ponds may not be reliable water sources. The Bruning, Fairmont, Grafton, Ohiowa, and Shickley fire chiefs and the county emergency manager noted that lack of water is a top concern. The Grafton fire chief said that the Village of Grafton doesn't have a lot of water storage or pumping capacity, so any fire would have to be handled as a county fire.

Utilities/Phone Service

Electric service is provided by The Perennial PPD. Both cellular and landline telephone services are available in the county.

Roads and Bridges

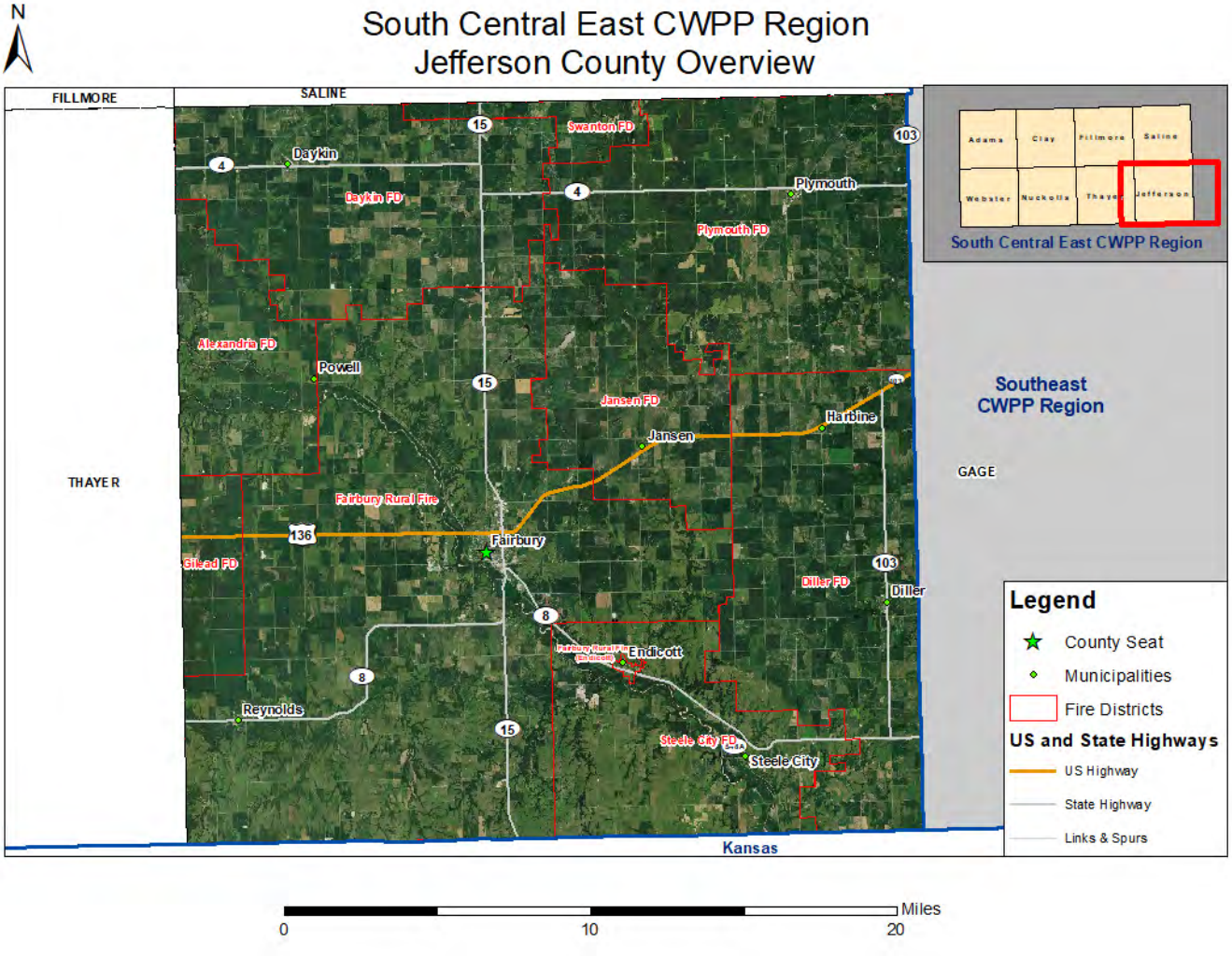
Local officials did not report any specific issues with roads. The Bruning fire chief named bridges on Rd 6900 near Highway 4 and on Rd AA between Rd 6300 and Rd 6400 as unable to support equipment weight. The Geneva VFD said a bridge on Rd K between 18 and 19 will not support equipment. The Fairmont and Ohiowa fire chiefs stated that there are bridges in their districts that will not support equipment weight. The Milligan VFD noted that they are not aware of specific bridges in their district that will not support equipment weight but did list bridge limits as a potential issue. The regional Hazard Mitigation Plan contains complete critical infrastructure lists; see HMP link in Appendix C.

Greatest Concerns

The fire departments were asked to list their greatest concerns for their district, shown in the table below:

Department	Greatest Concerns
Bruning	Warning public, coordination between agencies
Exeter	(None listed)
Fairmont	(None listed)
Geneva	(None listed)
Grafton	Heavy residue would be hard to put out
Milligan	(None listed)
Ohiowa	Water supply, wind, crop maturity
Shickley	(None listed)
Sutton	(None listed)

JEFFERSON COUNTY
576 sq. miles
2020 population: 7,240



Community Profile

Jefferson County forms the southeast corner of the CWPP region. It is bounded on the west by Thayer County, on the north by Saline County, and on the east by Gage County, and on the south by Kansas. Incorporated municipalities include the county seat of Fairbury (pop. 3,564), Daykin (pop. 160), Diller (pop. 256), Endicott (pop. 123), Harbine (pop. 46), Jansen (pop. 110), Plymouth (pop. 367), Reynolds (pop. 64), and Steele City (pop. 58). Powell (no pop. data available) is listed as an unincorporated community.

There are no federal lands in Jefferson County. State lands include 3,227 acres managed by the NGPC in four WMAs, one SRA, and one SHP. There are approximately 1,440 acres of state school lands. The Lower Big Blue NRD manages 318 acres in three recreation areas. Other than municipal properties, the balance of the land in the county is privately owned.

Most of Jefferson County's woodlands are located along waterways. The Little Blue River enters the central part of the county from Thayer County and exits into Kansas south of Steele City. Major creeks include Big Indian, Brawner, Buckley, Cole, Coon, Cub, Elm, Little Sandy, Rock, Rose, Silver, School, Spring, Turkey, and Wiley.

The majority of the county lies within the upland tallgrass prairie vegetation zone. Strips of lowland tallgrass prairie, gravelly mixed-grass prairie, and riparian deciduous forests follow the Little Blue River. Areas of upland deciduous forests are scattered throughout the south half of the county and along the Little Blue River and Cub Creek. Agriculture crop fields cover most of the county, except along and southwest of the Little Blue River, where the terrain is rough, and grazing is the primary land use.

The WUI areas most at-risk from wildfire are the lands surrounding municipalities and rural residential and recreational developments along drainages where there are heavy fuels and limited access. NGPC staff noted that the Rock Creek Station SHP sees considerable visitation and wildfire mitigation measures can be implemented to protect this and similar public facilities. The Diller Fire Department identified the Steele City Canyons, which include the SHP, as of particular concern due to difficult access, rough terrain, heavy fuels, and lack of water within effective distance. Daykin Fire and Rescue listed the City of Daykin as a concern due to multiple structures.

The Alexandria and Gilead VFDs stated that several issues exist district-wide: Multiple structures, difficult access, rough terrain, one way in/out, and heavy fuels. Alexandria added lack of water within effective distance to the list, and they noted that railroad crossings affect response to calls on the south side of their jurisdiction.

The Fairbury Rural Fire Department provided a list of 25 areas of wildfire concern. These are shown on a map in Appendix A. This list includes several small housing developments with a single access in and out, primarily south of town along the Highway 15 corridor. They also reported issues with property owned by absentee landowners who have not done any property maintenance for removal of invasive eastern red cedar and are severely overgrown, as well as lack of defensible space around residential and agricultural structures spread throughout the response area. The fire chief said there is a lack of interoperability between Nebraska and Kansas fire departments regarding radio communications. The department provides and requests mutual aid from neighboring Kansas departments fairly frequently. Another risk is the distance for initial response to some of the areas at higher risk, i.e. 28 miles from fire station to furthest point out in the district. High risk areas are spread throughout the district, as well as in areas that abut their initial response jurisdiction.

Areas of Concern were identified by steering committee members, fire chiefs, or in the statewide Priority Lands analysis are shown on a map in Appendix A. All of Jefferson County's population centers, rural areas, and wooded waterways lie within the boundaries of the WUI as defined in the introduction to this CWPP.

Protection Capabilities and Infrastructure

Fire Districts and Emergency Management Area

Fire districts all or partly within Jefferson County include Alexandria, Daykin, Diller, Steele City, Fairbury Rural (includes Endicott), Gilead, Janson, Plymouth, Swanton, and Western. The county is part of the Jefferson-Saline Emergency Management Area.

As a mitigation effort, the Fairbury Rural FD is increasing the number of personnel who are trained and qualified to NWCG (National Wildfire Coordinating Group) standards.

Water Sources

Most communities have municipal water systems. Farms and ranches are on wells. The river and larger creeks are generally reliable water sources. There are small ponds and stock tanks on farms and ranches throughout the county. During drought conditions many ponds may not be reliable water sources. The Fairbury Rural, Gilead, Swanton, and Western VFDs identified water sources as a primary concern. In Jefferson County and some surrounding areas, the Little Blue NRD has a public water project that provides domestic water to rural residents who may not have sufficient underground water to supply a well. This system provides a few hydrant locations within the Fairbury Rural Fire response district that are usable for water tender refill if needed.

Utilities/Phone Service

Electric service in Jefferson County is provided by the Norris PPD. Both cellular and landline telephone services are available in the county.

Roads and Bridges

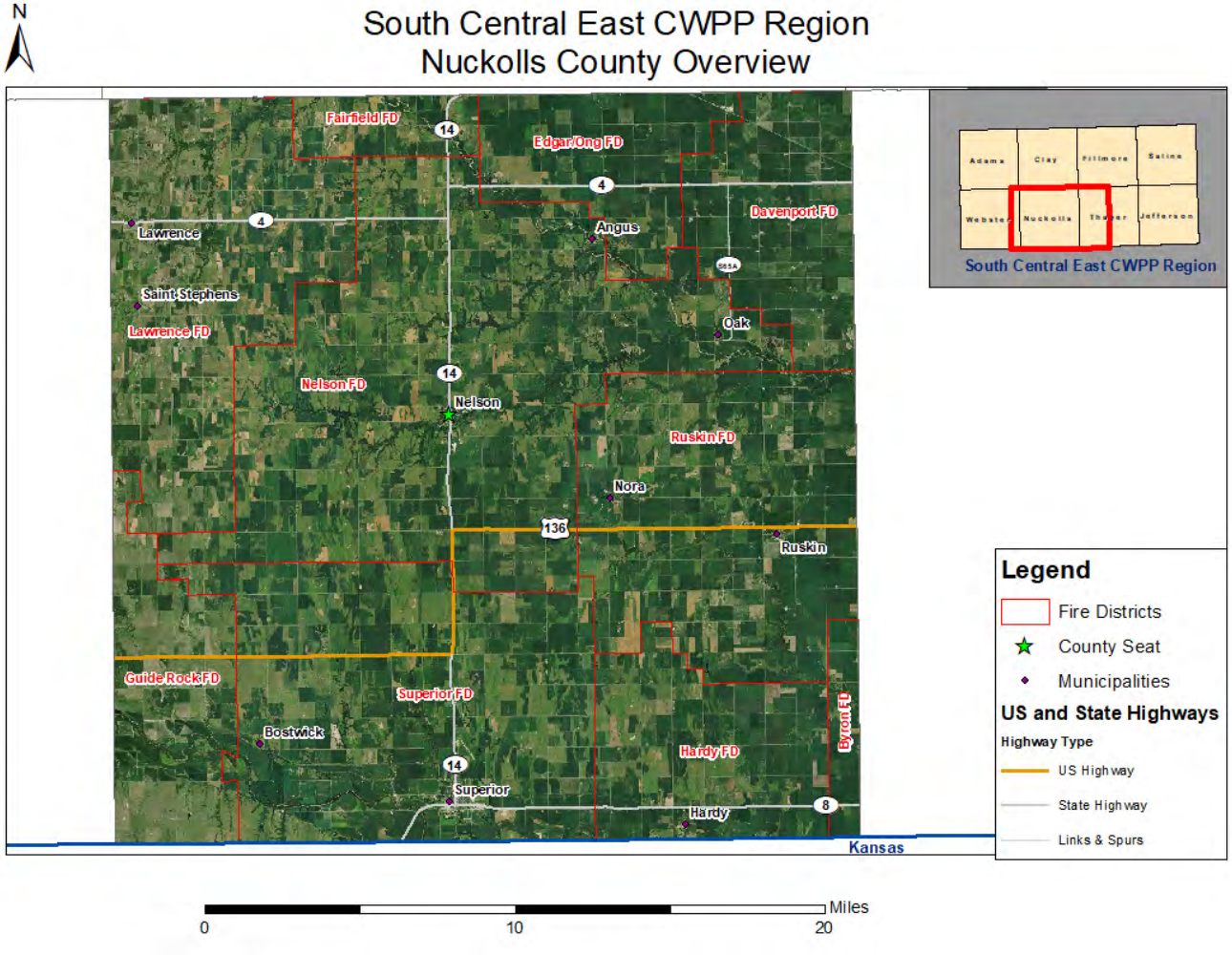
No local officials or fire departments reported any issues with roads. The Fairbury Rural fire chief said there are multiple bridges in their district that have weight ratings well below their largest water tender's GVWR (6000 gallon water tender on a Kenworth chassis). For this reason, that truck is limited to how close it responds to the scene and is used as more of a water shuttle for the smaller water tenders. The Diller and Western VFDs reported that there are a few low tonnage bridges in their district that will not support equipment weight. The Alexandria and Gilead fire chiefs stated that numerous bridges located within the jurisdiction will not support fire apparatus weight, and those in the Gilead district are not marked on a map. The regional Hazard Mitigation Plan contains complete critical infrastructure lists; see HMP link in Appendix C.

Greatest Concerns

The fire departments were asked to list their greatest concerns for their district, shown in the table below:

Department	**Greatest Concerns**
Alexandria	Life safety, property preservation, warning of the public, interruptible communication between agencies and the safety of the firefighters.
Daykin	(None listed)
Diller	Getting enough water and manpower to fires to stop them before they get too far.
Fairbury Rural	Initial attack resources, lack of air support close to the district; increase in houses being built in areas of risk: several areas of risk that have limited access, or several miles without a county maintained road for access. Another concern is the critical infrastructure in the risk areas. We have a double main line Union Pacific railroad that follows the Little Blue river through Jefferson County. We also have several large pipelines that traverse the high risk areas of our county and our mutual aid district.
Gilead	Life safety, property preservation, warning of the public, interruptible communication between agencies, manpower, and the safety of the firefighters.
Jansen	(Survey not returned)
Plymouth	(Survey not returned)
Steele City	(Survey not returned)
Swanton	Depends on time of year as for crop damage and loss
Western	Structures

NUCKOLLS COUNTY
576 sq. miles
2020 population: 4,095



Community Profile

Nuckolls County is located on the south edge of the CWPP region. It is bounded on the west by Webster County, on the north by Clay County, on the east by Thayer County, and on the south by Kansas. Incorporated municipalities include the county seat of Nelson (pop. 431), Hardy (pop. 142), Lawrence (pop. 273), Nora (pop. 20), Oak (pop. 59), Ruskin (pop. 111), and Superior (pop. 1,755). Angus, Bostwick, and Saint Stephens are listed as unincorporated communities.

There are no federal lands in Nuckolls County. State lands include 80 acres in two NGPC WMAs and about 648 acres of state school lands. Other than municipal properties, the balance of the land in the county is privately owned.

The Republican River crosses the southwest corner of Nuckolls County, entering from Webster County southeast of Guide Rock and exiting into Kansas southeast of Superior. The Little Blue River crosses the northeast quadrant of the county, entering from Clay County east of Deweese and exiting into Thayer County southeast of Oak.

The eastern three quarters of the county lies within the upland tallgrass prairie vegetation zone, with most of the rest within the Loess mixed-grass prairie. Strips of lowland tallgrass prairie and riparian deciduous forests follow the rivers. Areas of upland deciduous forest lie primarily to the south of both rivers. Agriculture crop

fields cover much of the county, with grazing lands occupying some of the rougher terrain. Most woodlands are located along the rivers and streams.

The WUI areas most at-risk from wildfire are the lands surrounding municipalities and rural recreational and residential developments along drainages where there are heavy fuels and limited access. The Edgar/Ong fire chief identified two locations of concern in their district: 1) along the Little Blue River where there are multiple structures and rough terrain, and 2) the Village of Ong due to multiple structures, rough terrain, heavy fuels, and approximately 30 uninhabited houses with very tall weeds and grass around the town.

The Davenport fire chief stated that several issues exist district-wide: Multiple structures, difficult access, rough terrain, one way in/out, and heavy fuels. Response from the Davenport fire station can be impeded by three different railroad crossings that can restrict access to the south side of Davenport fire's jurisdiction when a train blocks a crossing.

According to the HMP's Nuckolls County Appendix, Ruskin officials indicated that wildfires are a concern due to the risk of spread to the community, which poses risks to residents, property, and agriculture in the surrounding area. They said that field fires are relatively common, and often start due to lightning strikes, farm equipment malfunction, or discarded cigarettes. Specific Areas of Concern were identified by steering committee members, fire chiefs, or in the statewide Priority Lands analysis are shown on a map in Appendix A. All of Nuckolls County's population centers, rural areas, and wooded waterways lie within the boundaries of the WUI as defined in the introduction to this CWPP.

According to the HMP's Nuckolls County Appendix, the City of Superior stated that wildfire is mainly a concern for WUI areas near parks and the school. Officials expressed concerns with the difficulty of containing these fires. Their concerns include impacts to local infrastructure and demands on the local water supply.

Protection Capabilities and Infrastructure

Fire Districts and Emergency Management Area

Ten fire districts lie all or partly within Nuckolls County: Byron, Davenport, Edgar-Ong, Fairfield, Guide Rock, Hardy, Lawrence, Nelson, Ruskin, and Superior. The county has a full-time emergency management director.

Water Sources

The larger communities have municipal water systems. Farms and ranches are on wells. The Republican and Little Blue Rivers and their larger tributaries are generally reliable water sources. The Superior and Courtland irrigation canals run on the north and south sides of the Republican River, respectively. Windmills can provide water when they are operational. There are small ponds and stock tanks on farms and ranches throughout the county. During drought conditions many ponds may not be reliable water sources. The Fairfield and Byron fire chiefs named water sources as a top concern for their district.

Utilities/Phone Service

Electric service in Nuckolls County is provided by the South Central PPD. Both cellular and landline telephone services are available in the county.

Roads and Bridges

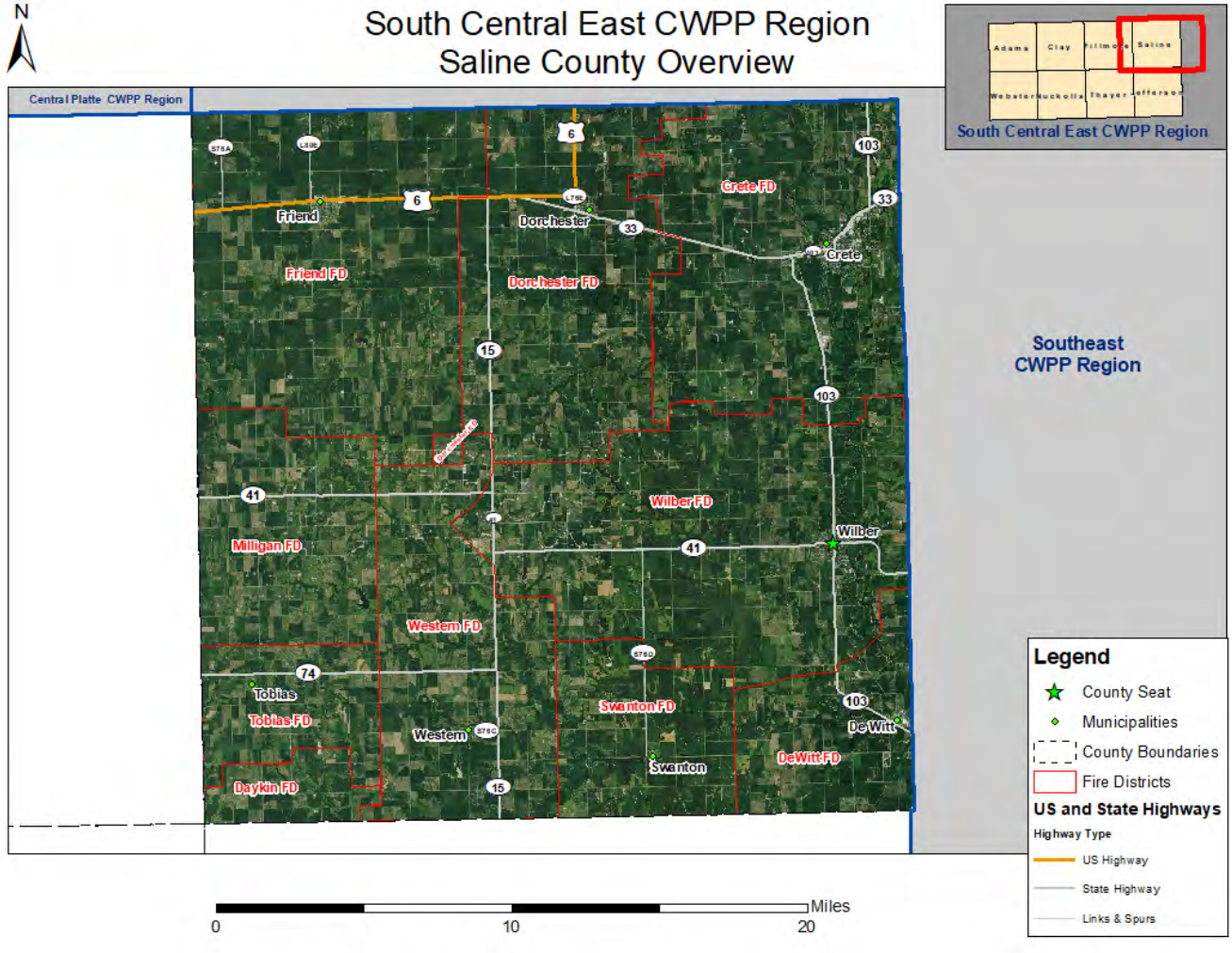
Davenport Fire and Rescue noted that many bridges on minimum maintenance access roads will not support equipment weight. The Fairfield and Byron fire chiefs stated that there are some bridges in their district that may not support equipment weight. The regional Hazard Mitigation Plan contains complete critical infrastructure lists; see HMP link in Appendix C.

Greatest Concerns

The fire departments were asked to list their greatest concerns for their district, shown in the table below:

Department	Greatest Concerns
Byron	Structures and property, warning of the public, interoperability comms with other agencies
Davenport	Housing, public notification, livestock, Haz Mat and RR Haz Mat
Edgar/Ong	Reaching farm structures out of the city limits. Department needs more members.
Fairfield	Water supply
Guide Rock	(Survey not returned)
Hardy	(Survey not returned)
Lawrence	(Survey not returned)
Nelson	(Survey not returned)
Ruskin	(Survey not returned)
Superior	(Survey not returned)

SALINE COUNTY
576 sq. miles
2020 population: 14,292



Community Profile

Saline County forms the northeast corner of the CWPP region. It is bounded on the south by Jefferson County, on the west by Fillmore County, on the north by Seward County, and on the east by Gage and Lancaster Counties. Incorporated municipalities include the county seat of Wilber (pop. 1,814), Crete (pop. 7,099), DeWitt (pop. 488), Dorchester (pop. 568), Friend (pop. 943), Swanton (pop. 82), Tobias (pop. 103), and Western (pop. 230). There are no unincorporated communities in the county.

There are no federal lands in Saline County. State lands include 371 acres in four NGPC tracts and about 138 acres of state school lands. The Lower Big Blue NRD manages 223 acres in two recreational areas. Other than municipal properties, the balance of the land in the county is privately owned.

The Big Blue River runs along the county's east side. Major creeks include Squaw, Swan, Spring, and Turkey. Most of the county's woodlands are located along the river and creeks. The majority of the county lies within the upland tallgrass prairie vegetation zone, with strips of lowland tallgrass prairie and riparian deciduous forest along the river. Patches of upland deciduous forest are scattered throughout the county. Agriculture crop fields cover most of the county, with grazing lands occupying the rougher terrain.

The WUI areas most at-risk from wildfire are the lands surrounding municipalities and rural recreational and residential areas along drainages where there are heavy fuels and limited access. The Crete VFD expressed concerns about new homes with half-mile driveways built for cars to turn around at the end. The DeWitt VFD noted difficult access is an issue along Turkey Creek and the Big Blue River.

According to the HMP's Saline County Appendix, private lands enrolled in the NRCS Conservation Reserve Program near the Village of Western pose a fire concern. "The fire department may not be able to respond to a grass fire soon enough to prevent a major fire, and [there may not be enough] resources available to control the fire." Areas of Concern were identified by steering committee members, fire chiefs, or in the statewide Priority Lands analysis are shown on a map in Appendix A. All of Saline County's population centers, rural areas, and wooded waterways lie within the boundaries of the WUI as defined in the introduction to this CWPP.

Protection Capabilities and Infrastructure

Fire Districts and Emergency Management Area

Ten fire districts lie all or partly within Saline County: Crete, Daykin, DeWitt, Dorchester, Friend, Milligan, Swanton, Tobias, Western, and Wilbur. The county is part of the Jefferson-Saline Emergency Management Area.

Water Sources

The larger communities have municipal water systems. Farms and ranches are on wells. The Big Blue River and its larger tributaries are generally reliable water sources. Windmills can provide water when they are operational. There are small ponds and stock tanks on farms and ranches throughout the county. During drought conditions many ponds may not be reliable water sources. The Crete, Friend, Swanton, Tobias, and Western VFDs identified water sources as a primary concern.

Utilities/Phone Service

Electric service in Saline County is provided by the Norris PPD. Both cellular and landline telephone services are available in the county.

Roads and Bridges

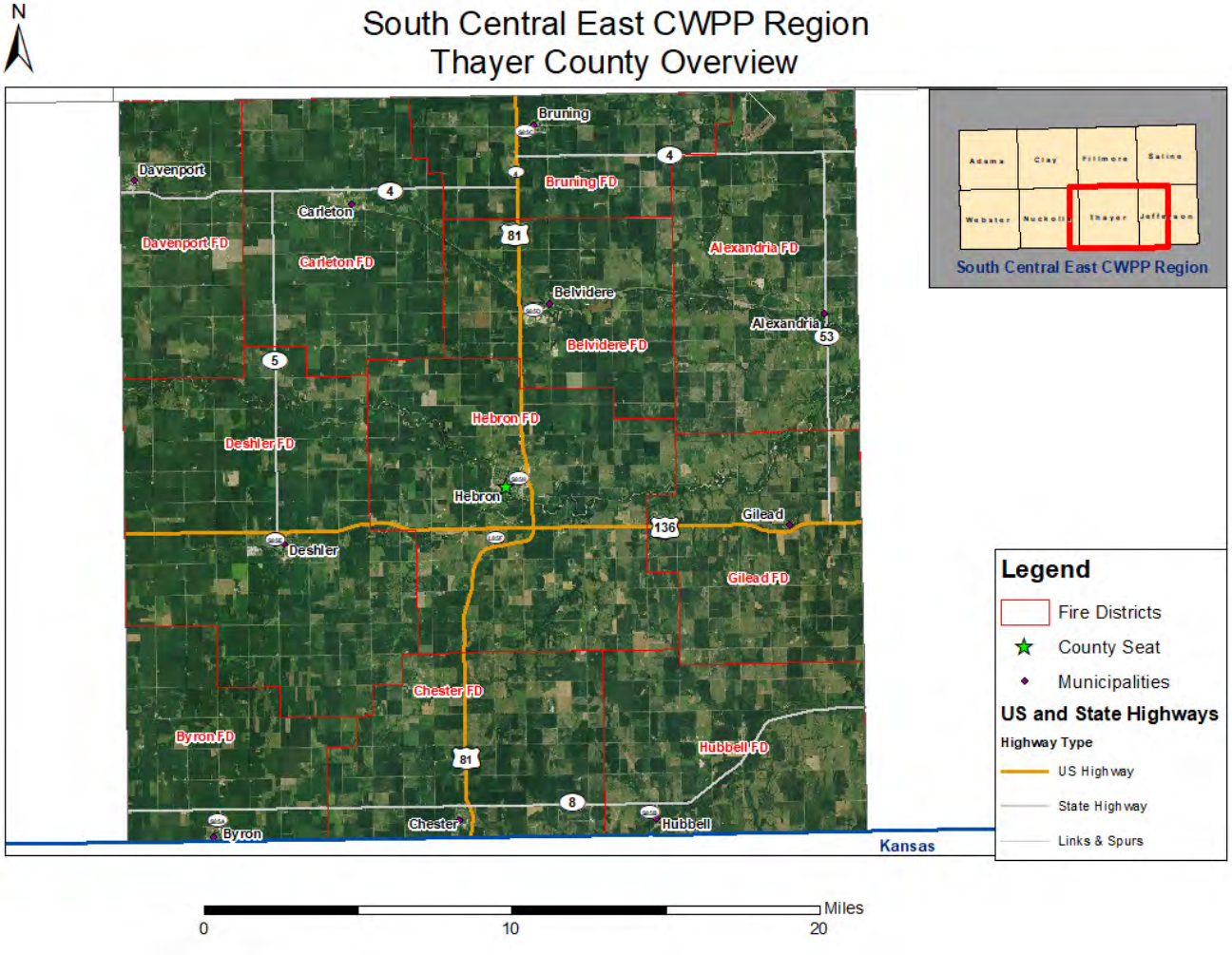
The Western VFD reported that there are a few low tonnage bridges in their district that will not support equipment weight. The Milligan VFD noted that they are not aware of specific bridges in their district that will not support equipment weight but did list bridge limits as a potential issue. The regional Hazard Mitigation Plan contains complete critical infrastructure lists; see HMP link in Appendix C.

Greatest Concerns

The fire departments were asked to list their greatest concerns for their district, shown in the table below:

Department	Greatest Concerns
Crete	New homes with half-mile driveways built for cars to turn around at the end
Daykin	(None listed)
DeWitt	Homes and personnel to fight fires
Dorchester	(Survey not returned)
Friend	Main power and water supply
Milligan	(None listed)
Swanton	Depends on time of year as for crop damage and loss
Tobias	(None listed)
Western	Structures
Wilber	(Survey not returned)

THAYER COUNTY
575 sq. miles
2020 population: 5,034



Community Profile

Thayer County is located on the south edge of the CWPP region. It is bounded on the west by Nuckolls County, on the north by Fillmore County, on the east by Jefferson County, and on the south by Kansas. Incorporated municipalities include the county seat of Hebron (pop. 1,410), Alexandria (pop. 173), Belvidere (pop. 51), Bruning (pop. 267), Byron (pop. 80), Carleton (pop. 87), Chester (pop. 426), Davenport (pop. 283), Deshler (pop. 737), Gilead (pop. 40), and Hubbell (pop. 63). There are no unincorporated communities in the county. There are no federal lands in Thayer County. State lands include 1,288 acres in six NGPC WMAs and about 720 acres of state school lands. Other than municipal properties, the balance of the land in the county is privately owned.

Most woodlands are located along streams. The Little Blue River crosses the central part of Thayer County from west to east. Big Sandy Creek crosses the northern part of the county from Davenport to Alexandria. The county lies within the upland tallgrass prairie vegetation zone, interspersed with areas of mixed-grass prairie. Strips of lowland tallgrass prairie, gravelly mixed-grass prairie, and riparian deciduous forests follow the Little Blue River and Big Sandy Creek. Areas of upland deciduous forests are found south of both streams and are scattered throughout the southeast part of the county. Agriculture crop fields cover most of the county, with grazing lands occupying rougher terrain.

The WUI areas most at-risk from wildfire are the lands surrounding municipalities and recreational and residential areas along drainages where there are heavy fuels and limited access. NGPC staff noted that wildfire mitigation measures can be implemented to protect the Meridian WMA headquarters and similar public facilities. The Byron fire chief identified a fueling station and a bulk fuel storage facility of particular concern in their district. The Hebron fire chief named the property directly north of the Hebron Dam PID # 850014751, Southern Hills Subdivision, Fairway Acres Subdivision, and Country View Subdivision as areas of concern due to multiple structures, difficult access, rough terrain, one way in/out, and heavy fuels. He said that proper land management and educating landowners is important.

The Alexandria, Belvidere, Bruning, Byron, Carleton, Chester, Davenport, Deshler, Gilead, and Hubbell fire chiefs stated that several issues exist district-wide: Multiple structures, difficult access, rough terrain, one way in/out, and heavy fuels. Bruning added utilities to this list; Byron added the local co-op, bank, and café; and Davenport added train incidents. Response from the Davenport fire station can be impeded by three different railroad crossings that can restrict access to the south side of Davenport fire's jurisdiction when a train blocks a crossing.

Alexandria's chief said that lack of water within effective distance as an issue and noted that railroad crossings affect response to calls on the south side of their jurisdiction. Belvidere Fire reported an issue with locating track fires along the railroad right-of-way and said crossing blockages affect response to calls on north side of their district. Carleton Fire and Rescue also stated that fires along the tracks are an issue and blocked crossings affect response to calls on south side of their jurisdiction. Areas of Concern were identified by steering committee members or in the statewide Priority Lands analysis and are shown on a map in Appendix A. All of Thayer County's population centers, rural areas, and wooded waterways lie within the boundaries of the WUI as defined in the introduction to this CWPP.

According to the HMP's Thayer County Appendix, "The main concerns regarding grass and wildfires in the county are the difficulty of dousing fires in areas with limited water supply and difficult access into fires in remote locations. In April 2014, a fire fanned by high winds traveled across the county and blocked several roads. Another fire in March 2010 burned many acres of pastureland. Past events have burned over 2,800 acres in the county and have led to one fatality and six injuries. In the past few years there have been several large fires which have required up to 15 fire departments in the surrounding areas to respond."

The HMP noted that "[The Village of] Chester is concerned about the risks to property and life from grass and wildfires, particularly when fires are spread by high winds. Wind-whipped crop fires have occurred recently close to town...Property owners are not required to have defensible space around their structures, nor are there incentive programs for landowners to use ignition-resistant materials during construction."

The HMP also stated that the Village of Davenport's main concern involves field fires during fall harvest and their impacts on the surrounding agricultural land and local economy. In the fall of 2014, there were large fires that came within two miles of the village. One fire consumed more than 640 acres.

Protection Capabilities and Infrastructure

Fire Districts and Emergency Management Area

Eleven fire districts lie all or partly within Thayer County: Alexandria, Belvedere, Bruning, Byron, Carleton, Chester, Davenport, Deshler, Gilead, Hebron, and Hubbell. The county has a full-time emergency manager.

Water Sources

Most communities have municipal water systems. Farms and ranches are on wells. The Little Blue River and its larger tributaries are generally reliable water sources. Windmills can provide water when they are operational. There are small ponds and stock tanks on farms and ranches throughout the county. During drought conditions many ponds may not be reliable water sources. The Belvidere, Bruning, Bruning, Byron, Chester, Deshler, Gilead, and Hebron VFDs named water sources as a major concern.

Utilities/Phone Service

Electric service in Thayer County is provided by the Norris PPD. Both cellular and landline telephone services are available in the county.

Roads and Bridges

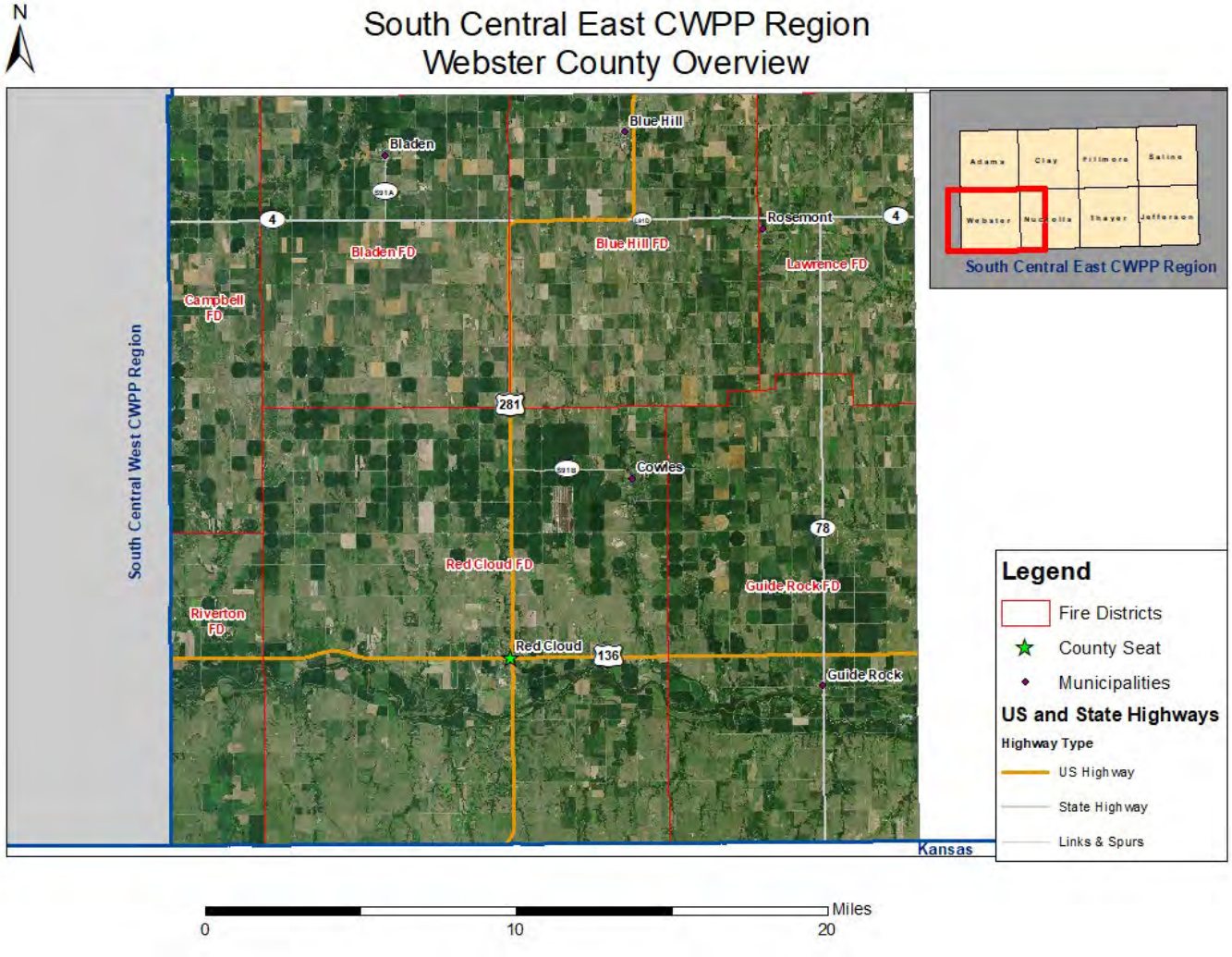
Bruning Fire & Rescue named a bridge on Rd 6900 near Highway 4 and one on Rd AA between Rd 6300 and 6400 as being unable to support equipment weight. The Byron, Chester, Deshler, Gilead, and Hebron fire chiefs stated that bridges in multiple locations within their jurisdictions are not marked or mapped and will not support equipment weight. Davenport Fire and Rescue noted that many bridges on minimum maintenance access roads will not support equipment weight. The Alexandria, Belvidere, Byron, Carleton, and Hubbell fire chiefs stated that numerous bridges located within their jurisdictions will not support fire apparatus weight. The regional Hazard Mitigation Plan contains complete critical infrastructure lists; see HMP link in Appendix C.

Greatest Concerns

The fire departments were asked to list their greatest concerns for their district, shown in the table below:

Department	**Greatest Concerns**
Alexandria	Life safety, property preservation, warning of the public, interruptible communication between agencies and the safety of the firefighters.
Belvedere	Same as most.
Bruning	Warning public, coordination between agencies
Byron	Structures and property, warning of the public, interoperability comms with other agencies
Carleton	Life safety, property preservation, warning of the public, interruptible communication between agencies and the safety of the firefighters.
Chester	Put it out, public warning, getting recourse
Davenport	Housing, public notification, livestock, Haz Mat and RR Haz Mat
Deshler	Life safety, property preservation, warning of the public, interruptible communication between agencies and the safety of the firefighters.
Gilead	Life safety, property preservation, warning of the public, interruptible communication between agencies, manpower and the safety of the firefighters.
Hebron	Life safety, property preservation, warning of the public, interruptible communication between agencies, manpower and the safety of the firefighters.
Hubbell	Life safety, property preservation, warning of the public, interruptible communication between agencies and the safety of the firefighters.

WEBSTER COUNTY
575 sq. miles
2020 population: 3,395



Community Profile

Webster County forms the southwest corner of the CWPP region. It is bounded on the west by Franklin County, on the north by Adams County, on the east by Nuckolls County, and on the south by Kansas. Incorporated municipalities include the county seat of Red Cloud (pop. 878), Bladen (pop. 213), Blue Hill (pop. 862), Cowles (pop. 25), and Guide Rock (pop. 196). Rosemont is listed as an unincorporated community.

There are no federal lands in Webster County. State lands include 1,093 acres in four NGPC WMAs and about 1,980 acres of state school lands. The Little Blue NRD manages 262 acres in one recreational tract. Other than municipal properties, the balance of the land in the county is privately owned. Non-profit conservation lands include the 612-acre Willa Cather Memorial Prairie south of Red Cloud, managed by the Willa Cather Foundation.

The Little Blue River crosses the northwest corner of Webster County, entering from Franklin County just east of Campbell and exiting into Adams County northwest of Bladen. The Republican River crosses the entire south end of the county south of Red Cloud, entering from Franklin County east of Riverton and exiting into Nuckolls County east of Guide Rock.

Nearly all of the county lies within the Loess mixed-grass prairie vegetation zone. Strips of lowland tallgrass prairie and riparian deciduous woodlands follow the Republican River, with strips of gravelly mixed-grass prairie north of the river and upland deciduous forests south of the river. Agriculture crop fields cover most of the county north of the river, with more grazing lands present in the rough terrain on the south side.

Locations of special concern include population centers adjacent to wildlands and wooded areas along streams. The Bladen and Campbell fire chiefs identified as areas of concern two chemical and/or grain storage facilities near each of those towns due to multiple structures, heavy fuels/flammable chemicals, and lack of water within effective distance. The Red Cloud VFD noted that the City of Red Cloud is a concern due to multiple structures. Areas of Concern were identified by steering committee members, fire chiefs, or in the statewide Priority Lands analysis are shown on a map in Appendix A. All of Webster County's population centers, rural areas, and wooded waterways lie within the boundaries of the WUI as defined in the introduction to this CWPP.

According to the HMP's Webster County Appendix, the City of Blue Hill "…is concerned about the risk of fire events. The city has experienced several fires in town including in 2000 a fire burned the local grocery store to the ground. The city has expressed concern over the local fire department's capabilities."

Protection Capabilities and Infrastructure

Fire Districts and Emergency Management Area

Seven fire districts lie all or partly within Webster County: Bladen, Blue Hill, Campbell, Guide Rock, Lawrence, Red Cloud, and Riverton. The county has a full-time emergency manager.

Water Sources

The larger communities have municipal water systems. Farms and ranches are on wells. The rivers and their larger tributaries may be reliable water sources. Windmills can provide water when they are operational. There are small ponds and stock tanks on farms and ranches throughout the area. During drought conditions many ponds may not be reliable water sources. The Bladen, Campbell, and Red Cloud VFDs identified water sources as a top concern.

Utilities/Phone Service

Electric service in Webster County is provided by South Central PPD. Both cellular and landline telephone services are available in the county.

Roads and Bridges

The Bladen and Campbell VFDs stated that there are many bridges in their districts that will not support equipment weight. Most of those in the Bladen district are posted with limits. The regional Hazard Mitigation Plan contains complete critical infrastructure lists; see HMP link in Appendix C.

Greatest Concerns

The fire departments were asked to list their greatest concerns for their district, shown in the table below:

Department	Greatest Concerns
Bladen	Manpower
Blue Hill	(Survey not returned)
Campbell	Getting to water quickly in rural areas; having enough EMTs & personnel to operate the trucks
Guide Rock	(Survey not returned)
Lawrence	(Survey not returned)
Red Cloud	Having enough water and tankers
Riverton	(Survey not returned)

Action Plan

This section of the CWPP addresses risk assessment, fire risk rating, treatment of structural ignitability, prioritization, and risk reduction, and it recommends a plan of action for increasing emergency preparedness. The action plan offers specific preparedness recommendations and describes wildfire risk reduction strategies, fuels mitigation practices, training, education, and maintenance. The final part of this section outlines a monitoring and evaluation process that can be used to track progress and periodically update the plan.

Establish and Implement a Risk Assessment Procedure

Risk assessment is a systematic process for identifying and assessing the range of elements that could lead to undesirable outcomes for a specific situation. Quantitative risk assessments provide a method by which we can calculate risk based on measurements or estimates of various risk components such as likelihood of fire occurrence, intensity of fire should it occur, and susceptibility to fire of the various values being evaluated. Qualitative risk assessment is the application of judgment based in knowledge and experience when assessing wildfire risk, the potential for ignitions and recommendations regarding possible ways to mitigate the risk. [18]

It is important to understand the meaning of risk and hazard in relation to wildfire as it pertains to this CWPP. ***Risk*** is the chance or probability of occurrence of fire. ***Hazard*** is the exposure to risk; in a wildfire situation, those hazards can be related to either the natural or the human-made environment. Natural hazards include fuel type and amount, topography, and weather. Human-made hazards include the limited availability of water, limited access to structures, limited green space around structures, and the ignitability of structures. The capability of firefighting resources will be compromised by the severity of both natural and human-made hazards.[19] The 2021 Little Blue and Lower Blue NRD HMP additionally defines ***vulnerability*** as susceptibility to injury, death, or damages from a specific hazard, and ***impact*** as the consequences or effect of a hazard on a community. Conducting a risk assessment helps develop strategies to address areas of concern.

This assessment includes a review of the area's fire history, fuels/vegetation rating, topographic hazard analysis, weather hazard potential, access, water availability, defensible space, and structural ignitability. The Overview section of this plan contains information about the area's fire history, climate, weather, fuels/vegetation, and topography. Individual county sections provide details on water sources and access issues. Local fire department equipment lists appear in Appendix G. Defensible space and structural ignitability are addressed in this section of the plan.

Several risk assessment tools are available to help communities and individuals understand, explore, and reduce wildfire risk. The USFS's Wildfire Risk to Communities website is designed to help community leaders, such as elected officials, community planners, and fire managers. This is the first time that wildfire risk to communities has been mapped nationwide. Headwaters Economics provides another national-scale tool that allows users to run a custom Wildfire Risk Report. On a more local level, the NFS Nebraska Wildfire Risk Explorer website provides wildfire-related resources to Nebraskans. The site includes risk assessment tools, property owner resources, and weather data for homeowners, landowners, natural resources and fire professionals, and community planners.

Further information on risk assessment is available in a USFS Rocky Mountain Research Station technical report, which describes a specific risk assessment process premised on three modeling approaches to characterize wildfire likelihood and intensity, fire effects, and the relative importance of highly valued resources and assets that could be impacted by wildfire.[20]

Wildfire-Related Concerns Identified in HMP by Local Participants

The first step in the assessment process is to identify risks that need to be examined. Looking at wildfire-related concerns identified by local HMP participants is a good place to begin. The 2021 Little Blue and Lower Blue NRD HMP covers all counties in the CWPP region. The HMP identifies the entire planning area as being at 100% risk of

wildfire. Grass/Wildfire was listed as a top concern by Clay County and its villages of Glenvil and Ong; Fillmore County; the Nuckolls County communities of Ruskin and Superior; the village of Western in Saline County; Thayer County and its villages of Chester and Davenport; and the City of Blue Hill in Webster County.

Section 4 of the HMP, Risk Assessment, thoroughly covers risk history, macro trends including changes in climate (temperature, precipitation, drought frequency), and regional vulnerabilities. It contains a good set of WUI wildfire risk maps by county and notes that Jefferson County has the greatest risk of wildfire in the planning region. The HMP's individual county appendices drill down to summarize local resources and capacity, prioritization, and identifies mitigation actions at the jurisdictional levels.

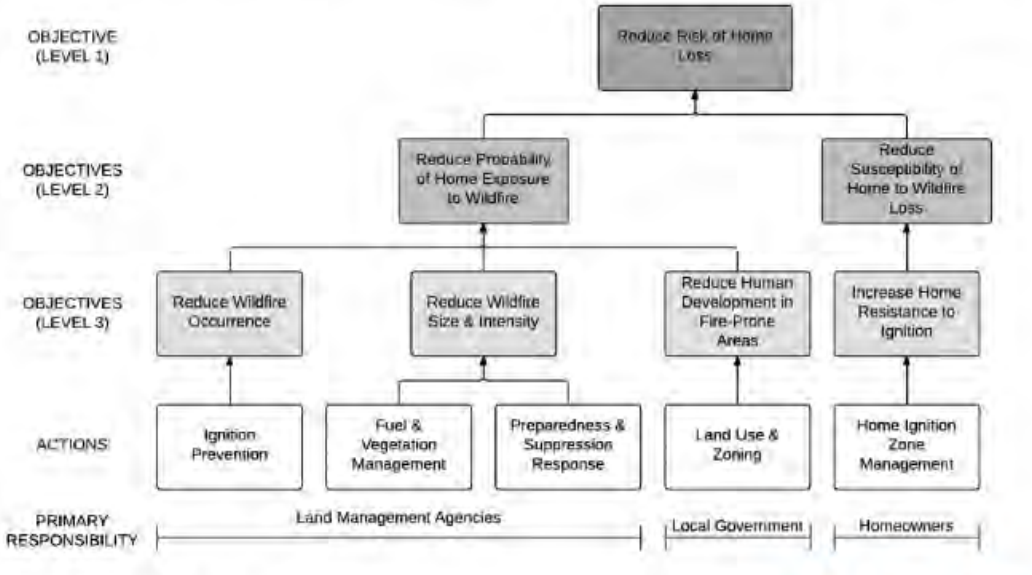
Another step that can be taken in zoned counties is to review county zoning plans to see if they address specific considerations for high fire risk areas. If they do not, local planners can recommend adding topics that consider such factors as access, building materials, and building setbacks from canyon rims.

Fire Risk Rating and Ignitability

Homes in both forested and non-forested settings can be at risk from wildfires. Quantitative structure risk ratings can be handled under location-specific plans for incorporated communities. Major components of structural ignitability include roofing materials, walls, windows, and wooden attachments. Most of the CWPP region is rural/agricultural with widely spaced home locations. There is an opportunity to perform structural risk and ignitability analysis and treatment activities at rural residential and recreational home sites at the same time fuels mitigation work is being conducted in these areas.

Overcoming perceptions of WUI fire disasters as a wildfire control problem rather than a home ignition problem, determined by ignition conditions, will reduce home loss. The following graphic illustrates the dual-pronged objectives of reducing the risk of home loss by both reducing the probability of exposure to wildfire and reducing susceptibility to wildfire loss.[21]

Conceptual model highlighting the major fundamental objectives (level 1), means-based objectives (levels 2 and 3), and actions for reducing the risk of home loss as a result of wildfire.



David E. Calkin et al. PNAS 2014;111:2:746-751

PNAS

Prioritization

The community sections in this document describe the WUI focus areas within each county. These can be further prioritized based on data gathered during risk assessment for individual neighborhoods. Eastern redcedar-encroached deciduous forests along the rivers and their tributaries have high priority for hazardous woody fuels reduction, as do areas with recreational development and rural residential subdivisions. All of the WUI edges of population centers, unincorporated residential developments, and dispersed recreational developments in the CWPP region have high priority for fuels treatment and Firewise® preparation. Further assessments may identify additional priority areas.

Appendix A contains an 'Areas of Concern' map depicting the parts of each county considered to be at the highest risk from wildfire. The locations were identified by local fire officials, the steering committee, and the planning team. The sites include interface areas with neighborhoods directly adjacent to open spaces, intermix areas where homes are interspersed with natural fuels, and occluded interface areas where neighborhoods are isolated or surrounded by areas of natural fuels. [22] These areas can be prioritized according to locally identified criteria such as hazardous vegetation, structure density, access, and water availability.

The Assessment Process

Many actions can be taken to reduce the fire potential in both existing housing developments and planned new subdivisions. People can assess the potential of a structure located in a wildland environment to withstand an approaching wildfire without the intervention of firefighting personnel and equipment. Assessments focus on proactive, pre-fire preventative actions rather than reactive fire suppression plans. Several excellent fire hazard assessment methodologies are widely available. Below are excerpts from the National Wildland/Urban Interface Fire Protection Program's methodology [23] publication:

First, it is important to understand how three ignition sources (radiation, convection, and firebrands) can impact a structure located in a wildland environment and how they affect certain building components—roofs, eaves/overhangs, walls, windows, vents, and attachments. Fire potential can be reduced when building a structure or altering an existing structure by conducting mitigation measures on the structure itself and in the surrounding wildland area. The following is a five-step method for assessing the hazards of a WUI area:

Step 1: Select the area to be evaluated.

Step 2: Select the hazard components to be considered. These can include but are not limited to:

- Vegetative fuel hazards both in and beyond the immediate vicinity of the structure
- Structure density (lot size, structures per lot)
- Slope (steeper slopes are more hazardous)
- Weather patterns (temperature, humidity, winds, drought)
- Fire occurrence (increased fire probability where fires have occurred in the past)

Step 3: Rank the hazard components. Develop or use an existing system to define the significance of each component. The system, though subjective in nature, should be specific and consistent.

- Define a system to rank the hazard level of the components (e.g., low-medium-high or numeric)
- Evaluate and rank each individual component that is included in the assessment
- Develop an overall hazard rating system
- Calculate the overall hazard rating

Step 4: Compile the hazard rankings in a usable format that reveals the relationships between the individual hazards and categories of hazards. Three methods are often used to analyze the data collected:

- A geographic information system can define the hazards components and display each hazard on clear overlays, rather than on a single map, allowing analysis of various combinations of data

- A grid index system references specific points of interest on a map. The coordinates of the grid define the hazard rating of a specific property or area
- A matrix system describes the severity of each hazard for each area within the assessment

Step 5: Develop future actions—use the information developed to reduce fire loss potential in the WUI:

- Develop mitigation strategies to improve firefighter and public safety
- Develop fire response/evacuation plans
- Provide reference tools for planners, insurers, bankers, and local code adoption
- Develop region-wide cooperative fire protection agreements
- Perform cost/benefit analyses
- Implement or evaluate existing programs
- Strategically focus fuel reduction projects
- Distribute this information along with public fire safety education materials to educate property owners, local and state governments, and fire-service agencies

Wildfire Risk Reduction

The goal of risk reduction is to reduce potential loss of life and property. Understanding that wildfire is inevitable can help communities prepare for wildfires. Fire-adapted communities are knowledgeable, engaged communities where actions of residents and agencies in relation to infrastructure, buildings, landscaping, and the surrounding ecosystem lessen the need for extensive protection actions. This enables people to safely accept fire as part of the surrounding landscape. A successful fire-adapted community approach has the potential to save lives, homes and communities, and millions of dollars in suppression costs annually.

There is a range of actions property owners and managers can undertake to become more adapted to wildfire. In general, the more elements that a community has addressed, the more fire-adapted the community will become. Major elements of a fire-adapted community include vegetation management, ignition-resistant homes, increasing local responders' understanding of wildfire, cooperation between jurisdictional authorities, and fuels treatments on both private and public lands to reduce hazardous fuels and create fuels buffers.

The requirements and procedures to become recognized as a Firewise® Community require coordination among homeowners. When landowners implement fuels reduction treatments using NFS cost share programs, or if a landowner asks for suggestions, the NFS adheres to established Firewise® standards. Many homeowners who do not reside within an officially designated Firewise® Community have utilized these standards independently. NFS staff is available to help homeowners in areas at-risk from wildfire to establish formal Firewise® Communities.

Homeowners can undertake mitigation measures that can decrease the potential destructive effects a wildfire might have on their property. Some measures are designed to modify the vegetative environment surrounding a structure to decrease potential ignition sources. Others focus on modifying a structure (or changing its location) to make the structure more resistant to ignition. To reduce the risk for the long term, actions need to be maintained over time.

Common Practices

- Actively managing vegetation near the home by reducing density, conducting landscaping maintenance, and replacing flammable vegetation with ignition-resistant components. Greater efforts are needed within close proximity of the structure and gradually decreasing efforts beyond that.
- Maintaining structures free of needles, leaves, and other organic debris from decks, roofs, and near the base of exterior walls.
- Increasing ignition resistance of structures by actions such as using ignition-resistant roofing and covering exterior openings of structures, such as attic vents, eaves, soffits, and crawl spaces, with non-flammable wire mesh screening.

- Removing flammable materials from beneath structures and decks.
- Locating firewood, fuel tanks, and propane tanks at a safe distance from structures.

Refer to Appendix J for an expanded list of common practices and a listing of several programs, such as Firewise® and Ready, Set, Go!, available to help homeowners and communities reduce wildfire risks.

Other Wildfire Mitigation Practices
Additional wildfire-related mitigation practices are listed below. Some entities have already implemented one or more of these. Planners may want to periodically review and implement or expand upon them, as appropriate.

- Acquire training and equipment for local fire departments
- Implement woody fuels reduction and defensible space projects
- Establish or expand wildfire prevention and education programs
- Participate in the Firewise® program
- Adopt a wildfire hazard identification and mitigation system (see Appendix J)
- Conduct maintenance to reduce risk (tree care and public landscape maintenance programs)
- Reduce risk through land use planning (landscaping and building ordinances)
- Require or encourage fire-resistant construction (the use of non-combustible materials)
- Incorporate wildfire mitigation into comprehensive planning
- Develop a wildland-urban interface code
- Expand water storage capacity/emergency water supplies/dry hydrants
- Upgrade rural water systems; improve well and water systems

Although funding limitations affect any jurisdiction's ability to implement some of these practices, identifying them as critical needs helps prioritize them for funding assistance opportunities such as the NFS fire equipment program described earlier in this plan.

Wildfire-Related Mitigation Practices Identified in HMPs by Local Participants
Wildfire-related mitigations selected by CWPP area participants in the HMP included:

Clay County

- Glenvil: Glenvil and the local fire department have recently upgraded some equipment, but a new tanker is needed.
- Ong: To mitigate the risks of grass fires and wildfires, the Village follows state burning regulations. Emergency management is currently developing a new notification platform to alert residents of dangers and update an evacuation plan for that community. To mitigate the risk of power outages due to fires, the village plans to install backup power generators for the sewer and water systems in town. The planning team indicated adopting Firewise® programs and projects would set up defensible space for fires.

Fillmore County

- In 2012 the county created two 'DISK' groups, which are groups of farmers that can disk a break in fields to reduce the fuel for crop fires. The county would like to maintain this program and work with townships, farmers, and others to do this. The county noted that eastern redcedar trees need to be removed throughout the county and rural road ditches need to be cleared of brush and vegetation. They also identified the need to educate farmers on equipment maintenance to prevent fire sparks. Many farms have mobile water tanks they can move from field to field for emergency fire suppression.

Nuckolls County

- Ruskin: The village fire department maintains two pumpers and two new NFS tankers. The village recently obtained a generator for the municipal well, which may prove useful during wildfire events. Currently residents are not required or actively encouraged to maintain defensible space around their properties.

- Superior: The city removed dead and dying trees around the city to reduce potential fuel loads. The local fire department has undergone training to respond to grass/wildfire events. The city plans to remove trees and shrubs; work with stakeholders to develop a database of vulnerable populations, and the organizations that support them; establish an action plan to improve communication between agencies, to better assist residents and businesses during and following emergencies; and establish interoperable communications; implement water system improvements; and conduct an emergency exercise.

Thayer County

- County level: The local planning team identified the need to bolster the mutual aid agreements in the county to improve available resources. Local farmers also assist by disking fields to prevent spread of fire.
- Chester: The village has taken steps to reduce the amount of tall grass that surrounds the community. They have recently updated some fire suppression equipment, but additional tankers are needed. The village identified becoming a Firewise® Community and water system improvements as ways to reduce overall vulnerability. The village's zoning ordinance discourages development in the WUI.

Reducing Risk for First Responders

An important part of risk mitigation is reducing the risk to the humans who respond to wildfire. Some of the fire-prone areas shown on the Areas of Concern map in Appendix A are located away from the WUI, where there are few or no structures or other human development. Fire in many of these sites can be beneficial in terms of reducing vegetation/fuels density, improving range and wildlife habitat, and curbing the spread of invasive or aggressive native plant species. Where human life and property will not be immediately threatened by a wildfire, it makes sense to prioritize such areas in terms of 'contain' vs. 'immediately control.'

One example of this type of pre-planning is the public wildlife lands in the region, particularly in those locations associated with Rainwater Basin wetlands. According to NGPC staff, these areas tend to be islands of habitat in a sea of cropland, so there is merit to viewing them as 'contain only' sites, unless there are structures needing protection on adjacent private lands. Within such wetlands, there is risk that responding firefighters may get stuck while accessing the interiors of these tracts. The employee recalled a story of a fire rig lost in this manner on one of these sites. Although there were no injuries in the incident, bringing fire equipment into these areas may constitute an unnecessary risk.

Other, non-wetland, sites are often within the landscape context of larger grassland and woodland habitats. In these, there may be minimal risk to WMAs, but where there is facility development on adjacent private or NRD properties, a 'contain' policy could be modified to protect the developed sites.

Several fire departments that returned the CWPP survey confirmed that difficult access into sites increases the probability of equipment becoming stuck or damaged and can prevent responders from moving quickly to other locations they may be needed. Pre-identifying 'contain only' or 'modified contain' sites would help fire departments respond more effectively to wildfires in these areas, while still protecting structures and other human developments

Recommendations for Increasing Emergency Preparedness

Communication

Having and using a comprehensive communications plan is integral to maintaining smooth operations. Many jurisdictions in Nebraska have identified communications as a major issue when working under a mutual aid scenario. Various responders have different communications hardware, and often these are incompatible with one another. This is more than just a nuisance. Communication is vital to responder safety and to coordinating an effective response to wildfire. It is recommended that all entities in the region establish or review, and regularly update, their local communications plans.

Coordination

Coordination among responders is crucial in any emergency response situation. Local emergency managers must be able to tie in their responses with neighboring and outside assisting jurisdictions. The following opportunities have been identified to address common issues and concerns:

1) To protect firefighters, property owners, and structures, consider developing county-level standards for buildings in WUI areas.
2) Encourage communities to utilize the national Firewise® Communities program to decrease risk.
3) Engage partners such as the NRCS, NGPC, and conservation organizations to implement or expand WUI fuels reduction and thinning on a landscape basis through the use of NFS and other cost share programs.
4) Work with the NFS and other partners to implement a CWPP region-wide public education and awareness program to improve wildfire hazard conditions within the WUI.
5) Encourage VFDs in the CWPP region to continue to participate with the other agencies to facilitate interagency wildland fire training.
6) Cooperate with other agencies and property owners to develop long-term multi-unit, multi-year fuel hazard reduction projects, including prescribed burning.
7) Facilitate VFD monitoring of the federal wildland fire weather system indices.
8) Create a statewide 'Mutual Aid Guide' that can be carried in each engine, including the engines operated by the federal and state agencies. This document would show what equipment each department, county, or agency has. A fire chief could then consult the guide to see what each department has and could order it for their fire, if needed.
9) Ensure quick notification and involvement process for assessment and assistance on fires, when needed (i.e., WIRAT, Type 3, FEMA, and Type 1 or 2 teams).

Aerial Support

It is critical to maintain the SEAT program authorized through the Wildfire Control Act of 2013. Having a SEAT dedicated strictly to wildfire suppression during peak fire season provides quick initial attack on small fires, particularly those in difficult terrain, keeping them from growing into large catastrophic wildfires. The NFS SEAT Managers have made the following recommendations:

1) Having additional SEAT Managers throughout the state would increase response times. Currently there are four qualified managers; more would increase program capabilities.
2) Increase the number of aerial applicators within the CWPP region who cooperate with NFS and NEMA to provide aerial fire suppression to requesting fire departments. Having fewer applicators limits available options during wildfires.
3) Sustain or increase the current level of cooperation with adjacent states and their aviation resources. Maintain clear paths of communication to ensure that neighboring jurisdictions are aware of available resources, times of planned contracted aviation availability, and enable the sharing of resources across state borders, when needed. Facilitate sharing managers and help trainees become qualified. Cooperation in sharing information, personnel, and resources will benefit all in creating effective operations.

Maps and Data

Restricted Roads and Bridges: Some county roads and bridges have weight or width limitations, or both, that may inhibit use by emergency vehicles. Planners are urged to work with counties and fire departments to identify and map all roads and bridges, specifically identifying those that are restricted. Making this data available to fire departments and other emergency responders would facilitate route planning. This could also be used to help prioritize fuel treatment areas. Since road conditions constantly change, this information should be monitored locally and updated as needed. The Crete fire district has already begun this process.

Incident Command Staging Areas: These have been identified as an issue in some parts of Nebraska. Local planners can address this by pre-identifying potential staging locations near areas of wildfire concern such as recreation areas and rural subdivisions. Staging areas must be far enough away from a fire to reduce congestion and confusion for incident managers, yet close enough to efficiently provide resources. When a resource is needed, it is deployed from the staging area, with a controlled entry into the hazard zone. Staging areas need to be of sufficient size to accommodate multiple fire crews, engines, tankers, support vehicles, and equipment storage. Sites should have good access, water, and power availability, and be able to accommodate communications needs. The information gathered for potential staging areas in the most at-risk locations can be provided to emergency managers, fire chiefs, and others to help them decide where to establish the staging area for a particular incident.

Equipment: Non-fire equipment has proven useful in many wildfire situations. Counties may want to consider adding an inventory of non-fire department resources (such as county road graders) to a centralized document.

Geographic Information Systems (GIS): GIS technology can be incorporated into the action plan. A Global Positioning System (GPS) can be utilized to provide locations of tanks, water supplies, and other useful information in each fire district and made available for hand-held devices. Counties and communities that do not already have this information may want to look into acquiring GIS layers for hydrants, well points, water mains, sewer, housing, infrastructure, and bridge limits. Water hydrant systems at golf courses could be mapped and added to this database. GPS locations of stock tanks and other water sources on public lands could also be provided to emergency responders. Other map data that would be useful includes types and locations of pipelines and pumping stations, power substations, power lines, towers and antennas for air resources to avoid, flammable material storage areas, and overhead water refill access points.

In the past there have been issues with sharing map layers between different programs and applications. Many natural resources agencies, including the NFS, now use Avenza™, a mobile map app that allows users to download geospatial-enabled pdf maps for offline use on a smart phone or tablet, using the device's built-in GPS to track their location, plot and record location information, measure distance and area, and more. Some VFDs may also use this app, but there currently is no standardized protocol. Creating such standardization over time would likely prove useful.

Other: Counties can use technology to provide early detection systems and real-time fire weather information by retrofitting units and establishing new ones to complete the existing network.

Increase Fire Response Reporting for Increased Equipment Availability

Comprehensive fire reporting helps VFDs demonstrate a need for fire equipment such as provided by the FEPP, FFP/State Fire Assistance, and Volunteer Firefighter Assistance programs described earlier in this document. Since reporting is voluntary for fire districts, not all fire districts consistently report their wildfire responses to the NFS. Because of this, limited information is available about the locations and sizes of historic wildfires within the CWPP counties. There is a risk that incomplete reporting might imply that there is no pressing need for this type of equipment. This could potentially put the status of the program in jeopardy. In response to this, NFS offers an incentive to VFDs for participation: Only fire departments that report their responses are eligible to apply for this equipment.

Although reporting has increased recently, VFDs are urged to continue stepping up this effort. The information provides data to geographically focus grant assistance on those areas most prone to wildfire. The NFS has a database already in place to facilitate this. Planners and fire departments are urged to work together to gather and report wildfire data to assist fuels mitigation efforts and increase funding opportunities for fire equipment. Departments can report their wildfire responses online. From the NFS home page, www.nfs.unl.edu, go to Programs, Wildland Fire, and navigate to the fire reporting tab. Follow the login instructions the NFS provided to your department (or email trees@unl.edu), then follow the prompts to create the report.

WUI Protection

Prepared communities reduce hazards, protect homes, and increase firefighter safety. Homeowners in WUI areas should be encouraged to establish and expand Firewise® Communities, Fire-Adapted Communities, and Ready, Set, Go! programs across the region. In a wildfire situation, responders often must quickly decide which homes have the best chance of being saved so they can focus their efforts on them. Some Nebraska fire departments have developed 'triage' documents to help firefighters quickly assess these homes and neighborhoods. Consider implementing this practice in the CWPP Areas of Concern. Preparation by property owners prior to a wildfire can contribute to firefighter safety and help them protect structures. See Appendix J.

Work with counties and municipalities to evaluate one-way-in/one-way-out subdivisions for potential addition of alternate ingress/egress routes. Estimate costs and identify potential grants or other financial assistance to address these issues.

Zoning ordinances can be strengthened to include provisions to limit new construction in areas such as canyon rims that are at high risk from wildfire. Counties may want to consider both the monetary costs to taxpayers and the danger to fire department personnel responding to wildfires in these areas. At the very least, setbacks from canyon rims, adequate emergency access, and specific Firewise® practices should be considered for implementation in the areas at highest risk. Communities across the planning area can adopt more stringent building codes which may include regulations and requirements to reduce wildfire risk for residents and structures.

Firebreaks and Fuelbreaks

Strategically placed fuelbreaks and firebreaks in the areas most at-risk from wildfire can give firefighters an edge when protecting WUI areas. These two terms are often confused, but it is important to understand the difference.

A fuelbreak (or shaded fuelbreak) is an easily accessible strip of land of varying width (depending on fuel type and terrain), in which fuel density is reduced, thus improving fire control opportunities. The forest is thinned, and remaining trees are pruned to remove ladder fuels. Brush, heavy ground fuels, snags, and dead trees are disposed of, leaving an open, park-like appearance.[24] Fuelbreaks are commonly used to surround a community and slow the spread of a wildfire. Decreasing the fuel load significantly reduces the risk of extreme fire behavior.[25]

Fuelbreaks provide quick access for wildfire suppression. Control activities can be conducted more safely due to low fuel volumes. Strategically located, they break up large, continuous tracts of dense trees, thus limiting uncontrolled spread of wildfire. This can aid firefighters greatly by slowing fire spread under normal burning conditions. However, under extreme conditions, even the best fuelbreaks stand little chance of arresting a large fire, regardless of firefighting efforts. Such fires, in a phenomenon called "spotting," can drop firebrands ⅛ mile or more ahead of the main fire, causing the fire to spread rapidly. These types of large fires may continue until there is a major change in weather conditions, topography, or fuel type.[24]

Generally narrower than a fuelbreak, a firebreak is a strip of land, 20 to 30 feet wide (or more), in which all vegetation is removed down to bare, mineral soil each year prior to fire season.[24] A firebreak is a discontinuity in vegetation. It may be a gravel road, a river, or a dozer line. A 'green firebreak' uses grasses with high moisture content, such as winter rye or winter wheat, to provide a break in the continuity of the fuel. A firebreak, if it is wide enough, will stop the spread of direct flame. However, embers can still be lofted into the air and travel across the line.[25]

It is critical to understand that both firebreaks and fuelbreaks are lines of defense. Homes and developments between the break and the fire may remain vulnerable.[24] Communities are encouraged to identify the best

locations for vegetation breaks to protect the WUI. Fuelbreaks are most effective when placed along an existing firebreak such as a road. Choosing a site along a road also allows easy access for equipment.

There are multiple methods of creating breaks, including mechanical, mulching, herbicide, grazing, prescribed fire, and dozer lines. Each treatment has pros and cons, and some may be better suited to a particular site than others. When choosing a method, consider topography, potential for erosion and other environmental effects, access, aesthetics, and cost.

Fuelbreaks and firebreaks are most effective when they are regularly maintained. Dead vegetation and re-sprouting trees should be removed during maintenance.

Training and Education

Firefighter Training

All VFDs are encouraged to participate fully in wildland training opportunities provided through the NFS, the State Fire Marshal's office, and NEMA. Some of the fire departments in the CWPP region are annual participants in the Nebraska Wildland Fire Academies held at Fort Robinson State Park near Crawford and Ponca State Park in Dixon County. These programs are described in the training overview earlier in this document. Those departments that do not currently participate can be encouraged to do so.

Although not all VFDs have mandatory fitness requirements, local departments can be encouraged to participate, both for safety and to lower insurance costs.

Educational Opportunities for Property Owners and the Public

The Firewise® and Ready Set Go! programs offer excellent guidelines for reducing the loss from wildfire for both in-town and rural structures. The NFS 'Living with Fire' publications, for both prairie and woodland areas, are also valuable educational tools for property owners. Fire extinguisher inspections and operation training can be offered as part of Firewise® events that participating communities hold annually. Involving local communities in these voluntary programs increases public awareness regarding structure risk mitigation (see Appendix J).

When issuing building permits, county and municipal offices can distribute literature that includes recommended or required setbacks from canyon rims, lists of fire-resistant building materials, and fire-savvy landscaping suggestions. Service groups such as Rotary and Lions, and youth groups such as FFA, also may present opportunities for getting out wildfire planning information.

Public events such as county fairs can be used to provide wildfire awareness education. Workshops and seminars can offer specific 'how-to' fire protection information for homeowners and land managers.

Fuels Mitigation Strategies

There are several approaches to reducing wildfire hazard through fuels management. In addition to active participation by property owners in the structural protection programs described above, practices such as prescribed grazing, prescribed fire, and mechanical fuels reduction can work together to provide protection over large areas containing a diversity of terrain and vegetative cover.

Prescribed Grazing

Grazing keeps fine fuels such as grasses in check. But overgrazed pastures are problematic for range and livestock health, as well as for wildlife. Landowners can work with range and wildlife management professionals to develop grazing plans that will benefit livestock while protecting grasslands and wildlife and managing fine fuels to reduce wildfire hazard.

The NRCS and UNL's Institute of Agriculture and Natural Resources have specialists available to help landowners develop grazing systems that will address these concerns.

Prescribed Fire

Some federal and state agencies, non-profit organizations, and private landowners use prescribed fire as a land management tool. Prescribed fire can be extremely efficient for keeping eastern redcedar encroachment in check on grasslands. In forested settings, prescribed fire is more effective and safer when used to maintain dense woodlands after they have been mechanically thinned. When tree densities are reduced prior to burning, it is easier to keep the fire on the ground, where it cleans up downed woody fuels without killing many live trees. Crown fires are difficult to control, and they kill healthy trees.

One objective for many of these burns is to reduce heavy fuel loads. Land managers in the CWPP region plan multiple prescribed fires of varying size each year, but weather and resources to conduct the burns impact how many they can complete. Some VFDs assist with these efforts by sharing people and equipment to help with the burns when agency or organizational regulations permit. It is recommended that VFDs continue with these cooperative efforts, as well as continuing to participate in the training available to help them do this safely and effectively.

Mechanical Fuels Reduction in High-Risk Wooded Settings

Many high-risk forested settings within the CWPP boundary are found in wooded recreation sites, rural residential neighborhoods, forested or shrubby lands adjacent to population centers, and in cedar-encroached riparian bottoms. Wooded recreational and 'second home' residential areas add the hazards of seasonal congestion, limited or difficult access, and structures adjacent to highly flammable vegetation. Mechanical thinning will decrease tree density to healthy levels and reduce eastern redcedar encroachment in deciduous forests while reducing wildfire hazard.

Slash (unusable limbs and treetops left after thinning) can be chipped, mulched, or piled. Slash piles can present a fire hazard. Disposing of them by burning during appropriate winter conditions or during green up periods (i.e. June) where risk of escape is reduced or chipping on-site are acceptable means to mitigate this threat. Chips can help reduce soil erosion in disturbed areas. The chips should be spread, not piled, to allow vegetation to become established in these areas. Piles of chips not only prevent or delay revegetation; they can also be sources of spontaneous combustion.

The cost of mechanical fuels reduction depends on access, terrain, and tree density. Utilization of wood products generated by these treatments has the potential to offset the costs of doing the work. However, presently there is little local commercial market for this material. Researchers are currently working with the NFS to expand markets for wood products.

Because mechanical fuels reduction can be expensive, some agencies and organizations offer cost-share assistance to landowners. These programs are described in the overview section of this plan. It is recommended that private and state forest landowners continue to utilize these resources to maximize the acreage they treat for hazardous woody fuels.

The NFS administers several federal and state grants that provide cost share to landowners to defray the cost of fuels reduction. Information about these programs can be found online at https://nfs.unl.edu/fuels-assistance. Landowners in counties that have a CWPP in place are eligible for these cost share programs.

Fuels Reduction in High-Risk Non-Forested Settings

Fuels management works best when it is conducted on a landscape basis. In addition to reducing woody fuels in forests, it is also important to manage the grass component on both wooded areas and grasslands. Well-planned grazing and prescribed fire can significantly reduce wildfire risk. Fuels treatments are only as effective as their weakest link. Unmanaged 'islands' of grass within managed areas pose a significant risk to the managed lands. Cost-share programs can encourage landowners to manage their non-forested lands. Property managers can check with the NRCS for cost share program information.

Another threat in grassland environments is the presence of unmanaged windbreaks intended to protect nearby structures. If those shelterbelts lie within the structures' Firewise® zones, they pose a direct threat to the buildings and they must be managed. NFS foresters can provide windbreak management recommendations.

Some communities have expressed concerns about fires jumping over highways that are not properly mowed or managed, and areas along railroad rights-of-way. Regular maintenance of these areas, especially during dry conditions, could help address these concerns.

Much of the fuels reduction activity outside forested areas will involve creating defensible space around rural homes and other structures. The same Firewise® guidelines that apply in forested settings also apply in non-forested settings.

Maintenance

Reducing hazardous fuels is not a one-time event. Areas that have been treated by any method to reduce fuels must be maintained on a regular basis because the vegetation continues to grow. NFS fuels treatment agreements include a requirement that the work be maintained for a minimum of ten years after the project is completed. Treatment, particularly mechanical fuels reduction, can be costly, so continued maintenance by keeping regrowth in check prolongs the period of hazard abatement and protects the monetary investment made by landowners and the cost-share program.

Monitoring and Evaluation

Monitoring and evaluation are important components of any planning document because they provide information on how well the plan is performing and whether it is achieving its stated goals and objectives. This provides guidance for planning future activities and is an important part of accountability to stakeholders and funding organizations. This section of the CWPP provides a proposed plan maintenance schedule; discussion of monitoring considerations; review of evaluation elements including suggested units of measure for assessing activities and projects; and a table summarizing the five-year action plan.

Schedule

The maintenance for this plan will be directed by the county boards in the CWPP region and coordinated with local fire officials and resource managers. Counties or their representatives will annually review the plan to evaluate progress, re-evaluate priorities for action items, and recommend updates as needed.

Review of the recommendations will be necessary as various projects or tasks are accomplished and the at-risk areas decline in hazard rating. Review will also be needed as infrastructure needs change or are met. The review team should include representation of stakeholders who participated in the development of this plan.

A complete update of the plan every five years is recommended because infrastructure needs, population, and land use can change, fuels reduction projects may be completed, emergency services in outlying areas may expand, data are updated, and areas of extreme wildfire hazard decline or increase. Counties are urged, when possible, to coordinate this process with their regional HMP updates. By aligning the update schedules of various planning mechanisms, the goals, priorities, and actions identified can more easily be integrated into other plans.

Monitoring and Evaluation Process

Continued public involvement is needed to accomplish many of these recommendations. It is important that the process allows for continued collaboration with stakeholders on how best to meet their needs, while at the same time achieving the objectives of this plan. Counties and fire departments can formally or informally monitor progress and coordinate with agency stakeholders who monitor their efforts according to their internal protocol, documenting accomplishments and redesigning strategies as needed.

Annual assessment of the identified tasks is very important to determine whether or not progress is being made. Each participant is encouraged to prepare an after-action report, either per event or annually, to assist in plan maintenance and updates. Units of measure to be considered when updating the plan for the purpose of reporting accomplishments can include, but are not limited to:

1. Number of projects or activities accomplished which aid fire agency/emergency service response time
2. Number of transportation issues resolved that improve road systems for access, ingress/egress
3. Number of water sources added or upgraded to improve firefighting response
4. Number of pieces/types of fire equipment obtained; number of departments that received them
5. Number of firefighters and fire departments receiving training courses; course hours completed
6. Number of properties/acres treated for fuels reduction and type(s) of treatment used
7. Number of new or retrofitted ignition-resistant structures
8. Number of events with prevention message delivery, number of prevention courses attended/ conducted, number of news releases or prevention campaigns conducted, and number of prevention team meetings held
9. Number of partners/agencies/groups cooperating on projects and activities
10. Number of people contacted (meetings, courses, etc.) and number of educational items distributed (brochures, etc.)

Each participating agency/organization can assess their activities and projects using units of measure such as those listed above and in Appendix B to determine progress. This plan is not intended to function as a means of bypassing the individual processes and regulations of the participating entities. Each project must adhere to any pertinent local, state, and federal rules. The CWPP is a coordinating document for activities related to fire protection, fuels treatment, information development, and wildfire outreach and education.

Implementing and Updating the Action Plan

Appendix B contains a detailed description of this CWPP's goals, strategies, objectives, and tactics that can be used to implement this plan. It is highly recommended that planners review the appendix in its entirety when developing specific activities to implement this plan. The comprehensive information is intended to assist participants when they initiate action, evaluate progress, and update the CWPP. It may also aid grant writers in accurately describing CWPP targets and organizing funding assistance requests.

The following table summarizes the CWPP objectives, and the associated tasks needed to achieve each; suggests who might perform the tasks and when, provides benchmarks for evaluation, and identifies opportunities and limitations. When the CWPP is updated at the end of five years, a new action plan can be developed to accommodate new or expand current objectives for the following five years.

Five-Year Action Plan for the South Central East CWPP 2022-2026				
Task(s)	**Who**	**When**	**Benchmark(s)**	**Opportunities/Limits**
Risk Assessment, Prioritization, and Analysis				
Identify/analyze Risk Assessment elements	Local officials, NFS	Done during CWPP preparation	Completed CWPP	n/a
Review county zoning plans for treatment of high fire risk areas	Local planning staffs (zoned counties)	2022-2023	# of recommendations to county officials; # implemented	Consider access, building materials, building setbacks from canyon rims
Assess/prioritize areas based on vulnerability	Local officials & fire departments	2022-2023	Maps, checklist, report	Opportunity to further prioritize based on risk assessment
Perform individual structure or neighborhood analyses	Fire depts., agencies, contractors, others	Ongoing	Checklist/report	Opportunity: do during fuel reduction or other site visits. Limits: funding and staff availability.
Risk Reduction/Mitigation				
Identify mitigation practices	Local officials, NFS	Done during CWPP prep & HMP updates	Completed CWPP & HMPs	n/a
Expand WUI fuels reduction, including mechanical & RxB	Agencies, landowners; local officials (for public property)	Ongoing	# projects, # acres	Utilize existing & seek new cost share grants
Implement Firewise® & other community protection programs	Local officials, homeowner groups	Ongoing	# of programs established or expanded	NFS has staff available to help communities with this
Evaluate subdivision in/out access	Local officials, VFDs, developers	Ongoing	Report, cost estimates	Explore grant funding to address costs
Increase # of ignition-resistant buildings	Homeowners, planning officials	Ongoing	# of new buildings to code; # of buildings retrofitted	Retrofits can be costly; best opportunity is for new construction
Plan and implement fire & fuel breaks	Land managers, planning officials	Ongoing	# of vegetative breaks sited or established	Utilize federal, state, and local cost share programs
Assess and Enhance Local Response Capacity, Effectiveness, and Safety				
Review regional HMPs, VFD info, and county data	Local officials, VFDs	2022-2023	Checklist/report	Opportunity to identify gaps and needs
Increase fire response reporting	Fire chiefs	Ongoing	# of departments reporting	Opportunity for VFDs to acquire additional equipment
Increase/update fire equipment	VFDs, NFS	Ongoing	# of departments assist-ed, # of pieces/types of fire equipment obtained	VFDs can utilize NFS FEPP & FFP programs
Increase participation in firefighter training	VFDs, agencies	Ongoing	# of departments and firefighters receiving training; # hours	Many training options available through NFS & NEMA
Facilitate VFD monitoring of fire weather system indices	VFDs, NFS	Ongoing	# of departments able to monitor indices	Limit: # of weather stations. Opportunity: Weather apps and spot weather forecasts can be used on the fireline.
Develop 'triage' guidelines	VFDs, agencies	2022-2023	# documents created, # of VFDs using them	Increases firefighter safety by enabling quick property assessments during wildfires
Increase Communications Effectiveness				
Review local communications plans	Local and state officials	Annually	Document changes/ updates	n/a
Ensure VFDs can communicate on the same radio band during mutual aid	Local and state officials	Ongoing	# VFD's using a common radio band during mutual aid operations	Limited by funding availability. Explore grant funding to address costs.
Ensure prompt notifi-cation and involvement process for assessment and assistance on fires	Local and state officials	Ongoing	Checklist/report	Opportunity to expedite response

Task(s)	Who	When	Benchmark(s)	Opportunities/Limits
Increase Aerial Support Effectiveness				
Train additional SEAT Base Managers	NFS, NEMA	Ongoing	# of new certified managers	Limitation: available personnel
Facilitate sharing managers with other states	NFS, NEMA	Ongoing	# of shared SEAT base managers	Helps trainees become qualified
Increase the number of aerial applicators within the region	NFS, NEMA	Ongoing	# of new applicators	Increases options for fires on non-federal lands
Sustain/increase cooperation & communication with adjacent states' aviation resources	NFS, NEMA, neighboring state officials	Ongoing	# of new & renewed agreements; # of interstate assists	Helps make neighboring jurisdictions aware of available resources, times of planned contracted aviation availability, and enable sharing of resources across state borders
Increase Data Availability				
Identify and map restricted roads/ bridges	Local officials, contractors, others?	Ongoing	# of jurisdictions with restricted road/bridge maps	May be able to piggyback data collection with other tasks
Pre-identify potential staging locations	Local officials, VFDs, emergency managers	2022-2024	# of locations identified	Will expedite staging area placement decisions
Standardize map apps for use by VFDs	VFDs, emergency managers	Ongoing	# of VFDs using a standard map app	Cost depends on software and version.
Establish lists of non-fire equipment such as road graders	Local officials, VFDs	Ongoing	# of jurisdictions with equipment lists created	Can be included in regional mutual aid guide
Acquire GIS layers for locating critical infrastructure, water sources, etc.	Local officials and planners	Ongoing	# of new layers created or acquired	Opportunity: Provide in a format that can be easily accessed by hand-held devices
Realtime fire weather information	State, Local	Ongoing	# of units	Retrofit units and establish new to complete network
Provide early detection systems using technology	State, Local	Ongoing	# of units	May retrofit some units and establish new units
Increase Coordination Among Partners				
Develop & adopt regional WUI standards	Local officials, VFDs; NFS can assist with WUI info	2023-2026	Creation of regional standards document; # of counties adopting it	Opportunity: POAs can also adopt standards
Expand inter-jurisdictional cooperation	Local, state, federal officials	Ongoing	# of mutual aid agreements and # MOUs in place & current	Explore MOUs with non-traditional partners, NGOs
Create a statewide Mutual Aid Guide	NFS, emergency managers, VFDs	2023-2025	Creation of document, # distributed	Having a guide in each engine enhances access to resources
Establish a region-wide public awareness program	Agencies, VFDs	2022-2025	# of participating entities; # of outreach activities	NFS can provide assistance
Engage partners to expand WUI fuels reduction and thinning	NFS, other agencies	Ongoing	# of participating entities, # of projects, # of acres treated	Leverage program effectiveness with multiple agencies, adjacent projects
Develop long-term multi-unit, multi-year fuel hazard reduction projects, including RxB	Agencies, NGOs	Ongoing	# of participating entities, # of projects, # of acres treated	Partners can co-locate projects to expand treated area on a landscape scale
Increase Public Awareness				
News releases, workshops, seminars, etc.	Local officials, planners, VFDs	Ongoing	# of people reached, # of events	NFS has info & materials, can help with planning
Provide literature to homeowners, developers, others	Local officials, planners, VFDs	Ongoing	# of people reached	NFS has brochures & handouts for general use

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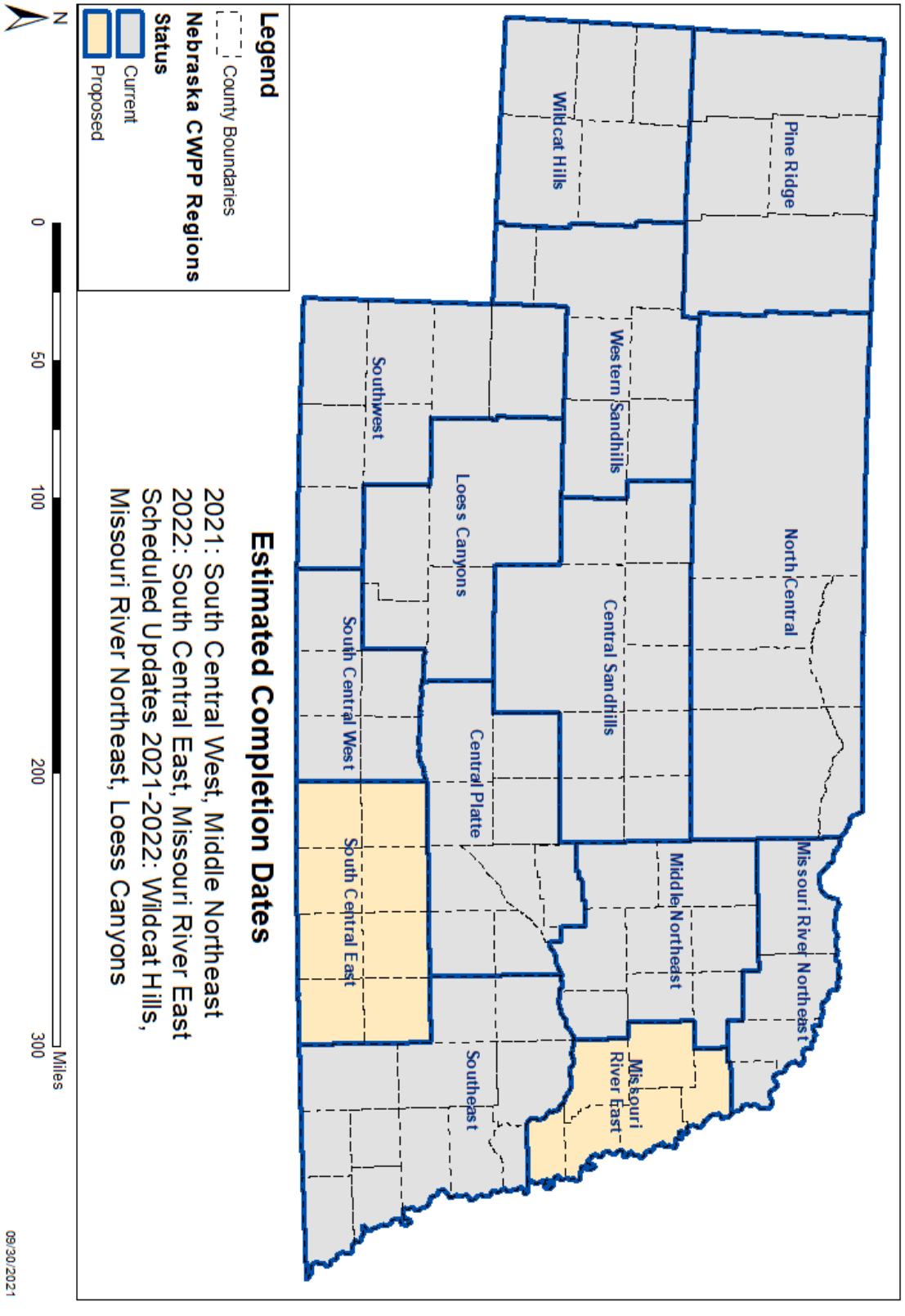
List of Appendices

Appendix A

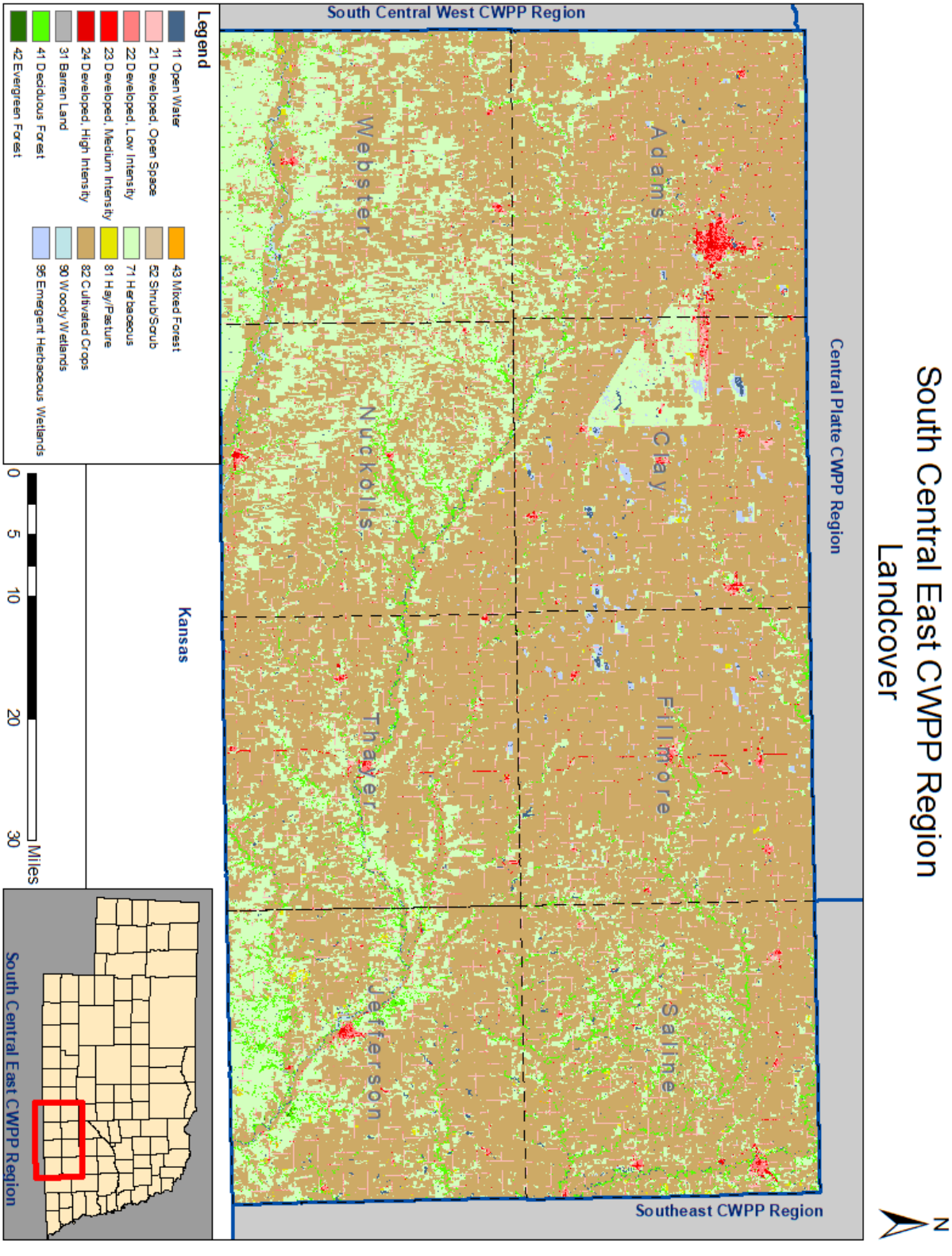
Maps

1. Nebraska CWPP Regions
2. South Central East CWPP Region Land Cover
3. Biologically Unique Landscapes
4. Nebraska Local Mitigation Planning Areas
5. South Central East CWPP Region Areas of Concern

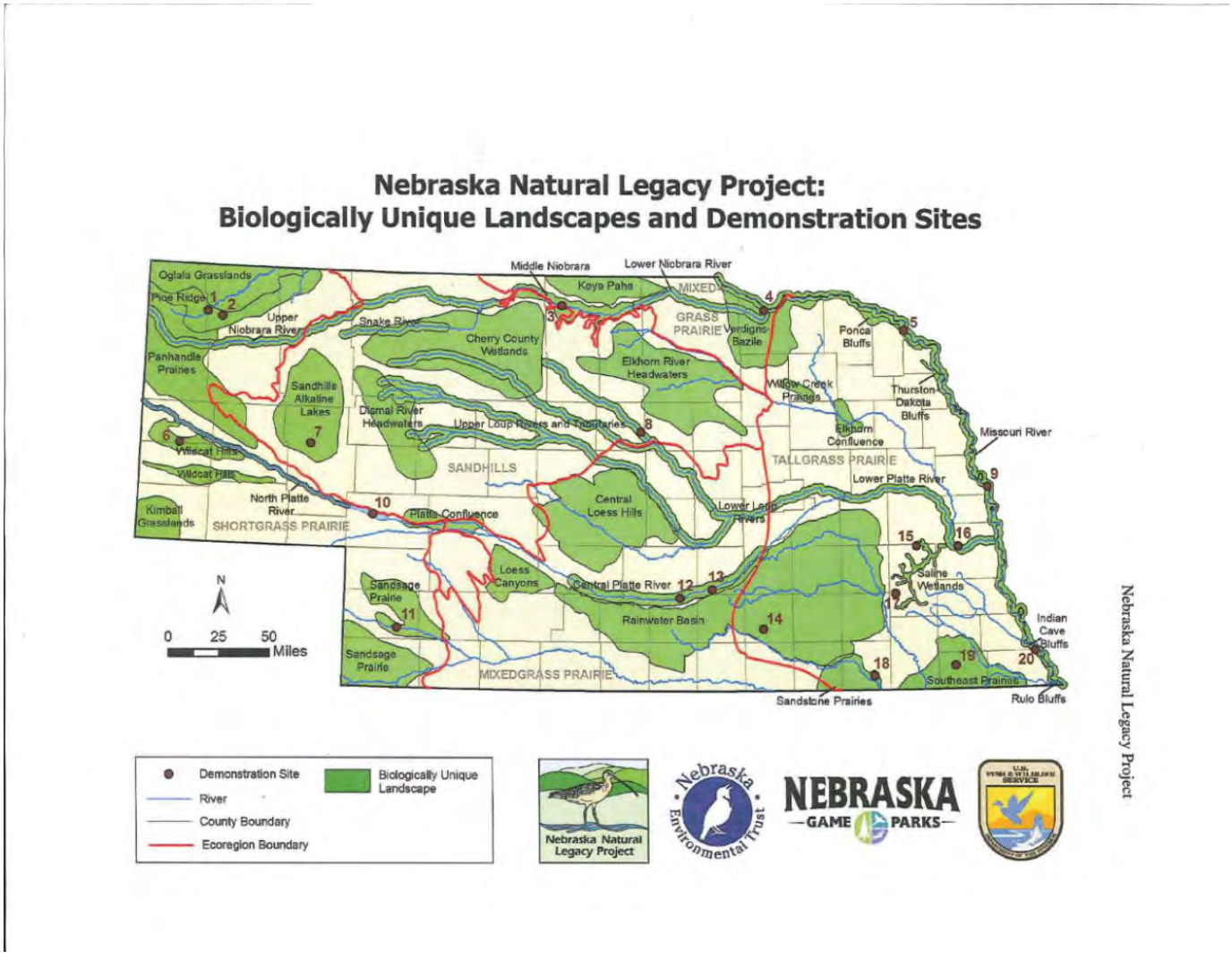
Map 1: Nebraska Community Wildfire Protection Plan Regions



Map 2: South Central East CWPP Region Land Cover



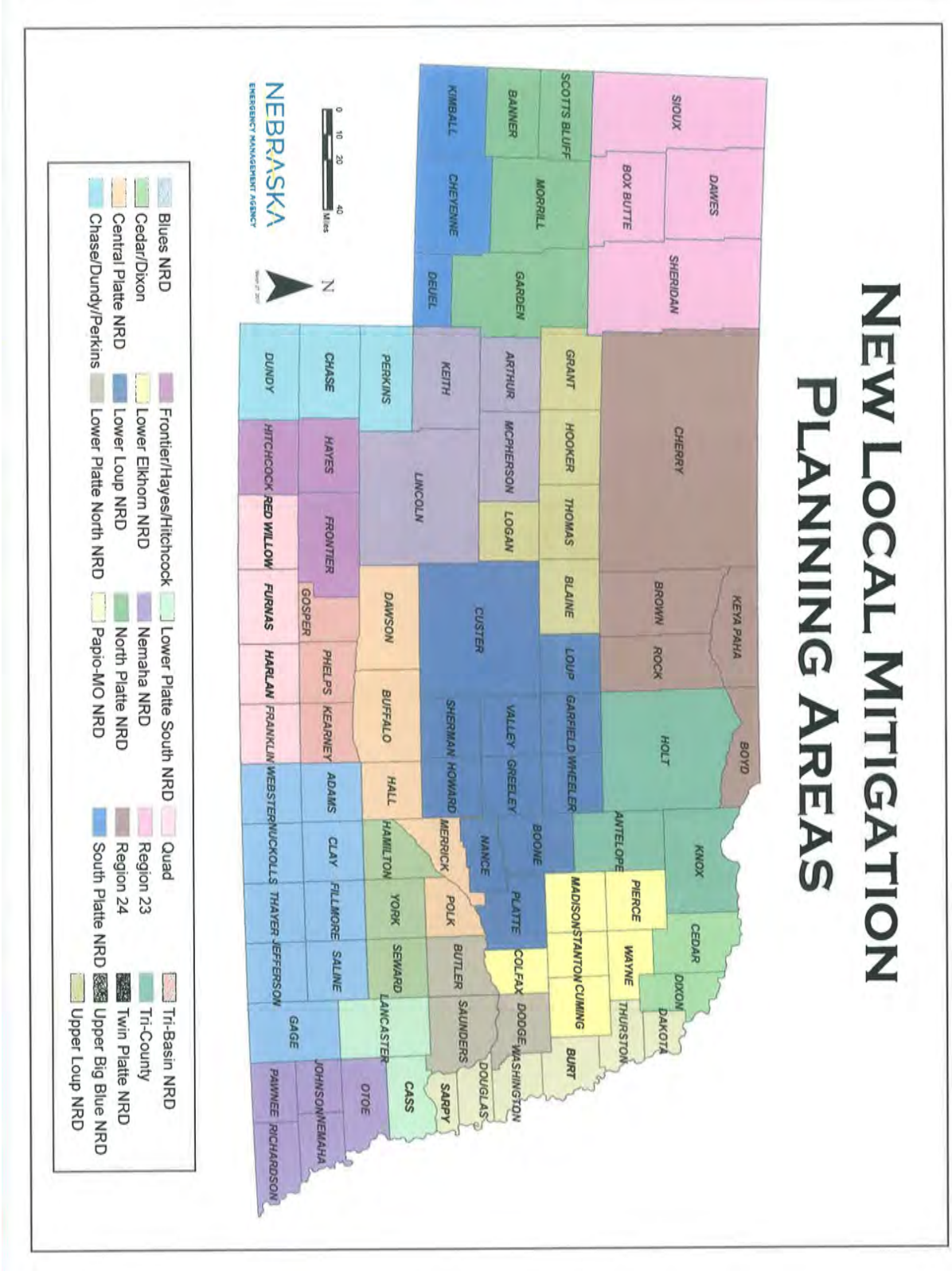
Map 3: Nebraska Natural Legacy Project: Biologically Unique Landscapes



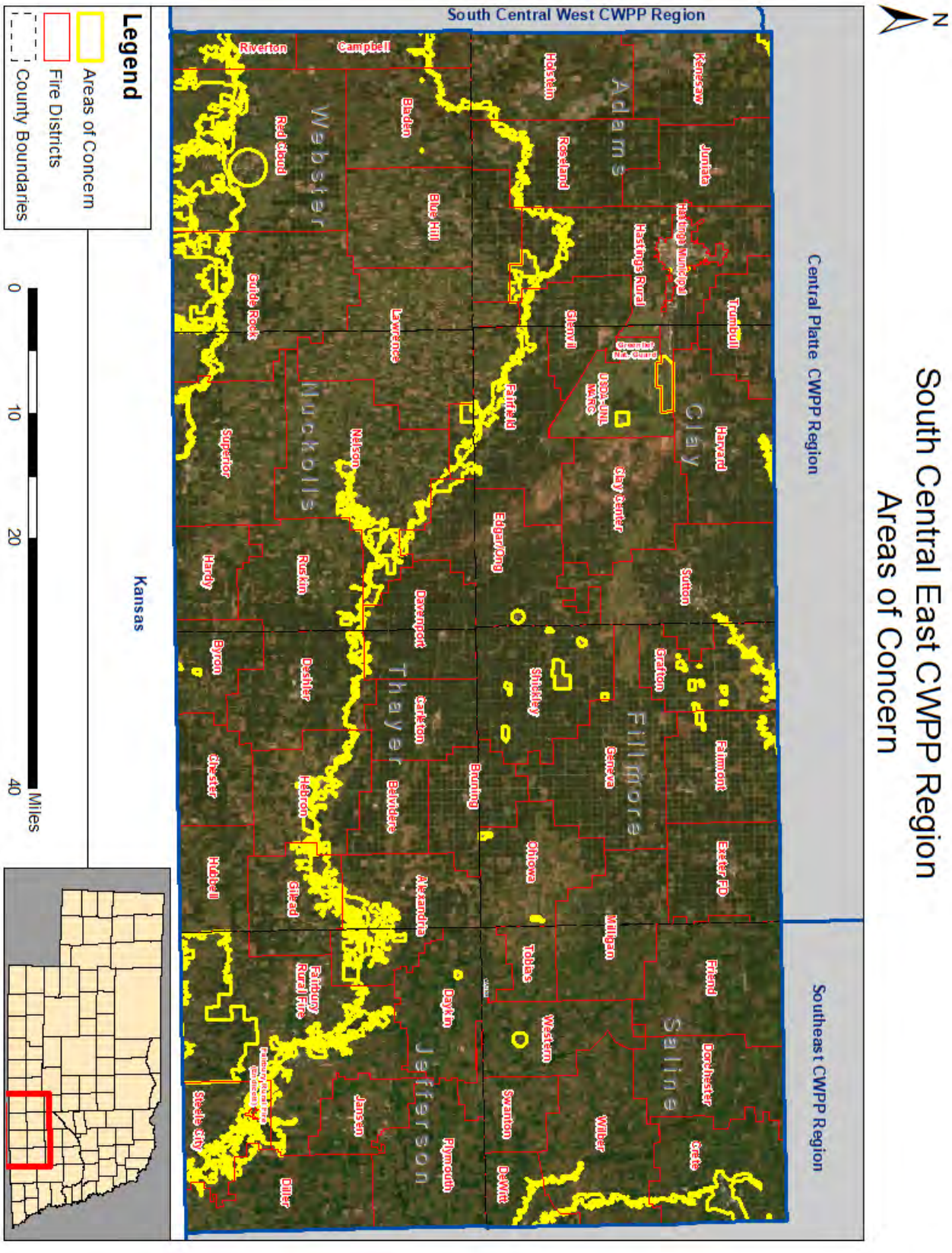
The full document is available at:

http://outdoornebraska.gov/wp-content/uploads/2015/09/NebraskaNaturalLegacyProject2ndEdition.pdf

Map 4: Nebraska Local Mitigation Planning Areas



Map 5: South Central East CWPP Region Areas of Concern



Appendix B

Goals, Strategies, Objectives, and Tactics

This appendix is intended to assist planners and grant writers in accurately describing overall CWPP goals, understanding strategies to accomplish them, defining measurable objectives needed to achieve the goals, and to provide examples of tactics that could be used to achieve the objectives. Each objective includes suggested metrics, or performance-gauging tools that can be used to measure success.

Overall CWPP Purpose: Strengthen Community Wildfire Preparedness

Definitions

1. A **goal** is a broad primary outcome.
2. A **strategy** is the approach you take to achieve a **goal**.
3. An **objective** is a measurable step you take to achieve a **strategy**.
4. A **tactic** is a tool you use in pursuing an **objective** associated with a **strategy**.

Goal 1: Reduce wildfire risk
Strategy: Reduce the likelihood of fire entering communities, physical impacts and losses, and the negative economic/social impacts by collaborating with stakeholders to define, understand, and address wildfire risks. Suppress unplanned ignitions to protect private property and natural and cultural resources from unacceptable impacts attributable to fire.
Objectives

- Identify wildfire risks (hazards/vulnerability), areas of concern that contain these risks, and a range of mitigation measures (*Metrics*: # risks, # locations, and # measures identified). *Tactics:*
  - Identify a baseline by considering historic data such as causes, frequency, and probability of wildfire
  - Use input from local responders and agency personnel to map specific areas at risk from wildfire
  - Utilize data from multiple sources to help identify appropriate fuels reduction practices for local at-risk areas
- Assess risks in the mapped areas (*Metrics*: Rating system implemented, prioritized list created). *Tactic:*
  - Devise a rating system to assess the degree of risk (i.e., High-Medium-Low) and establish hazard reduction priorities
- Mitigate risks: Implement mitigation measures to create defensible space and reduce structural ignitability (*Metrics*: # practices implemented, # projects implemented, # acres/structures protected). *Tactics:*
  - Use cost share programs and coordinate with partners to assist WUI landowners implementing mitigation activities such as mechanical fuels treatment, thinning, prescribed fire and prescribed grazing
  - Coordinate among adjacent large ownerships and/or public lands to protect communities on a landscape scale

Goal 2: Support emergency response
Strategy: Collaborate to assess local preparedness and capabilities, identify gaps and needs, and develop ways to enhance preparedness and response capability and improve firefighter readiness and safety.
Objectives

- Assess local response capacity (*Metrics*: # of VFD survey responses; list of items from HMP review, # of needs/gaps identified). *Tactics:*
  - VFD survey; review HMP data; consult with local officials
- Enhance local response capacity (*Metrics*: # pieces of equipment added or updated, # of VFDs able to monitor indices, # aerial applicators participating, # restricted roads/bridges mapped, # evacuation routes/staging locations identified, # of treatments conducted to improve access, # of water resources improved or added, # of WUI guidelines added). *Tactics:*
  - Increase and update equipment via VFD assistance programs
  - Facilitate VFD monitoring of the federal wildland fire weather system indices
  - Aerial support: Recruit and train additional aerial applicators and SEAT Managers
  - Roads/transportation:
    - Obtain critical infrastructure GIS layers
    - Map restricted roads/bridges
    - Identify evacuation routes, potential staging locations
    - Evacuation route treatments to improve access, including roads, development ingress/egress
  - Community planning:
    - Expand/improve water resources

        - To protect firefighters, property owners, and structures, consider developing county-level standards for buildings in WUI areas
            - WUI guidelines or regulations for new construction
            - Guidelines for retrofitting existing structures
- Increase firefighter readiness and safety (*Metrics*: # of trainings offered, # VFDs participating, # of firefighter training hours completed). *Tactic:*
    - Provide wildland fire training to VFDs
- Enhance communication among fire management agencies (*Metrics*: # of agreements in place and current, # of VFDs trained in radio channel use, # of partners coordinating fire management programs, statewide mutual aid guide created/updated, quick notification process implemented). *Tactics:*
    - Ensure all relevant Memorandums of Understanding (MOUs) and Mutual Aid Agreements (MAAs) are in place and current
    - Train fire departments in the use of the V-TAC and UHF mutual aid radio channels; educate fire departments and 911 dispatchers about notifying assisting mutual aid departments which V-TAC or UHF channel will be used when arriving at an event
    - Partner with landowners, land managers, fire personnel, natural resources agencies, and other organizations to incorporate local concerns and objectives into fire management programs
    - Create a statewide Mutual Aid Guide
    - Ensure quick notification and involvement process for assessment and assistance on fires, when needed (i.e., Wildfire Incident Response Assistance Team, Type 3 Team, FEMA, and Type 1 or 2 teams)

Goal 3: Promote an informed and active citizenry for wildfire preparedness

Strategy: Partner with natural resources agencies, schools, prescribed fire organizations, and other groups to implement a CWPP region-wide public awareness and engagement program to improve wildfire hazard conditions within the WUI. Educate homeowners, neighborhoods, schools, municipalities, and others about wildfire risks and engage them in community preparedness actions. Ensure that outreach targets a broad audience, including the agricultural community, schools, landowners, home and business owners, recreationists, and the general public; identify specific ways to address this.

Objectives

- Increase local knowledge of wildfire risk and prevention (*Metrics*: # handouts or news releases distributed, # of events or activities held, # of people reached) *Tactics:*
    - Work with partners to establish a region-wide public awareness program
    - Use brochures/handouts and news releases to increase wildfire awareness and publicize mitigation activities
    - Offer mitigation/prevention-focused workshops, seminars, school presentations/activities
- Engage stakeholders in preparedness activities that promote the use of defensible space to reduce fuel loads to protect communities and resources (*Metrics*: # landowners creating defensible space, # community programs established/expanded). *Tactic:*
    - Introduce and encourage participation in programs such as Firewise, Fire-Adapted Communities, and Ready-Set-Go, as well as WUI fuels treatment programs

Goal 4: Restore fire-adapted ecosystems

Strategy: Work with partners to restore native fire-adapted ecosystems to increase community protection, enhance firefighter safety, and improve habitat health.

Objectives

- Encourage land managers to reduce heavy understory fuels in woodlands (*Metrics*: # land managers reached, # of landowners implementing fuels reduction practices, # of acres treated). *Tactics:*
    - (See tactics listed under Goal 1, Objective 3)
- Encourage land managers to control non-native invasive plant species and to actively manage prolific and aggressive native species (*Metrics*: # land managers reached, # of landowners implementing control/management practices, # of acres treated). *Tactics:*
    - Educate land managers in plant identification and control measures
    - Use cost share programs to defray landowner costs
- Encourage land managers to use native plant species when restoring ecosystems (*Metrics*: # land managers reached, # land managers using native species). *Tactics:*
    - Educate land managers about the benefits of using native plant species
    - Help land managers locate and obtain appropriate native plant species
    - Safely incorporate prescribed fire into historically fire-adapted ecosystems, using trained personnel and standard operating procedures (*Metrics*: # acres treated safely). *Tactic:* Offer fire training

Goal 5: Enhance post-fire recovery
Strategy: Work with partners to quickly assess and stabilize burned lands to reduce erosion and protect property.
Objective

- Enable rapid assessments of burned lands and the implementation of stabilization techniques. (*Metrics*: # trainings offered, # acres stabilized). *Tactics:*
  - Provide training on burned area assessment
  - Provide financial assistance

Goal 6: Establish and implement a CWPP monitoring and evaluation process
Strategy: Strengthen CWPP effectiveness by working with stakeholders to evaluate progress and update regularly.
Objectives

- Annually evaluate progress in implementing the CWPP and recommend changes as needed. (*Metrics*: Checklist and framework created, # projects/activities implemented). *Tactic:*
  - Create a review checklist and framework for providing recommendations
- Conduct monitoring of selected projects and activities to assess progress and effectiveness (*Metrics*: Process established, # of projects/activities/acres monitored). *Tactic:*
  - Determine number of assessments needed and establish a process for choosing and evaluating them
- Improve grant eligibility (*Metric*: # of successful grant applications). *Tactic:*
  - Regularly review and update CWPP and other planning documents to ensure they reflect current activities and needs

Appendix C

Links to Other Planning Documents

Due to their large file sizes, these documents are available only online

1. Little Blue NRD and Lower Big Blue NRD HMP
   https://jeo.com/blues-hmp

2. Nebraska Forest Action Plan
   https://nfs.unl.edu/statewide-forest-action-plan

3. Nebraska Natural Legacy Project
   http://outdoornebraska.gov/http://outdoornebraska.gov/wp-content/uploads/2015/09/NebraskaNaturalLegacyProject2ndEdition.pdf

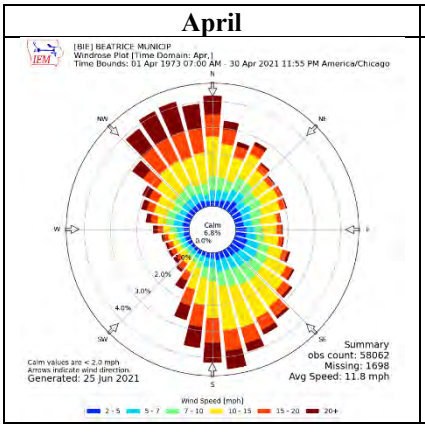
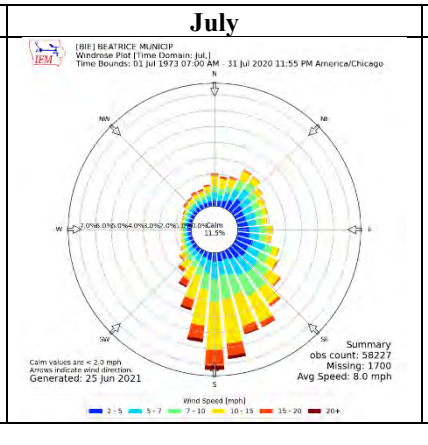
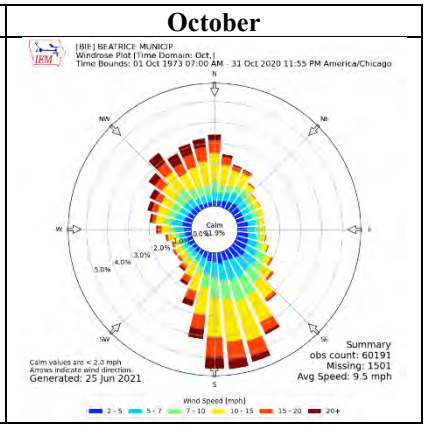
Appendix D

Wind Roses
For Selected Cities
in or near the South Central East CWPP Region

a. Beatrice
b. Hebron
c. Hastings
d. York

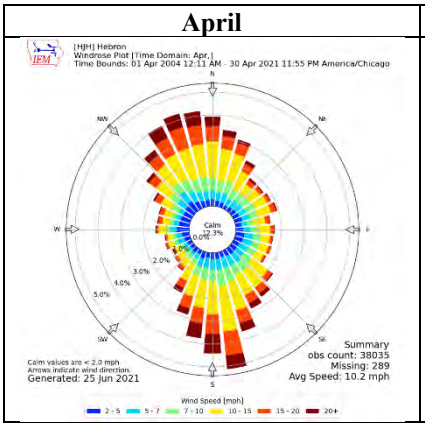
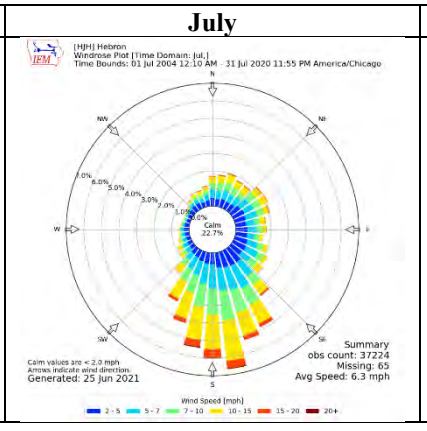
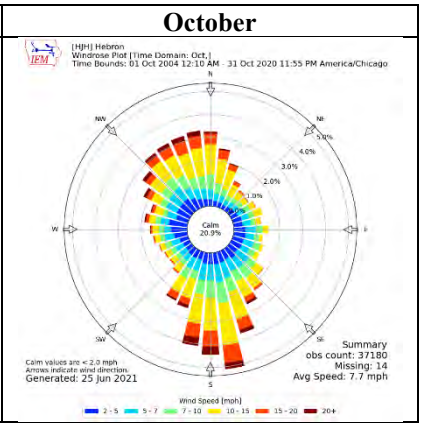
Beatrice, Nebraska

Wind Direction and Speed 1973-2021

April	July	October
		

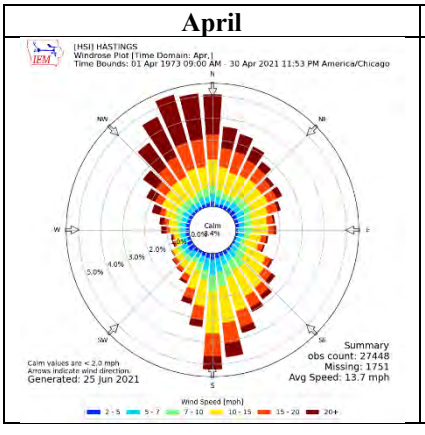
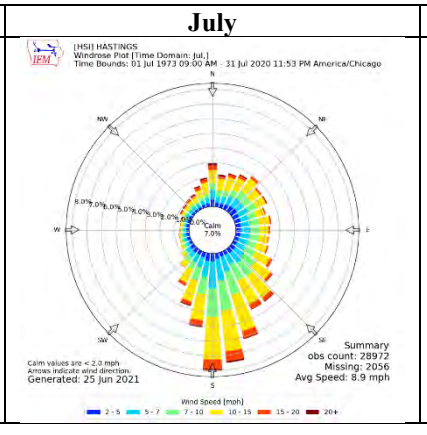
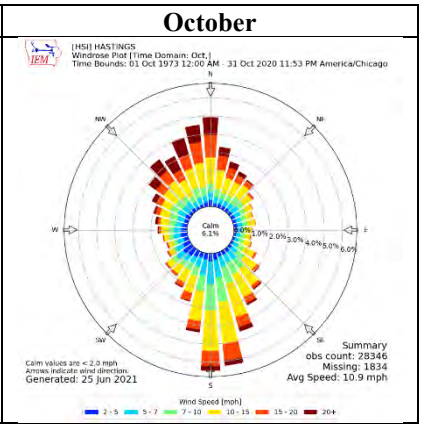
Hebron, Nebraska

Wind Direction and Speed 2004-2021

April	July	October
		

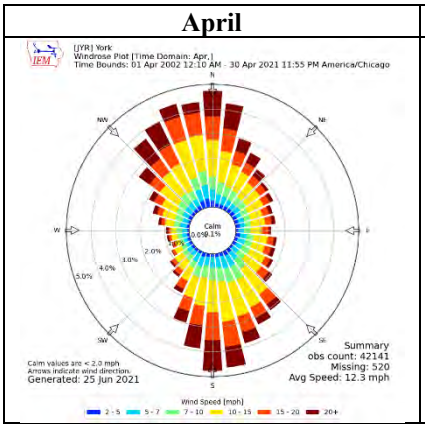
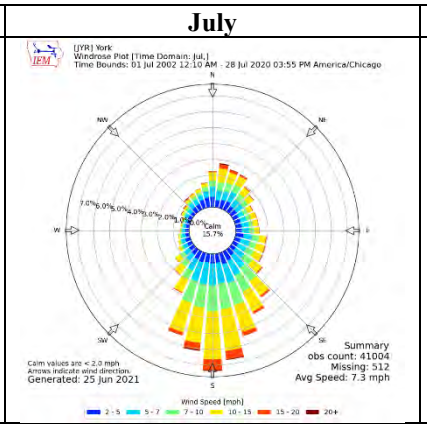
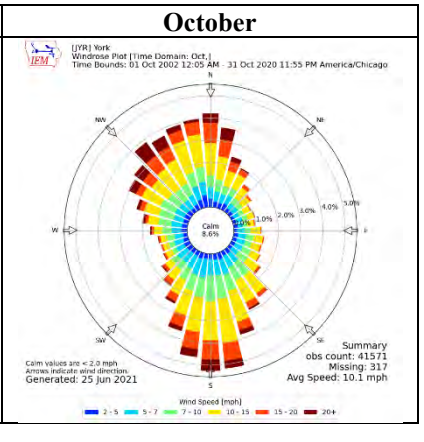
Hastings, Nebraska

Wind Direction and Speed 1973-2021

April	July	October
		

York, Nebraska

Wind Direction and Speed 2002-2021

April	July	October
		

Appendix E

Fuel Models for the South Central East CWPP Region

Due to its length, the full Appendix E appears only in the online version of this document:
https://nfs.unl.edu/documents/CWPP/SCECWPP.pdf

USDA United States Department of Agriculture

Forest Service

Rocky Mountain Research Station

General Technical Report RMRS-GTR-153

June 2005

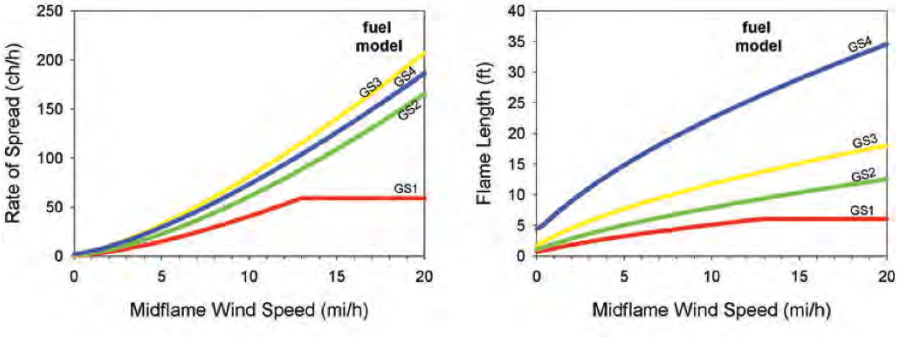
Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model

Joe H. Scott
Robert E. Burgan

Grass-Shrub Fuel Type Models (GS)

The primary carrier of fire in the GS fuel models is grass and shrubs combined; both components are important in determining fire behavior.

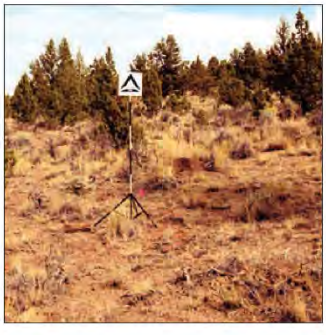
All GS fuel models are dynamic, meaning that their live herbaceous fuel load shifts from live to dead as a function of live herbaceous moisture content. The effect of live herbaceous moisture content on spread rate and intensity is strong and depends on the relative amount of grass and shrub load in the fuel model.



USDA Forest Service Gen. Tech. Rep. RMRS-GTR-153. 2005 35

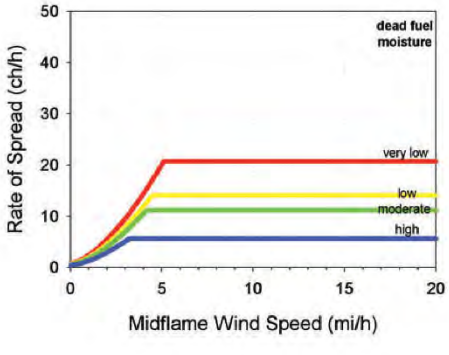
GR1 (101)

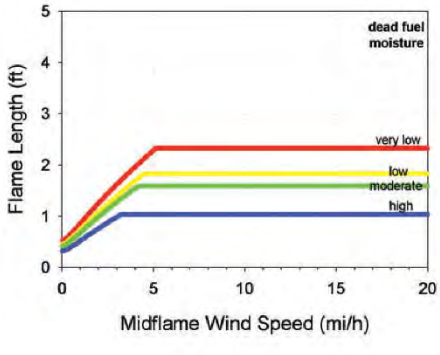
Short, Sparse Dry Climate Grass (Dynamic)



Description: The primary carrier of fire in GR1 is sparse grass, though small amounts of fine dead fuel may be present. The grass in GR1 is generally short, either naturally or by grazing, and may be sparse or discontinuous. The moisture of extinction of GR1 is indicative of a dry climate fuelbed, but GR1 may also be applied in high-extinction moisture fuelbeds because in both cases predicted spread rate and flame length are low compared to other GR models.

Fine fuel load (t/ac)	0.40
Characteristic SAV (ft-1)	2054
Packing ratio (dimensionless)	0.00143
Extinction moisture content (percent)	15





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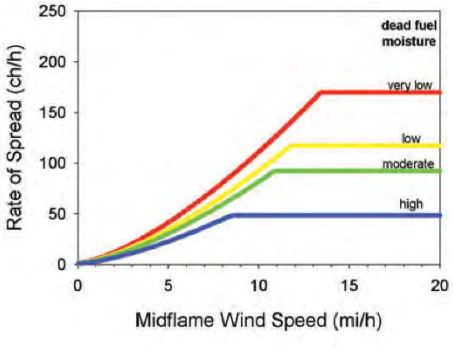
USDA Forest Service Gen. Tech. Rep. RMRS-GTR-153. 2005

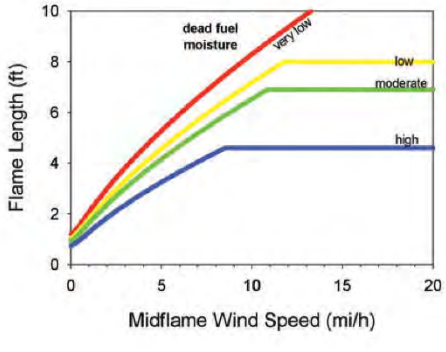
GR2 (102)

Low Load, Dry Climate Grass (Dynamic)

Description: The primary carrier of fire in GR2 is grass, though small amounts of fine dead fuel may be present. Load is greater than GR1, and fuelbed may be more continuous. Shrubs, if present, do not affect fire behavior.

Fine fuel load (t/ac)	1.10
Characteristic SAV (ft-1)	1820
Packing ratio (dimensionless)	0.00158
Extinction moisture content (percent)	15





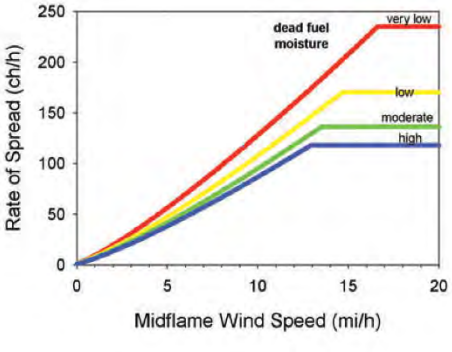
USDA Forest Service Gen. Tech. Rep. RMRS-GTR-153. 2005 27

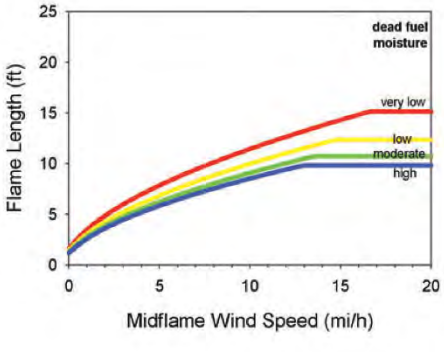
GR3 (103)

Low Load, Very Coarse, Humid Climate Grass (Dynamic)

Description: The primary carrier of fire in GR3 is continuous, coarse, humid-climate grass. Grass and herb fuel load is relatively light; fuelbed depth is about 2 feet. Shrubs are not present in significant quantity to affect fire behavior.

Fine fuel load (t/ac)	1.60
Characteristic SAV (ft-1)	1290
Packing ratio (dimensionless)	0.00143
Extinction moisture content (percent)	30





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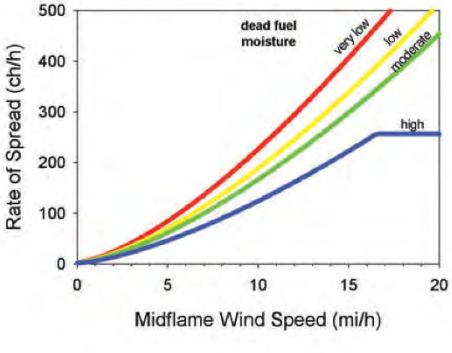
USDA Forest Service Gen. Tech. Rep. RMRS-GTR-153. 2005

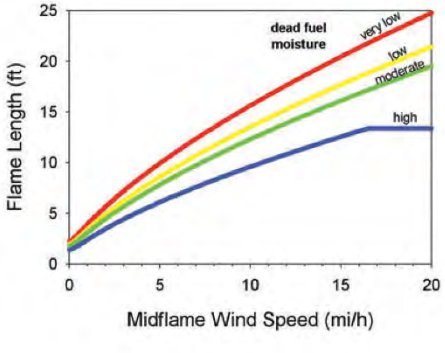
GR4 (104)

Moderate Load, Dry Climate Grass (Dynamic)

Description: The primary carrier of fire in GR4 is continuous, dry-climate grass. Load and depth are greater than GR2; fuelbed depth is about 2 feet.

Fine fuel load (t/ac)	2.15
Characteristic SAV (ft-1)	1826
Packing ratio (dimensionless)	0.00154
Extinction moisture content (percent)	15





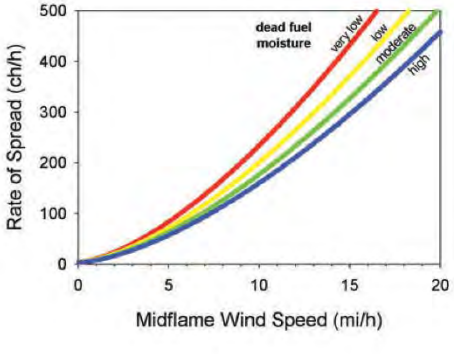
USDA Forest Service Gen. Tech. Rep. RMRS-GTR-153. 2005 29

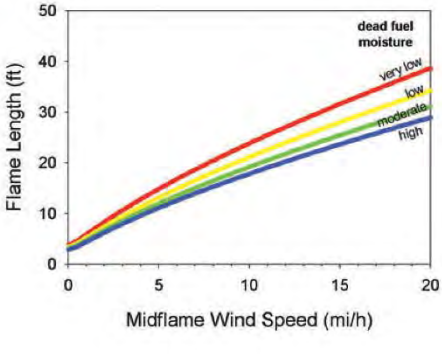
GR6 (106)

Moderate Load, Humid Climate Grass (Dynamic)

Description: The primary carrier of fire in GR6 is continuous humid-climate grass. Load is greater than GR5 but depth is about the same. Grass is less coarse than GR5.

Fine fuel load (t/ac)	3.5
Characteristic SAV (ft-1)	2006
Packing ratio (dimensionless)	0.00335
Extinction moisture content (percent)	40





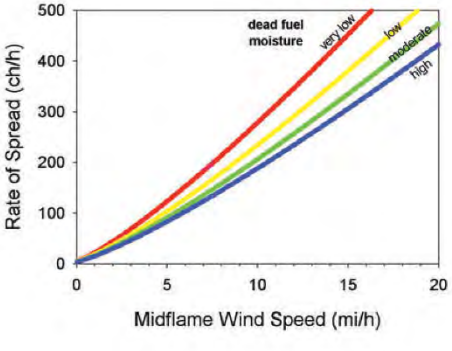
USDA Forest Service Gen. Tech. Rep. RMRS-GTR-153. 2005 31

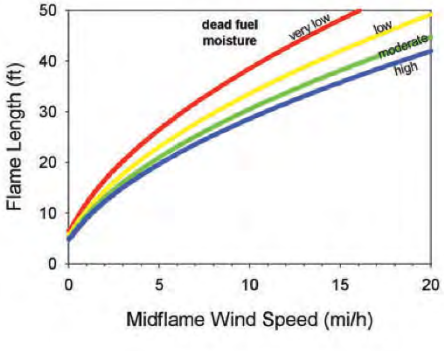
GR8 (108)

High Load, Very Coarse, Humid Climate Grass (Dynamic)

Description: The primary carrier of fire in GR8 is continuous, very coarse, humid-climate grass. Load and depth are greater than GR6. Spread rate and flame length can be extreme if grass is fully cured.

Fine fuel load (t/ac)	7.8
Characteristic SAV (ft-1)	1302
Packing ratio (dimensionless)	0.00316
Extinction moisture content (percent)	30

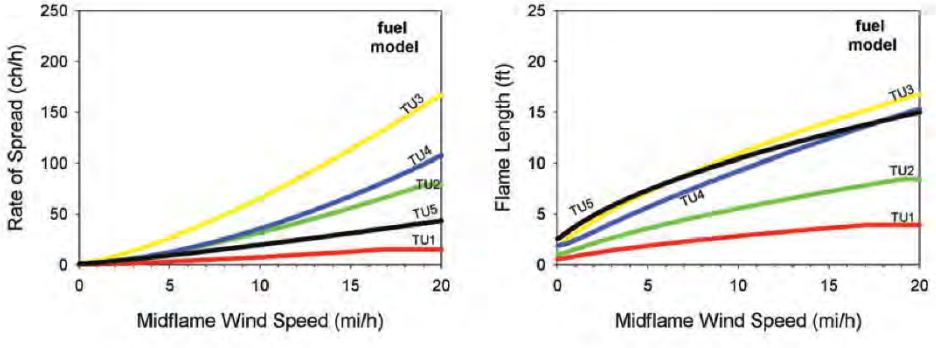




USDA Forest Service Gen. Tech. Rep. RMRS-GTR-153. 2005 33

Timber-Understory Fuel Type Models (TU)

The primary carrier of fire in the TU fuel models is forest litter in combination with herbaceous or shrub fuels. TU1 and TU3 contain live herbaceous load and are dynamic, meaning that their live herbaceous fuel load is allocated between live and dead as a function of live herbaceous moisture content. The effect of live herbaceous moisture content on spread rate and intensity is strong and depends on the relative amount of grass and shrub load in the fuel model.



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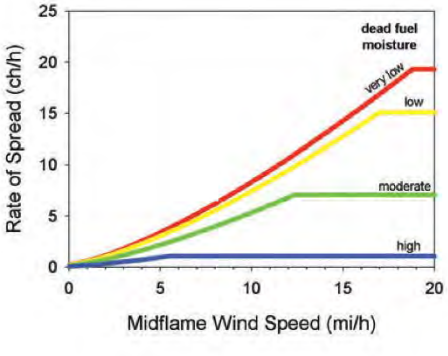
USDA Forest Service Gen. Tech. Rep. RMRS-GTR-153. 2005

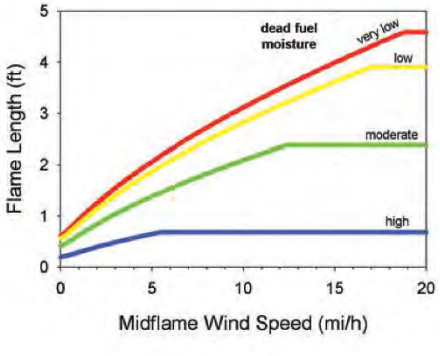
TU1 (161)

Low Load Dry Climate Timber-Grass-Shrub (Dynamic)

Description: The primary carrier of fire in TU1 is low load of grass and/or shrub with litter. Spread rate is low; flame length low.

Fine fuel load (t/ac)	1.3
Characteristic SAV (ft-1)	1606
Packing ratio (dimensionless)	0.00885
Extinction moisture content (percent)	20

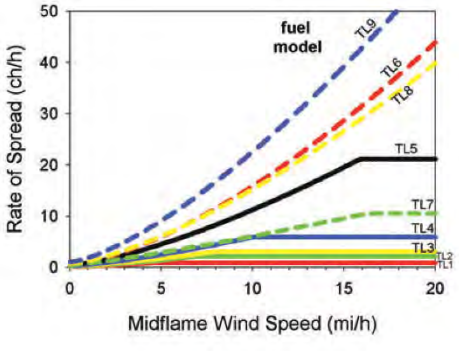


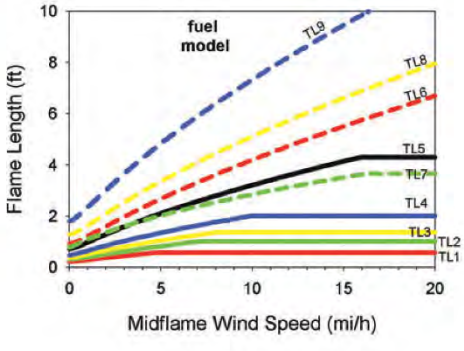


USDA Forest Service Gen. Tech. Rep. RMRS-GTR-153. 2005 51

Timber Litter Fuel Type Models (TL)

The primary carrier of fire in the TL fuel models is dead and down woody fuel. Live fuel, if present, has little effect on fire behavior.





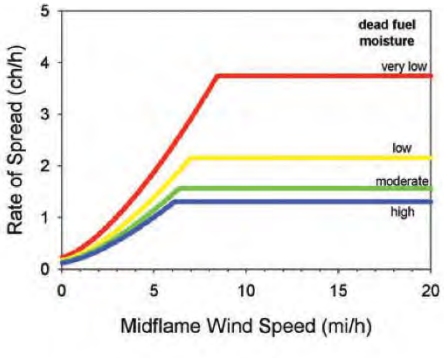
56 USDA Forest Service Gen. Tech. Rep. RMRS-GTR-153. 2005

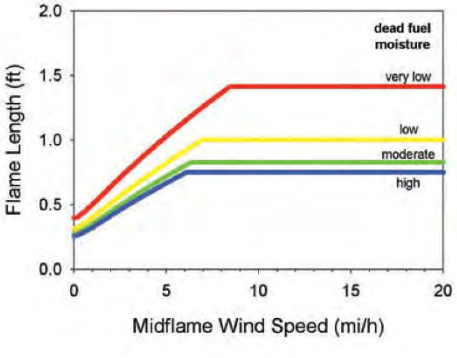
TL2 (182)

Low Load Broadleaf Litter

Description: The primary carrier of fire in TL2 is broadleaf (hardwood) litter. Low load, compact broadleaf litter. Spread rate is very low; flame length very low.

Fine fuel load (t/ac)	1.4
Characteristic SAV (ft-1)	1806
Packing ratio (dimensionless)	0.04232
Extinction moisture content (percent)	25





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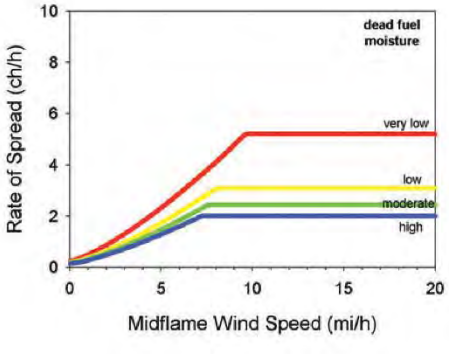
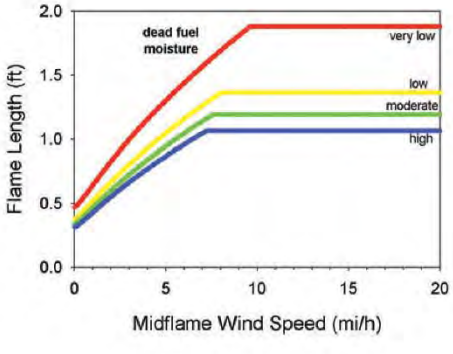
TL3 (183)

Moderate Load Conifer Litter

Description: The primary carrier of fire in TL3 is moderate load conifer litter, light load of coarse fuels. Spread rate is very low; flame length low.

Fine fuel load (t/ac)	0.50
Characteristic SAV (ft-1)	1532
Packing ratio (dimensionless)	0.02630
Extinction moisture content (percent)	20



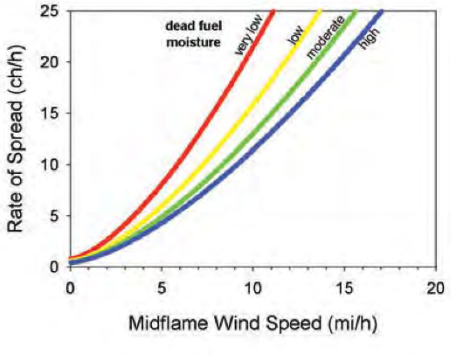


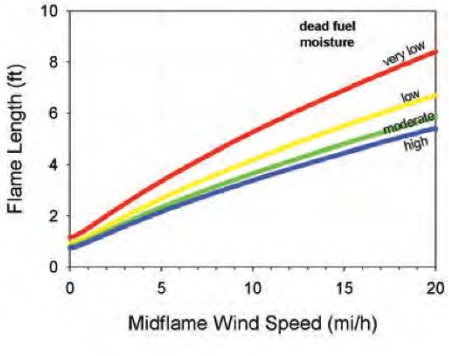
TL6 (186)

Moderate Load Broadleaf Litter

Description: The primary carrier of fire in TL6 is moderate load broadleaf litter, less compact than TL2. Spread rate is moderate; flame length low.

Fine fuel load (t/ac)	2.4
Characteristic SAV (ft-1)	1936
Packing ratio (dimensionless)	0.02296
Extinction moisture content (percent)	25





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USDA Forest Service Gen. Tech. Rep. RMRS-GTR-153. 2005

Appendix F

Nebraska Mutual Aid Associations

Nebraska Mutual Aid Associations

Updated 1/19/2022

3 & 33 MA
Adams Fire, Adams Rescue, Alexandria, Ambulance Dist. 33, Barneston, Beatrice, Beatrice RFD, Blue Springs, Clatonia Fire, Clatonia Rescue, Cortland, Dewitt, Daykin, Diller, Fairbury RFD, Filley, Hallam, Homestead Nat. Mon., Jansen, Odell, Pickrell, Plymouth, Public Health Solutions, Steele City, Swanton, Western, Wilbur, Wymore Fire & Rescue, Wymore Rural Fire, Wymore EMS, Gage Co. EMA, Saline Co. EMA, Jefferson Co. EMA, Beatrice Community Hospital, Jefferson Community Health & Life

40 - 12 MA
Bloomfield, Brunswick, Creighton, Crofton, Magnet, Neligh, Niobrara, Orchard, Osmond, Page, Pierce, Plainview, Santee, Verdigre, Wausa

Big 8 MA
Bellwood, Columbus, David City, Duncan, Osceola, Rising City, Shelby, Stromsburg

Big 9 MA
Belden, Carroll, Coleridge, Concord, Crofton, Dixon, Fordyce, Hartington, Laurel, Magnet, Newcastle, Randolph, Wynot, Wausa

Boyd/Holt Counties MA
Atkinson, Bartlett, Bristow, Butte, Chambers, Ewing, Lynch, Naper, O'Neill, Page, Spencer, Stuart

Buffalo County MA
Amherst, Elm Creek, Gibbon, Kearney, Miller, Pleasanton, Ravenna, Shelton, Buffalo Co. Sheriff's Dept., Kearney Police Dept., Buffalo County EM, Good Samaritan Hospital EMS

Burt County MA
Craig, Decatur, Lyons, Oakland, Tekamah

Butler Co. MA
Abie, Bellwood, Brainerd, Bruno, David City, Dwight, Linwood, Rising City, Ulysses

Cass Co. MA
Alvo, Ashland, Avoca, Cedar Creek, Eagle, Elmwood, Greenwood, Louisville, Murdock, Murray, Nehawka, Plattsmouth, Union, Weeping Water

Central Nebraska MA
Ansley, Eddyville, Mason City, Miller, Oconto, Sumner

Central Nebraska Volunteer Fire Association MA
Alma, Amherst, Arapahoe, Axtell, Bertrand, Elm Creek, Franklin, Funk, Gibbon, Hildreth, Holdrege, Kearney, Loomis, Miller, Minden, Naponee, Orleans, Overton, Oxford, Red Cloud, Republican City, Stamford, Upland, Wilcox

Central Panhandle MA
Alliance, Banner Co., Bayard, Bridgeport, Broadwater, Dalton, Gurley, Heart of the Hills, Lisco/Garden Co., Oshkosh/Garden Co., Rackett, USFWS NP Refuge

Cherry County MA
Ainsworth, Barley RFD, Cody, Colome SD, Kilgore, Merriman, Mid-Cherry RFD, Mission SD, Mullen, St. Francis SD, Thedford, US Fish and Wildlife, US Forest Service, Valentine, White River SD, Wood Lake

Colfax County MA
Clarkson, Howells, Leigh, Schuyler

Cuming County MA
Bancroft, Beemer, Pilger, West Point, Wisner

Custer County MA
Anselmo, Ansley, Arnold, Broken Bow, Callaway, Comstock, Mason City, Merna, Oconto, Sargent

Dodge County MA
Dodge, Fremont, Fremont Rural, Hooper, Nickerson, North Bend, Scribner, Snyder, Uehling

Elkhorn Valley MA
Battle Creek, Carroll, Hadar, Hoskins, Madison, Meadow Grove, Norfolk, Pierce, Stanton, Wayne, Winside

Fillmore County MA
Bruning, Exeter, Fairmont, Geneva, Grafton, McCool Junction, Milligan, Ohiowa, Shickley, Sutton

Frenchman Valley MA
Bartley, Beaver Valley (Danbury & Lebanon), Benkelman, Culbertson, Curtis, Haigler, Hayes Center, Imperial, Indianola, Lamar, Maywood/Wellfleet, McCook, Palisade, Red Willow Western, Stratton, Trenton, Wallace, Wauneta

Hamilton County MA
Aurora, Giltner, Hampton, Hordville, Marquette, Phillips, Hamilton County EMS

Hastings Area MA
Ayr (Hastings RFD), Bladen, Blue Hill, Campbell, Central Community College, Edgar, Fairfield, Glenville, Harvard, Hastings, Hastings CD, Holstein, Juniata, Kenesaw, Lawrence, Hruska MARC, Roseland, Trumbull

KBR&C MA
Ainsworth, Bassett, Calamus, Johnstown, Long Pine, Newport, Raven, Springview, Wood Lake

Lancaster County MA
Alvo, Ashland, Bennet, Ceresco, Clatonia, Cortland, Crete, Douglas, Eagle, Firth, Greenwood, Hallam, Hickman, Lincoln, Malcolm, NE Air Guard, Palmyra, Pleasant Dale, Raymond, Rural Metro, Southeast RFD, Southwest RFD, Valparaiso, Waverly

Loup Platte MA
Arcadia, Ashton, Litchfield, Loup City, Ravenna, Rockville

Loup Platte #2 MA
Central City, Chapman, Clarks, Fullerton, Hordville, Marquette, Osceola, Palmer, Polk, Shelby, Silver Creek, Stromsburg

Loup Valley MA
Arcadia, Bartlett, Burwell, Elba, Ericson, Greeley, North Loup, Ord, Primrose, Scotia, Spalding, Wolbach

Mid-Nebraska MA
Albion, Belgrade, Cedar Rapids, Columbus, Columbus RFD, Creston, Duncan, Fullerton, Genoa, Humphrey, Leigh, Lindsay, Madison, Monroe, Newman Grove, Platte Center, Silver Creek, St. Edward

Mid Plains MA
Arnold, Brady, Curtis, Hershey, Maywood, Maxwell, North Platte, Stapleton, Sutherland, Tyron, Wallace, Wellfleet

Nemaha County MA
Brock FD, Brownville FD / Rescue, Johnson FD, Julian FD, Nemaha FD / Rescue, Peru FD / Rescue, Nemaha County Emergency Management, Cooper Nuclear Station, Auburn Police Dept., Nemaha County Sheriff's Office

Northeast MA
Allen, Bancroft, Concord, Dakota City, Dixon, Emerson, Homer, Martinsburg, Newcastle, Pender, Ponca, Rosalie, South Sioux City, Thurston, Wakefield, Walthill, Wayne, Winnebago

Northeast Fireman's Association
Antelope Co., Burt Co., Butler Co., Cedar Co., Colfax Co., Cuming Co., Dakota Co., Dixon Co., Dodge Co., Douglas Co., Knox Co., Madison Co., Pierce Co., Platte Co., Stanton Co., Sarpy Co., Thurston Co., Washington Co., Wayne Co., Saunders Co.

Otoe County MA
Burr, Cook, Douglas, Dunbar, Nebraska City, Otoe, Palmyra, Syracuse, Talmage, Unadilla

Phelps County MA: Bertrand, Funk, Holdrege, Holdrege RFD, Loomis

Pine Ridge MA
Alliance, Ardmore SD, Chadron, Crawford, Gordon, Harrison, Hay Springs, Hemingford, Merriman, Rushville, US Forest Service

Platte Valley MA (was GI Area MA)
Alda, Cairo, Chapman, Doniphan, Grand Island, Grand Island SFD, Phillips, Wood River

Quad Cities MA (includes former Franklin Co. MA)
Alma, Axtell, Bloomington, Campbell, Franklin, Hildreth, Minden, Naponee, Republican City, Riverton, Upland, Wilcox, Kearney County EMA

Richardson County MA
Dawson, Falls City, Falls City RFD, Humboldt, Rulo, Salem, Shubert, Stella, Verdon

Saline County MA
Crete, DeWitt, Dorchester, Friend, Swanton, Tobias, Western, Wilbur, Saline County Sheriff, Saline County Emergency Management

Sandhills MA
Anselmo, Arnold, Arthur, Brewster, Dunning, Halsey, Hyannis, Keystone-Lemoyne, McPherson Co., Mid-Cherry, Mullen, Purdum, Stapleton, Thedford, US Fish & Wildlife, US Forest Service

Saunders County MA
Ashland, Cedar Bluffs, Ceresco, Colon, Ithaca, Malmo, Mead, Morse Bluff, Prague, Valparaiso, Wahoo, Weston, Yutan

Scotts Bluff County MA
Banner Co., Gering/Gering Rural, Lyman/Kiowa, McGrew, Minatare-Melbeta, Mitchell, Morrill (includes former Henry VFD), Scottsbluff, Scottsbluff RFD, Western Nebraska Regional Airport Fire Dept., Torrington WY, US Fish & Wildlife Service, Scotts Bluff County Communications Center, Region 22 Emergency Management, Hemingford VFD (Box Butte Co.), Bayard VFD (Morrill Co.)

Seward County MA
Beaver Crossing, Bee, Cordova, Garland, Goehner, Milford, Pleasant Dale, Seward, Staplehurst, Tamora, Utica

South Central Nebraska MA
Brady, Cozad, Curtis, Elwood, Eustis, Farnam, Gothenburg, Johnson Lake EMS, Lexington, Overton

South Central #2 MA
Clay Center, Davenport, Edgar, Fairfield, Glenvil, Hardy, Lawrence, Nelson, Ong, Ruskin, Shickley, Superior, Sutton, Clay County EM

Southeast MA
Adams, Burchard, Cook, Du Bois, Elk Creek, Johnson, Pawnee City, Steinauer, Sterling, Summerfield (KS), Table Rock, Tecumseh

Southwest MA
Arthur, Big Springs, Blue Creek, Brule, Chappell, Elsie, Grant, Imperial, Keystone-Lemoyne, Lamar, Lisco, Madrid, Ogallala, Oshkosh, Paxton, Sutherland, Venango, Wallace

Stateline MA
Bladen, Blue Hill, Campbell, Guide Rock, Lawrence, Red Cloud, Riverton, Superior

Thayer County MA
Alexandria, Belvidere, Bruning, Byron, Carlton, Chester, Davenport, Deshler, Eustis, Gilead, Hebron, Hubbell

Tri-Mutual Aid
Arlington, Bellevue, Bennington, Blair, Boys Town, Carter Lake, Cedar Bluffs, Elkhorn, Eppley Airport, Fremont, Ft. Calhoun, Gretna, Irvington, Kennard, LaVista, Louisville, Millard, Offutt AFB, Omaha FD, Papillion, Plattsmouth, Ponca Hills, Ralston, Springfield, Valley, Waterloo, Yutan

Tri-Valley MA
Arapahoe, Bartley, Beaver City, Cambridge, Edison, Holbrook, Oxford, Stamford, Wilsonville

Twin Loups MA
Ashton, Boelus, Dannebrog, Elba, Farwell, Rockville, St. Libory, St. Paul

Washington County MA
Arlington, Blair, Ft. Calhoun, Herman, Kennard

York County MA
Benedict, Bradshaw, Gresham, Henderson, McCool Junction, Waco, York

Appendix G

Fire Department Equipment and Contact Information for the South Central East CWPP Region

This section includes Annex F from county Local Emergency Operations Plans plus additional information from the departments that responded to the CWPP questionnaire
Due to its length, the full Appendix G appears only in the online version of this document, which may be accessed at:

https://nfs.unl.edu/documents/CWPP/SCECWPP.pdf

Adams County

Information from Adams Co. LEOP, Annex F:

FIRE SERVICES

HASTINGS FIRE AND RESCUE DEPARTMENT

HASTINGS RURAL FIRE DEPARTMET

KENESAW FIRE DEPARTMENT

JUNIATA FIRE DEPARTMENT

HOLSTEIN FIRE DEPARTMENT

ROSELAND FIRE DEPARTMENT

HASTINGS AREA MUTUAL AID ASSOCIATION

STATE SUPPORT:
Emergency Support Functions
4, 5, 10,
Fire Suppression,
Emergency Management,
Environmental Quality

Lead Agencies:
State Fire Marshal,
Nebraska Emergency Management Agency,
Dept. of Environmental Quality

ADAMS COUNTY FIRE RESOURCES

(List numbers of equipment)

FIRE DEPARTMENT	PHONE	AERIAL	PUMPER	TANKER	PUMPER/ TANKER	GRASS-WEED TRUCK	UTILITY TRUCK	RESCUE UNITS	KINDS/TYPES/ SPECIAL-TEAMS	KINDS/TYPES SPECIAL EQUIPMENT	RADIO-LOGICAL EQUIPMENT Yes / No
Hastings Fire and Rescue	402-461-2350	2	2	0	0	0	2	1	SERT, RIT, High Angle	HazMat, Lights, Jaws, Cascade	Yes
Hastings Rural	402-461-2350	0	0	1	3	2	0	0	Lights		Yes
Holstein	402-756-5678	0	2	1	0	2	0	0	RIT	Jaws, Lights, Cascade	Yes
Roseland		0	2	1	0	2	0	0	RIT		Yes
Juniata	402-751-2258	0	2	0	1	1	0	0	RIT	Jaws, Lights, Cascade, Generator	Yes
Kenesaw	402-752-3500	0	2	1	1	1	0	0	RIT	Jaws	Yes
Nearest HAZMAT Response Team											

Survey Responses from Adams County Fire Departments

Volunteer fire districts all or partly within Adams County include Blue Hill, Glenvil, Hastings Rural, Holstein, Juniata, Kennesaw, Lawrence, Roseland, and Trumbull. Hastings Fire and Rescue (municipal department) is the only paid fire department in the county. The following departments returned the survey:

Department Name: Hastings Fire & Rescue (paid department)
Counties: Adams
Street/Mailing Address: 1313 N Hastings Ave., Hastings, NE 68901
Dept. Phone: 402-461-2350 **Dept. Email**: bstarling@hastingsfire.org
Chief: Brad Starling; 402-984-0567, 402-461-2351; bstarling@hastingsfire.org
Ass't. Chief: Troy Vorderstrasse; 402-902-2607, 402-461-7154; tvorderstrasse@hastingsfire.org
Secretary: Becky Harpham; 402-461-2350
Treasurer: n/a

Personnel

0	**Vol.**:
5	**PT**:
31	**FT**:

MAD(s): Hastings Area Mutual Aid

Equipment

Engines

3	Type 1	Structural: 1,000 GPM, 300 gal. capacity, four crew members
2	Type 6:	Wildland: 50 GPM, 150 gal. capacity, two crew members

Other

1	Equipment trucks

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes
Locations1 and 2: T7N R9W Sec. 5, 1200-1500 blocks of N 7th Ave. and T7N R9W Sec. 17, 1300 East C St.
Issues:

x	Multiple structures
x	1 way in/out

Bridges that won't support equipment weight: No

GIS layer & contact info: Lindsey Stone, 402-461-2332, lstone@cityofhastings.org

Greatest concerns: Homes near city limits have less defensible space. Education of elderly. Air quality. Shutting down rail line.

Rank:

1	**Housing**
2	**Infrastructure**
5	**Bridge limits**
4	**Hydrants**
3	**Other water sources**

Comments: We don't have a large threat directly in town but we do have readily available and trained resources to provide assistance.

Department Name: Hastings Rural Fire Dept.
Counties: Adams & Clay

Street/Mailing Address: 2985 S Baltimore Ave., Hastings, NE 68901
Dept. Phone: 402-984-5907 **Dept. Email**: hastingsruralvfd@gmail.com
Chief: Nathan Hamik; 402-984-5907; nathanh300@gmail.com
Ass't. Chief: Joseph Pittz; 402-984-4529; jpitt450@gmail.com
Secretary: Amy Santos; 402-469-4646
Treasurer: Kaedra Schleeman, 402-705-3151

Personnel
30 **Vol.**:

MAD(s): Hastings Area Mutual Aid District

Equipment
Engines
3 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
1 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members
2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member
Other
1 Equipment trucks

Equipment housed away from main barn? Yes. 1 Type 2 engine and 1 Type 6 are housed at our Ayr station (St. 11)

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?
Yes
Location1: Pauline, Nebraska and southeast area of district
Issues:
x Lack of water within effective distance
x Other: Travel distance to areas

Location2: Pillen Farms, East Hwy 6 & Rd. D to Rd. H
Issues:
x Heavy fuels
x Lack of water within effective distance
x Other: Distance to travel

GIS layer & contact info: No

Greatest concerns: Having ample water and equipment

Rank:
x **Other water sources**

Department Name: Juniata Rural
Counties: Adams
Street Address: 1202 Juniata Ave. **Mailing Address**: PO Box 95, Juniata, NE 68955
Chief: Ed Consbruck; 402-984-3876; esconsbruck@windstream.net
Ass't. Chief: Mark Renschler; 402-469-3539
Sec/Treas.: Arlene Karr; 402-984-3907

Personnel
15 **Vol.**:

MAD(s): Hastings Area MA

Equipment

Engines

E80 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
B80 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members
P80 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
B80 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members
Other
S81 Equipment trucks

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No
Location: No location listed but the following issue was checked:
Issues:
Heavy fuels

Bridges that won't support equipment weight: Yes, county bridges

Greatest concerns: (none listed)

Rank:
4 **Housing**
5 **Infrastructure**
2 **Bridge limits**
1 **Hydrants**
3 **Other water sources**

Department Name: Kenesaw Vol. Fire Dept.
Counties: Adams & Kearney
Street Address: 115 E Maple **Mailing Address**: PO Box 87, Kenesaw, NE 68956
Chief: Brandon Bockstadter; 402-469-2119; bockstadter@hotmail.com
Ass't. Chief: J. L. Pulver; 402-461-9893; jrptruck@gmail.com
Secretary: Robin Stade; 402-461-1848
Treasurer: Brent Parker; 402-984-4092

Personnel
35 **Vol.**:

MAD(s): Hastings MA

Equipment

Engines

1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
1 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members
1 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member
Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes
Location1:T8N R12W Sec. 6
Issues:
Heavy fuels

Location2: The part of the fire district in Kearney County west of S24-8-12
Issues:
Heavy fuels

Bridges that won't support equipment weight: No

GIS layer & contact info: No

Greatest concerns: In the northwest part of our district, getting the fire stopped before it reaches the river.

Rank:
4 **Housing**
3 **Infrastructure**
3 **Bridge limits**
1 **Hydrants**
4 **Other water sources**

Department Name: Roseland Vol. Fire. Dept.
Counties: Adams
Street Address: 9300 S Meade **Mailing Address**: PO Box 26, Hastings, NE 68901
Chief: Cory Parr; 402-469-0469 **Ass't. Chief**: Brad Hemberger; 402-460-0539
Secretary: Derrick Urmacher; 402-984-3440 **Treasurer**: Adam Sidlo; 402-984-1629

Personnel
29 **Vol.**:
MAD(s): Hastings
Other MA agreements: None

Equipment
Engines
4 Type 1 Structural: 1,000 GPM, ~~300~~ 1,000 gal. capacity, ~~four~~ 2 crew members
5 Type 2 Structural: ~~500~~ 1,000 GPM, ~~300~~ 1,000 gal. capacity, ~~three~~ 2 crew members
6 Type 4: Wildland: ~~50~~ 500 GPM, ~~750~~ 1,000 gal. capacity, two crew members
2 Type 5: Wildland: 50 GPM, ~~400~~ 250 gal. capacity, two crew members
1 Type 6: Wildland: 50 GPM, ~~150~~ 275 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
3 S-2 (support): ~~200~~ 150 GPM pump, ~~2,500~~ 3,000 gallon capacity, 1 crew member

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?
No
Location: No location specified, but the following issue was checked:
Issues:
x Rough terrain

Bridges that won't support equipment weight: No
Greatest concerns: Rough terrain

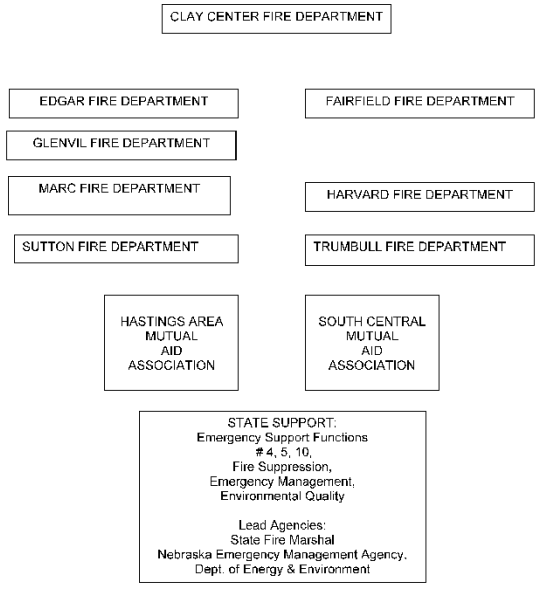
Rank:
1 **Housing**
2 **Infrastructure**
3 **Bridge limits**
4 **Hydrants**
5 **Other water sources**

Department Name: Trumbull: (*See listing under Clay County*)

Clay County

Information from Clay Co. LEOP, Annex F:

FIRE SERVICES



CLAY COUNTY FIRE RESOURCES

FIRE DEPARTMENT	PHONE	AERIAL	PUMPER	TANKER	PUMPER/ TANKER	GRASS-WILDLAND TRUCK	UTILITY TRUCK	RESCUE UNITS	KINDS/TYPES/ SPECIAL-TEAMS	KINDS/TYPES SPECIAL EQUIPMENT	RADIO-LOGICAL EQUIPMENT Yes / No
CLAY CENTER	762-3432	0	2	2	0	2	1	2		JAWS GRIAN TUBE	YES
EDGAR	224-3005	0	3	2	1	3	1	2		JAWS HEAVY RESCUE MASS CAUSUALITY GRAIN TUBE	YES
FAIRFIELD	756-2540	0	2	2		1	1	1		JAWS	YES
GLENVIL	771-2242	0	1	2		2	0	1		JAWS HAZMAT	YES
HARVARD	772-555	0	2	3	0	1	1	2		JAWS AIR FOAM	YES
SUTTON	773-4598	1	1	2	2	2	1	2		JAWS HAZMAT ROPE RESCUE HEAVY RESCUE	YES
TRUMBULL	743-2200	0	1	1	0	1	1	0		JAWS HEAVY RESCIE	YES
DEWEESE			1			1					NO

NOTE: ALL DEPARATMENTS EXCEPT DEWEESE HAVE CASCADE SYSTEMS. ALL BUT DEWEESE AND TRUMBELL HAVE GENERATORS.

South Central East Community Wildfire Protection Plan

Survey Responses from Clay County Fire Departments:

Volunteer fire districts all or partly within Clay County include Clay Center, Edgar/Ong, Fairfield, Glenvil, Harvard, Hastings Rural, Sutton, and Trumbull. The US/UNL Meat Animal Research Center (US MARC) has its own part-time, paid fire department. The following departments returned the survey:

Department Name: Edgar/Ong VFD
Counties: Clay & Nuckolls
Street Address: 105 5th St. **Mailing Address**: PO Box 422, Edgar, NE 68935 **Dept. Email**: edgar.nefiredept@gmail.com
Chief: Chris Tripe; 402-224-0315; christripe@yahoo.com
Ass't. Chief: Brian Floth; 402-239-4230; bwfloth@yahoo.com
Sec/Treas.: Emily Batterman; 402-224-0144; ebatterman18@gmail.com

Personnel
25 **Vol.**:

MAD(s): South Central Mutual Aid and Hastings Area Mutual Aid

Equipment
Engines
1 Type 1 Structural: ~~1,000~~ 1,250 GPM, ~~300~~ 1,000 gal. capacity, four crew members
1 Type 2 Structural: ~~500~~ 1,000 GPM, ~~300~~ 1,000 gal. capacity, ~~three~~ four crew members
3 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 T-2 (tactical): 250 GPM pump, ~~1,000~~ 750 gallon capacity, 2 crew members, 6x6
Other
2 Equipment trucks: both 3,000 gal. with 300 GPM pumps
1 Other (Describe): Rescue truck
Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes
Location1: Little Blue River, Nuckolls County, in part of our district
Issues:
x Multiple structures
x Rough terrain
x Other:
Location2: Village of Ong in Logan Township
Issues:
x Multiple structures
x Rough terrain
x Heavy fuels
x Other: Approx. 30 uninhabited houses with very tall weeds & grass around the complete town.

Bridges that won't support equipment weight: No
GIS layer & contact info: Tim Lewis, Clay Co. EM, 402-224-0199, tim.lewis@claycountynebraska.org
Greatest concerns: Reaching farm structures out of the city limits

Rank:
2 **Housing**
1 **Infrastructure**
5 **Bridge limits**
3 **Hydrants**
4 **Other water sources**

Comments: Our department works very well with both mutual aid groups that we belong to. We just need more members.

Department Name: Fairfield Fire & Rescue
Counties: Clay, Nuckolls
Street Address: 503 North D St. **Mailing Address**: PO Box 128, Fairfield, NE 68938
Chief: Robert Breckner; 402-705-1690; rbreckner@hgl.com
Ass't. Chief: Caleb Schlick; 402-469-6270; cschlick@live.com
Secretary: Carrie Squires; 402-726-2492; bcsquires1180@gmail.com
Treasurer: Cheryl Brockman; 402-224-1365; deweesebrockman@yahoo.com

Personnel
22 **Vol.**:

MAD(s): Hastings

Equipment
Engines
1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
1 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members
2 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member

Equipment housed away from main barn? Yes; we have a station in Deweese, Nebraska

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?
No

Bridges that won't support equipment weight: Yes (locations not specified)

Greatest concerns: Water supply

Rank:
2 **Housing**
3 **Infrastructure**
5 **Bridge limits**
4 **Hydrants**
1 **Other water sources**

Department Name: Hastings Rural Fire Dept.: (*See listing under Adams County*)

Department Name: Sutton Vol. Fire
Counties: Clay, Fillmore
Street Address: 107 E Forest, Sutton, NE 68979
Dept. Phone: 402-773-4598
Chief: Tracey Landenburger; 402-762-5147, 402-773-5545; tld44@hotmail.com
Ass't. Chief: Brandon Scheidemann; 402-984-7346
Sec/Treas.: Jessie Hoffmann; 402-984-5111

Personnel
24 **Vol.**:
MAD(s): Hastings Area MA
Other MA agreements: Fillmore, Henderson, Grafton

Equipment
Engines
2 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
1 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
1 Type 7: Wildland: 10 GPM, 50 gal. capacity, ~~two~~ four crew members UTV

Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members
2 T-2 (tactical): 250 GPM pump, ~~1,000~~ 1,200 gallon capacity, ~~2~~ 3 crew members
Other
1 Equipment trucks: 102' platform aerial/equipment truck
1 Other (Describe): 4-man equipment truck-quick attack
Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No

Bridges that won't support equipment weight: No
GIS layer & contact info: Jeff Hofaker, 402-773-4225

Greatest concerns: (none listed)

Rank:
x **Housing**

Department Name: Trumbull Rural Volunteer Fire Department
Counties: Clay, Adams, Hamilton, Hall
Street Address: (left blank)
Mailing Address: PO Box 86, Trumbull, NE 68980
Dept. Phone: 402-743-2311
Dept. Email: trumbullvfd@gmail.com
Chief: Jovey Olena; 402-460-7398; 402-461-9781; joveyntrista@yahoo.com
Ass't. Chief: Joel Olena; 402-460-9841
Sec/Treas.: Mandy Wright; 402-743-2496, 308-379-4892; theconstructionman@yahoo.com

Personnel
12 **Vol.**:

MAD(s): Hastings Area MA
Other MA agreements: Hastings Rural and Giltner Fire Depts.

Equipment
Engines
1 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 S-1 (support): 300 GPM pump, 4,000 gallon capacity, 1 crew member
Other
1 Equipment trucks
2 Other (Describe): 1 tanker truck and 1 squad
Road Dept. Equip. (describe):

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No
Location: They left this blank, but checked the following issues
Issues:
x Difficult access
x Rough terrain
x 1 way in/out
x Lack of water within effective distance
x Other: Field fires having truck capable of going in field

Bridges that won't support equipment weight: No
GIS layer & contact info: No

Greatest concerns: N/A

Rank:
5 **Housing**
4 **Infrastructure**
3 **Bridge limits**
2 **Hydrants**
1 **Other water sources**

Department Name: US MARC (paid department)
Counties: Clay
Street/Mailing Address: 844 Rd. 313, Clay Center, NE 68933
Dept. Phone: 402-726-5030 **Dept. Email**: erik.meyer@usda.gov
Chief: Erik Meyer; 402-726-5030; erik.meyer@usda.gov
Ass't. Chief: Dennis Fike; 402-469-6865; mfike3@unl.edu

Personnel
16 **PT**:

MAD(s): Hastings Area Mutual Aid

Equipment
Engines
1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
3 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
Other
2 Other (Describe): 1 UTV, 1 command pickup
3 Road Dept. Equip. (describe): 2 loaders, 1 dozer

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?
Yes
Location: Main building complex
Issues:
x Multiple structures
x Heavy fuels

Bridges that won't support equipment weight: No
GIS layer & contact info: No
Greatest concerns: Large fuel mass for many miles

Rank:
x **Other water sources**

Fillmore County

Information from Fillmore Co. LEOP, Annex F:

FIRE SERVICES

EXETER FIRE DEPARTMENT

FAIRMONT FIRE DEPARTMENT

GENEVA FIRE DEPARTMENT

GRAFTON FIRE DEPARTMENT

MILLIGAN FIRE DEPARTMENT

OHIOWA FIRE DEPARTMENT

SHICKLEY FIRE DEPARTMENT

FILLMORE COUNTY MUTUAL AID ASSOCIATION

STATE SUPPORT:
Emergency Support Functions
4, 5, 10,
Fire Suppression,
Emergency Management,
Environmental Quality

Lead Agencies:
State Fire Marshal
,
Nebraska Emergency Management Agency,

FILLMORE COUNTY FIRE RESOURCES

FIRE DEPARTMENT	PHONE	AERIAL	PUMPER 30	Tender 40	PUMPER/ 30 TANKER	GRASS-WEED 20/21 TRUCK	UTILITY TRUCK	RESCUE 10 UNITS	KINDS/TYPES/ SPECIAL-TEAMS	KINDS/TYPES SPECIAL EQUIPMENT	RADIO-LOGICAL EQUIPMENT Yes / No
Exeter Fire	911	0	1	1	1	1	0	BLS		1 Jaws	Yes
Fairmont Fire	911	0	2	2	0	1	0	BLS		2 Jaws 1 Thermo Imaging Camera 1 Grain Rescue Tube	Yes
Geneva Fire	911	0	2	2	0	2	1	BLS		2 Jaws 1 Thermo Imaging Camera	Yes
Grafton Fire	911	0	1	2	1	1	0	BLS		2 Jaws	Yes
Milligan Fire	911	0	1	2	0	1	1	BLS		1 Jaws	Yes
Ohiowa Fire	911	0	2	2	0	1	0	BLS		1 Jaws, Ram & 2 Spreaders Lift bags	Yes
Shickley Fire	911	0	1	2	0	2	0	ALS		1 Jaws	Yes
Nearest HAZMAT Response Team	Beatrice Hastings										

Survey Responses from Fillmore County Fire Departments:

The Bruning, Exeter, Fairmont, Geneva, Grafton, Milligan, Ohiowa, Shickley, and Sutton Fire Districts lie all or partly within Fillmore County. The following departments returned the survey:

Department Name: Bruning Fire & Rescue (*See listing under Thayer Co.*)

Department Name: Exeter Volunteer Fire
Counties: Fillmore
Street/Mailing Address: 217 Exeter Ave., Exeter, NE 68351 **Dept. Phone**: 402-266-3051 **Dept. Email**: exeter.vfd@gmail.com
Chief: Joe Miller; 402-363-1796; jacxxxx01@gmail.com
Ass't. Chief: John Mueller; 402-366-8184; johnmueller@windstream.net
Treasurer: Tim Wilbeck; 402-266-1002; wilbeckexet@aol.com

Personnel
34 **Vol.**:
MAD(s): Fairmont, Friend

Equipment
Engines
1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members
1 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members
Other
1 Equipment trucks: 4x4 Dodge pickup, 300 gal., 100 gpm, 2 crew

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No

Bridges that won't support equipment weight: No
Greatest concerns: (none listed)

Rank:
x **Hydrants**

Department Name: Fairmont VFD
Counties: Fillmore
Mailing Address: PO Box 487, Fairmont, NE 68354
Dept. Phone: 402-366-2518 **Dept. Email**: circle5fair@hotmail.com
Chief: Jeff Neiman; 402-366-2518, 402-268-7211; circle5fair@hotmail.com
Ass't. Chief: Stuart Bridges; 402-759-1819
Secretary: Aarron Veleba; 402-759-1111

Personnel
30 **Vol.**:
MAD(s): Fillmore
Other MA agreements: York County, Clay County

Equipment
Engines
1 Type 1 Structural: ~~1,000~~ 1,250 GPM, ~~300~~ 1,250 gal. capacity, four crew members
1 Type 2 Structural: ~~500~~ 750 GPM, ~~300~~ 1,000 gal. capacity, three crew members
1 Type 6: Wildland: ~~50~~ 300 GPM, ~~150~~ 300 gal. capacity, two crew members

Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 T-1 (tactical): ~~250~~ 350 GPM pump, ~~2,000~~ 2,300 gallon capacity, 2 crew members
1 T-2 (tactical): ~~250~~ 400 GPM pump, ~~1,000~~ 1,400 gallon capacity, 2 crew members, 6x6

Equipment housed away from main barn? Yes, 6x6 rescue unit

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No

Bridges that won't support equipment weight: Yes, township roads

GIS layer & contact info: No

Greatest concerns: None listed

Rank:
5 **Housing**
3 **Infrastructure**
1 **Bridge limits**
4 **Hydrants**
2 **Other water sources**

Department Name: Geneva Fire & Rescue
Counties: Fillmore
Street Address: 201 S 7th St. **Mailing Address**: PO Box 476, Geneva, NE 68361
Chief: Mike Grothe; 402-768-8045, 402-759-3419; gemco@genevamail.com
Ass't. Chief: Larry Wollenberg; 402-366-7838; trapper323@windstream.com
Secretary: Thomas Jones; 402-759-0462; t_jones@hotmail.com
Treasurer: Dan Taylor; 402-759-1648; djt_DanTaylor@gmail.com

Personnel
45 **Vol.**:
MAD(s): Fillmore County MA

Equipment
Engines
2 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
1 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members
1 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
2 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member
Other
1 Equipment trucks

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No

Bridges that won't support equipment weight: Yes. Rd. K between 18 & 19, Fillmore Co.
GIS layer & contact info: No

Greatest concerns: (None listed)

Rank: (this was left blank)

Comments: Our jurisdiction is mostly row crop

Department Name: Grafton Rural
Counties: Fillmore
Mailing Address: PO Box 113, Grafton, NE 68365
Chief: Jim Baumann; 402-759-2841, 402-282-7382; jr_baumann@yahoo.com
Ass't. Chief: Dave Peterson; 402-366-0560
Sec/Treas.: Jeff Timmermans; 402-710-0339

Personnel
26 **Vol.**:

MAD(s): Fillmore Co.

Other MA agreements: Sutton

Equipment
Engines
1 Type 1 Structural: ~~1,000~~ 1,500 GPM, ~~300~~ 1,000 gal. capacity, four crew members
1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
4 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members
2 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members
Other
0 Equipment trucks
x Road Dept. Equip. (describe): Tractor, pickup & blade

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?
Yes
Location1: Blue River
Issues:
x Difficult access
x Rough terrain
x Heavy fuels
x Lack of water within effective distance

Location2: Six state and federal game reserves; approx. 960 acres
Issues:
x Heavy fuels
x Lack of water within effective distance

GIS layer & contact info: No

Greatest concerns: Heavy residue would be hard to put out

Rank:
1 **Housing**
5 **Infrastructure**
4 **Bridge limits**
2 **Hydrants**
3 **Other water sources**

Comments: Grafton doesn't have a lot of water storage or pumping capacity as a village, so any fire will have to be handled as a county fire.

Department Name: Milligan Fire Dept.
Counties: Fillmore, Saline
Street Address: 514 N St. **Mailing Address**: PO Box 7, Milligan, NE 68406
Dept. Phone: 402-629-4465
Chief: John Kassik; 402-629-4384, 402-629-4422
Ass't. Chief: Dennis Kotas; 402-239-3355
Sec/Treas.: Larry Michl, pres.; 402-629-4271

Personnel
24 **Vol.**:

MAD(s): Tobias, Ohiowa, Exeter, Geneva, Friend, Western

Equipment
Engines
1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members-PUMPER
1 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members-BRUSH TRUCK
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
2 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members
Other
1 Equipment trucks
1 Other (Describe): Rescue unit

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No

Bridges that won't support equipment weight: Not that we know of
GIS layer & contact info: No

Greatest concerns: (left blank)

Rank:
x **Bridge limits**

Department Name: Ohiowa Rural Volunteer Fire
Counties: Fillmore
Street/Mailing Address: 106 Strang St., Ohiowa, NE 68416
Chief: Mitchell Ozenbaugh; 402-759-1524; mitchellozenbaugh@gmail.com
Ass't. Chief: Kevin Kimbrough; 402-366-5700
Secretary: Russell Ozenbaugh; 402-984-3276
Treasurer: Henry Mussman; 402-759-2004

Personnel
32 **Vol.**:

MAD(s): Fillmore Co. Mutual Aid
Other MA agreements: Tobias, Daykin, and Bruning Fire Depts.

Equipment
Engines
2 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
2 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?
Locations: T5N R2W east half sec. 35; Bruning NRD Dam and R5N R1W west half Sec. 12, Lone Star NRD
Issues:
x Rough terrain
x 1 way in/out
x Other: Lots of grass and trees with public access

Bridges that won't support equipment weight: Yes
GIS layer & contact info: No
Greatest concerns: Water supply, wind, crop maturity

Rank:
4 **Housing**
5 **Infrastructure**
3 **Bridge limits**
2 **Hydrants**
1 **Other water sources**

Department Name: Shickley VFD
Counties: Fillmore
Street Address: North Main **Mailing Address**: PO Box 411, Shickley, NE 68436
Chief: Ryan Hamburger; 402-984-9248; rhamburger@southcentralems.com
Ass't. Chief/Sec./Treas.: Chris Swartzendruber; 402-759-1398, christopherswartzendruber@gmail.com

Personnel
15 **Vol.**:

MAD(s): Fillmore Co.

Equipment
Engines
2 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?
Yes
Location: Wildlife Management Areas - swamps
Issues:
x Difficult access
x Other: Standing water not always visible from a truck

Bridges that won't support equipment weight: No
GIS layer & contact info: No
Greatest concerns: (none listed)

Rank:
4 **Housing**
3 **Infrastructure**
5 **Bridge limits**
1 **Hydrants**
2 **Other water sources**

Department Name: Sutton Vol. Fire: (*See listing under Clay County*)

Jefferson County

Information from Jefferson Co. LEOP, Annex F:

FIRE SERVICES

DAYKIN FIRE DEPARTMENT

DILLER FIRE DEPARTMENT

FAIRBURY RURAL FIRE DEPARTMENT

JANSEN FIRE DEPARTMENT

PLYMOUTH FIRE DEPARTMENT

STEELE CITY FIRE DEPARTMENT

3 & 33 MUTUAL AID ASSOCIATION

STATE SUPPORT:
Emergency Support Functions
4, 5, 10,
Fire Suppression,
Emergency Management,
Environmental Quality

Lead Agencies:
State Fire Marshal

Nebraska Emergency Management Agency

JEFFERSON COUNTY FIRE RESOURCES
(List numbers of equipment)

FIRE DEPARTMENT	PHONE	AERIAL	PUMPER	TENDER	PUMPER/ TENDER	GRASS-WEED TRUCK	UTILITY TRUCK	AMBULANCE UNITS	KINDS/TYPES/ SPECIAL-TEAMS	KINDS/TYPES SPECIAL EQUIPMENT	RADIO-LOGICAL EQUIPMENT Yes / No
Daykin (BLS)	446-7225	0	1	2	0	2	0	1	Rescue	0	No
Diller (BLS)	793-5511	0	1	2	0	2	0	1	0	0	Yes
Fairbury Rural	729-2016	1	2	3	0	4	0	0	0	0	Yes
Jansen	424-2295	0	1	1	1	2	0	0	0	Jaws	No
Plymouth (BLS)	656-3700	0	1	1	1	2	1	1	Rescue	Jaws, Plus	No
Steele City	442-2240	0	1	1	0	3	0	0	0	0	Yes
Ambulance District #33 (ALS)	729-3304	0	0	0	0	0	0	3	Paramedic	0	Yes
Jefferson Co. Rescue Truck	729-3761	0	0	0	0	0	1	0	Rescue	Jaws, Plus	Yes
Nearest HAZMAT Response Team Beatrice Fire	223-5614	1	2	2	1	2	2	5	HazMat, Rescue	Multiple	Yes

Survey Responses from Jefferson County Fire Departments

Fire districts all or partly within Jefferson County include Alexandria, Daykin, Diller, Endicott-Steele City, Fairbury, Gilead, Janson, Plymouth, Swanton, and Western. The following departments returned the survey:

Department Name: Alexandria Fire & Rescue: (*See listing under Thayer County*)

Department Name: Daykin Fire & Rescue
Counties: Jefferson, Saline
Street Address: 315 Jefferson St. **Mailing Address**: PO Box 81, Daykin, NE 68338 **Dept. Phone**: 402-446-7295
Chief: Doug Brandt; 402-239-2585; dbrandt68465@yahoo.com
Ass't. Chief: Lee Schafer; 402-239-2341; schafertruck@diodecom.net
Secretary: Riley Meyer; 402-300-0724; rileymeyer1994@gmail.com
Treasurer: Craig Burkhart; 402-729-7180; ca62710@diodecom.net

Personnel
24 **Vol.**:
MAD(s): 3&33

Equipment
Engines
1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
2 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members
1 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member
Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?
Yes
Location: City of Daykin
Issues:
x Multiple structures

Bridges that won't support equipment weight: No
GIS layer & contact info: No
Greatest concerns: (none listed)

Rank:
1 **Housing**
2 **Infrastructure**
3 **Bridge limits**
5 **Hydrants**
4 **Other water sources**

Department Name: Diller Fire Department
Counties: Jefferson
Street Address: 420 Commercial St. **Mailing Address**: PO Box 96, Diller, NE 68342
Dept. Phone: 402-793-5380 **Dept. Email**: dillerfire@gmail.com
Chief: Jeff Nelson; 402-520-1354; jnel@diodecom.net
Ass't. Chief: Casey McLaughlin; 402-520-3575, 402-793-5193; caseymc94@gmail.com
Secretary: William McLaughlin; 402-230-0616, 402-793-5193; wmclaughlin181418@gmail.com
Treasurer: Brett Landenberger; 402-239-2323, 402-793-5789

Personnel
35 **Vol.**:

MAD(s): 3&33 Mutual Aid District

Equipment

Engines

1	Type 1	Structural: 1,000 GPM, 300 gal. capacity, four crew members
2	Type 6:	Wildland: 50 GPM, 150 gal. capacity, two crew members

Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

1	T-2 (tactical):	250 GPM pump, 1,000 gallon capacity, 2 crew members
1	S-2 (support):	200 GPM pump, 2,500 gallon capacity, 1 crew member

Other

2 Other (Describe): Polaris side x side, 50 gal. capacity, 2 crew members

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes

Location: Steel City Canyons T1N R3E Sec. 1. This area is full of deep valleys and full of cedar trees and grasslands. There is little to no access to some of these areas except for on foot. This area also has Rock Creek Station State Historical Park on the north side of it.

Issues:

x Difficult access
x Rough terrain
x Heavy fuels
x Lack of water within effective distance

Bridges that won't support equipment weight: Yes
GIS layer & contact info: Yes, John McKee, 402-587-0303, em@jeffconebraska.us
Greatest concerns: Being unable to get enough water and manpower to get them stopped before they get too far.

Rank:

4 **Housing**
1 **Infrastructure**
5 **Bridge limits**
2 **Hydrants**
3 **Other water sources**

Department Name: Fairbury Rural Fire Department
Counties: Jefferson
Street/Mailing Address: 3020 Industrial Ave., Fairbury, NE 68352
Dept. Phone: 402-729-2016 fax only **Dept. Email**: fairburyruralfd@yahoo.com
Chief: Kenny Krause; 402-300-0097; KrauseChief@gmail.com
Ass't. Chief: Judd Stewart; 402-729-7443; judd.stewart@outlook.com
Ass't. Chief: Barry Schwab; 402-587-0738; wbschwab@outlook.com
Sec/Treas.: Jesse Lugenbeel; 402-587-1057; fairburyruralfd@yahoo.com

Personnel

44 **Vol.**:

MAD(s): 3&33 MA Assoc.
Other MA agreements: Automatic aid agreement with Jansen Rural Fire District

Equipment

Engines

2	Type 1	Structural: 1,000 GPM, 300 gal. capacity, four crew members
4	Type 6:	Wildland: 50 GPM, 150 gal. capacity, two crew members
2	Type 7:	Wildland: 10 GPM, 50 gal. capacity, two crew members

Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
3 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members
Other
1 Equipment trucks: Technical/Heavy Rescue Apparatus
1 Aerial: 95' tower, greater than 1500 GPM, 350 gal. capacity, 6 crew members

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes
Location1: See attached sheets for multiple areas within our 200 sq. mile first due response area.
Issues:
x Difficult access
x Rough terrain
x Heavy fuels
x Lack of water within effective distance
x Other: Property that is owned by absentee landowners who have not done any property maintenance for removal of invasive eastern red cedar and are severely overgrown. Lack of defensible space around residential and agricultural structures spread throughout the response area.

Location2: There are several small housing developments with a single access in and out, primarily south of town along the highway 15 corridor.
Issues:
x Multiple structures
x 1 way in/out

Bridges that won't support equipment weight: Yes. There are multiple bridges in our area that have weight rating well below our largest water tender's GVWR (6000 gallon water tender on a Kenworth chassis). For this reason, this truck is limited to how close it responds to the scene and will be used as more of a water shuttle for the smaller water tenders.

GIS layer & contact info: Yes. Map layering on E-dispatches. Contact Judd Stewart.

Greatest concerns: Initial attack resources, lack of air support close to our district, increase in houses being built in areas of risk, several areas of risk that have limited access, or several miles without a county maintained road for access. Another concern is the critical infrastructure in the risk areas. We have a double main line Union Pacific railroad that follows the Little Blue river through Jefferson County. We also have several large pipelines that traverse through the high risk areas of our county as well as our mutual aid district.

Rank:
x **Housing**
x **Infrastructure**
x **Hydrants**
x **Other water sources**

Comments: There is a lack of interoperability between Nebraska and Kansas fire departments regarding radio communications. We provide and request mutual aid from neighboring Kansas departments fairly frequently. Another risk is the distance for initial response to some of the areas at higher risk, i.e. 28 miles from fire station to furthest point out in our district. There are high risk areas spread throughout our district as well as areas that abut our initial response district.

Department Name: Gilead Fire (*See listing under Thayer Co.*)

Department Name: Swanton Vol. Fire Dept. (*See listing under Saline Co.*)

Department Name: Western Vol. Fire Dept. (*See listing under Saline Co.*)

Nuckolls County

Information from Nuckolls Co. LEOP, Annex F:

FIRE SERVICES

SUPERIOR FIRE DEPARTMENT

NELSON FIRE DEPARTMENT

RUSKIN FIRE DEPARTMENT

HARDY FIRE DEPARTMENT

LAWRENCE FIRE DEPARTMENT

SOUTH CENTRAL MUTUAL AID ASSOCIATION

STATE LINE MUTUAL AID ASSOCIATION

STATE SUPPORT:
Emergency Support Functions
4, 5, 10,
Fire Suppression,
Emergency Management,
Environmental Quality

Lead Agencies:
State Fire Marshal

Nebraska Emergency Management Agency,

NUCKOLLS COUNTY FIRE RESOURCES
(List numbers of equipment)

FIRE DEPARTMENT	PHONE	AERIAL	PUMPER	TANKER	PUMPER/ TANKER	GRASS-WEED TRUCK	UTILITY TRUCK	RESCUE UNITS	KINDS/TYPES/ SPECIAL-TEAMS	KINDS/TYPES SPECIAL EQUIPMENT	RADIO-LOGICAL EQUIPMENT Yes / No
HARDY			2	1		1					
LAWRENCE	756-7472		1	1		2		1			
NELSON	225-3338		1	1		2	1	2			
OAK			1	1		1					
RUSKIN	226-3701		1	1		2					
SUPERIOR	879-3328	1	3	2		2		2			
Nearest HAZMAT Response Team											
HASTINGS											

Survey Responses from Nuckolls County Fire Departments

Ten fire districts lie all or partly within Nuckolls County: Byron, Davenport, Edgar-Ong, Fairfield, Guide Rock, Hardy, Lawrence, Nelson, Ruskin, and Superior. The following departments returned the survey:

Department Name: Byron Fire: (*See listing under Thayer County*)

Department Name: Davenport Fire and Rescue: (*See listing under Thayer County*)

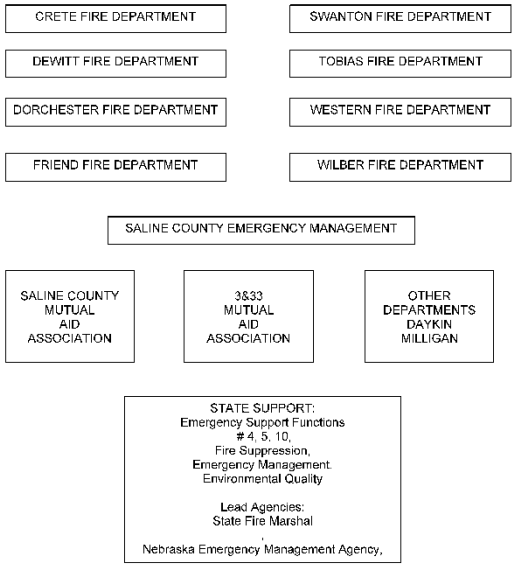
Department Name: Edgar/Ong Volunteer Fire Department: (*See listing under Clay County*)

Department Name: Fairfield Fire & Rescue: (*See listing under Clay County*)

Saline County

Information from Saline Co. LEOP, Annex F:

FIRE SERVICES



SALINE COUNTY FIRE RESOURCES
(List numbers of equipment)

FIRE DEPARTMENT	PHONE	AERIAL	PUMPER	TENDER	PUMPER/ TENDER	GRASS TRUCK	UTILITY TRUCK	RESCUE UNITS	KINDS/TYPES/ SPECIAL-TEAMS	KINDS/TYPES SPECIAL EQUIPMENT	RADIO-LOGICAL EQUIPMENT Yes / No
Crete Fire	(402) 223-4080 (402) 826-3673	1	1	1	1	3	1	3		Extrication Grain Tube Thermal Img	Yes
DeWitt Fire	(402) 821-2111 (402) 683-3440	0	1	1	1	2	0	1		Extrication Therm Img	Yes
Dorchester Fire	(402) 821-2111 (402) 946-4641	0	1	3	1	2	1	2		Extrication Grain Tube	No
Friend Fire	(402) 821-2111 (402) 947-4222	0	2	3	0	1	1	2	Rope Rescue	Extrication Therm Img	Yes
Swanton Fire	(402) 821-2111 (402) 448-2425	0	2	2	0	2	0	0		N/A	No
Tobias Fire	(402) 821-2111	0	0	1	1	2	1	0		Thermal Imager	No
Western Fire	(402) 821-2111 (402) 433-2861	0	2	1	0	2	0	1		N/A	Yes
Wilber Fire	(402) 821-2111 (402) 821-2802	1	2	2	0	3	1	2		Extrication Therm Img Stabilization	Yes
Beatrice HAZMAT Response Team	(402) 228-5246	0	0	0	0	0	2	0	HazMat Ops/Tech	HazMat	Yes
Saline County Emergency Mgmt	(402) 821-3010 (402) 821-2111	0	0	0	0	0	0	0	Drone Team	Therm Img Comm Gear Air Monitors	Yes

Survey Responses from Saline County Fire Departments

Ten fire districts lie all or partly within Saline County: Crete, Dakin, DeWitt, Dorchester, Friend, Milligan, Swanton, Tobias, Western, and Wilbur. The following departments returned the survey:

Department Name: Crete VFD
Counties: Saline, Seward, Lancaster
Street Address: 210 East 14th St. **Mailing Address**: PO Box 411, Crete, NE 68333
Dept. Phone: 402-826-3473 **Dept. Email**: tod.allen@crete.ne.gov
Chief: Tod Allen; 402-560-6240; 402-826-3473; tod.allen@crete.ne.gov
Ass't. Chief: James Yost; 402-418-1854; james.yost@crete.ne.gov
Secretary: Emma Frerichs; 402-590-6192; emma.frerichs@crete.ne.gov
Treasurer: Courtney Marcelino; 402-430-3327

Personnel
42 **Vol.**: Firefighters/EMTs

MAD(s): Saline County, Lancaster County
Other MA agreements: We protect the Highlands rural fire district which is everything south and west of Denton, essentially.

Equipment
Engines
3 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
1 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members
2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
(see 'Other' below)
Other
3 Other (Describe): 1,000 gpm, 2,000-gal. tender; 300gpm, 300-gal. rescue; 75' aerial

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?
No

Bridges that won't support equipment weight: No.

GIS layer & contact info: No. The city is working on this inside the city limits.

Greatest concerns: Every new home thinks they need a ½ mile driveway that is built for cars to turn around at the end.

Rank:
1 **Housing**
5 **Infrastructure**
3 **Bridge limits**
4 **Hydrants**
2 **Other water sources**

Department Name: Daykin Fire & Rescue: (*See listing under Jefferson County*)

Department Name: DeWitt Volunteer Fire Department (from 10/21/2019 survey)
Counties: Saline, Gage
Street/Mailing Address: 408 E. Fillmore, DeWitt 68341
Chief: Shawn Weise, 402-223-7036, Shawn.Weise73@gmail.com
Ass't. Chief: Tim Garrison, 402-230-0749, tgarrison@plymouthelectric.com
Sec/Treas.: Lyle Fink, 402-239-2002, dewittfire@diodecom.net

Personnel

24 **Volunteer**

MAD(s): Saline County MA; 3 & 33 MA

Equipment

Engines

1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members

2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

1 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members

1 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No, but provided locations below

Location: Turkey Creek and Big Blue River

Issues:

Difficult access

Bridges that won't support equipment weight: No

GIS layer & contact info: No

Greatest concerns: Homes and personnel to fight fires.

Rank:

1 **Housing**

2 **Infrastructure**

4 **Bridge limits**

3 **Hydrants**

5 **Other water sources**

Department Name: Friend Vol. Fire Dept.

Counties: Saline

Street/Mailing Address: 235 Maple St., Friend, NE 68359 **Dept. Phone**: 402-947-4222 **Dept. Email**: friendfire@hotmail.com

Chief: Brent Milton; 402-641-5821; firebrent66@hotmail.com

Ass't. Chief: Stanley Krause; 402-641-3844; sk_firebug@hotmail.com

Secretary: Sara Thomsen; 402-641-2895; hot4sunshine2004@yahoo.com

Treasurer: Kevin Spicka; 402-641-4479; kspicka5@gmail.com

Personnel

33 **Vol.**:

MAD(s): Saline Co. MA Assoc.

Other MA agreements: Beaver Crossing, Cordova, Exeter, Milligan. We will respond if they call and they will respond if they are called.

Equipment

Engines

1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members

2 Type 2 Structural: ~~500~~ 750 GPM, 300 gal. capacity, 3 crew members (1 can be used as Type 3, too)

1? Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members, 4x4

1 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members, 4x4

Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

1 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members, 4x4

1 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members, 6x6

1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member

Other

1 Equipment trucks

Equipment housed away from main barn? No

Have you identified areas in your district that you are more concerned about than others if a wildfire starts nearby? No

Bridges that won't support equipment weight: No
GIS layer & contact info: No
Greatest concerns: Main power and water supply

Rank:
x **Hydrants**
x **Other water sources**

Department Name: Milligan Fire Dept. (*See listing under Fillmore Co.*)

Department Name: Swanton Vol. Fire Dept.
Counties: Saline, Jefferson
Street Address: 402 1st St. **Mailing Address**: PO Box 82, Swanton, NE 68445
Chief: Lynn Strouf; 402-520-4556, 402-448-2950; lynnstrouf@gmail.com
Ass't. Chief: Larry Barta; 402-239-1249
Secretary: Austin Nicholson; 402-641-2353
Treasurer: Matt Raber; 402-239-6643

Personnel
16 **Vol.**:
MAD(s): Saline Co. MA, 3&33 MA

Equipment
Engines
1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
2 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members
Equipment housed away from main barn? No

Have you identified areas in your district that you are more concerned about than others if a wildfire starts nearby? No

Bridges that won't support equipment weight: No
GIS layer & contact info: No
Greatest concerns: Depends on time of year as for crop damage and loss

Rank:
2 **Housing**
3 **Infrastructure**
4 **Bridge limits**
5 **Hydrants**
1 **Other water sources**

Department Name: Tobias Volunteer Fire
Counties: Saline
Street Address: 107 Main St. **Mailing Address**: 106 County Rd W
Dept. Phone: 402-520-1916 **Dept. Email**: schaferag@yahoo.com
Chief: Lonnie Schafer; 402-520-1916, 402-243-2250; schaferag@yahoo.com
Ass't. Chief: Brandon Bartels; 402-759-5189
Secretary: Missi Rohr; 402-239-7533
Treasurer: Gary Baxa, 402-826-1810

Personnel
13 **Vol.**:
MAD(s): Saline Co. MA
Other MA agreements: Ohiowa Fire

Equipment
Engines
1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
2 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member
Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No, but checked the following issue:
Issues:
Lack of water within effective distance

Bridges that won't support equipment weight: No
GIS layer & contact info: No
Greatest concerns: (none listed)
Rank: (this was left blank)

Department Name: Western Rural Vol. FD
Counties: Saline, Jefferson
Street Address: 111 N West Ave. **Mailing Address**: PO Box 446, Western, NE 68464
Chief: Scott Theis; 402-806-1432; ktsmarket@yahoo.com
Ass't. Chief: Layne Schelbitski; 402-239-9863
Secretary: Brian Kotas; 402-826-0146
Treasurer: Kevin Homolka; 402-433-2162

Personnel
30 **Vol.**:
MAD(s): Saline County; 3 & 33

Equipment
Engines
2 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members
Equipment housed away from main barn? No

Have you identified areas in your district that you are more concerned about than others if a wildfire starts nearby? No
Bridges that won't support equipment weight: Yes, there are a few low-tonnage bridges
GIS layer & contact info: No

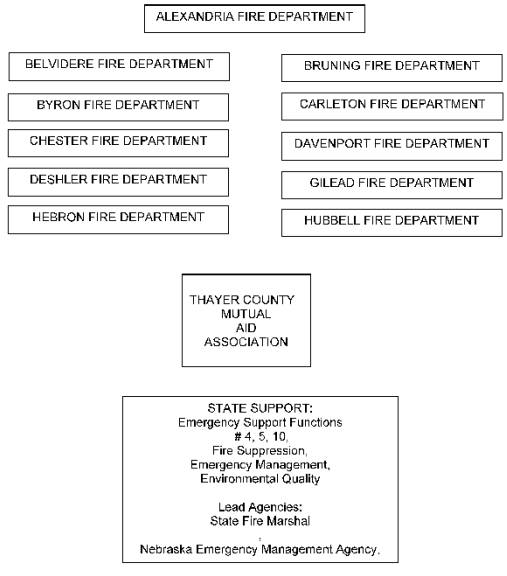
Greatest concerns: Structures

Rank:
1 **Housing**
4 **Infrastructure**
5 **Bridge limits**
3 **Hydrants**
2 **Other water sources**

Thayer County

Information from Thayer Co. LEOP, Annex F:

FIRE SERVICES



THAYER COUNTY FIRE RESOURCES
(List numbers of equipment)

FIRE DEPARTMENT	PHONE	AERIAL	PUMPER	TANKER	PUMPER/ TANKER	GRASS-WEED TRUCK	UTILITY TRUCK	RESCUE UNITS	KINDS/TYPES/ SPECIAL-TEAMS	KINDS/TYPES SPECIAL EQUIPMENT	RADIO-LOGICAL EQUIPMENT Yes / No
Alexandria	911		1	1		1		1			
Belvidere	911		1	1	1	2			0	0	no
Bruning	911		1	1		1		1	0	0	no
Byron	911		1	1		1	1		0	0	no
Carleton	911		1	2		1		1	0	0	no
Chester	911		2	2		2	1	1	0	0	no
Davenport	911		1	2			1	1	0		no
Deshler	911		2	1		2	1	2	0	0	no
Gilead	911		1	1		2					
Hebron	911		2	2		2	1		0	0	no
Hubbell	911		1	1		2	1		0	0	no
Nearest HAZMAT Response Team	Beatrice Fire Dept.										

Survey Responses from Thayer County Fire Departments

Eleven fire districts lie all or partly within Thayer County: Alexandria, Belvedere, Bruning, Byron, Carleton, Chester, Davenport, Deshler, Gilead, Hebron, and Hubbell.

Department Name: Alexandria Fire & Rescue
Counties: Thayer, Jefferson
Street/Mailing Address: 303 Harbine, Alexandria, NE 68303
Dept. Phone: 402-749-3740 **Dept. Email**: Alexandriavfd@windstream.net
Chief: Evan Skiles; 402-300-0838; skilescattleservices@outlook.com
Ass't. Chief: Dan Durflinger; 402-481-0642; ddurflinger02@gmail.com
Sec/Treas.: Ethan Schroder; 402-587-1185

Personnel
20 **Vol.**:
MAD(s): Thayer County MA, 3&33 MA

Equipment
Engines
1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
1 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members
1 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
1 Type 7: Wildland: 10 GPM, 50 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member
Other
Road Dept. Equip. (describe): Traffic signs and road cons and road flares

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No
Location: No specific locations were listed, but the following issues were checked:
Issues:
x Multiple structures
x Difficult access
x Rough terrain
x 1 way in/out
x Heavy fuels
x Lack of water within effective distance
x Other: RR track fire, RR crossings affect response to calls on south side of jurisdiction

Bridges that won't support equipment weight: Yes. Numerous bridges located within the jurisdiction will not support fire apparatus weight.
GIS layer & contact info: No

Greatest concerns: Life safety, preservation of property, warning of the public, interruptible communication between agencies and the safety of the firefighters who I command.

Rank:
3 **Housing**
2 **Infrastructure**
4 **Bridge limits**
1 **Hydrants**
5 **Other water sources**

Department Name: Belvidere Fire
Counties: Thayer
Street/Mailing Address: 401 C St., Belvidere, NE 68315
Chief: Josh Waldmeier; 402-768-3697; jwaldo1983@gmail.com
Ass't. Chief: John Lang; 402-768-3444
Sec/Treas.: Josh Day; 402-768-1485

Personnel
15 **Vol.**:
MAD(s): Thayer Co. MA

Equipment
Engines
1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
2 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members
1 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members
2 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member
Other
x Road Dept. Equip. (describe): Traffic signs, road cones, road flares

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No
Location: These issues can be found across Belvidere Fire jurisdiction not specific to one section, township, range.
Issues:
x Multiple structures
x Difficult access
x Rough terrain
x 1 way in/out
x Heavy fuels
x Lack of water within effective distance
x Other: Locating RR track fires along RR right of way. RR crossings affect response to calls on north side of jurisdiction.

Bridges that won't support equipment weight: Yes

GIS layer & contact info: No

Greatest concerns: Same as most

Rank:
4 **Housing**
3 **Infrastructure**
5 **Bridge limits**
2 **Hydrants**
1 **Other water sources**

Department Name: Bruning Fire & Rescue
Counties: Thayer, Fillmore
Street/Mailing Address: 208 E Main, Bruning, NE 68322 **Dept. Email**: bruningvfd@gmail.com
Chief: Cody Bentley; 402-768-8410; cmbentley@hotmail.com
Ass't. Chief: Ryan Houser; 402-768-3779
Sec/Treas.: Joy Schweer; 402-759-5367

Personnel
30 **Vol.**:
MAD(s): Thayer Co. MA, Fillmore Co. MA
Other MA agreements: South Central EMS out of Geneva

Equipment
Engines
1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
2 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
1 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member
Other
1 Other (Describe): All ex tools on grass rig
x Road Dept. Equip. (describe): Traffic signs, rode cones, road flares
Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No
Location: These issues can be found across Bruning Fire's jurisdiction, not specific to one section, township, range:
Issues:
x Multiple structures
x Difficult access
x Rough terrain
x 1 way in/out
x Heavy fuels
x Other: Utilities

Bridges that won't support equipment weight: Yes, RD 6900 In between Hwy 4, Rd AA between Rd 6300 and 6400
GIS layer & contact info: No
Greatest concerns: Warning public, coordination between agencies

Rank:
4 **Housing**
3 **Infrastructure**
5 **Bridge limits**
1 **Hydrants**
2 **Other water sources**

Department Name: Byron Fire
Counties: Thayer, Nuckolls
Street/Mailing Address: 225 Kansas Ave., Byron, NE 68325
Chief: Tyler Tietjen; 402-768-4217; tietjenson@yhaoo.com
Ass't. Chief: Jason Kuhlmann; 402-200-0017, 402-236-8647; jasonkulhmann48@gmail.com
Sec/Treas.: Darin Saunders; 785-527-3443; saundersd5@hotmail.com

Personnel
23 **Vol.**:
MAD(s): Thayer Co. MA, State Line MA

Equipment
Engines
1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
1 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members
2 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members
2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member
Other
1 Equipment trucks: former ambulance
x Road Dept. Equip. (describe): Road signs, cones, and flares

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes
Locations: T1N R4W Sec. 33 bulk fuel storage and T1N R4W Sec 27 fueling station. These issues can be found across Byron Fire's jurisdiction not specific to one section, township, range:
Issues:
x Multiple structures
x Difficult access
x Rough terrain
x 1 way in/out
x Heavy fuels
x Other: Co-op, bank, café

Bridges that won't support equipment weight: Yes. Multiple locations within the jurisdiction and are not marked on a map of the jurisdiction.
GIS layer & contact info: No

Greatest concerns: Structures and property, warning of the public, interoperability comms with other agencies.

Rank:
5 **Housing**
3 **Infrastructure**
4 **Bridge limits**
2 **Hydrants**
1 **Other water sources**

Department Name: Carleton Fire and Rescue
Counties: Thayer
Street/Mailing Address: 249 4th St., Carleton, NE 68326
Chief: John Lange; 402-768-3444; j_klange@yahoo.com
Ass't. Chief: Clint Werner; 402-768-8851
Sec/Treas.: Brad Dowdy; 402-469-7853

Personnel
26 **Vol.**:
MAD(s): Thayer County MA

Equipment
Engines
3 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
2 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members
2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
1 Type 7: Wildland: 10 GPM, 50 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members
Other
1 Equipment trucks (one of the pumpers)
x Road Dept. Equip. (describe): Traffic signs and road cons and road flares
Equipment housed away from main barn? Yes, one truck stationed in old fire station

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No

Location: No locations identified, but the following issues were checked:

Issues:

x Multiple structures
x Difficult access
x Rough terrain
x 1 way in/out (i.e. Aurora Co-op facility)
x Heavy fuels
x Other: RR track fire, RR crossings affect response to calls on south side of jurisdiction

Bridges that won't support equipment weight: Yes, several located within the jurisdiction
GIS layer & contact info: No

Greatest concerns: Life safety, property preservation, warning of the public, interruptible communication between agencies and the safety of the firefighters who I command.

Rank:

4 **Housing**
2 **Infrastructure**
5 **Bridge limits**
1 **Hydrants**
3 **Other water sources**

Comments: We have issues with the railroad blocking crossings for more than 15 minutes. They will also not move when asked to in an emergency situation where they are restricting access, which increases the response time and makes access to the south side of the jurisdiction difficult. It also makes accessing water from town almost impossible when this issue occurs.

Department Name: Chester Fire and Rescue
Counties: Thayer
Street/Mailing Address: 615 Thayer Ave., Chester NE 68327 **Dept. Phone**: 402-324-5755
Chief: Bill Riggs; 402-768-4116, 402-324-7321
Ass't. Chief: Clint Easton; 785-313-5125
Sec/Treas.: Seth Gissler; 402-890-1535

Personnel

21 **Vol.**:

MAD(s): Thayer Co. MA, State Line MA

Equipment

Engines

1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
3 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members
2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member

Other

1 Equipment trucks: Type 3
1 Other (Describe): Tender/Pumper

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No

Location: These issues can be found across Chester Fire and Rescue jurisdiction-not specific to one section, township, range:
Issues:
x Multiple structures
x Difficult access
x Rough terrain
x 1 way in/out
x Heavy fuels

Bridges that won't support equipment weight: Yes, not marked.
GIS layer & contact info: No

Greatest concerns: Put it out, public warning, getting recourse

Rank:
4 **Housing**
3 **Infrastructure**
5 **Bridge limits**
2 **Hydrants**
1 **Other water sources**

Department Name: Davenport Fire and Rescue
Counties: Thayer and Nuckolls
Street/Mailing Address: 106 E 10th St., Davenport, NE 68335 **Dept. Email**: davenportvfd@gmail.com
Chief: Donovan Knigge; 402-364-3126; dknigge80@gmail.com
Ass't. Chief: Joel Reinke; 402-364-3093; jaj2549@yahoo.com
Sec/Treas.: Jim Manes; 402-364-3520

Personnel
25 **Vol.**:
MAD(s): Thayer C. MA; South Central MA

Equipment
Engines
1 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members
3 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
2 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member
Other
Road Dept. Equip. (describe): 2 signs, 10+ road cones, flares
Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No
Location: These issues can be found across Davenport Fire & Rescue jurisdiction and is not specific to one section, township, range.
Issues:
x Multiple structures
x Difficult access
x Rough terrain
x 1 way in/out
x Heavy fuels
x Other: Train and RR incidents

Bridges that won't support equipment weight: Yes, there are a lot on minimum maintenance access roads.
GIS layer & contact info: No

Greatest concerns: Housing, public notification, livestock, Haz Mat and RR Haz Mat

Rank:

1 **Housing**
5 **Infrastructure**
2 **Bridge limits**
3 **Hydrants**
4 **Other water sources**

Comments: Response from the station can be impeded by three different railroad crossings that can restrict access to the south side of Davenport fire's jurisdiction if a train is blocking a crossing.

Department Name: Deshler Fire & Rescue
Counties: Thayer
Street/Mailing Address: 404 Pearl Ave., Deshler, NE 68340 **Dept. Phone**: 402-365-7750
Chief: Mike Finke; 402-984-0164; mfinke3fan@gmail.com
Ass't. Chief: Steve Krupicka; 402-641-8968; stevekrupicka@gmail.com
Sec/Treas.: Cady Wright; 402-200-9935

Personnel

40 **Vol.**:
MAD(s): Thayer Co. MA, Southcentral MA

Equipment

Engines

1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
1 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members
2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

1 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members
1 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members

Other

1 Equipment trucks
1 Other (Describe): Command truck
x Road Dept. Equip. (describe): Traffic signs, road cones, road flares

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No
Location: These issues can be found across Deshler Fire & Rescue jurisdiction, not specific to one section, township, range:
Issues:

x Multiple structures
x Difficult access
x Rough terrain
x 1 way in/out
x Heavy fuels

Bridges that won't support equipment weight: Yes. Multiple locations within the jurisdiction; not marked on a map of the jurisdiction
GIS layer & contact info: No

Greatest concerns: Life safety, preservation of property, warning of the public, interruptible communication between agencies, and the safety of the firefighters who I command.

Rank:

4 **Housing**
3 **Infrastructure**
5 **Bridge limits**
1 **Hydrants**
2 **Other water sources**

Department Name: Gilead Fire
Counties: Thayer, Jefferson
Street/Mailing Address: 1103 Rd 7100, Gilead, NE 68362
Chief: Mitchell Husa; 402-768-3021; mitchell_husa@hotmail.com
Ass't. Chief: Matthew Vanwesten; 402-300-1347; csale01@gmail.com
Secretary: Levi Nelson; 402-879-1530
Treasurer: Chris Hergott; 402-768-3764

Personnel

21 **Vol.**:
MAD(s): Thayer Co. MA

Equipment

Engines

1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
1 Type 7: Wildland: 10 GPM, 50 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member
Other
x Equipment trucks: On engine & tender
x Road Dept. Equip. (describe): vests
Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No
Location: No locations specified, but the following issues were checked:
Issues:

x Multiple structures
x Difficult access
x Rough terrain
x 1 way in/out
x Heavy fuels

Bridges that won't support equipment weight: Yes. Multiple locations within the jurisdiction, not marked on a map.

GIS layer & contact info: No

Greatest concerns: Life safety, property preservation, warning of the public, interruptible communication between agencies, manpower, and the safety of the firefighters who I command.

Rank:

5 **Housing**
2 **Infrastructure**
4 **Bridge limits**
1 **Hydrants**
3 **Other water sources**

Comments: Communication and address

Department Name: Hebron Fire & Rescue
Counties: Thayer
Street/Mailing Address: 440 Jefferson Ave., Hebron, NE 68370 **Dept. Phone**: 402-768-6129
Chief: BJ Linton; 402-768-3707; thelintons@windstream.net
Ass't. Chief: Shayne Day; 402-768-1341; shanedday47@gmail.com
Sec/Treas.: Tim O'Callghan; 402-200-0054

Personnel
30 **Vol.**:
MAD(s): Thayer Co. MA

Equipment
Engines
3 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members
1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member
Other
1 Equipment trucks
1 Other (Describe): Command truck, trailer for dive rescue & grain engulfment
x Road Dept. Equip. (describe): Traffic signs and road cons and road flares
Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes
Location: The property directly north of the Hebron Dam PID # 850014751, Southern Hills Subdivision, Fairway Acres Subdivision, and Country View Subdivision.
Issues:
x Multiple structures
x Difficult access
x Rough terrain
x 1 way in/out
x Heavy fuels

Bridges that won't support equipment weight: Yes. Multiple locations within the jurisdiction, not marked on a map.
GIS layer & contact info: No
Greatest concerns: Life safety, property preservation, warning of the public, interruptible communication between agencies, manpower and the safety of the firefighters who I command

Rank:
5 **Housing**
3 **Infrastructure**
4 **Bridge limits**
1 **Hydrants**
2 **Other water sources**

Comments: Proper land management, educating landowners

Department Name: Hubbell Fire
Counties: Thayer
Street/Mailing Address: 309 Pennsylvania St., Hubbell, NE 68375 **Dept. Phone**: 402-324-4100
Chief: David Svoboda; 402-469-3931; swob32@hotmail.com
Ass't. Chief: Russ Svoboda; 402-200-0409
Sec/Treas.: Amy Gregory; 402-768-3015

Personnel
18 **Vol.**:
MAD(s): Thayer Co. MA

Equipment
Engines
1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
1 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members
2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member
Other
1 Equipment trucks

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No
Location: No locations specified, but the following issues were checked:
Issues:
x Multiple structures
x Difficult access
x Rough terrain
x 1 way in/out
x Heavy fuels
x Lack of water within effective distance

Bridges that won't support equipment weight: Yes. Numerous bridges located within the jurisdiction will not support fire apparatus weight.

GIS layer & contact info: No

Greatest concerns: Life safety, property preservation, warning of the public, interruptible communication between agencies and the safety of the firefighters who I command.

Rank:
5 **Housing**
1 **Infrastructure**
4 **Bridge limits**
2 **Hydrants**
3 **Other water sources**

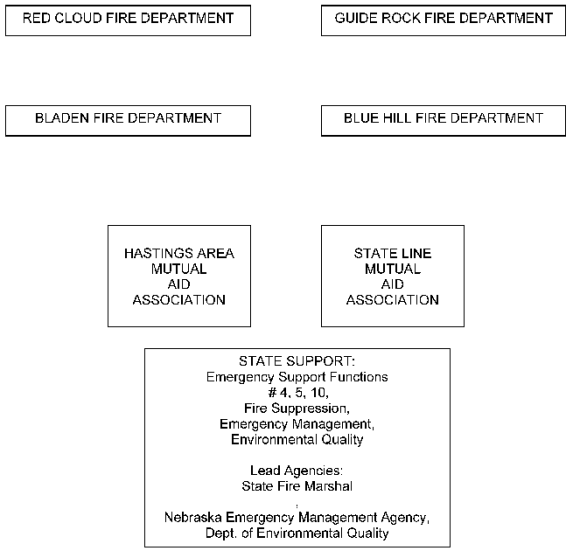
***
In addition to the Thayer County fire departments that returned the survey, the local HMP contained the following information in its Thayer County Appendix for the Village of Davenport:

Davenport's main concern involves field fires during fall harvest and their impacts on the surrounding agricultural land and local economy. In the fall of 2014, there were large fires that came within two miles of the village. One fire consumed more than 640 acres. The village has two pickups with 300-gallon tanks and six fire engines. The village custodian is tasked with any debris cleanup following fire events. To address this hazard, Davenport would like to improve its civil service capabilities. The department has 26 volunteer firefighters.

Webster County

Information from Webster Co. LEOP, Annex F:

FIRE SERVICES



WEBSTER COUNTY FIRE RESOURCES
(List numbers of equipment)

FIRE DEPARTMENT	PHONE	AERIAL	PUMPER	TANKER	PUMPER/ TANKER	GRASS-WEED TRUCK	UTILITY TRUCK	RESCUE UNITS	KINDS/TYPES/ SPECIAL-TEAMS	KINDS/TYPES SPECIAL EQUIPMENT	RADIO-LOGICAL EQUIPMENT Yes / No
Bladen			1	1		1		1			NO
Blue Hill			3	1		1	1	1			NO
Guide Rock			1	1		1		1			NO
Red Cloud			2	3		1	1				NO
Nearest HAZMAT Response Team											
Hastings Fire											YES

Survey Responses from Webster County Fire Departments

Seven fire districts lie all or partly within Webster County: Bladen, Blue Hill, Campbell, Guide Rock, Lawrence, Red Cloud, and Riverton. The following departments returned the survey:

Department Name: Bladen Rural Fire Dept.
Counties: Webster
Street Address: 221 N Thorne St. **Mailing Address**: PO Box 54, Bladen, NE 68928
Chief: Darryl Koelder; 402-469-9286, 402-756-1221; dkoelder@gtmc.net
Ass't. Chief: Zach Crowe; 402-469-8164, 402-756-1512; zcrowe4@hotmail.com
Sec/Treas.: Cindy Timm; 402-756-1661, 402-756-1662; dtservice@gtmc.net

Personnel
19 **Vol.**: (2 of the 19 are EMTs only)
MAD(s): Hastings Area MA, State Line MA

Equipment
Engines
2 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
2 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member
Other
2 Equipment trucks: 1-pumper, 1,000 GPM, 750 gal. capacity, 2 crew members; and 1-pumper tank, 1,000 GPM, 2,000 gal. capacity, 2 crew members
Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes
Location1: CPI Anhydrous Plant, Glenwood Township4N, R11W, Sec. 22. From Bladen, 2 miles south and then 2 ½ miles east on Hwy. 4, north side of highway.
Issues:
x Other: Many anhydrous tanks

Location2: Norder's Supply, Harmony Township4N, R12W, Sec. 22. 490 Highway 4, Bladen, NE. From Bladen, 2 miles south and then 3 miles west, north side of road.
Issues:
x Other: Agricultural chemicals

Bridges that won't support equipment weight: Yes. Too many to list individually, but most are posted with weight limits.
GIS layer & contact info: No

Greatest concerns: Manpower

Rank:
2 **Housing**
3 **Infrastructure**
4 **Bridge limits**
5 **Hydrants**
1 **Other water sources**

Department Name: Campbell Rural Fire Protection
Counties: Franklin, Kearney, Webster
Street Address: 712 Broad St. **Mailing Address**: PO Box 337, Campbell, NE 68932
Chief: Ron Pankoke; 402-984-4730c, 402-756-8435h
Ass't. Chief: Greg Choquette; 402-469-1968c, 402-756-8353h
Sec/Treas.: Jenny Pankoke

Personnel

28 **Vol.**:

MAD(s): Hastings Area MA, Franklin Co. MA, Kansas-Nebraska State Line MA
Other MA agreements: Campbell and Bladen Fire Departments are working together because of volunteer fireman and EMT issues. We also cover Upland for ambulance services.

Equipment

Engines

2 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
2 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member
1 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member
Other
1 Equipment ~~trucks~~ trailer
2 Other (describe): ambulances
1 Other (describe): chief vehicle
Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes (Both on south edge of Campbell in Franklin Co.)
Location1: T4N R13W Sec. 25, Hall's Oil, Inc. Fuel retail location with about 2000,000 gal. of gas and diesel on hand, about 20,000 gal. of propane, and a warehouse full of oil and supplies. The closest water hydrant is across Highway 4.
Issues:

x Multiple structures
x 1 way in/out
x Heavy fuels
x Lack of water within effective distance

Location2: T4N R13W Sec. 25. CPI Grain is a local elevator with grain and fuel storage. Closest hydrant is across Highway 4.
Issues:

x Multiple structures
x Heavy fuels
x Lack of water within effective distance

Bridges that won't support equipment weight: Yes. The bridges out in the county roads are not in good enough shape to support our tanker trucks.
GIS layer & contact info: Yes, Ron Pankoke, 402-984-4730.
Greatest concerns: Being able to get to water fast enough to rural areas and having enough personnel to operate the trucks.

Rank:

5 **Housing**
4 **Infrastructure**
2 **Bridge limits**
3 **Hydrants**
1 **Other water sources** – getting water to rural areas

Comments: We are having a problem with getting active personnel, especially EMTs.
Department Name: Red Cloud Volunteer Fire Department
Counties: Webster
Street/Mailing Address: 137 E 5th Ave., Red Cloud, NE 68970 **Dept. Phone**: 402-746-2280
Chief: Wes Olson; 402-746-0076, 402-746-3314; olsonwes52@hotmail.com
Ass't. Chief: Ryan Zimmerman; 402-767-0030, 402-746-2567; zimm4452@hotmail.com
Sec/Treas.: Darin Barnes; 402-746-3805, 402-460-0810; barnes8173@gmail.com

Personnel
25 **Vol.**:

MAD(s): State Line Mutual Aid

Equipment
Engines
2 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
2 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members
Tenders *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
1 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members
2 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members
1 S-1 (support): 300 GPM pump, 4,000 gallon capacity, 1 crew member
Other
1 Equipment trucks

Equipment housed away from main barn? No

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes
Location: City of Red Cloud, T1N R11W S1&2
Issues:
x Multiple structures

Bridges that won't support equipment weight: No

GIS layer & contact info: No

Greatest concerns: Having enough water and tankers

Rank:
5 **Housing**
2 **Infrastructure**
3 **Bridge limits**
4 **Hydrants**
1 **Other water sources**

***
The Blue Hill Fire Department did not return the survey, but the local HMP contains the following information in its Webster County Appendix:

The City of Blue Hill "…is concerned about the risk of fire events. The city has experienced several fires in town including in 2000 a fire burned the local grocery store to the ground. The city has expressed concern over the local fire departments capabilities. The local fire department has 20 volunteer firefighters, with 2 pumpers, 2 quick attacks, a new ambulance, and 2 tank trucks. One pumper has recently been upgraded with a bigger hose. The city is building an addition on fire station to allow for more space for equipment."

Appendix H

Fire Department Distribution List and Survey

Fire Department Survey Distribution List

Alexandria	Fairbury	Lawrence
Belvidere	Fairfield	Milligan
Bladen	Fairmont	Nelson
Blue Hill	Friend	Ohiowa
Bruning	Geneva	Plymouth
Byron	Gilead	Red Cloud
Campbell	Glenvil	Riverton
Carleton	Grafton	Roseland
Chester	Guide Rock	Ruskin
Clay Center	Hardy	Shickley
Crete	Harvard	Steele City
Davenport	Hastings Fire & Rescue	Superior
Daykin	Hastings Rural	Sutton
Deshler	Hebron	Swanton
DeWitt	Holstein	Tobias
Diller	Hubbell	Trumbull
Dorchester	Jansen	UNL-Meat Animal Research Center
Edgar/Ong	Juniata	Western
Exeter	Kennesaw	Wilbur

Fire Department Survey

Distributed to all departments in the CWPP Region 8/18/2021

Nebraska Fire Department Survey

Contact Information:

Department Name	County(s)
Street Address	Mailing Address
Dept. Phone	Dept. Email

Chief Name:	Best Phone
Email:	Alt. Phone
Assistant Chief Name:	Best Phone
Email:	Alt. Phone
Secretary Name:	Best Phone
Email:	Alt. Phone
Treasurer Name:	Best Phone
Email:	Alt. Phone

Personnel:

Number	Type
	Volunteer
	Part-time
	Full-time

What Mutual Aid District(s) is your department in? _____

_____

If you have mutual aid agreements outside of formal MA districts please name the departments:

_____

_____

_____

Equipment:

Engines		(Fill in number of each type of equipment below)
Number	Type	Description
	Type 1	Structural: 1,000 GPM, 300 gal. capacity, four crew members
	Type 2	Structural: 500 GPM, 300 gal. capacity, three crew members
	Type 3	Wildland: 150 GPM, 500 gal. capacity, three crew members
	Type 4	Wildland: 50 GPM, 750 gal. capacity, two crew members
	Type 5	Wildland: 50 GPM, 400 gal. capacity, two crew members
	Type 6	Wildland: 50 GPM, 150 gal. capacity, two crew members
	Type 7	Wildland: 10 GPM, 50 gal. capacity, two crew members
Tenders	(see below)	Definition: Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive
Number	Type	Description
	T-1 (tactical)	250 GPM pump, 2,000 gallon capacity, 2 crew members
	T-2 (tactical)	250 GPM pump, 1,000 gallon capacity, 2 crew members
	S-1 (support)	300 GPM pump, 4,000 gallon capacity, 1 crew member
	S-2 (support)	200 GPM pump, 2,500 gallon capacity, 1 crew member
	S-3 (support)	200 GPM pump, 1,000 gallon capacity, 1 crew member
Other		
Number	Type	
	Equipment trucks	
	Other (Describe):	
	Road Dept. Equipment (describe)	
Yes/No (Circle)	Is any equipment housed away from the main fire barn?	Describe:

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? ☐ Yes ☐ No

If yes, please describe where and why:

Township _____ Range _____ Section _____ Local Name: _____

Location Description:

Issues (check all that apply):

- ☐ Multiple Structures
- ☐ Difficult Access
- ☐ Rough Terrain
- ☐ One way in and out
- ☐ Heavy fuels
- ☐ Lack of water within effective distance
- ☐ Other (specify): _____

Additional areas:

Township _____ Range _____ Section _____ Local Name: _____

Location Description:

Issues (check all that apply):

- ☐ Multiple Structures
- ☐ Difficult Access
- ☐ Rough Terrain
- ☐ One way in and out
- ☐ Heavy fuels
- ☐ Lack of water within effective distance
- ☐ Other (specify): _____

Are there bridges in your jurisdiction that won't support equipment weight? ☐ Yes ☐ No

If yes, please describe:

Are there other areas in your jurisdiction with high home density, infrastructure or other resources at high risk, or populated areas with one way in/out? ☐ Yes ☐ No

If yes, please describe:

What are your greatest concerns if a wildfire were to start in or enter your jurisdiction?

Does your jurisdiction have GIS layer(s) that show housing, infrastructure, bridge limits, hydrants and other water sources (other than the county assessor's GIS information)? ☐ Yes ☐ No

If yes, please provide contact information:

Name: _____

Phone: _____ Email: _____

Which of these is of greatest concern in your jurisdiction?
(Please rank 1 to 5 with 1 being most important)

_____ Housing
_____ Infrastructure
_____ Bridge limits
_____ Hydrants
_____ Other water sources

Is there anything else you think we should know? _____

_____

_____

_____

_____

Thank you for providing this information.

Please email a scan of the completed form to sbenson4@unl.edu or mail a hard copy to:

Nebraska Forest Service (Attn: Sandy Benson)
PO Box 0815
Lincoln, NE 68583-0815

Appendix I

Public Engagement

This section includes outreach documents, media releases, and stakeholders list

Steering Committee

Name	Title/Affiliation
Arens, Beth	Eastern Area Forester/NFS
Bowers, Josh	District Conservationist Upper Big Blue NRD/NRCS
Elder, Brad	Crete Fire Department
Elledge, Nicholas	Nuckolls Co. Emergency Manager
Engle, Jean	Fillmore Co. Emergency Manager
Farringer, Colt	Thayer Co. Emergency Manager
Feaster, Sonya	USFWS RxB Specialist
Goeschel, Tyler	Little Blue NRD Assistant Manager
Hogan, Lee	Adams Co. Board Chair
Kovarik, Jerry	District Conservationist, NRCS
Lewis, Tim	Clay Co. Emergency Manager
Luedtke, Scott	NGPC Southeast District Manager
McKee, John	Jefferson/Saline Emergency Manager
Pughes, Ron	Adams Co. Emergency Director
Reisen, Dave	State Training/Exercise Officer/NEMA
Seaton, Jay	NFS Forester
Siel, Todd	Lower Republican NRD General Manager
Starling, Brad	Hastings Fire Chief
Sunday, Ron	Webster Co. Emergency Manager
Theis, Scott	Lower Big Blue NRD Operations Supervisor
Yrkoski, Kyle	Upper Big Blue NRD, District Forester
Benson, Sandy	CWPP Coordinator/NFS

Outreach Documents

County Boards and Emergency Managers
(sent via e-mail 7/29/2021 and 7/26/2021)

To: County Boards
cc: Emergency Managers
From: Sandy Benson, Nebraska Forest Service
Subject line: Community Wildfire Protection Plan Steering Committee Designation - Please respond!
Attachments (2): Background info sheet; Statewide CWPP Map

County Boards:
My name is Sandy Benson, and I am a fuels management specialist with the Nebraska Forest Service (NFS). I work with communities and landowners in wildfire preparation efforts throughout the state. The NFS is developing Community Wildfire Protection Plans (CWPPs) statewide to help obtain funding for wildfire mitigation, maximize safety, bolster communications between local and state resources, and help communities understand the evolving role fire plays in Nebraska's landscape. Landowners in counties that have a CWPP in place are eligible to apply for a fuels reduction cost-share program that helps defray the costs of protecting structures and emergency access routes from wildfire.

Your county is in Nebraska's South Central East regional planning area, and **we invite you to designate an individual to participate on the steering committee to help identify local issues important to your citizens**. Some counties have designated emergency management staff. Others have selected fire department personnel or other individuals with expertise in wildfire response. Due to the large size of the planning area and everyone's busy schedules, no travel will be required, and we estimate a maximum of four hours of committee members' time will be needed over the course of the entire planning process, which should take less than a year. Committee work is designed to occur via email and teleconference.

The attached document* explains the details of this process. County boards will be invited to review and provide feedback on the draft plan. When it is finalized, county boards will have an opportunity to adopt it.

It is important that local officials are aware of the planning process and we welcome your county's participation. Most county boards are pleased to learn that there is no cost associated with CWPP preparation. The primary reasons for having a CWPP are:

- A CWPP is a wildfire-specific resource that coordinates with local emergency and hazard mitigation plans
- Lands within CWPP regions are eligible for cost-share funding

If you have questions, please contact me at 402-684-2290 or sbenson4@unl.edu. If you would like to speak to me by phone during your board meeting, please let me know the date and time so I can be available.

*Background Information:
The Nebraska Forest Service (NFS) is in the early stages of preparing a **Community Wildfire Protection Plan (CWPP)** for the South Central East region of Nebraska, which includes Adams, Clay, Fillmore, Jefferson, Nuckolls, Saline, Thayer, and Webster Counties. This wildfire-specific resource coordinates with local emergency plans and allows local landowners and others to apply for federal and state cost-share funds for vegetative fuels treatment (such as eastern redcedar reduction) and other hazard mitigation efforts within the CWPP region. There is no cost to counties.

What is a CWPP?
A CWPP is one of the most successful tools for addressing the challenges and responsibilities that arise from living in a wildfire-prone environment. CWPPs specifically define wildfire risk areas within and adjacent to communities, the measures necessary to mitigate those risks, and a plan of action to implement these measures.

The collaborative CWPP process is effective in maximizing coordination and communication between emergency response agencies and the community. Developing a CWPP helps clarify priorities to protect life, property, infrastructure, and valued resources. Protecting communities and resources from wildfire is a team effort that cannot be accomplished by any one person or entity.

The CWPP complements local emergency operations plans. It addresses wildfire concerns including risk assessment, critical infrastructure, and preparedness. It recommends an action plan to increase the overall safety and effectiveness of wildfire protection planning within your communities. Local officials collaborate with planners to guide the process.

Some background
After the large wildfires in 2012, the state legislature passed the Wildfire Control Act of 2013, which provided funding for single-engine air tanker bases, cost share for hazardous fuels reduction, and expansion of programs to provide volunteer fire districts with more fire suppression equipment. As these programs were implemented, Nebraska Forest Service staff realized there were very few Community

Wildfire Protection Plans in place across the state. CWPPs are needed for an area to qualify for many wildfire-related grants and cost-share programs.

The South Central East CWPP is one of 14 plans that the NFS is preparing in Nebraska to create a statewide CWPP network. NFS is also updating the five CWPPs that were completed in 2014 and 2015 and are now due for their periodic review.

Why should we have a CWPP?

- Past wildfires throughout Nebraska have presented many challenges and issues
- A CWPP is a mitigation and preparedness plan to reduce wildfire risk
- It establishes a collaborative relationship among entities BEFORE a fire occurs
- It develops a pre-attack plan to maximize firefighter readiness and safety
- It increases grant application success by documenting wildfire planning and projects
- Fuels reduction grant funds are only available for areas that have a CWPP

Community benefits

- Define planning boundaries that address local concerns
- Identify and prioritize areas for hazardous fuel reduction treatments
- Recommend treatment methods
- Strengthen local efforts to reduce structural ignitability
- Enhance emergency management and communication
- Foster public education/action to reduce wildfire risk

How much does it cost?
The Nebraska Forest Service is covering the costs associated with the CWPP. Counties and fire departments will not be asked for monetary contributions.

How does it work?
The first step is to put together a steering committee to guide the process and ensure that local issues are front and center in developing the plan. Steering committees may include county board representatives, emergency managers, fire department personnel, natural resources professionals, and other interested individuals. The committee defines priority areas, identifies topics and issues important to local emergency responders, and provides general guidance as the plan is prepared.

Once we have gathered the information, we will prepare a draft plan for review, incorporate edits and changes, then finalize the plan and make it available to all. This process usually takes less than a year. Counties are invited to sign the finalized plans.

Further information is available by emailing sbenson4@unl.edu or call Sandy Benson at 402-684-2290.

Fire Departments
(This was sent via e-mail 8/18/2021 along with the survey in Appendix H)
To: Fire Departments
cc: Emergency Managers
From: Sandy Benson, Nebraska Forest Service
Subject line: Fire Dept. Info - Community Wildfire Protection Plan - Please respond!
Attachments: VFD Survey, Background Info for VFDs, Map of NFS CWPP areas

Fire Departments: Please use the attached form to update your fire department info as we prepare the regional Community Wildfire Protection Plan for your area. Please return as soon as possible via scan/email reply to this message (preferred) or snail mail to the address on the last page of the form. Thank you!

The background info shown above was attached to the VFD outreach email, with the following paragraph added:
Including up-to-date information from local fire departments is important. Please complete and return the attached questionnaire. It helps identify your department's needs and concerns and provides a current listing of your capacity.

Cities and Villages
Villages and cities were emailed outreach flyers on 8/19/2021.

Other Stakeholders
Outreach flyers were emailed to NRDs, state and federal natural resources agencies, Non-government organizations (NGOs), and state and federal legislators in July and August 2021 during the steering committee outreach process. In addition, general news releases provided public input outreach and notification of the draft public review and comment period.

Media Releases

Print Media and Radio

An invitation to participate was published in local newspapers and sent to local radio stations on August 19, 2021:

Local input needed for community wildfire protection plan

Local counties are working with the Nebraska Forest Service to create a Community Wildfire Protection Plan (CWPP) to enhance collaboration and communication among the various agencies and organizations that manage fire in the south central east part of Nebraska, and to help them effectively prepare for and respond to wildfire. People who work with land management, fire, or community preparedness, and other interested individuals are invited to provide input.

The CWPP area includes Adams, Clay, Fillmore, Jefferson, Nuckolls, Saline, Thayer, and Webster Counties. Landowners in counties that adopt the plan will be eligible to apply for federal and state cost-share funds for vegetative fuels reduction and other hazard mitigation efforts in at-risk areas within the CWPP boundary. The plan may also provide increased opportunities for counties, municipalities, and rural fire districts to seek grant funding for other activities related to fire protection.

The plan, part of a statewide network of Community Wildfire Protection Plans, provides information useful to local emergency responders and those from outside the area who provide mutual aid. The CWPP consolidates and relays critical information needed for responders in unfamiliar terrain. Each county can include details vital to protecting its first responders, residents, and property.

A CWPP is a tool for fire departments, agencies, emergency managers, public officials, and land managers to use when addressing wildfire concerns. It contains a fire mitigation plan for each county that includes:

- Community profile (area description, roads, land use, location of at-risk areas)
- Wildfire risk assessment (fire history, fire hazard, protection capabilities, infrastructure)
- Structure analysis (fire risk rating and ignitability)
- Hazardous fuels reduction recommendations
- Emergency operations (responsibilities, capabilities, partners, mutual aid agreements)
- Recommendations for improving community preparedness
- Contact information and equipment lists for rural fire departments

Feedback from local residents may include topics such as identification of ingress/egress routes and safe zones for citizens, structures and critical infrastructure (highways, cell towers, bridges, schools, etc.), areas with homes or developments in high-risk areas, and high-risk ignition sources.

People may have additional concerns or suggestions. All ideas are welcome. For further information or to provide comments, call 402-684-2290 or email sbenson4@unl.edu

* * *

Follow-up News Releases

Media releases for draft review and publication of final plan were distributed in 2022.

Online Outreach

On August 10, 2021, NFS staff added information about the South Central East CWPP to the Nebraska Forest Service website: https://nfs.unl.edu/community-wildfire-protection-plan. During the planning process, staff posted periodic updates on the page, including links to the draft and final documents.

On August 18, 2021, NFS staff posted the public outreach news release for the South Central East CWPP on the Nebraska CWPP Facebook page: https://www.facebook.com/groups/451134565293952/. During the planning process, staff posted periodic updates to this page, including milestones reached and links to the draft and final documents.

Stakeholders List

County Boards and Emergency Management

Adams, Clay, Fillmore, Jefferson, Nuckolls, Saline, Thayer, and Webster

Fire Departments

See Appendix H

Natural Resources Districts

Little Blue, Lower Big Blue, Lower Republican, Upper Big Blue

State Agencies
Nebraska Forest Service, Nebraska Game and Parks Commission, Nebraska State Fire Marshal's Office, Board of Educational Lands and Funds, Nebraska Emergency Management Agency

Federal Agencies
Natural Resources Conservation Service, US Fish and Wildlife Service

Non-Government Conservation Organizations
Pheasants Forever, The Nature Conservancy, Trailblazer RC&D

Municipalities
In the counties of Adams, Clay, Fillmore, Jefferson, Nuckolls, Saline, Thayer, and Webster

Prescribed Fire Associations
Rainwater Basin, South Central Nebraska, and Tri-County PBAs

State Legislators
Districts 32, 33, 38

Federal Legislators
Senators Deb Fischer and Ben Sasse; Rep. Adrian Smith

Interested Individuals

Appendix J

- Wildland Urban Interface Mitigation Strategies
- Structural Ignitability Reduction Practices
- Firewise® Landscaping
- Nebraska Fire-Resistant Plant List

Wildland Urban Interface Mitigation Strategies and Structural Ignitability Reduction Practices

1) Develop a program to increase awareness of Firewise® standards for community defensibility and designate, for firefighter safety, which homes and/or parts of communities are not defensible
2) Introduce and expand the understanding of the "Home Ignition Zone" and emphasize how survivability depends on maintenance necessary to reduce and manage home ignition potential
3) Create guidelines for developers and property owners who intend to construct roads, driveways, and dwellings to provide the following:
    a. Name, address, and GPS location for each road, driveway, and building site
    b. Fuel treatment standards for the areas between building sites
    c. Evidence that Firewise® building standards and defensible space information has been provided to every lot and homebuyer or develop Firewise® based requirements for new building construction standards
    d. Road construction and maintenance standards that accommodate emergency equipment
    e. Require at least two access routes for developed areas and subdivisions
    f. Designate locations for maintained safety zones and water facilities
4) Subdivision residents can work together to improve defensibility of their whole subdivision; this could include connecting home site defensible space areas and/or fuel hazard reduction and thinning 150 to 200 feet from buildings
5) Develop accurate maps for subdivisions and access roads
6) Treat fuels along strategic roads
7) Long driveways in wooded areas should be graveled and provided with terminus turnaround that has at least a 45-foot radius or a pull-in and pull-out facility
8) Mark driveways without turnaround or with steep slopes with a sign indicating limitations
9) Mark safety zones and helispots where fuel continuity is dense, and zones are not obvious
10) Develop and implement a standard for signing roads and addressing and marking homes for more efficient emergency access

Web Sources: Wildfire Preparedness

FEMA: Local Mitigation Planning: https://www.fema.gov/local-mitigation-planning-resources

Fire-Adapted Communities®: http://www.fireadapted.org/

Firewise® Communities: http://www.firewise.org/

Firewise Guide to Landscaping and Construction: https://www.nfpa.org/-/media/Files/Firewise/Brochures-and-Guides/FirewiseGuideToLandscapeandConstruction.ashx

I Am Responding (Emergency responder supplemental dispatch notification system): https://iamresponding.com/v3/Pages/Default.aspx

Nebraska Forest Service Wildland Fire Protection Program: https://nfs.unl.edu/fires-nebraska

Nebraska Wildfire Risk Assessment Portal: Public site: https://nebraskawildfirerisk.com/

Ready, Set, Go! http://www.wildlandfirersg.org/

Wildfire Risk to Communities interactive website: https://wildfirerisk.org/

Firewise® Landscaping and Nebraska Fire-Resistant Plant List

Firewise® Landscapes

Homeowners value landscapes for the natural beauty, privacy, shade and recreation they offer and frequently select properties that include or are near woodlands or other natural areas to visually expand the landscape. One of the risks of properties adjoined to natural areas, however, is that they can be more vulnerable to wildfires.

Creating Defensible Space

In fire-prone areas, property owners can take measures to minimize the risk of wildfire damage by creating a "defensible space" around the home or other buildings. Some of the ways to create more Firewise® landscapes include:

- Planting lower-growing plants or groundcovers near the home to form low, dense mats with strong root systems
- Avoiding the use of tall grasses close to buildings since they can ignite easily and burn rapidly
- Mulching with rocks, gravel or other hardscaping around the foundation instead of bark, pine needles or other flammable mulches
- Paving patio areas and creating raised beds to create firebreaks
- Planting low-growing succulent shrubs rather than taller, resinous evergreen shrubs
- Spacing trees so that tree crowns are 10 feet from each other
- Pruning dead limbs
- Removing dried annuals or perennials
- Raking leaves and litter as they build up
- Placing screens beneath decks to keep leaves or woody debris from collecting underneath
- Keeping wood piles at least 30 feet away from the house
- Providing open access for firefighting equipment that is not limited by fences, trees, or other obstructions
- Keeping propane tanks a good distance from buildings, and taking care when refueling garden equipment
- Using non-flammable outdoor furniture

Selecting Firewise Plant Materials

No plant species is entirely fireproof. Virtually any vegetation can fuel a fire, but some species are more resistant than others. The following information can help property owners select more fire-resistant plant materials, but where they are planted and how they are cared for can be just as important as the plants themselves.

- Planting a variety of sizes and species of plants in small, irregular clusters creates a better barrier than large masses of a single species
- Groundcovers or other plants that grow close to the ground offer less fuel
- Conifers or other plants are high in very flammable resin, so it's best to keep them thinned and pruned—especially close to the ground
- Conifers with thick bark and long needles are more able to withstand fire
- Salt-tolerant plants tend to be somewhat more fire-resistant
- Deciduous plants have higher moisture content, are less flammable and, when dormant, offer less fuel
- Drought-tolerant plants tend to be more fire-resistant as they are likely to contain lots of moisture (succulents) or to shed leaves or needles during extreme drought
- Plants with open, loose branches and minimal vegetation (such as currant and mountain mahogany) are less of a hazard, as are plants that grow slowly and need little pruning
- Plants, like aspen, that can resprout following a fire will more quickly rejuvenate a landscape

Using Native Prairie Plants

In Nebraska it is often the case that a "Firewise" landscape should also be a "waterwise" landscape where drought-tolerant plants are an important part of the mix. Obviously, our native plants have evolved to grow under natural moisture conditions and many of them are suitable for both a 'waterwise' and a 'Firewise' landscape. Just a little water here and there can go a long way to keeping such plants green and viable. Another important aspect of using native plants is that they play a vitally important role in supporting biodiversity and all the benefits derived from it. We strongly recommend that native plants be utilized within any landscape, including the Firewise landscape. The trick is to use them appropriately, especially near the home.

Although native prairie grasses and forbs make a lot of sense in a "water-wise" landscape, they can also be highly combustible when they are brown and dry. For a Firewise landscape, prairie plants, especially taller grasses, should be used sparingly and judiciously within the 30 foot "Lean, Clean and Green Zone" nearest the home. A few scattered here and there for ornamental affect are fine, but they should not be massed tightly close to the home. A prairie meadow or thick border planting should be reserved for those areas farther away from important structures.

Lawn and Groundcover

One of the best ways to defend a structure against wildfire is to maintain a closely cropped green zone near the home. This typically means the maintenance of a green lawn, but turf grass is not the only choice. Cool-season lawn grasses such as Kentucky bluegrass and tall fescue are good choices, although they can require significant amounts of supplemental irrigation to keep green in dry weather. For sunny areas, a good alternative is buffalo grass, which requires much less moisture than other lawn grasses. Our native blue grama can also be used as a turf alternative, however it will need to be mowed higher – at 8-10" while green and then mowed short when dormant. Recent years has brought the advent of many sedge species as lawn alternatives especially for more shady zones.

Groundcovers don't need to be grasses or grass-like plants requiring mowing. There are several species of "Firewise" groundcover perennials that make sense including such things as vinca, bergenia, hosta, bugleweed, geranium, sedum, primrose, pussytoes, snow in summer, Virginia creeper, wild strawberry, and yarrow.

Introduced Perennials and Ornamental Grasses

As with native plants, there are many great non-native species that can be used in a "Firewise" landscape that is also "waterwise." The trick is to place them appropriately and cut them back (clean them up) when they die back late in the season. Some of our favorites include sedum, geranium, coral bells, daylily, lambs ear, feather reed grass, Korean reed grass, and fountain grass.

Trees and Shrubs

Although nearly any tree or shrub could burn in a severe fire, it is the highly volatile evergreen species including pine, spruce, fir, juniper, and cedar that pose the most risk when growing near homes or other structures. Within the area nearest the home (30-foot interior zone) it is advisable to exclude volatile evergreens entirely. However, because deciduous trees are so important at casting shade and cooling the home and its surroundings, and because they are not nearly as prone to burning, they can be utilized relatively close to the home. Keep in mind that any branches directly overhanging the roof should be removed. Some of the best deciduous trees for planting near homes include our tough native species including hackberry, bur oak, coffeetree, and honeylocust.

Most deciduous shrubs are acceptable for use in a Firewise landscape. Nearest the home, the shrubs should be kept lower than 30 inches and they should not be massed in tight groupings. Beyond the 30-foot interior zone, the shrubs can be taller and more tightly spaced, however grouping should still be kept relatively small until at least 50 feet from the home. Native species will do the most for biodiversity. Species to consider include mountain mahogany, rabbit brush, sumac, serviceberry, currant, snowberry, gooseberry, plum, and chokecherry.

Firewise Plants for Nebraska

Perennials & Groundcovers

Artemisia
Bergenia
Blanket flower, *Gaillardia*
Bugleweed, *Ajuga*
Candytuft, *Iberis*
Catmint, *Nepeta*
Coneflowers, *Rudbeckia*
Columbine, *Aquilegia*
Coral bells, *Heuchera*
Coreopsis
Daylily, *Hemerocallis*
Flax, *Linum*
Geranium
Hens and chicks, *Sempervivum*
Iris
Lambs ear, *Stachys*
Penstemon
Pinks, *Dianthus*
Primrose, *Oenothera*
Pussytoes, *Antennaria*
Sage, *Salvia*
Sedum
Snow-in-summer, *Cerastium*
Violets, *Viola*
Virginia creeper, *Parthenocissus*
Wild ginger, *Asarum*
Wild strawberry, *Fragraria*
Yarrow, *Achillea*

Shrubs

Buffaloberry, *Shepherdia*
Cherry and plum, *Prunus*
Cinquefoil, *Potentilla*
Coralberry, snowberry, *Symphoricarpos*
Cotoneaster
Currant and gooseberry, *Ribes*
Dogwood, *Cornus*
Lilac, *Syringa*
Mahonia
Mock orange, *Philadelphus*
Mountain mahogany, *Cercocarpus*
Ninebark, *Physocarpus*
Rose, *Rosa*
Sumac, *Rhus*

Trees

Aspen, cottonwood and poplar, *Populus*
Birch, *Betula*
Black cherry, *Prunus*
Boxelder, *Acer*
Bur, Gambel, Chinkapin oak, *Quercus*
Hackberry, *Celtis*
Maple and boxelder, *Acer*
Ohio buckeye, *Aesculus*
Willow, *Salix*

Appendix K

Link to the Nebraska Forest Service 'Yellow Book' Emergency Assistance for Wildfire Control

https://nfs.unl.edu/documents/Yellowbook.pdf

This reference is a "must have" for Nebraska's emergency responders. It contains:

- Contact information for state, federal and private agencies that have emergency suppression resources or can provide technical expertise in the suppression of wildfires
- Aerial Applicator and Foam Retardant Directory
- Deployment procedures and forms needed to order a Single Engine Air Tanker (SEAT)
- Map of cooperating aerial applicators and SEAT base locations