

CONOVER / LAND O' LAKES
COMMUNITY WILDFIRE PROTECTION PLAN



NORTH CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION

**CONOVER / LAND O' LAKES
COMMUNITY WILDFIRE PROTECTION PLAN**

prepared for:

Joint Town of Conover & Town of Land O' Lakes
Wildfire Plan Steering Committee

by:

North Central Wisconsin Regional Planning Commission

adopted by Town of Conover Board of Supervisors on:

May 7, 2009

adopted by Town of Land O' Lakes Board of Supervisors on:

May 13, 2009

This plan was prepared at the request and under the supervision of the Joint Town of Conover and Town of Land O' Lakes Wildfire Plan Steering Committee and the Wisconsin Department of Natural Resources by the North Central Wisconsin Regional Planning Commission (NCWRPC). For more information, contact:

NORTH CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION
210 McCLELLAN STREET, SUITE 210
WAUSAU, WI 54403



Telephone: 715-849-5510 FAX: 715-849-5110 email: staff@ncwrpc.org

www.ncwrpc.org

CONOVER – LAND O LAKES CWPP

CHAPTER 1: INTRODUCTION

Plan Purpose	1
Community Wildfire Protection Plan	1
Collaboration/Planning Committee	1
Statement of Intent	2
Planning Process	2
Planning Goal and Objectives	4

CHAPTER 2: COMMUNITY PROFILE AND EXISTING CONDITIONS / RISKS

Location	5
Land Ownership	5
Land Use	6
Wildland Urban Interface (WUI)	11
Development Pattern	11
Population and Housing	11
Publication, Estimates and Projections	11
Seasonal Population	13
Population Impacts on Wildfire Risk	13
Age Distribution	13
Age Distribution Impacts on Wildfire Risks	13
Employment Location	14
Housing Inventory	14
Weather Conditions/Fire Season	15
Tree and Vegetation Mortality	15
Insect Infestation	15
Disease	16
Drought	17
Severe Storms	17

Other Concerns Regarding Wildfire Risk	18
Access	18
Fuels near Structures	18
Structure Flammability	18
Fire Protection Background	18
Fire Suppression Responsibilities	19
Fire Policy and Programs	22
CHAPTER 3: RISK ASSESSMENT	
Elements of Risk Assessment	24
Planning Units.	24
Risk Assessment Methodology/Analysis	28
Risk Assessment Mapping	28
CHAPTER 4: MITIGATION STRATEGY	
Proposed Mitigation Strategies	35
Recommended Mitigation Actions	35
Vegetative Treatments in Planning Units	37
Public Outreach and Education	38
Treatment of Structural Ignitability	39
Evacuation Planning	43
CHAPTER 5: IMPLEMENTATION	
Priority Mitigation Projects	46
Mitigation Action Plan	48
Review and Update Mitigation Action Plan	49
Mitigation Projects Tracking	49

APPENDIX : FUNDING OPPORTUNITIES	50
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GLOSSARY	53
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List of Figures

Figure 1: WDNR Fire Protection Areas	19
Figure 2: Risk Assessment of Analysis and Results	29

List of Tables

Table 1: Land Ownership In Acres, 2008	5
Table 2: Land Use Inventory In Acres, 2008	6
Table 3: Population Trends, 1980-2000	12
Table 4: Population Projections, 2010-2030	12
Table 5: Age Distribution, 1990-2000	13
Table 6: Total Housing Units, 1990-2000	14
Table 7: Housing Unit Projections, 2010-2030.	14
Table 8: WDNR Wildfire Suppression Resources	20
Table 9: Local Wildfire Suppression Resources	21
Table 10: Mitigation Action Plan	48

List of Maps

Map 1: Location Reference	7
Map 2: Land Ownership	8
Map 3: Land Use	9
Map 4: Planning Units.	26
Map 5: Fire Hazard Rating	31
Map 6: Past Occurrences	32
Map 7: Significant/Critical Facilities and Infrastructure	33
Map 8: Protection Capability	34
Map 9: Evacuation Routes	45

CHAPTER 1: INTRODUCTION

PLAN PURPOSE

This plan is a Community Wildfire Protection Plan (CWPP) as defined in Title 1 of the Healthy Forest Restoration Act (HFRA) of 2003. The purpose of this CWPP is to provide the Towns of Conover and Land O' Lakes, local fire departments, Vilas County, the Wisconsin Department of Natural Resources (WDNR), and the U.S. Forest Service (USFS) with information and tools to help them reduce potential risks associated with wildfires and to collaboratively identify wildfire mitigation actions that will provide solutions to address the impacts of wildfire hazards. The plan will also assist the citizens of the two towns to prevent wildfires and be better prepared to deal with wildfire hazards. The plan develops strategies aimed at protecting life, property, and the natural environment.

COMMUNITY WILDFIRE PROTECTION PLAN

A CWPP is a written document that identifies how a community will reduce its risk from wildland fires. A CWPP is mutually agreed upon by local, state, and federal representatives and stakeholders.

A CWPP should be developed in any community that is in proximity to highly flammable wildland fuels, or is listed as an "at-risk" community in a federal or state risk assessment. The Towns of Conover and Land O' Lakes are interspersed with highly flammable wildland fuels and have been identified as "high risk" communities in the Wisconsin Communities-at-Risk (CAR) assessment.

A CWPP requires the following three elements:

- **Prioritized fuels reduction** – Identification and prioritization of wildland areas for hazardous fuels reduction treatments, as well as recommending methods for achieving hazardous fuels reductions on both private and public lands.
- **Treatment of structural ignitability** – Recommending measures that homeowners can take to reduce structural ignitability throughout the at-risk community.
- **Collaboration** – Ensure a collaborative effort between local and state government in consultation with federal agencies is used to prioritize fuels reductions and recommend measures to treat structural ignitability.

Collaboration/Planning Committee

The Conover – Land O' Lakes Community Wildfire Protection Plan development process is intended to be open and collaborative in its effort to improve the safety of the community and its resources. The planning committee was made up of representatives from the communities, local fire departments, and state and federal agencies. The representatives listed below comprise the

core decision-making team that are responsible for the plan and mutually agreed on the plan's contents:

- Steve Rhode - Conover Town Chair
- Gary Vold - Conover Fire Chief
- Rich Martinson - Conover Fire
- Mary Rasmussen - Conover Citizen
- Dan Balog - Land O' Lakes Town Chair
- Sam Otterpohl - Land O' Lakes Fire Chief
- Dennis Wasielewski - Land O' Lakes Homeowner/Lake Association
- Jim Galloway - Vilas County Emergency Management
- Larry Stevens - Vilas County Forestry
- John Huppert - WDNR Forester-Ranger
- Stephanie Jones - WDNR Wildland Urban Interface Specialist

Statement of Intent

The intent of this plan is to help fire protection agencies, community leaders, and natural resource professionals to be better prepared to protect the community's residents, property, and natural resources against the negative impacts of wildfire.

Planning Process

The steps in the Conover – Land O' Lakes Community Wildfire Protection Plan process were adapted from the publication "Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities" as follows:

1. Convene Decision Makers and Involve Federal and State Agencies

The process began with a meeting of representatives from local government, local fire authorities, and state and federal agencies on June 26, 2008 in Conover, Wisconsin. The meeting was facilitated by the Wisconsin Department of Natural Resources and the North Central Wisconsin Regional Planning Commission.

- This initial meeting provided overview information on CWPPs, the planning process, and available grant funding.
- A discussion on roles and responsibilities helped establish the planning committee (listed above) and determined that the North Central Wisconsin Regional Planning Commission would facilitate the process and draft the plan for the towns.

2. Engage Interested Parties

A broad range of interested organizations and stakeholders were contacted and encouraged to be part of the development of the CWPP. The contact list included representatives of federal, state, and local land management agencies, homeowner

associations, area lakes district, and others. From these contacts, a working committee was established to guide the CWPP process.

3. Establish a Community Base Map

Working with WDNR and local representatives, the Regional Planning Commission developed a base map of the communities that displays inhabited areas at risk and areas that contain critical infrastructure. The base map also identifies planning units of the towns as defined by the planning committee.

4. Develop a Community Risk Assessment

Working collaboratively, the WDNR, Regional Planning Commission and local representatives developed a risk assessment for the area based on fuel hazards, risk of wildfire occurrences, at-risk infrastructure and other community values at risk, and local preparedness and firefighting capability.

5. Establish Community Hazard Reduction Priorities and Recommendations to Reduce Structural Ignitability

From planning committee discussions, the towns established an overarching goal to "provide for public safety from wildfire." The committees then established prioritized objectives to achieve that goal. Objectives focused on fuel treatment, reducing structural ignitability, and improving fire response capability.

6. Develop an Action Plan and Assessment Strategy

Mitigation strategies were developed by the planning committee to help the towns meet the established mitigation objectives. The mitigation action plan details specific activities the towns and WDNR plan to undertake to meet the established wildfire protection objectives.

7. Complete the Community Wildfire Protection Plan

Adoption of the CWPP by the Towns of Conover and Land O' Lakes completes the plan. The plan is finalized after mutual agreement from the planning committee is achieved and public comment from open houses is considered and incorporated into the plan as applicable.

Planning Goal and Objectives

The Towns of Conover and Land O' Lakes CWPP planning committee identified and prioritized the following goal and objectives to be the foundation for this Community Wildfire Protection Plan:

Goal: Provide for public safety from wildfire.

Objective 1: Reduce hazardous fuels on private land and around structures (home ignition zone).

Objective 2: Involve the public in assessing and reducing wildfire hazards in a safe and effective manner.

Objective 3: Identify and mitigate safety hazards to the public and firefighters.

Objective 4: Improve intergovernmental coordination and cooperation in wildfire planning and protection.

Objective 5: Reduce hazardous fuels on public land.

Objective 6: Create new approaches to getting wildfire prevention messages to the public.

Objective 7: Identify needs to improve local fire department suppression capabilities (both structural and wildfire)

CHAPTER 2: COMMUNITY PROFILE AND EXISTING CONDITIONS/RISKS

This chapter looks at the community profile and some existing conditions in Conover and Land O' Lakes that may add to the challenges of managing a wildfire, could further fuel a wildfire, or are considerations related to wildfire mitigation or management.

LOCATION

The Towns of Conover and Land O' Lakes are located in northern Vilas County in north central Wisconsin; see Map 1 - Locational Reference. The Towns are just north of the City Eagle River and adjacent to a number of other Vilas County towns with the State of Michigan to the north. The surrounding towns include Phelps, Washington, Lincoln, Cloverland, Plum Lake, Boulder Junction and Presque Isle.

The Town of Conover consists of approximately 56,103 acres (87.2 square miles) while Land O' Lakes has approximately 60,951 acres (95.3 square miles). The Towns are located adjacent to the Chequamegon - Nicolet National Forest. Although there are no incorporated communities within the Towns, there are nodes of development around the larger lakes and a few other areas.

LAND OWNERSHIP

Public land ownership accounts for 26,722 acres or 48 percent of Conover's total area and 12,596 acres or 21 percent in Land O' Lakes, see Map 2 and Table 1. In Conover, 44 percent of the land is within private ownership with 66 percent for Land O' Lakes. The predominant public landowner in the Town of Conover is Vilas County with 24,231 acres while the State of Wisconsin has 10,678 acres in Land O' Lakes, associated primarily with the Northern Highland American Legion State Forest. In addition, 1,030 acres of the public land is owned by the federal government within the Town of Conover.

<i>Type</i>	<i>Conover</i>	<i>Land O' Lakes</i>	<i>Totals</i>
Federal	1,030	0	1,030
State	1,461	10,678	12,139
County	24,231	1,917	26,149
Private	24,564	39,951	64,515
Water	4,817	8,404	13,221
Total	56,103	60,951	117,054

Source: NCWRPC GIS

Since a large amount of land in the Towns is held publicly, government agencies manage a significant area of the land in the towns. However, it is important to realize that the vast majority percent of all fires are human-caused. Fires can quickly move from private lands to public land and vice versa since most private holdings in the town are interspersed within public lands.

LAND USE

Land use is an important determinant in the potential impact wildfire may have on an area and the necessary mitigation actions. Land use mapping depicts the activities or usage on the land surface such as woodlands or residential development. An understanding of the land use within the towns is an important consideration. Map 3 depicts the land use present in the Towns.

The majority of the land in the Towns (80 percent of the total acreage) is woodlands primarily in use for forestry and recreational activities; see Table 2. Of the remaining 20 percent of the total area, the land uses consist of residential development (4.8 percent), transportation infrastructure (3.2 percent), commercial and industrial development (0.5 percent), agricultural land (0.5 percent) and governmental, open space, recreation and water make up the remaining percentage.

<i>Type</i>	<i>Conover</i>	<i>Land O' Lakes</i>	<i>Totals</i>
Agriculture	532	0	532
Commercial/Industrial	303	256	559
Governmental	0	21	21
Open Space	67	110	117
Open Water	4,809	8,411	13,221
Recreation	0	60	60
Residential	3,428	2,173	5,601
Transportation	1,773	1,919	3,692
Woodlands	45,190	48,000	93,190
Total	56,103	60,951	117,054

Source: NCWRPC GIS

Woodlands

Woodlands consist of land that remains undeveloped and includes forestlands (both managed and unmanaged), water features, and other natural areas. Woodlands account for the largest land use category within both Towns. With the exception of the large number of lakes with concentrated residential and scattered development throughout, the Towns are almost entirely covered by forest. The woodlands cover 45,190 acres of land, or 81 percent of the Town of Conover and another 48,000 acres or 78.8 percent of the Town of Land O' Lakes.

Certain vegetation types within woodlands present a higher flammability risk than other types. The following vegetation types in Conover and Land O' Lakes present the highest flammability risk and are the most volatile (listed in order of highest to lowest risk): jack pine, red pine, oak, birch-aspen, and mixed hardwoods. Detailed acreage numbers are not available for all lands within the Towns, however, timber type acreages for County forestlands within the two Towns provide some indication of the prevalence of certain species in the area. There are 5,148 acres of jack pine, 2,788 acres of red pine, 756 acres of white pine and 3,347 acres of black spruce (includes one-mile buffer area around the Towns).

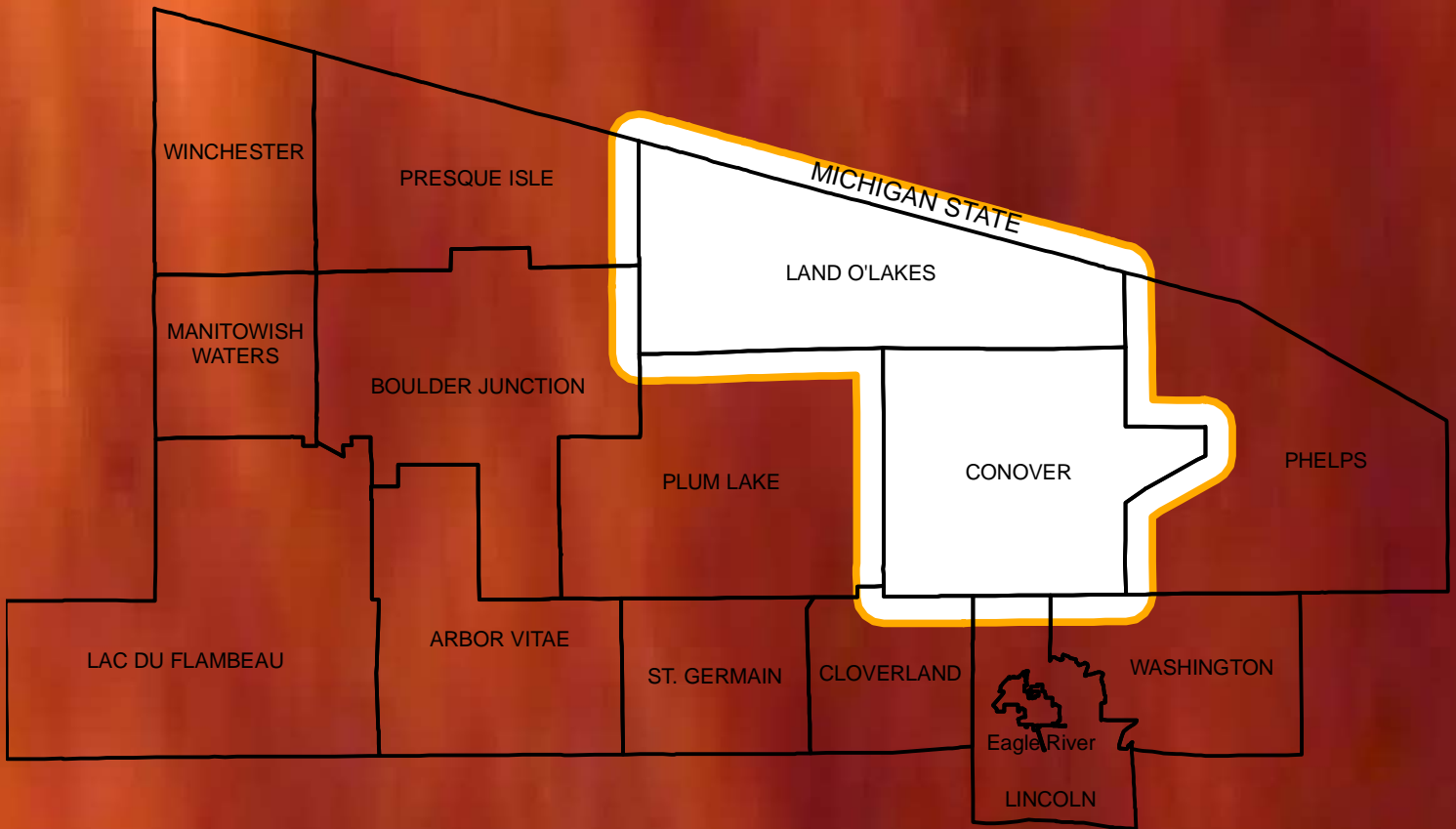
Town of Conover & Land O' Lakes, Vilas County

Map 1 Locational Reference Map



Legend:

- Minor Civil Divisions (represented by a black outline)
- Study Area (represented by a yellow outline)



Prepared By:
**North Central
Wisconsin Regional
Planning Commission**

210 McClellan St., Suite 210, Wausau, WI 54403
715-849-5510 - staff@ncwrpc.org - www.ncwrpc.org

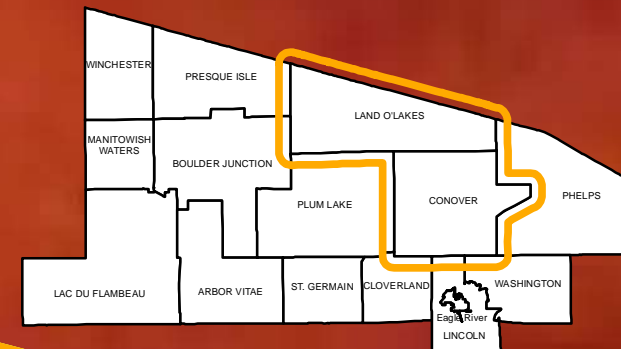
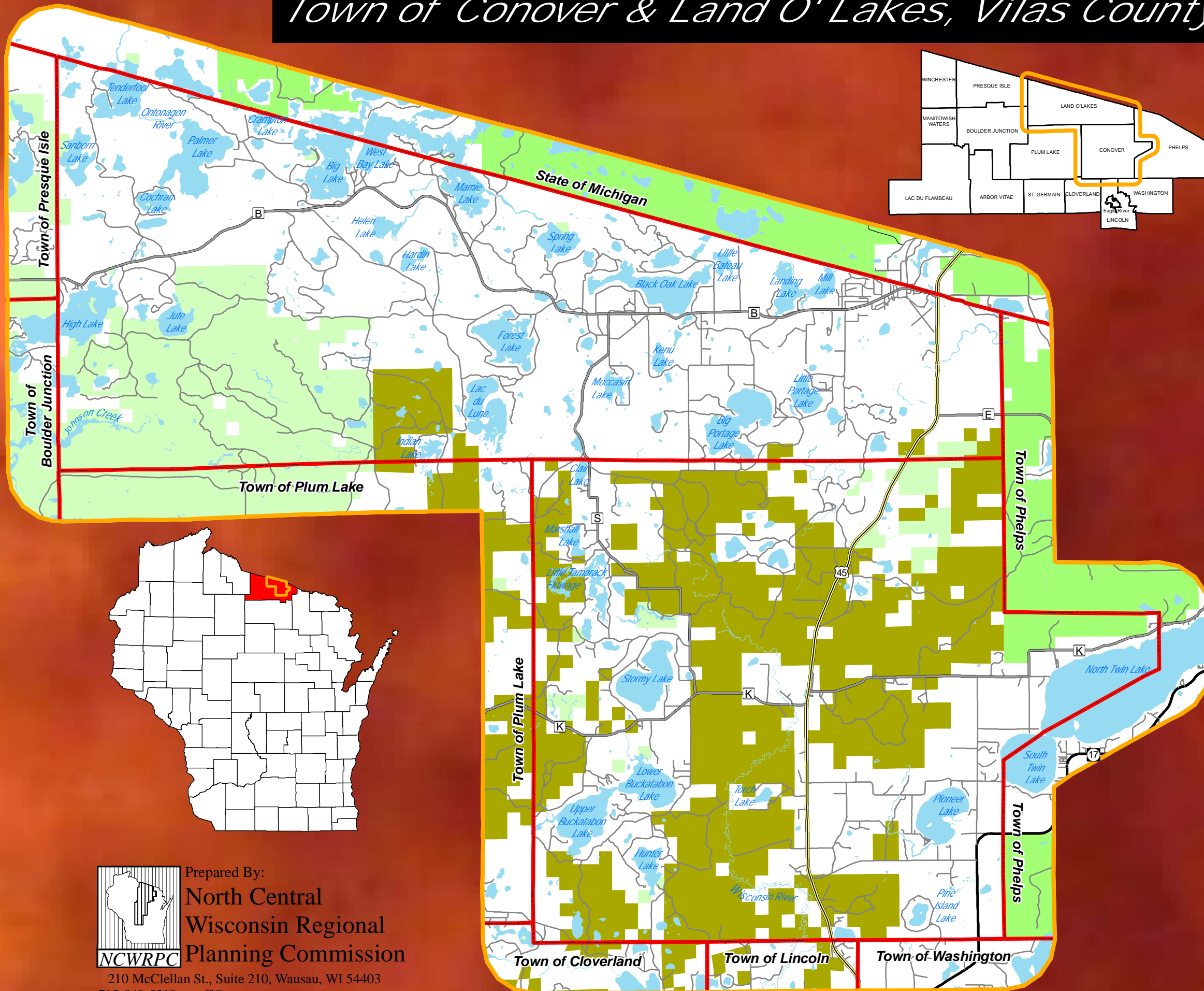
Source: WI DNR, NCWRPC

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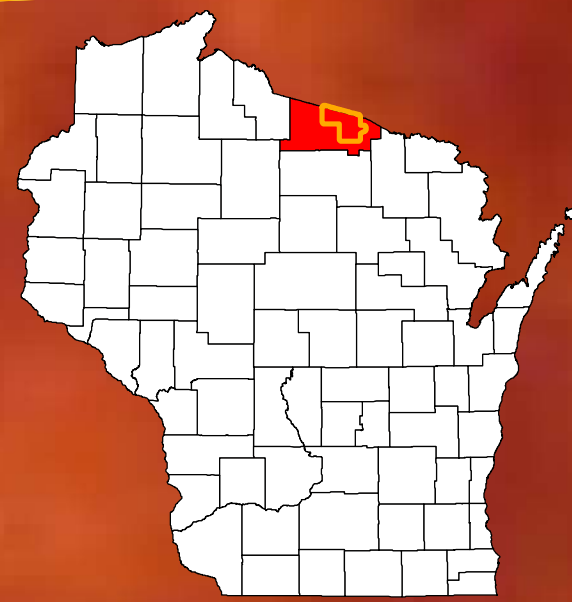
Town of Conover & Land O' Lakes, Vilas County

Map 2

Ownership
Map



- Minor Civil Divisions
- US Highways
- State Highways
- County Highways
- Roads
- Water
- Study Area
- Federal Lands
- State Lands
- County Lands



Source: WI DNR, NCWRPC
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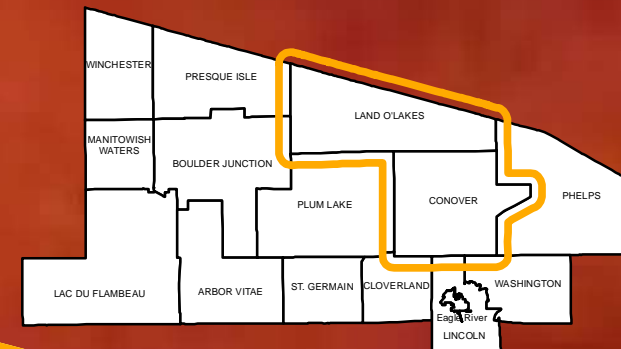
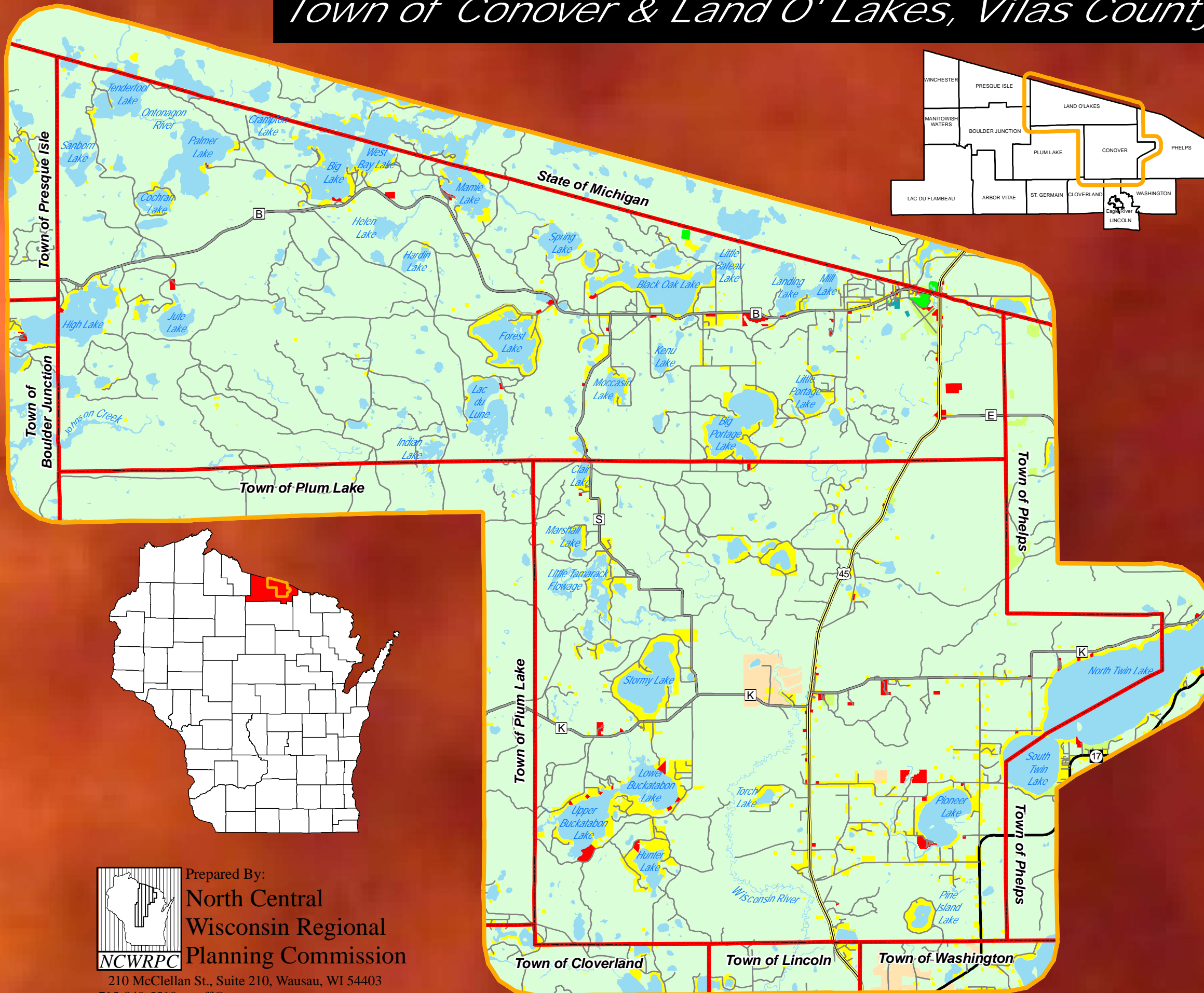
Prepared By:
North Central Wisconsin Regional Planning Commission
 NCWRPC
 210 McClellan St., Suite 210, Wausau, WI 54403
 715-849-5510 - staff@ncwrpc.org - www.ncwrpc.org



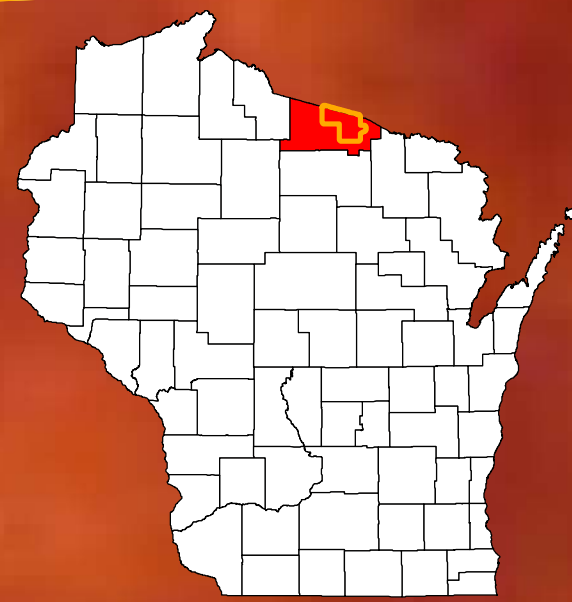
Town of Conover & Land O' Lakes, Vilas County

Map 3

Generalized Land Use Map



- Minor Civil Divisions
- US Highways
- State Highways
- County Highways
- Roads
- Study Area
- Agriculture
- Commercial/Industry
- Governmental
- Open Space
- Outdoor Recreation
- Residential
- Transportation
- Water
- Woodlands



Source: WI DNR, 2005 Airphoto Interpretation, NCWRPC
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 715-849-5510 - staff@ncwrpc.org - www.ncwrpc.org



Open Space

Open space consists of natural areas that do not fit into the woodlands or agricultural categories and may include grasslands, wetlands (all types), bogs, floodplain areas, and other brush or shrub lands. A "catch-all" type of category that comprises only 117 acres between the two towns.

Fire characteristics vary, but some of the grasses and shrubs can be a source for flashy spring fires that create a threat for nearby structures.

Agricultural Land

Agricultural land, including croplands, pastures, and open space, account for 532 acres of land in the Town of Conover. The agricultural land is located primarily in the central area of the Town.

Croplands/pastures are often open vegetation lands containing tall grasses that can be a source for quick burning, flashy spring fires that create a threat for nearby structures.

Residential Land

Residential land within Conover includes about 3,428 acres or 6 percent of the Town's area. In Land O' Lakes, residential land covers approximately 2,173 acres or 3.6 percent of that Town's area. Residential use in the Towns is primarily made up of single-family homes (94.6 percent in Conover and 84.2 percent in Land O' Lakes). Mobile homes make up another 4.2 and 5.6 percent in Conover and Land O' Lakes, respectively. The remaining residential land is comprised of multi-family homes, which make up only about 1 percent in Conover but reach 10 percent in Land O' Lakes. The number of residential units for seasonal use in both Towns is about double that of full time residences.

From a fire perspective, residential structures represent one of the primary values to protect from wildfire. Conversely, although not a leading cause, structure fires can result in wild land fire.

Transportation Uses

The local, county, and state roads running through the Towns fall under the land use category of transportation uses and account for 3,692 acres of land. There is a small airfield near the intersection of US 45 and CTH B in the eastern part of Land O' Lakes. This category does not include recreation trails.

Roads lead people into remote areas increasing fire risk in those hard-to-reach areas. However, roads present a duality in that they are a recognized ignition source but also aid in fighting fires by providing equipment access.

Institutional / Governmental

Institutional/governmental uses total about 21 acres of land, or 0.03 percent of the acreage in the Town of Land O' Lakes. The town hall, fire stations, and churches are the main uses within this category in the Towns.

Commercial / Industrial Land

Commercial and industrial uses make up 559 acres of land between the two Towns. This accounts for less than one percent of the total area. This development is scattered but primarily

located along major roadways like USH 45 and the various county highways (CTH B and CTH K).

Recreational Uses

Land O' Lakes has 60 acres (less than one percent) of land designated recreation within the Town. Trails make up much of the recreation uses in the Towns. Other uses include a number of picnic and camping sites primarily on county forestland in the Town of Conover. Due to the town's wooded nature, a number of recreational uses exist within the woodlands land use category that is not counted under the recreational category.

It is important for both fire management personnel and recreational users to be mindful of the fact that campers, ATV users, and other 4x4 vehicle users bring ignition risk in difficult to access areas with high hazard fuels.

WILDLAND URBAN INTERFACE (WUI)

People continue to move from urban and suburban areas to rural areas such as Conover and Land O' Lakes that offer attractive recreational and aesthetic amenities, especially forests. This demographic change is expanding the wildland-urban interface (WUI). The WUI is the area where structures and other human development meet and intermix with undeveloped wildland. The expansion of the WUI in recent decades has significant implications for wildfire impact and management. The WUI creates an environment that enables fire to move swiftly between structural and vegetative fuels. Its expansion increases the likelihood that wildfires will threaten structures and people.

Through development of this plan, the entire towns of Conover and Land O' Lakes are identified as wildland-urban interface area.

DEVELOPMENT PATTERN

If a wildfire threatens the forestlands of Conover and Land O' Lakes, many homes and structures within those forestlands are threatened as well, because of the development pattern within the towns. Development is concentrated around the town's lakes as well as being scattered along rural roads, as is often the case in Wisconsin towns. Outside of these concentrations of development, the vast majority of both Towns remains undeveloped with large, unfragmented tracts of forestland.

POPULATION AND HOUSING

Population, Estimates, and Projections

Over the past 20 years, the Towns of Conover and Land O' Lakes have experienced a steady population increase, as shown in Table 3. From 1990 to 2000, Conover experienced a significant increase in population with a 37.7 percent increase (311 persons), representing a higher percent change than Vilas County and the state during the same time. Land O' Lakes experienced a nearly 10 percent increase (79 persons), but trailed the County and state in growth.

	<i>1980</i>	<i>1990</i>	<i>2000</i>	<i># '80-'00</i>	<i>% '80-'00</i>
Conover	826	932	1,137	311	37.7
Land O' Lakes	803	839	882	79	9.8
Vilas County	16,535	17,707	21,033	4,498	27.2
Wisconsin	4,705,767	4,891,769	5,363,675	657,908	14.0
<i>Source: US Census and NCWRPC</i>					

The Wisconsin Department of Administration (WDOA) Demographic Services Center annually produces population estimates for Wisconsin counties and municipalities. The estimates are based on the prior Census and analysis of contemporary data including housing units, dormitory and institutional populations, automobile registrations, residential electric meters, and others.

The 2008 population estimate for the Town of Conover is 1,262 persons representing another 125 persons over the 2000 population and an 11.0 percent increase. The 2008 population estimate for the Town of Land O' Lakes is 955 persons representing another 73 persons over the 2000 population and an 8.3 percent increase.

In 2008, WDOA prepared baseline population projections to the year 2035 for Wisconsin counties and municipalities, utilizing a projection formula that calculates the annual population change over three varying time spans. From this formula, the average annual numerical population change is calculated, which is used to give communities preliminary population projections for a future date.

The Town of Conover's baseline population projections prepared by WDOA predict a steady increase in population from 2010 to 2030, as shown in Table 4. The projection predicts a 2030 population of 1,542, which is an increase of 405 persons over the 2000 Census. The Town of Land O' Lakes baseline population projections predict a small drop off before rebounding for a small increase in population from by 2030. The projection predicts a 2030 population of 974, which is an increase of 40 persons over the 2000 Census.

	<i>2010</i>	<i>2020</i>	<i>2030</i>	<i># '10-'30</i>	<i>% '10-'30</i>
Conover	1,303	1,442	1,542	239	18.3
Land O' Lakes	934	965	974	40	4.3
Vilas County	22,953	24,645	25,720	2,767	12.1
Wisconsin	5,777,370	6,202,810	6,541,180	763,810	13.2
<i>Source: WDOA and NCWRPC</i>					

Seasonal Population

Since the Census does not provide the number of seasonal residents within a community, the seasonal population in the Towns was estimated by multiplying the number of seasonal housing units by the average number of persons per household.

In 2000, the Town of Conover had a full-time population of 1,137 residents and an estimated part-time/seasonal population of 2,173 residents. At that time there were 1,440 housing units in Conover, of which 925 or 64% were seasonal. In Land O' Lakes, the 2000 Census showed a full-time population of 882, and the estimated seasonal population was 1,896. At that time there were 1,337 housing units in Land O' Lakes, of which 886 or 66 % were seasonal.

Population Impacts on Wildfire Risk

A growing population in the Towns of Conover and Land O' Lakes means more people are living within the wildland-urban interface and more people are exposed to the threat of wildfire. Based on statistics, population growth in the WUI is a great concern since 95 percent of the fires are caused by people. This fact is evident in Map 6 which displays the cause of past fire occurrences in the Towns.

In addition to the increasing full-time population, the part-time/seasonal population is growing rapidly as more people are buying second seasonal homes and others are looking forward to retiring "up north."

Age Distribution

Overtime, there have been moderate shifts in the distribution of population within age groups in the Towns of Conover and Land O' Lakes, see Table 5. The median age shifts upward as the population ages. The Towns of Conover and Land O' Lakes have a significantly older population than the state as a whole.

		<i>Percent of Population</i>				
		<i>< 5</i>	<i>5 - 17</i>	<i>18 - 64</i>	<i>65+</i>	<i>Median Age</i>
Conover	1990	5.9	16.8	55.7	21.6	42.7
	2000	3.2	18.7	57.7	20.4	44.5
Land O' Lakes	1990	5.8	16.8	56.3	21.1	43.4
	2000	3.9	14.8	56.1	25.2	48.6
Vilas County	1990	5.9	16.3	45.1	22.9	42.9
	2000	4.3	16.4	56.5	22.8	45.8
Wisconsin	1990	7.4	19.0	60.3	13.3	32.9
	2000	6.4	19.1	61.4	13.1	36.0

Source: U.S. Census and NCWRPC

Age Distribution Impacts on Wildfire Risks

The age distribution in the Towns have the greater portion of the population over 40 years old, with a large portion of the population in the 65 and over age groups. Trends show that the age distribution will remain as it has since new retirees continue to relocate to the area.

It is helpful to keep in mind that the majority of the target audience for wildfire prevention messages is over 40 years of age with the significant portion of the audience over 65. It is also important to consider that the pool of volunteers for staffing local volunteer fire departments (VFDs) will continue to face challenges. Many VFDs throughout Wisconsin and the U.S. face recruitment challenges, especially in the 18 to 34 age group, as the median age continues to climb – attributed to aging baby-boomers.

Employment Location

Where employment is located affects the town's protection capabilities. Protection capabilities are at their lowest during the day because a number of volunteer firefighters work outside the area. Many volunteer fire departments lack firefighters during the day. When only a few firefighters are available on the scene, first responders are sometimes faced with the decision about whether to initiate suppression activities without enough manpower to secure their own safety, or delay the interior fire attack until additional forces arrive.

Housing Inventory

The total number of housing units within the Town of Conover grew only slightly as seasonal units were converted to full-time. Land O' Lakes saw a significant 19.9% increase, well above the county and state as a whole, see Table 6.

TABLE 6: TOTAL HOUSING UNITS				
	1990	2000	# 90 - 00	% 90 - 00
Conover	1,420	1,440	20	1.4
Land O' Lakes	1,115	1,337	222	19.9
Vilas County	20,225	22,397	2,172	10.7
Wisconsin	2,055,774	2,321,144	265,370	12.9
<i>Source: US Census and NCWRPC</i>				

The growth in the number of housing units in the towns is reflected in Table 7. Based on past trends for the two towns, the number of additional housing units since the 2000 Census is estimated. A negligible number of housing units are subtracted from year to year within a given community. For the distribution of houses and other structures within the towns, see Map 7.

TABLE 7: HOUSING UNIT PROJECTIONS					
	2010	2020	2030	# '10-'30	% '10-'30
Conover	1,460	1,480	1,501	41	2.8
Land O' Lakes	1,603	1,922	2,304	701	43.7
Vilas County	24,793	27,445	30,381	5,588	22.5
Wisconsin	2,620,571	2,958,624	3,340,286	719,715	27.5
<i>Source: WDOA and NCWRPC</i>					

In 2000, the Town of Land O' Lakes had 14.7 % of its housing stock built prior to 1940 compared with 6.5 % in Conover. Both towns have the same percentage, 22.6, built during the 1990's. The towns compare closely to Vilas County as a whole with regard to age of housing.

The 2000 median value of housing units in Conover was \$103,500 compared to Land O' Lakes at \$127,800. For Vilas County the median housing value was \$120,200

WEATHER CONDITIONS/FIRE SEASON

The weather plays a very important role in how a fire will behave on a given day. Even a slight increase in wind speed can significantly increase the flame length and rate a fire will spread. A drop in relative humidity can make it easier for a forest fuel to ignite and cause it to burn hotter and faster.

The National Weather Service (NWS) provides fire weather forecasts to land management agencies to aid in their fire planning, management, and control activities. These specialized forecasts are based on an interpretation and understanding of weather patterns that affect fire danger and behavior. Fire weather forecasting requires a unique understanding of environmental conditions, especially the relationship between topography, fuels, and weather.

History indicates spring to be the most active season for fire in Wisconsin since dead fuels are abundant, temperatures increase, winds are often gusty, and relative humidity often drops to very low levels. During the summer, there is usually a decrease in fire danger as fine grass fuels green up and fuel moisture increases. During the fall, there can be an increase in fire activity as trees drop their leaves and frost cures the fine fuels. However, due to shorter day length, higher humidity, and cooler temperatures fall fire season is typically not as active as the spring fire season. Typical fire weather seasons in Wisconsin are as follows:

- Spring – April 1 to June 15
- Summer – June 15 to September 1
- Fall – September 1 to November 15

These fire weather seasons are general dates. Wildland fires can occur during any month of the year whenever the ground is not snow covered.

TREE AND VEGETATION MORTALITY

Tree and vegetation mortality create more fuel for wildfire. In Conover and Land O' Lakes, causes of tree and vegetation mortality are many. Some causes of concern in the area include insect infestation, disease, drought, and downed trees from storms.

Insect Infestation

Forestlands in Conover and Land O' Lakes are generally in good health and free of significant insect infestation, though periodic outbreaks do occur and problems do exist in certain stand types. The following descriptions from the WDNR provide information on four insect

infestations of concern in northern Wisconsin: jack pine budworm, spruce budworm, forest tent caterpillar, and gypsy moth.

Trees in poor health or under drought stress may decline and die after repeated severe defoliation. Furthermore, defoliation will sometimes cause stress in otherwise healthy trees that may attract secondary pests, such as the two-lined chestnut borer. While the trees are bare, the lack of shade will decrease soil moisture during the dry season, which could cause mortality from lack of moisture.

Jack Pine Budworm

Outbreaks of this budworm occur predominately in stands of jack pine, although Scots, red, and white pines may also be attacked. Trees of all sizes are attacked. Defoliation by the jack pine budworm reduces tree growth, retards regeneration, and causes tree mortality.

Spruce Budworm

Outbreaks of this budworm occur predominately in stands of spruce and fir, although tamarack, pine, and hemlock may also be attacked. Trees of all sizes are attacked. Defoliation by the spruce budworm reduces tree growth, retards regeneration, and causes tree mortality.

Forest Tent Caterpillars

The forest tent caterpillar is one of the major defoliating caterpillars in Wisconsin. It is distributed throughout the United States and Canada wherever hardwood trees grow. Forest tent caterpillars cause defoliation and significant growth loss on broad-leaved trees and shrubs.

Gypsy Moth

The Gypsy moth is an invasive pest. The caterpillars feed on the leaves of many trees, especially oaks, and their populations can grow so quickly that they can strip all the leaves off of entire stands of trees, damaging them severely. Although gypsy moths may not directly cause tree mortality, they create a vulnerable forest that can lead to mortality.

Disease

Forestlands in Conover and Land O' Lakes are generally in good health and free of significant disease, though periodic outbreaks do occur and problems do exist in certain stand types. The following descriptions from the WDNR provide information on two diseases of concern in northern Wisconsin: Diplodia shoot blight and canker and Sirococcus shoot blight. Although not yet in the area, Vilas County Forestry has identified oak wilt as a pathogen of concern in its County Forest Plan.

Diplodia Shoot Blight and Canker/Sirococcus Shoot Blight

Diplodia shoot blight and canker and Sirococcus shoot blight are two of the most important diseases of red pine. They can be prevalent on trees of all ages but the most significant damage is generally restricted to seedlings and saplings. Both pathogens have unpredictable outbreak patterns that are often dictated by weather events. Diplodia outbreaks tend to occur during droughts or following hailstorms, while Sirococcus outbreaks often occur following cool, wet spring weather. During outbreaks, many seedlings and small trees can be killed or deformed. Multi-cohort red pine management, or growing small red pine under larger red pine, will increase

the risk of disease development. This is because spores produced on infected large trees are rain-splashed onto seedlings and smaller trees growing below them.

Oak Wilt

Oak wilt is caused by a fungus that forms a balloon-like swelling in the water conducting vessels of the oak tree. The obstruction in the vessel slows the movement of water within the tree causing the leaves to wilt and drop off.

Oaks in the red oak group (black, northern red, northern pin and others with pointed leaf edges) are most susceptible. Oaks in the white oak group (white, swamp white, burr, and others with rounded leaf edges) are less susceptible. Oak wilt has been confirmed in forests of northeast Wisconsin.

Drought

Drought is defined as a deficiency of precipitation over an extended period – usually a season or more. Drought is a normal, recurring climatic event that is expected to become more frequent as our climate changes. It occurs in virtually all climatic zones, but its characteristics vary significantly from one region to another.

Drought causes stress on vegetation that can cause forests to be more vulnerable to insects and disease as well as lead to mortality in situations of prolonged drought. If mortality occurs over contiguous forest blocks, an area of increased wildfire fuel will be present in that area. Drought conditions create dry forest fuels that can lead to additional wildfire starts and cause increased fire behavior. Drought can extend the active fire season into the summer and fall.

Much of Wisconsin has been suffering drought conditions for the last several years. The U.S. Drought Monitor currently shows northern and central Wisconsin affected by hydrologic drought conditions. Conover and Land O' Lakes are shown under moderate to severe drought.

Severe Storms

Severe storms, although not very common in Conover or Land O' Lakes, can cause significant damage to forestlands. Strong winds from storms can break and uproot trees leading to tree mortality and additional fuel for fires. In addition, high winds can cause trees to fall onto power lines, which can start fires and pose an electrical risk to people.

The following is a list of high wind events reported by the National Climatic Data Center for Conover and Land O' Lakes over the last five years:

- 09/21/07 Land O' Lakes Airport - Strong winds...downed trees, power lines, etc.
- 07/03/06 Conover - High winds...downed trees, power lines
- 06/27/05 Land O' Lakes - Thunderstorms...downed trees
- 06/13/04 Conover - Thunderstorm wind
- 08/26/03 Land O' Lakes - Thunderstorms...downed trees
- 07/20/03 Conover - Strong winds...downed trees, some power lines

OTHER CONCERNS REGARDING WILDFIRE RISK

Other concerns regarding wildfire risk in the area includes access to property, fuels near structures, and structural flammability. These conditions may add to the challenges of managing a wildfire or could provide additional fuel to a wildfire.

Educational efforts such as Firewise (discussed later in this plan) would be beneficial to residents to remedy the following situations. Mitigation tactics to address these concerns have been developed for Conover and Land O' Lakes and are discussed later in the section on "Treatment of Structural Ignitability."

Access

Many of the residential driveways in the Towns present challenges for firefighters to gain access to the property in case of a fire. Many driveways are very long with curves that are too sharp to allow emergency vehicles to gain access to the property. The lack of access or good turnarounds can pose a hazard to firefighters during a fast moving fire by limiting safety zones and escape routes. Some properties have a closed or locked gate making entry difficult or impossible. To exacerbate entry problems, many of the properties with closed or locked gates are owned by absentee property owners that are only around seasonally or part-time so they may be completely unaware of a wildfire situation on their property.

Fuels Near Structures

Within the Towns, many buildings have vegetation growing around them providing "fuel" near the structures. The area approximately 100 feet around all structures is referred to as the "home ignition zone." If left unmanaged, fire in this area can quickly move from vegetation to buildings.

Structure Flammability

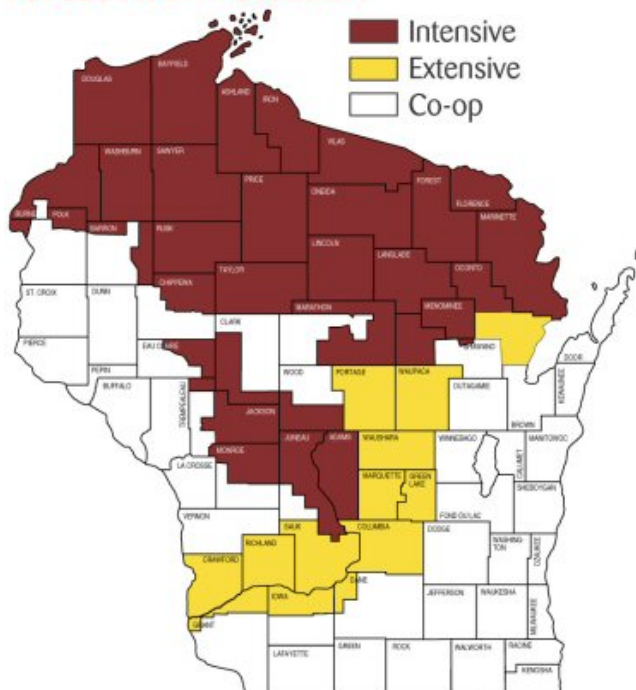
Many residents in the Towns are not well informed about how to reduce the flammability of their home. Buildings can provide fuel in a wildfire, including garages, campers, and storage sheds. Anything attached to a structure, such as a deck, porch, or balcony is considered part of the structure. These structural attachments can provide the link for a fire to spread from the wildland to the building.

FIRE PROTECTION BACKGROUND

The state of Wisconsin is divided into three fire protection areas: Co-op, Extensive, and Intensive, see Figure 1, below. Each fire protection area presents a different kind and degree of forest fire problem. The degree of protection has been determined by the amount of forested lands, the hazards and the risks present in the various parts of the state.

The Towns of Conover and Land O' Lakes are located within the Intensive fire protection area. Intensive fire protection areas are the most heavily forested and contain the most fire hazards and risk in the state. They have more WDNR fire suppression resources and ranger stations. Fire detection is accomplished with fire towers, aerial patrols, and citizen reporting. The most restrictive debris burning laws are in effect in Intensive fire protection areas.

**FIGURE 1 WDNR Fire Protection Areas
Forest Fire Protection**



Source: WDNR Website

Fire Suppression Responsibilities

Fire suppression and management activities within the Towns are carried out by four jurisdictions: state, federal, county, and local in accordance with their respective operations and management plans and cooperative agreements between the jurisdictions. Primary responsibility for these activities within each jurisdiction falls to the WDNR (state), USFS (federal), Vilas County Emergency Management (county), the Conover Fire Department (local), and the Land O' Lakes Fire Department (local).

Wisconsin Department of Natural Resources

The WDNR has 54 ranger stations that are outfitted with firefighting vehicles, tractors/plows, and staff to support wildland fire control in Wisconsin. The Woodruff Dispatch Group includes nine Ranger Stations and covers Lincoln, most of Vilas, Oneida, and Langlade, and parts of Forest and Marathon counties.

The Eagle River Fire Response Unit (FRU) is the closest to Conover-Land O' Lakes for wildfire suppression in the Towns, and resources can be drawn from other stations as necessary. Table 8 identifies primary WDNR fire suppression resources within one hour response time for a wildfire occurring in Conover or Land O' Lakes. In addition, the WDNR hires limited term employees as seasonal firefighters to assist with suppression and detection efforts. The WDNR has a number of mutual aid agreements with local fire departments, county agencies, and private contractors. The State works with fire departments to provide wildfire suppression and in turn offers training and financial assistance through grants and group purchasing. In addition, the state often contracts larger pieces of heavy equipment and fire suppression aircraft to augment existing

resources. The WDNR is prepared to mobilize units across the state as the need arises, and has the ability to request out-of-state resources through either the Great Lakes Forest Fire Compact or Eastern Area Coordination Center.

**TABLE 8:
WDNR WILDFIRE SUPPRESSION RESOURCES (1 hour response window)**

<i>Station</i>	<i>Personnel</i>	<i>Apparatus</i>
Eagle River	1 Forester/Ranger 1 Forester 1 Forestry Technician	1 Type 6 Engine 1 Type 4 Engine w/tractor plow unit 1 Type 8 Engine
Trout Lake	1 Forester/Ranger 1 Forestry Technician	1 Type 6 Engine 1 Type 4 Engine w/tractor plow unit
Lake Tomahawk	1 Forester/Ranger 1 Team Leader 2 Forestry Technicians	1 Type 6 Engine 1 Type 4 Engine w/tractor plow unit 1 Type 4 Engine w/muskeg low ground unit 1 Type 8 Engine
Rhineland	1 Forester/Ranger 1 Forester 2 Forestry Technicians	1 Type 6 Engine 2 Type 4 Engine w/tractor plow unit 1 Type 8 Engine

Source: WDNR

U.S. Forest Service

The fire management program on the Chequamegon-Nicolet National Forest (CNF) consists of four basic factors: fire prevention, fire suppression, hazardous fuels reduction, and prescribed fire for ecosystem maintenance.

The USFS has primary fire suppression responsibility on all lands including private lands within the National Forest boundary. In the Conover-Land O' Lakes area, the USFS boundary primarily abuts the eastern borders of the Towns and includes areas both north and south of Twin Lake.

The USFS-CNF staffs fire equipment and personnel at Ranger Stations in Eagle River to cover this area. It also has the ability to shift its resources around the CNF from stations in Florence, Glidden, Hayward, Laona, Park Falls, and Washburn, to support initial attack efforts while still maintaining adequate fire staffing throughout its fire management units. Through Mutual Aid and Cooperative Fire Agreements with other federal agencies, WDNR, and local fire departments, the USFS can request reinforcements for initial and extended attack fires. The USFS-CNF also has a responsibility to support national firefighting efforts without drawing down personnel and equipment for adequate local fire protection within the CNF.

Vilas County

The Vilas County Emergency Management Department is available to assist with planning, grant writing and administration, coordinating training exercises and other assistance related to preparation and response to emergencies like wildfire. The County Emergency Management Director is the primary point of contact to obtain additional county and state (including National Guard) resources as needed. The County has a communications trailer it can dispatch. The County may also supply heavy equipment primarily through the County Highway Department.

Vilas County operates a countywide 911 emergency dispatch system. The county system has the capability to page both the fire departments and WDNR for citizen reported fires. This system has the capability to locate 911 calls from landlines as well as from cell phones.

Conover Fire Department

The Town of Conover Volunteer Fire Department provides fire suppression for the Town of Conover. The station is located on CTH K adjacent to the Town Hall. The Department provides structural and wildland fire suppression, rescue, basic emergency medical services, and a basic level of HAZMAT response capability. The fire suppression resources of the Department are shown in Table 9, below. The Department has 4 hydrants to access water spaced around the Town and a well located at the fire station.

There are currently 30 volunteer members on the department including a volunteer chief. The Conover Fire Department has mutual aid agreements with Vilas County and surrounding community fire departments.

TABLE 9: LOCAL FIRE SUPPRESSION RESOURCES							
<i>Dept.</i>	<i>Unit</i>	<i>Pump Cap.</i>	<i>Tank Cap.</i>	<i>Drop Tank Cap.</i>	<i>Personnel</i>	<i>NIMS Type</i>	<i>Misc. Equip.</i>
Conover	Engine 1	1,000	1,000		3	2	
	Engine 2	1,200	1,500		3	2	
	Brush 1	200	150		4	Other	200 gpm portable
	Tender 1	200	3,000	3,000	2	2	200 gpm portable
	Water Supply				2	na	500 gpm portable
	Rescue 1	250	300		3	na	Jaws
	Crew Transport				9	5	ATV
	Ambulance				3	3	
Land O' Lakes	Engine 1	1,250	1,000		3	2	CAFS 250 gpm portable
	Tender 1		2,000	1,000/1,300	2	Other	500 gpm portable
	Rescue	250	300		2	na	
	Rescue 1	250	300		3	na	ATV
	Fire Boat				3	na	
	Ambulance				3	3	

Source: Vilas County EOP

Land O' Lakes Fire Department

The Land O' Lakes Volunteer Fire Department provides fire suppression for the Town of Land O' Lakes. The station is located in the town center area on CTH B. The Department provides structural and wildland fire suppression, rescue, basic emergency medical services, and a basic level of HAZMAT response capability. The fire suppression resources of the Department are shown in Table 9. The Department has a number of water access points spaced around the Town as well as 48 hydrants within the Land O' Lakes Sanitary District serving the town center area.

There are currently 16 volunteer members on the department including a volunteer chief. The Land O' Lakes Fire Department has mutual aid agreements with Vilas County and surrounding community fire departments.

Fire Policy and Programs

There are various programs and policies at the federal and state levels related to community fire planning, fire prevention, and suppression that affect the Towns. Each agency has laws regarding the use of fire and is able to investigate, enforce, and prosecute civil and criminal violations that arise out of fires originating within their jurisdiction. In general, burning laws regulate what, when, and how people can burn, and hold people responsible for damages and suppression costs if their fire escapes.

Federal

The following information provides a brief overview of relevant federal policies and programs:

Healthy Forests Restoration Act (HFRA) – This federal law is designed to promote healthy watersheds and forests through fuels reduction projects on federal lands, community plans, insect and disease protection measures, storm damage clean-up, and threatened and endangered species protection. The HFRA also encourages biomass energy production through grants and assistance to communities to create market incentives for removal of otherwise valueless forest material.

National Fire Plan (NFP) – This is a federal interagency plan that focuses on firefighting, rehabilitation, hazardous fuels reduction, community assistance and accountability. The NFP is a long-term investment intended to help protect communities and natural resources. It establishes a commitment to communication, cooperation and collaboration between federal agencies, states, local governments, tribes and interested parties. Federal fire management agencies worked closely with these partners to prepare a 10-year Strategy and Implementation Plan. The NFP also calls for the development of Community Fire Plans to aid in implementing NFP goals.

State

The following information provides a brief overview of relevant state policies and programs:

Permits - The WDNR enforces burning laws and requires permits for debris burning. Permits can be obtained from local emergency fire wardens and DNR ranger stations. Refer to the WDNR web page at <http://dnr.wi.gov/forestry/fire/burning-rp.htm> to determine what is burnable with a permit and what is not permissible.

Structure Zone Maps - In 2007, the WDNR prepared structure zone map books for use by emergency services personnel in Vilas County, including the Towns of Conover and Land O' Lakes. These maps document structure locations and preplanned zones used to coordinate efforts to help protect life, property, and natural resources during fire emergencies.

Hazard Mitigation Program - WDNR Forestry's Hazard Mitigation program is an internal funding mechanism utilized to reduce the risk of catastrophic wildfire impacting communities. It focuses on hazardous fuels reduction, prevention/education, and community planning in the wildland-urban interface. The program is a product of the USFS State Fire Assistance - National Fire Plan and has been functioning in Wisconsin since 2001. The program has promoted Firewise practices, resulted in the creation of Community Wildfire Protection Plans, and reduced flammable wildland fuels. Viable projects located in a Community at Risk are prioritized for funding.

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CHAPTER 3: RISK ASSESSMENT

The risk assessment is a primary component of the Community Wildfire Protection Plan. It identifies the areas of the community most at risk from wildfire, enabling decision makers to focus efforts on the higher risk areas and prioritize resource allocations and mitigation activities.

ELEMENTS OF RISK ASSESSMENT

The risk assessment evaluated wildfire risk in Conover and Land O' Lakes by analyzing four key elements or "layers" of fire information. The four elements are hazard, risk, values, and protection capability. The Towns were evaluated to determine the areas most at-risk based on each of the four elements or layers of information. The four elements are defined below.

- **Hazard** - Natural conditions, including vegetation, soils, geology, and topographic features that may contribute to and affect the behavior of wildfire.
- **Risk** - The potential and frequency that wildfire ignitions might occur based upon historical occurrences over a 20-year period from 1985 to 2005.
- **Values** - The people, property, and significant / critical facilities or infrastructure that represent value to protect from losses in the event of wildfire.
- **Protection Capability** - The ability to protect the community from structural and wildland fires including preparation, response, and suppression.

PLANNING UNITS

To aid the risk assessment, the Towns of Conover and Land O' Lakes were divided into smaller, more manageable planning units. The CWPP planning committee identified planning units based upon commonalities within each planning unit, including distribution of developed areas and structures. The Planning Unit Boundaries Map displays the planning units identified in the Towns. The ten planning units are as follows:

- | | |
|------------------------|-------------------------|
| 1. Big Lake Unit | 6. Portage Lake Unit |
| 2. Black Oak Lake Unit | 7. Stormy Lake Unit |
| 3. Land O' Lakes Unit | 8. North Twin Lake Unit |
| 4. Jute Lake Unit | 9. Buckatabon Lake Unit |
| 5. Forest Lake Unit | 10. Pioneer Lake Unit |

The following provides a description of each planning unit including the development pattern in the area, the number of structures, the number of significant/critical infrastructure, the total land acreage, and the total land area under residential land use and forestlands. The remaining land area of each planning unit is made up of open water, croplands/pastures, other non-forestland natural areas (including wetlands), roadways, and industrial, commercial, and institutional/governmental areas.

1. Big Lake Planning Unit

The Big Lake planning unit is located in the northwest corner of Land O' Lakes north of County Highway B and west of Thousand Island Lake Road. This planning unit is comprised primarily of private woodlands with dense clustered residential areas around Big Lake, West Bay Lake, Mamie Lake and, to a lesser degree, several other lakes within the area. Land records information data indicates that there are 270 structures and one significant infrastructure - a telephone substation plus several water access points. Total land area of the planning unit is 8,655 acres with 4.5 percent (392 acres) developed residential and 91.5 percent (7,917 acres) woodlands.

2. Black Oak Lake Planning Unit

The Black Oak Lake planning unit is located in north central Land O' Lakes north of CTH B. This planning unit is characterized by dense clustered residential development around Black Oak and Spring Lakes surrounded by private woodlands. There are 195 structures and significant infrastructure including cell/communications towers, telephone substation, the Conserve School with water facilities and fire hydrant plus several water access points. Land area totals 4,816 acres with 7.3 percent (350 acres) in residential and 87.5 percent (4,213 acres) woodlands.

3. Land O' Lakes Planning Unit

The Land O' Lakes planning unit is comprised of the "downtown" area of Land O' Lakes including the airport. Woodlands are still the dominant land cover at 75 percent (1,431 acres) of the land area. Total land area of the planning unit is 1,904 acres with 7.2 percent (137 acres) residential. There are 229 structures and numerous significant infrastructure including: the airport, town hall, fire station, elementary school, the ski chalet historical structure/museum, bulk LP gas storage, sewer and water facilities, etc.

4. Jute Lake Planning Unit

The Jute Lake Planning Unit is located in the southwest corner of Land O' Lakes south of County Highway B and west of Deer Farm, Old B and Indian Lake Roads. This planning unit is comprised primarily of county and state forestlands and private woodlands with some residential areas clustered around High and Jute Lakes and some scattered homes. There are 128 structures and two significant facilities - both campgrounds plus several water access points. Total land area of the planning unit is 18,494 acres with 1.0 percent (187 acres) developed residential and 95.1 percent (17,581 acres) woodlands. Of these woodlands, 60 percent is state forest and 6 percent county forest.

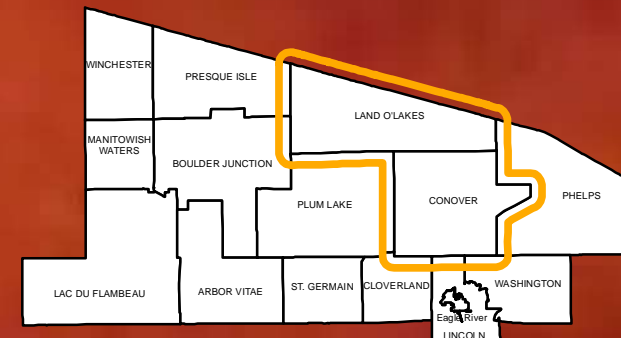
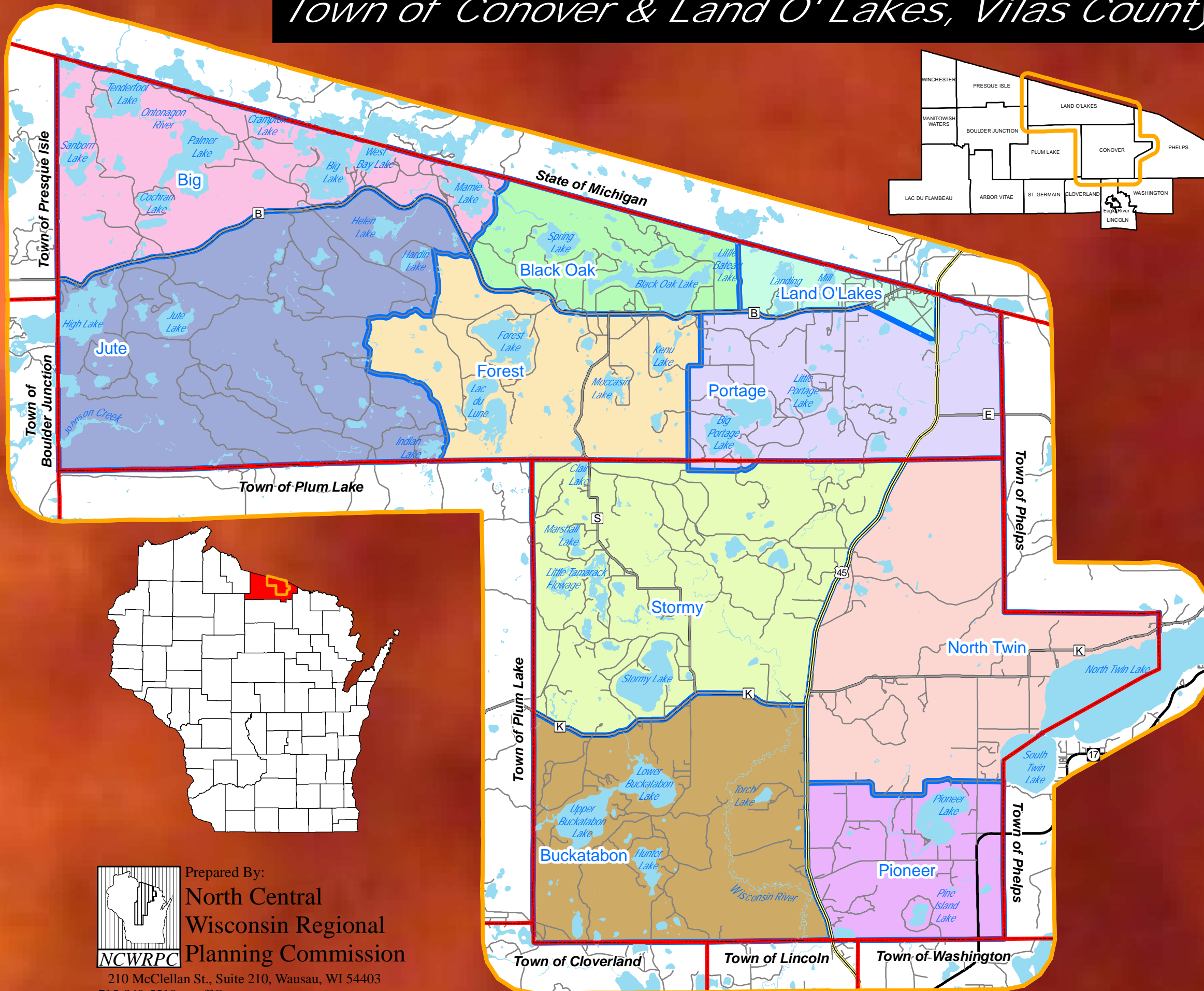
5. Forest Lake Planning Unit

The Forest Lake planning unit is located in central Land O' Lakes, south of CTH B and west of West Big Portage Road. This planning unit is characterized by dense clustered residential areas around Forest and Moccasin Lakes surrounded by private woodlands. There is also significant residential development on CTH S and in scattered pockets on various other lakes. There are 245 structures and several water access points for significant infrastructure. Land area totals 9,098 acres with 6.2 percent (563 acres) in residential and 91.6 percent (8,330 acres) woodlands.

Town of Conover & Land O' Lakes, Vilas County

Map 4

Planning Unit Boundaries Map



- Minor Civil Divisions
- US Highways
- State Highways
- County Highways
- Roads
- Water
- Study Area
- Planning Unit Boundaries



Source: WI DNR, NCWRPC
 This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

Prepared By:
North Central Wisconsin Regional Planning Commission
 NCWRPC
 210 McClellan St., Suite 210, Wausau, WI 54403
 715-849-5510 - staff@ncwrpc.org - www.ncwrpc.org



6. Portage Lake Planning Unit

The Portage Lake planning unit is located in the southeast corner of Land O' Lakes south of CTH B and the airport but also includes the area east of US 45. This planning unit is characterized by dense, clustered, residential areas around Big and Little Portage Lakes surrounded by private woodlands. There is also significant residential development on CTH B and other scattered locations. There are 335 structures and significant infrastructure includes the Town Garage, a communications tower and several water access points. Land area totals 9,721 acres with 5.7 percent (556 acres) in residential and 88.9 percent (8,645 acres) woodlands.

7. Stormy Lake Planning Unit

The Stormy Lake planning unit is located in the northwest corner of Conover, north of CTH K and west of US 45. This planning unit is characterized by dense, clustered, residential areas around Stormy Lake, Little Tamarack Flowage, and other smaller lakes including Marshall, Clair, Deer and Heart with other scattered residential areas. There are 393 structures and significant infrastructure including a gas pipeline substation, a telephone substation, 3 campgrounds, and a fire hydrant. Land area totals 16,635 acres with 6.5 percent (1,085 acres) in residential and 86.4 percent (14,376 acres) woodlands. Of these woodlands, 58 percent is county forest and 3.4 percent is state land.

8. North Twin Lake Planning Unit

The North Twin Lake planning unit is located in the northeast corner of Conover, east of US 45 and north of Church Road. This planning unit is characterized by dense residential development around North Twin Lake and development along CTH K, Church Road and Monheim Road. There are 406 structures and significant infrastructure including the Town Garage, Fire Department, Town Hall / Community Center, transfer site, electrical transmission line with substation, cell tower, telephone substation and two hydrants. Land area totals 14,934 acres with 3.9 percent (589 acres) in residential and 91.8 percent (13,712 acres) woodlands. Of these woodlands, 51 percent is county forest, 7.5 percent is part of the Nicolet National Forest and 6.5 percent is state land.

9. Buckatabon Lake Planning Unit

The Buckatabon Lake planning unit is located in the southwest corner of Conover, south of CTH K and west of US 45. This planning unit is characterized by dense residential areas around Upper and Lower Buckatabon, Hunter, and Torch Lakes with development along US 45. There are 433 structures and significant infrastructure including Camp Ramah, three campgrounds, a telephone substation and two hydrants. Land area totals 13,373 acres with 7.6 percent (1,019 acres) in residential and 88.3 percent (11,811 acres) woodlands. Of these woodlands, 68 percent is county forest and 1.0 percent is state land.

10. Pioneer Lake Planning Unit

The Pioneer Lake planning unit is located in the southeast corner of Conover, south of Church Road and east of US 45. This planning unit is characterized by dense residential around Pioneer and Pine Island Lakes with significant development along the town road network. There are 390 structures and significant infrastructure including an electrical transmission line. Land area totals 6,205 acres with 11.6 percent (722 acres) in residential and 83.4 percent (5,175 acres) woodlands. Of these woodlands, 24 percent is county forest.

RISK ASSESSMENT METHODOLOGY/ANALYSIS

The model used in this risk assessment was developed with guidance from the Wisconsin Department of Natural Resources based on approaches used in other CWPP planning processes. The risk assessment evaluated wildfire risk by analyzing four key elements or "layers" of fire information. The four elements were hazard, risk, values, and protection capability.

The Towns of Conover and Land O' Lakes were evaluated by mapping each element to determine the areas of the towns that are most at-risk based on each of the four elements. The hazard element depicts the vegetation fire hazards (see USFS Fire Hazard Map); the risk element displays the locations and causes of past fire occurrences (see Fire Locations and Causes Map); the values element displays the location of structures and critical and significant facilities and infrastructure (see Critical / Significant Facilities Map); and the protection capabilities element displays the location of firefighting infrastructure and facilities (see Protection Capability Map).

Each of the four elements impacts the severity, frequency, or likelihood of a wildfire occurrence in different ways. Each data layer was analyzed and displayed using Geographic Information System (GIS) mapping. The GIS maps of each of the four elements were assessed by the CWPP planning committee and each planning unit was quantifiably ranked based on the risk level each committee member interpreted from the map. Values were compiled for each element and the planning units were ranked based on the average risk value calculated for each element.

The CWPP planning committee selected a weighting to be applied to each element, as some of the elements will have a greater influence on wildfire occurrence. This weighting was then applied to the ranked values of each of the four elements and averaged together to derive an overall risk assessment ranking based on the four elements combined. The resulting risk assessment defines the high fire risk areas for prioritization of treatment and resources. Figure 2 displays the ranking results for each element with the committee's averaged results. The weighting of each element and the compiled risk assessment results is also displayed.

Risk Assessment Mapping

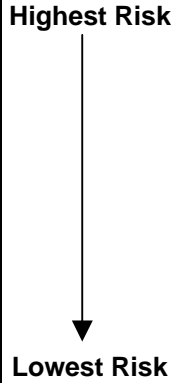
Multiple data sets went into the mapping of the four element layers. The following information provides a summary of the data that went into mapping each of the four elements.

Hazard

The hazard element map (see Map 5) involved an assessment of fuel hazard mapping obtained from the US Forest Service. The USFS fire hazard map was created for the northern Lake States, which included Wisconsin. The map was based on average climatic periods and drought periods when water tables are drawn down and organic soils are susceptible to burning. The USFS mapped the ecosystems using soil surveys, surface geology, and General Land Office survey notes on historical vegetation and fire, and then combined the map with a land cover map. They also worked with the fire management community to estimate expected fire behavior and assigned fire and fuel behavior models to the final grid.

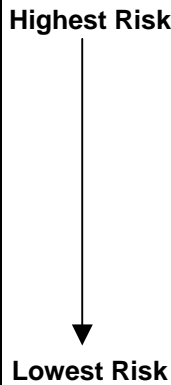
Figure 2: Risk assessment Analysis and Results

Ranking of Fuel Hazards	
Risk Level (Average)	Planning Unit
10	Portage
9	Stormy
8	Buckatabon
7	North Twin
6	Land O Lakes
5	Jute
4	Forest
3	Pioneer
2	Black Oak
1	Big Lake



Ranking of Risk Based on Past Occurrences	
Risk Level (Average)	Planning Unit
10	Pioneer
9	Buckatabon
8	Portage
7	Land O Lakes
6	North Twin
5	Black Oak
4	Forest
3	Stormy
2	Big Lake
1	Jute

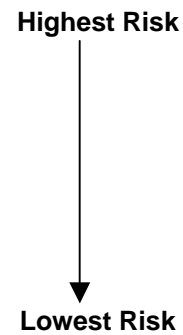
Ranking of Risk Based on Location and Density of Critical/Significant Facilities	
Risk Level (Average)	Planning Unit
10	Land O Lakes
9	North Twin
8	Pioneer
7	Buckatabon
6	Portage
5	Black Oak
4	Forest
3	Stormy
2	Big Lake
1	Jute



Ranking protection Capability	
Risk Level (Average)	Planning Unit
10	Big Lake
9	Jute
8	Stormy
7	Buckatabon
6	Pioneer
5	Forest
4	Black Oak
3	Portage
2	North Twin
1	Land O Lakes

Risk Assessment Weighting
 40% Fuel Hazard
 10% Past Occurrences
 35% Value
 15% Protection Capability

Risk Assessment
Planning Unit:
Buckatabon
Portage
North Twin
Land O Lakes
Stormy
Pioneer
Forest
Jute
Black Oak
Big Lake



Risk

The risk element map (see Map 6) involved an assessment of Wisconsin Department of Natural Resources data of wildfire occurrences in the Towns of Conover and Land O' Lakes from 1985 to 2005.

Values

The values element map (see Map 7) involved an assessment of the location of structures and their densities in each planning unit, along with the location of significant and critical facilities and infrastructure and their distances from each planning unit. The structure data came from Vilas County Land Records and the location of significant and critical facilities and infrastructure came from various sources detailed below for each significant and critical facility and infrastructure type.

Structures - Structures include primary residences such as single-family and multi-family houses, and mobile homes; and commercial, industrial, and institutional/governmental facilities. This data was obtained from Vilas County's Land Records Department.

Significant/Critical Facilities and Infrastructure - Significant/critical facilities and infrastructure include dry hydrants, water pickup sites, communication facilities, institutional/governmental facilities including schools, gas pipelines and substations, electric transmission lines and substations, fire departments, natural gas facilities, recycling centers, campgrounds and historic sites.

The location of transmission lines were obtained from ATC and historic sites were obtained from the Wisconsin State Historical Society. The delineation of the gas pipeline and the sites for the town halls, fire stations, and other town facilities were obtained from the CWPP planning committee. All other significant and critical facilities and infrastructure information was obtained from Vilas County and NCWRPC land use inventories.

Protection Capability

The protection capability element map (see Map 8) involved an assessment of the location of fire departments, dry hydrants, and water pickup sites in relation to each planning unit.

Fire Departments - The fire department data was obtained from the CWPP planning committee.

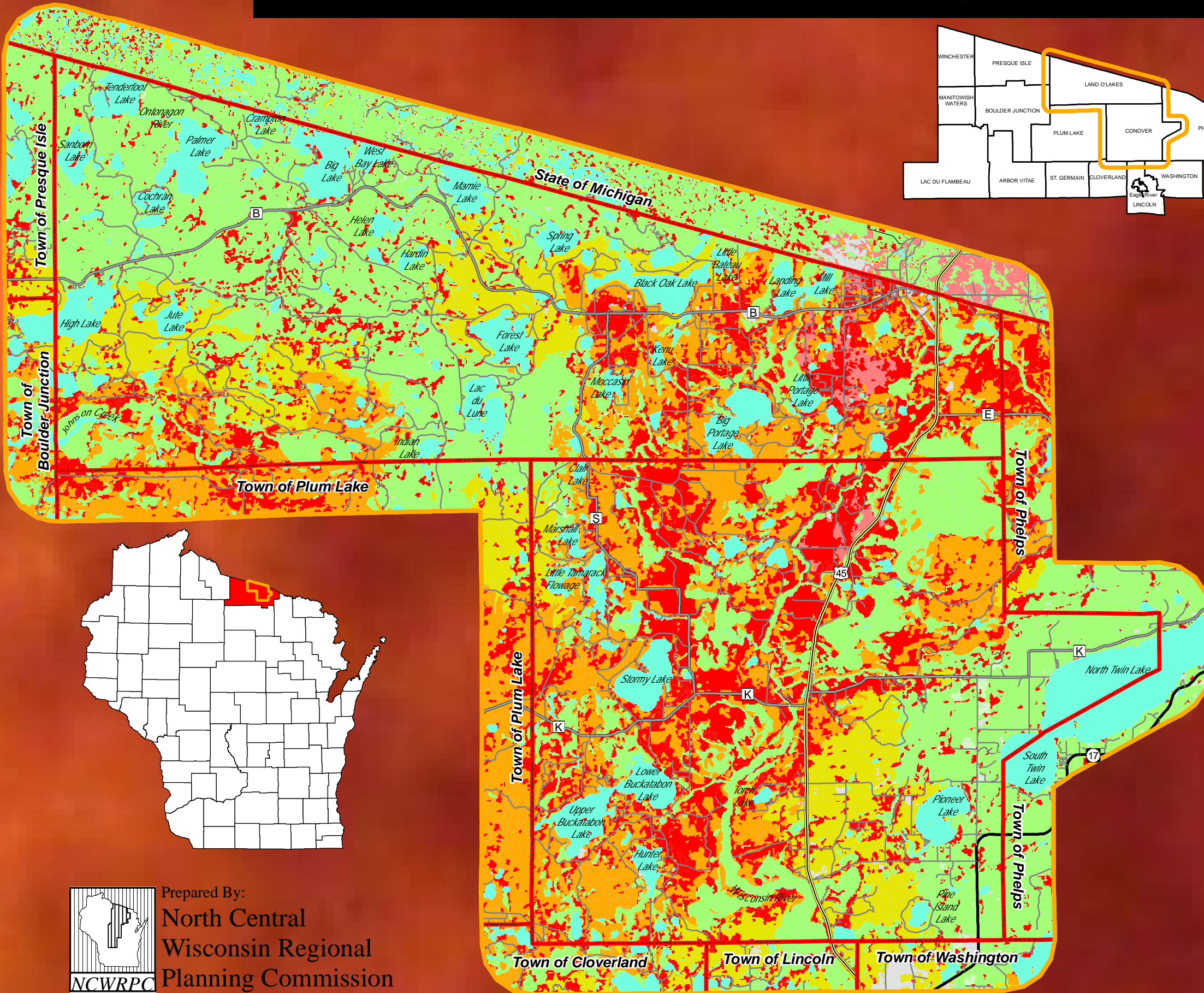
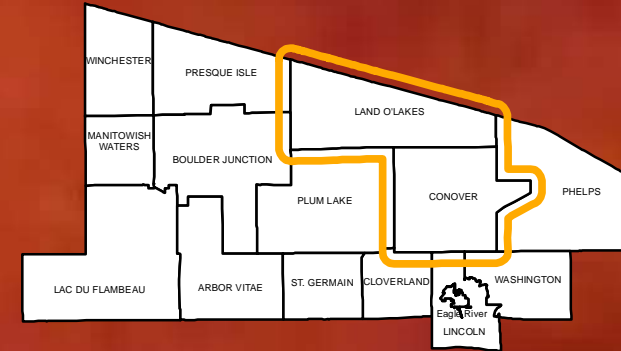
Dry Hydrants - Dry hydrants are designated locations where a fire suppression truck or pumper can draw water. Dry hydrants provide all-season access. Locations were obtained from the CWPP planning committee and Vilas County Land Records.

Water Pickup Sites - Water pickup sites are designated locations where a fire suppression truck or pumper can access a water source. Water pickup sites may not provide all-season access. Water pickup site locations were obtained from the CWPP planning committee and Vilas County Land Records.

Town of Conover & Land O' Lakes, Vilas County

Map 5

USFS Fire Hazard



- Minor Civil Divisions
- US Highways
- State Highways
- County Highways
- Roads
- Study Area
- Crown
- Very high surface
- High surface
- Moderate
- Low surface
- Very low surface
- Non-vegetated
- Water

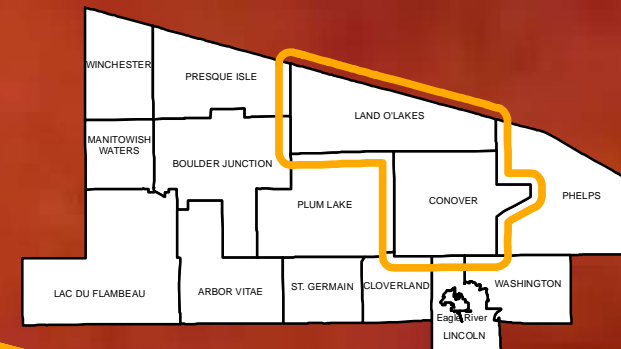
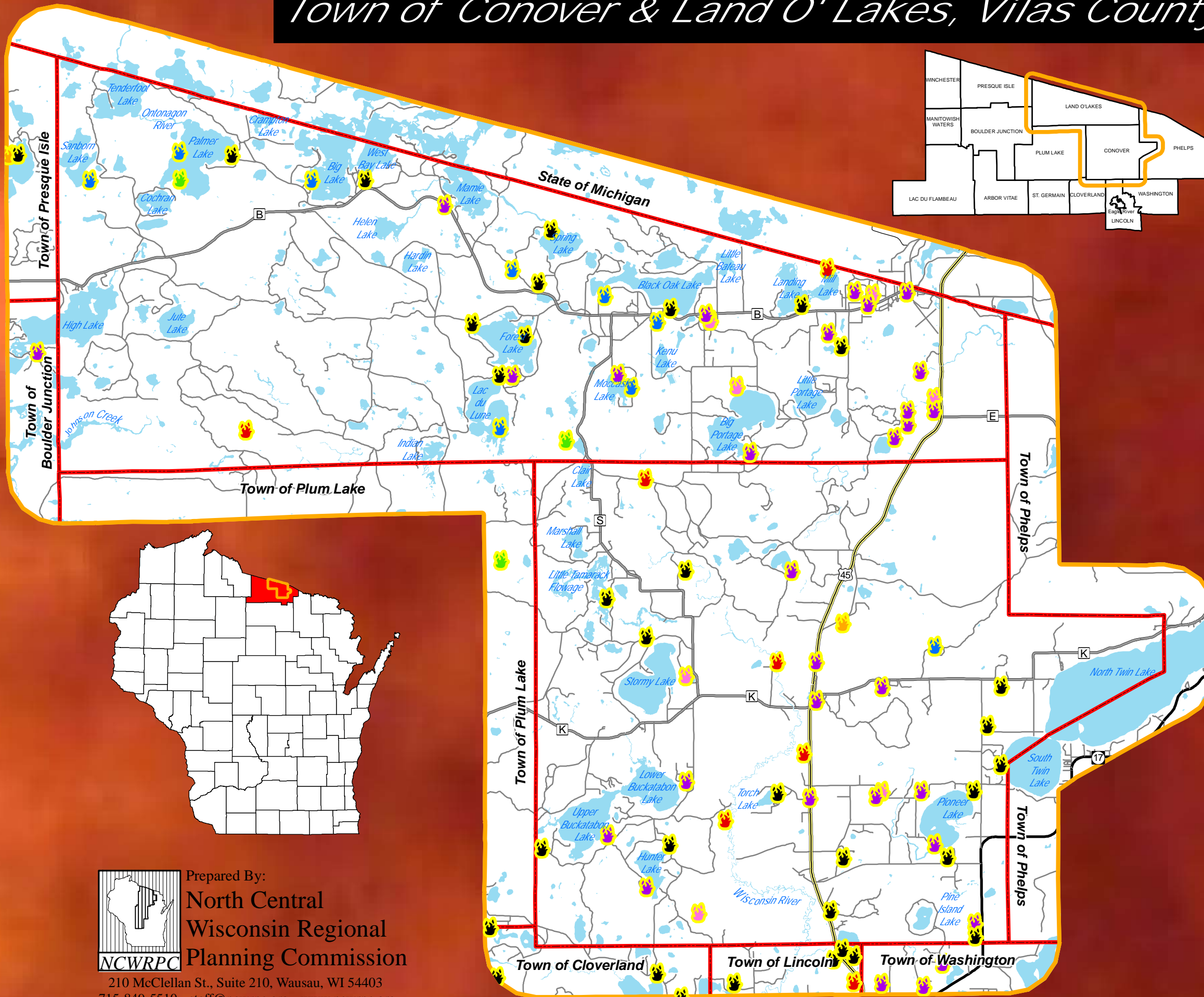


Source: WI DNR, United States Forest Service 2008, NCWRPC, & Vilas County
 This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

Prepared By:
North Central Wisconsin Regional Planning Commission
 NCWRPC
 210 McClellan St., Suite 210, Wausau, WI 54403
 715-849-5510 - staff@ncwrpc.org - www.ncwrpc.org



Fire Locations & Causes 1985 - 2005



- Minor Civil Divisions
- US Highways
- State Highways
- County Highways
- Roads
- Water
- Study Area
- Lightning
- Campfires
- Smoking
- Debris Burning
- Incendiary
- Equipment
- Miscellaneous

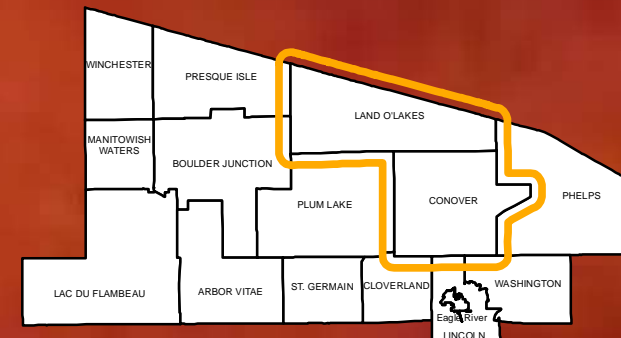
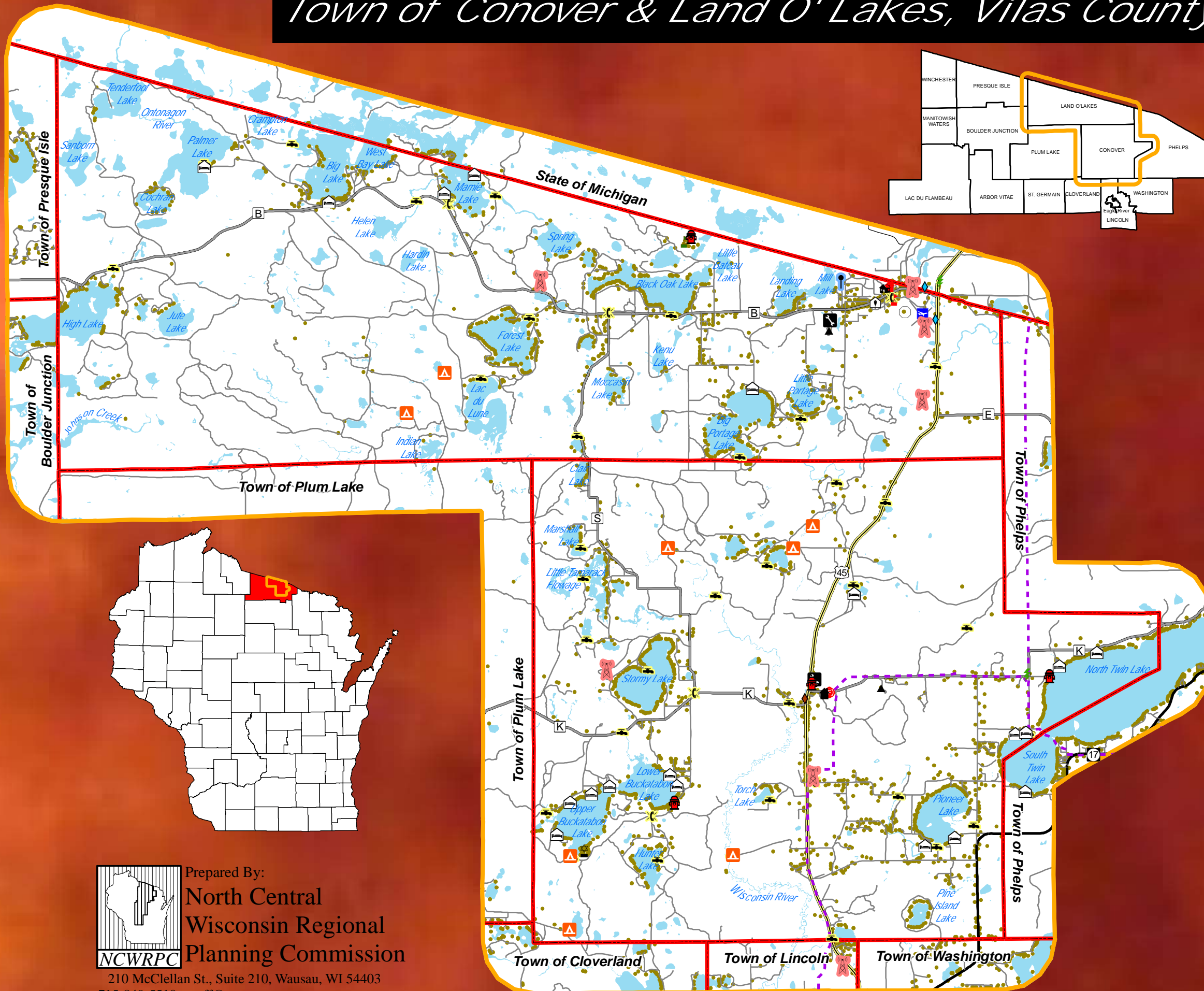


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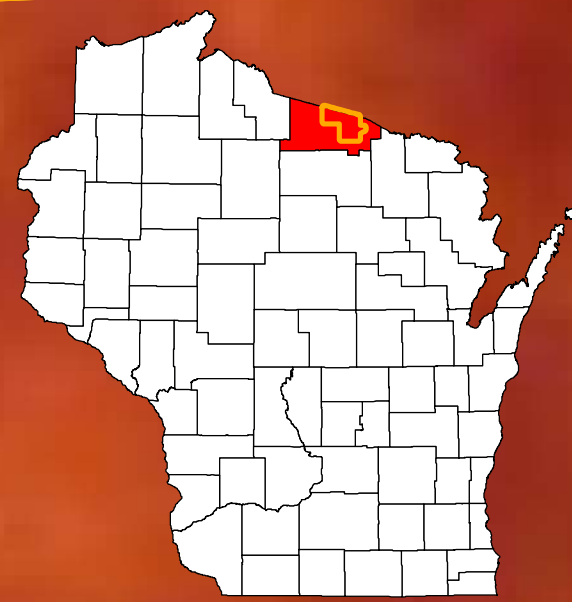
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 715-849-5510 - staff@ncwrpc.org - www.ncwrpc.org



Critical / Significant Facilities Map



	Minor Civil Divisions		Substation
	US Highways		Gas Storage
	State Highways		Gas Pipeline Bldg.
	County Highways		Fire Hydrant
	Roads		Assisted Living
	Water		Camp Ramah
	Study Area		Conserve Sch.
	Communication Towers		Resort
	Communication Structures		Water Access
	Airport		Water Tower
	Fire Station		Waste Water T. P.
	Museum		County Campground
	Land O' Lake Elementary		Town Dump
	Town Hall		Town Garage
	Town Hall / Fire Dept		Town Hall
	Transfer Site		Transfer Site
	High Voltage Powerline		Building Structures



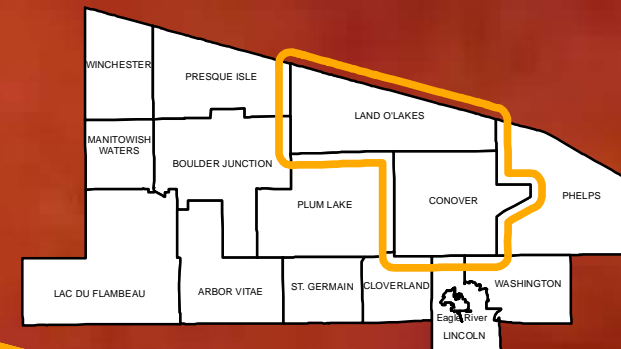
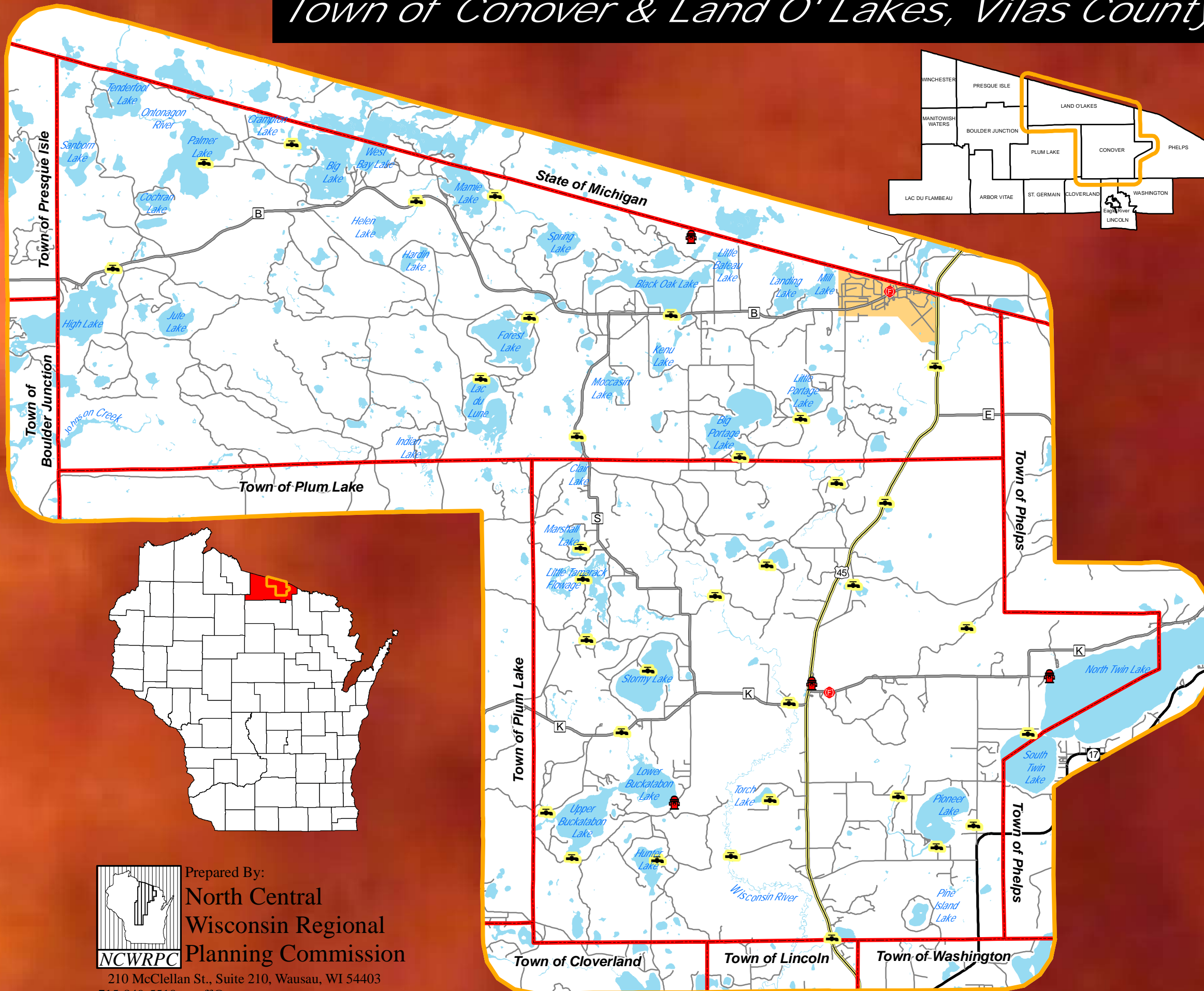
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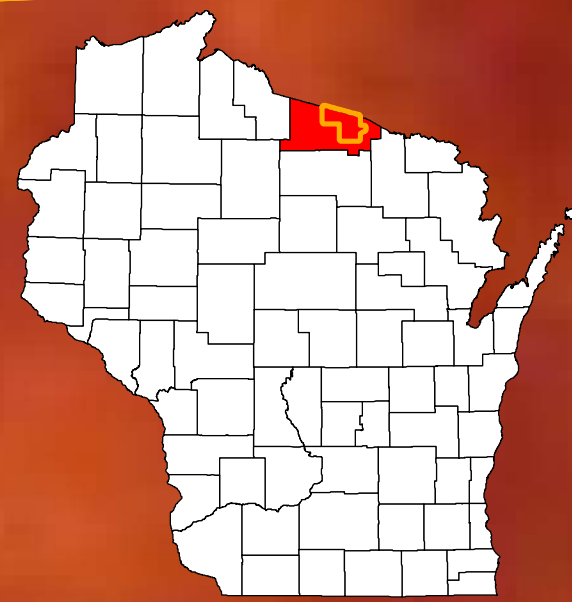


Town of Conover & Land O' Lakes, Vilas County

Protection Capability



- Minor Civil Divisions
- US Highways
- State Highways
- County Highways
- Roads
- Fire Hydrants
- Water Access
- Fire Stations
- Water
- Sanitary District with 48 Hydrants
- Study Area



Source: WI DNR, NCWRPC, Vilas County
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CHAPTER 4: MITIGATION STRATEGY

PROPOSED MITIGATION STRATEGIES

A comprehensive approach is recommended for implementing strategies to mitigate against wildfire. The strategies described here were identified by the CWPP planning committee to provide both immediate short-term as well as long-term actions that address a number of issues related to wildfire including:

- Vegetative Treatments
- Public Education and Outreach
- Treatment of Structural Ignitability
- Evacuation Planning

Recommended Mitigation Actions

The following strategies are recommended to address the planning goals and objectives established at the outset of this wildfire protection planning process.

Plan Goal: Provide for public safety from wildfire.

Objective 1: Reduce hazardous fuels on private land and around structures (home ignition zone).

Actions:

- a. Provide a safe and effective means of disposing of brush.
- b. Provide home ignition zone assessments for homeowners.
- c. Identify and provide demonstration properties for people to model their property after.
- d. Continue emphasis on clean-up of areas impacted by storm damage, pests and disease.
- e. Assess funding sources to reduce fuel loadings.
- f. Work with Vilas County (Departments such as Zoning, Forestry and Emergency Management), local builders/contractors, UW-Extension, greenhouses and landscapers to promote Firewise landscaping.

Objective 2: Involve the public in assessing and reducing wildfire hazards in a safe and effective manner.

Actions:

- a. Encourage area homeowner/lake associations to take part in the Firewise Communities USA program.
- b. Create a home ignition zone information packet for homeowners.
- c. Provide informational mailings to landowners offering answers to frequently asked questions about wildfire protection (possibly with tax bills).
- d. Provide workshops to inform the public about wildfire hazards and protection.

- e. Encourage fire management agencies to attend community functions.
- f. Communicate local fire causes to the public.
- g. Provide the public with a list of key contacts for information on the CWPP.
- h. Communicate reasons and best practices for managing stands of highly flammable trees (i.e. jack pine) to the public.

Objective 3: Identify and mitigate safety hazards to the public and firefighters.

Actions:

- a. Identify needs for additional water sources for suppression.
- b. Identify, prioritize and improve public and private roads and driveways in poor condition or with poor access for fire equipment.
- c. Educate the public regarding emergency access (along with item b, above)
- d. Recognize powerline right-of-ways as both possible fire hazards and hazards during suppression.
- e. Recognize hazardous materials as both possible fire hazards and hazards during suppression.
- f. Investigate non-traditional sources for water.

Objective 4: Improve intergovernmental coordination and cooperation in wildfire planning and protection.

Actions:

- a. Ensure that all emergency responders have access to a current copy of the Vilas County structure zone map book and are trained to use it.
- b. Include Vilas County in town wildfire planning and protection.
- c. Ensure CWPP is reviewed and updated on a regular basis.
- d. Look at ways to coordinate this plan and future projects with surrounding towns.

Objective 5: Reduce hazardous fuels on public land.

Actions:

- a. Prioritize fuel reduction work in areas of high housing density, greatest fuel hazards, high fire occurrence, and other values at risk.
- b. Encourage projects to reduce ladder fuels and create buffer zones for high hazard wildland-urban interface areas.
- c. Seek funding for treatment of side brush and mowing of ground level grasses along county forest roads.
- d. Continue to use established standards for slash management / clean-up of fuel loads.

Objective 6: Create new approaches to getting wildfire prevention messages to the public.

Actions:

- a. Hold Firewise workshops for area homeowners.

- b. Use builders, developers, and realtors to provide wildfire prevention information to new property owners.
- c. Develop a series of articles for distribution to local media during times of acute wildfire danger.
- d. Train key local fire department personnel in providing home ignition zone assessments.
- e. Include wildfire prevention informational materials on wildland-urban interface, Firewise, and burning regulations in an annual mailing (i.e. yearly tax bill).
- f. Create handout to be included with building and zoning permits.
- g. Promote Firewise landscaping with local greenhouses, landscapers and UW-Extension educational programs.
- h. Use the Internet as a resource to keep residents aware of wildfire related information and events.

Objective 7: Identify needs to improve local fire department suppression capabilities (both structural and wildfire).

Actions:

- a. Identify potential new locations for the placement of water sources.
- b. Investigate volunteer fire department wildland fire training opportunities.
- c. Identify desired upgrades to volunteer fire department firefighting equipment and potential funding sources.
- d. Update auto and mutual aid agreements with surrounding departments including availability and use of equipment.
- e. Encourage development of mutual aid box alarm system (MABAS) for enhancing mutual pre-planning.
- f. Develop and fund plan for interoperability with Michigan.
- g. Support Vilas County's efforts to develop Code Red early warning / emergency communications system.

Vegetative Treatments In Planning Units

Hazardous Fuel Reduction – Priority Areas

The risk assessment results guide future hazardous fuels mitigation efforts and focus vegetative treatments in Conover and Land O' Lakes. The initial focus areas for hazardous fuel reduction efforts (based on the risk assessment results) include the Buckatabon Unit (#9), the Portage Unit (#6), the North Twin Unit (#8), and the Land O' Lakes Unit (#3).

Hazardous Fuel Reduction Projects – Townwide

Throughout the Towns, dead and dying jack pine from the jack pine budworm should be cleaned up and removed to control this pest and reduce sources of hazardous fuels. Other areas of insect/disease infestation damage or storm damage should also be addressed. The previous section on tree and vegetation mortality discusses some of the primary concerns to be monitored in Conover and Land O' Lakes, which includes insect infestations from jack pine budworm, spruce budworm, forest tent caterpillars, and gypsy moths; and diseases such as Diplodia shoot

blight and canker and Sirococcus shoot blight. The long term impact of the extended drought conditions should also be monitored.

Public Outreach and Education

Firewise Communities Program

The Firewise Communities Program is a national multi-agency program that promotes partnerships between community leaders, homeowners, planners, developers and others to promote wildfire preparedness – before a fire starts. The Firewise approach emphasizes local community responsibility for designing and maintaining safe communities through land use planning, mitigation activities, collective decision-making and effective response. Firewise Communities/USA is a project of the National Wildfire Coordinating Group's (NWCG) Wildland/Urban Interface Working Team and is the latest component of the Firewise program. According to the NWCG, the Firewise Communities concept "provides citizens with the knowledge necessary to maintain an acceptable level of fire readiness, while ensuring firefighters that they can use equipment more efficiently during a wildland fire emergency."



The WDNR has a lot of information and a great number of resources and links on Firewise at <http://dnr.wi.gov/forestry/fire/prevention/firewise/index.htm>. Additional Firewise information can be found at <http://firewise.org/>.

Access

Firefighters cannot protect property that they are unable to access. Roads leading to, through, and around subdivisions and isolated homes should be designed with emergency vehicles and two-way traffic in mind. Roads should be wide enough to handle both emergency vehicles entering the area, as well as other traffic leaving.

Additional Recommendations:

- Road grades should not exceed ten percent and curves should be gentle and wide enough for large emergency vehicles to get around them.
- Road surfaces should be stable enough to support heavy equipment.
- Bridges should be constructed to accommodate the load of the largest apparatus typically used to respond to that location.
- Cul-de-sacs should have a 50-foot radius to allow emergency vehicles to maneuver and turn around.
- Tree branches overhanging roads or driveways should be trimmed up 14 feet to allow emergency vehicle access.
- Turnouts large enough for heavy emergency vehicles should be constructed along one-way roads.
- Vegetation should be trimmed back to create a buffer area/firebreak along both sides of roads.

Driveways should be at least 12 feet wide with 14 feet of overhead clearance. Driveways longer than 150 feet or those with sharp curves should be closer to 20 feet wide. If a driveway is longer than 300 feet, it should provide a turnout or turnaround for fire trucks. Locked or closed gates are discouraged.

All roads and addresses should be clearly marked. Road and street signs, and fire number markers should be standardized, easy to read, and maintained in a readable condition using non-combustible materials. Addresses should be easily visible from the road. Vilas County has recently enacted an ordinance that deals with many of the issues of street naming and structure addressing. This ordinance has a 10-year implementation program.

Fireworks

Fireworks are a significant cause of forest fires each year in Wisconsin. Restricted fireworks are much more likely to cause a forest fire or injury because of their erratic and unpredictable behavior. Since many of the restricted fireworks are of the airborne variety, often the wildfire ignition can be well away from the site that the fireworks are being used.

It is unlawful to possess or use restricted fireworks without a permit from the town chairperson. These permits are only issued to groups or organizations and the use of the fireworks are restricted to certain times and places. It is unlawful to sell restricted fireworks to someone who does not possess a valid permit. Restricted fireworks are defined as those that move, jump, explode or emit balls of fire and include such types as bottle rockets, firecrackers, jumping jacks, and roman candles (Wis. Stats. 167.10).

Treatment of Structural Ignitability

Structural ignitability is the susceptibility of a structure to catching fire. The concern related to structural ignitability is primarily for residences, items around the residence, and other buildings and vegetation on the property.

While there are numerous, factors which contribute to homes and communities being at risk to loss from wildfires, including hazardous fuel conditions, structural ignitability is arguably the most critical element to home survivability during a wildland-urban interface fire. Many structural ignitability factors are easily mitigated with little time and expense to homeowners, while other building construction elements can require a significant investment on the part of property owners.

This section of the plan will recommend treatment methods to mitigate structural ignitability including ways to modify home construction and the surrounding vegetation to decrease the susceptibility of igniting.

Building Codes/Permits

The State of Wisconsin requires its Uniform Dwelling Code (UDC) to be enforced in all municipalities. This code applies to all new one- and two-family dwellings built today and renovations or additions to dwellings built since June 1, 1980.

Since building requirements are established by the UDC, little opportunity exists to influence the building code to conform to Firewise guidelines. However, the Towns can work with Vilas County to use the building permit process as an opportunity to provide wildfire educational materials to the builder at the time they issue the permit.

Keep in mind that ordinary maintenance repairs are not considered structural repairs, modifications, or additions. Therefore, a building permit is not required for non-structural repairs such as replacement of doors, windows, roofing, or siding. These modifications offer the best opportunities to alter structural ignitability. The Towns should work to come up with methods to educate the public when undertaking such repairs.

Land Use Zoning Restrictions and Permits/Shoreland Zoning

The Town of Conover is under the Vilas County Zoning Ordinance. Land O' Lakes has its own special provisions that are administered and enforced on its behalf by the Vilas County Zoning Department.

To protect Wisconsin's lakes and rivers, people who own land and forests along shorelines are required to follow rules governing how far structures must be set back from the water's edge, the removal of trees from the shorelands, and other activities that could affect water quality and habitat. Firewise recommendations **do not** supersede zoning regulations. Therefore, whenever someone is planning to erect a structure or alter the land in some way, such as cutting trees, grading soil, etc., they should contact the zoning administrator to determine permit requirements and zoning restrictions.

The Towns should work with Vilas County to identify standards for Firewise building materials and landscaping, or to amend the County Zoning to reflect the town's desires regarding Firewise properties. This process may involve the development of additional zoning districts.

The Home Ignition Zone

The home ignition zone is an area of modified vegetation extending 100 feet beyond each side of all buildings on a person's property. This area can extend out to 200 feet if a home is on a steep slope or is in an area of heavy fuels, such as a pine forest or plantation. If properly managed with enough space and modified vegetation, this area can prevent fire from spreading to buildings and become a fuel break. This would increase the chance of a home surviving a wildfire and give fire suppression forces time to access to protect the dwelling.

The home ignition zone can be divided into 2 management areas: the area within 30 feet of the house and other structures (such as the garage, shed, and deck) and the area that extends 30 to 100 feet from the structures.

The general idea is to keep flammable trees furthest from the house, shrubs can be closer, and bedding plants and lawns are closest to the house. In other words, the landscape conditions should not support the spread of fire to other vegetation or to a building.

Defensible space

The area within 30 feet of structures is often called "defensible space." If modified properly, this area can keep low intensity, surface fire from reaching structures. It can also provide a relatively safe area for firefighters to work in if they are able to protect individual homes. The goal is to have short vegetation with high moisture content. The area around structures should be kept mowed short, and raked free of fallen leaves and needles. Plantings should be carefully spaced and have fire resistant qualities. Deciduous plants, shrubs, and trees are generally more fire resistant than evergreens. Tree limbs should be pruned back at least 10 feet from all structures and conifers should be pruned up 6 to 10 feet from the ground.

Fuel breaks can be created by incorporating gravel, rock, brick, paving, or a water feature into landscape design. This is especially important in the area 3 to 5 feet around buildings. Nothing flammable should be placed or allowed to grow in this area. Firewood and other flammable materials (such as stacks of building materials, gasoline containers, and propane tanks) should be kept at least 30 feet from the home, garage, and sheds.

In the area 30 to 100 feet beyond structures, the goal is to space shrubs and trees and remove lower tree branches. Trees in this zone should be spaced so their branches are at least 10 feet apart. Taller trees should have all limbs pruned six feet off the ground. This greatly reduces the chance of grass fires spreading into the treetops and then moving on to the next tree. All dead or dying limbs should be removed throughout the tree canopy and dead, dying, and diseased trees should be removed from the area.

Fire Resistant Plants

Even though some plants are marketed as fire resistant, all plants can burn under dry conditions. In general, plants that are low growing, open rather than densely branched, and low in resin content should be used in home landscaping. Junipers, pines, spruce, and fir are resinous and highly flammable. Landscape management including landscape design, plant placement, pruning, irrigation, and clean up have a greater impact on whether a plant ignites than the species. Maintenance of landscape plants is critical to fire safety.

Structure Flammability

When modifying a property in anticipation of wildfire, start by looking at the buildings. Remember that anything attached to a structure is part of the structure. Roofs, rain gutters, and decks are natural traps for leaves, pine needles, and embers from a fire. These areas should be kept free of all material that could allow an ember to smolder and start a fire. Flammable materials and debris should never be allowed under decks and overhangs. The first 3 to 5 feet around structures and wooden fences should be kept free of all vegetation, living and dead. This area can instead be filled in with decorative stone or other non-flammable material.

Building Materials

Perhaps the best protection against the loss of a home to wildfire can be found in the building materials used in home construction. The materials used, whether building, remodeling, or retrofitting can make a difference in how well a home withstands both the potential "direct threat" of flames and the "indirect threat" of flying embers.

Roofs - The roof is the most exposed portion of the home's exterior and the most at risk from flying embers. Most homes lost during wildfires are due to embers and flames igniting combustible roofs. Roofs near any wildland area should be constructed of noncombustible materials such as composition shingles, tile or slate, or aluminum or steel. If it is not economically feasible to replace an existing wood shake roof, there are commercially available fire retardant treatments that may help slow the spread of a potential ignition or delay it. All roofs should be maintained to be free of accumulations of pine needles, leaves, or other material that may burn.

Decks and Fences - Any structure attached to a house is considered part of the house itself and is treated as the main house. The very nature of wooden decks – usually attached to the house and raised off the ground – make them a fire concern. Decks elevated off the ground should be enclosed around the bottom with no larger than 1/8-inch wire mesh screening to prevent embers from being trapped underneath.

Areas where the deck attaches to the house can be natural traps for leaves, pine needles, and embers from a fire. These areas should be kept clean and free of all material that could allow an ember to smolder and start a fire.

Wood fences can be highly flammable and are often attached to the house. For this reason, they should be avoided or at least well maintained. Vegetation that may ignite and hold a flame against the fence should be trimmed back or removed. There are some commercially available fire retardants that may help prevent or slow ignition of a fence. Consider separating the fence from the house with non-combustibles, such as metal, brick, or stone.

Siding - Siding should be constructed of fire-resistant materials. When a home is being built, added on to, or resided, fire-resistant materials such as stucco or masonry, or other modern fire-resistant products should be used. Some siding materials, such as vinyl, will soften and melt in the heat of a wildfire and allow flying embers entry to attics or crawl spaces.

Windows - Windows can fail and provide openings for fire to reach inside of a house. When building, remodeling, or replacing windows, the following considerations should be taken into account:

- Single-paned glass can break relatively easy from radiant heat or from windblown debris. Multi-paned windows will generally protect better against a wildfire.
- Reducing the size (square feet) of windows exposed to wildland fuels will reduce breakage. Smaller panes of glass will generally hold up better against a wildfire than will larger panes of glass.
- Tempered glass provides the best protection from high heat.

Eaves and Vents - Eaves can be a trap for firebrands and allow an ignition point up under a roof. For this reason, eaves should be enclosed or boxed. Eave vents, although necessary in home construction, can provide access into a home for flying embers. Therefore, they should be covered with a screen having a wire mesh opening of not more than 1/8 inch.

Rain Gutters - Rain gutters present a maintenance concern. They can be natural traps for embers to land, settle, and continue smoldering. Because of this, gutters should be kept clean and free of all accumulations of leaves, pine needles, or other material that could be ignited by embers.

Chimneys - Chimneys are both a construction and maintenance concern and present a risk of ignition from both inside and outside the home (chimney fires can cause a house fire: sparks from the chimney can ignite roofs and wildland fuels). Chimneys should be kept clean and covered with a wire mesh screen spark arrester to prevent firebrands flying into the home and embers flying out. This is a particular concern if the roof is constructed of flammable material.

Evacuation Planning

The Conover - Land O' Lakes CWPP planning committee should develop an evacuation plan for the Towns. The evacuation plan directs evacuation route options for clustered development areas and main roads should an evacuation due to wildfire be necessary.

More than one ingress/egress point should be identified for most developed areas of the Towns. The preference is for two evacuation routes to be identified for residents to leave an area depending on the location and movement of the fire.

Evacuation can pose a challenge using many of the roads in Conover and Land O' Lakes. Moving a large number of people out of concentrated subdivisions or areas with limited ingress and egress can be a problem during a large forest fire. Evacuation problems exist when roads are too narrow or in disrepair and do not allow efficient flow of emergency responders in and residents out. Problems also exist when roads are blocked by downed power lines, the direction of fire movement blocks escape routes, or visibility is reduced due to smoke.

Initial safety concerns dictate that evacuation plans receive a high priority during any large fire. Incident management team training includes evacuation concerns as part of simulation exercises. Further planning and training in cooperation with fire agencies, law enforcement, and disaster relief agencies is needed.

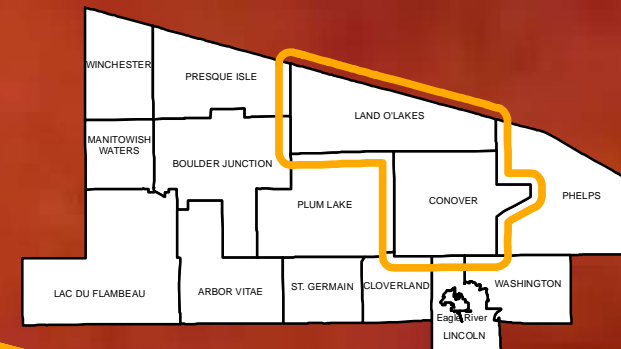
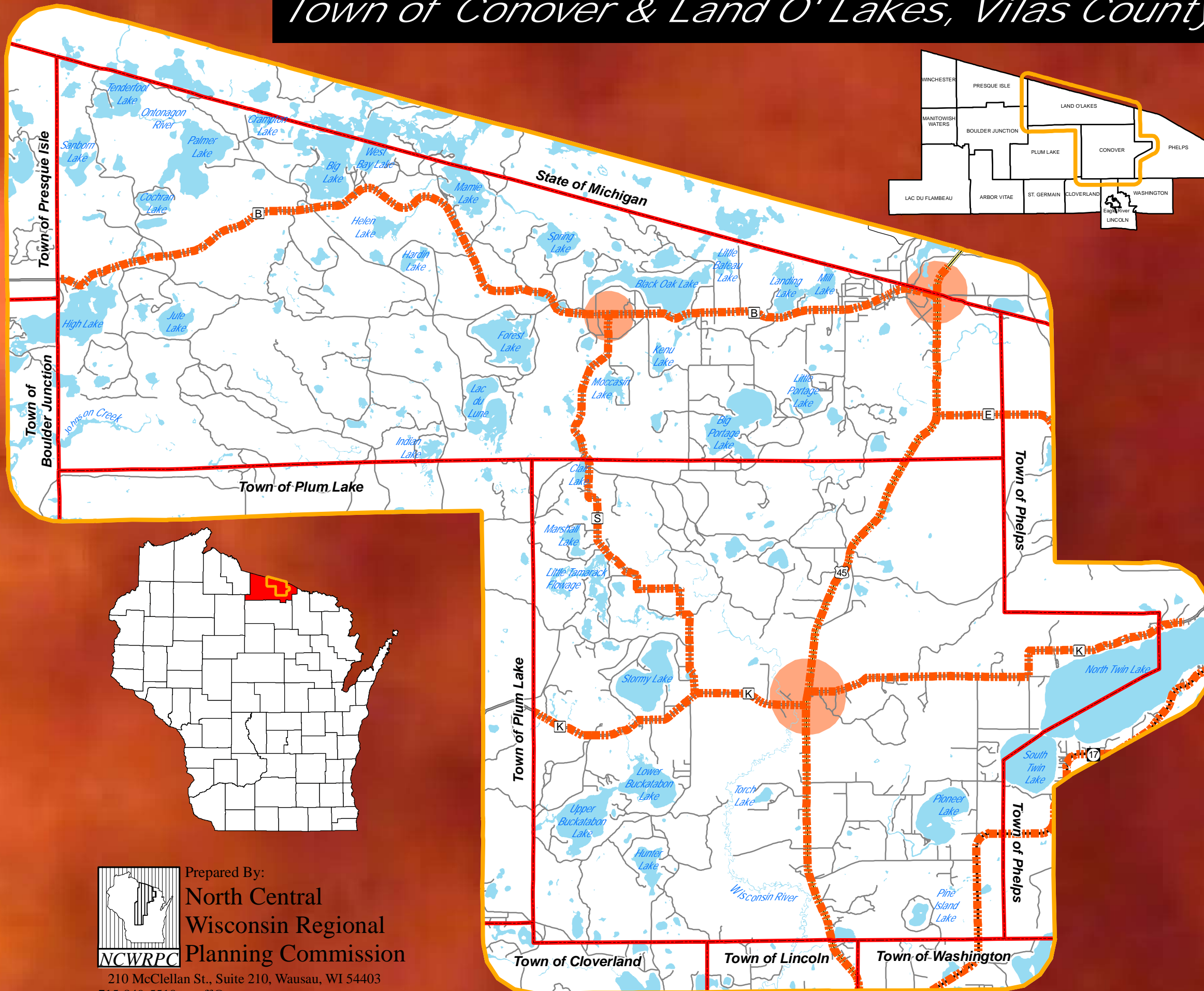
Map 9 displays arrows depicting possible evacuation routes recommended for the clustered development areas and main roads in the Towns of Conover and Land O' Lakes. Further development of the evacuation plan and public education will be necessary. Most importantly, the public must be informed about the designated evacuation routes. The CWPP planning committee will be continuing to modify details to the evacuation plan to include the following:

- A means of notifying the public of the need to evacuate, whether by local law enforcement, neighborhood leaders, a reverse 911 system, or other means.
- The identification of established meeting or gathering sites for evacuees.
- A means of practicing the evacuation plan. The more known and practiced an evacuation plan is the more orderly and safely it can be carried out when necessary, minimizing the risk to lives.

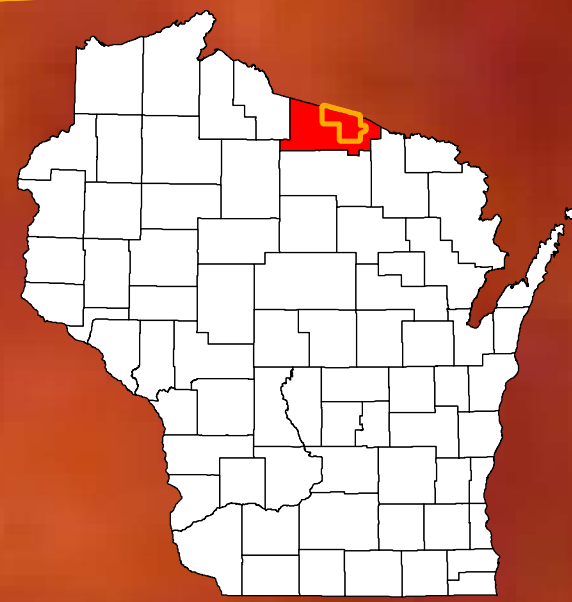
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Town of Conover & Land O' Lakes, Vilas County

Primary Evacuation Routes



- Minor Civil Divisions
- US Highways
- State Highways
- County Highways
- Roads
- Evacuation Routes
- Major Intersections
- Water
- Study Area



Source: WI DNR, NCWRPC
 This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

Prepared By:
North Central Wisconsin Regional Planning Commission
 NCWRPC
 210 McClellan St., Suite 210, Wausau, WI 54403
 715-849-5510 - staff@ncwrpc.org - www.ncwrpc.org



CHAPTER 5: IMPLEMENTATION

Implementation of the Conover - Land O' Lakes CWPP focuses on intermediate range needs for the next five years through priority mitigation projects selected from the overall mitigation strategy developed by the joint Conover - Land O' Lakes CWPP Planning Committee. An action plan establishes timeframes and responsible parties to guide each project. On-going implementation is achieved by replacing completed projects with other longer-range actions from the mitigation strategy, along with regular review and update of the plan.

PRIORITY MITIGATION PROJECTS

The CWPP planning committee identified priority mitigation projects from the recommended mitigation actions outlined in Chapter 4. The identified priority projects are listed below.

1. Continue Wildfire Protection Committees for the Towns of Conover and Land O' Lakes as an on-going effort in each Town.

The Towns of Conover and Land O' Lakes will continue with on-going working groups to coordinate and lead plan implementation efforts in each Town. The original joint planning committee should be reconvened biannually or annually at a minimum to monitor progress on plan implementation.

2. Establish wildfire webpage/link off of Town websites.

The Towns will dedicate webpages to provide on-going information and education on wildfire issues. This CWPP should be posted along with other documents such as the Wisconsin Firewise Landscaping Guide (see below). Meeting notices, agendas, minutes and other information can also be posted to keep residents informed.

3. Create / Distribute CWPP plan summary.

The DNR and NCWRPC will coordinate creation of a CWPP summary report that the Towns can distribute to residents as a first step in getting the word out regarding the wildfire protection effort.

4. Distribute Wisconsin Firewise Landscaping Guide.

The Town will distribute the Wisconsin Firewise Landscaping Guide to property owners and area landscapers and greenhouses.

5. Create / Distribute wildfire/Firewise informational materials.

DNR WUI Specialist will assist the Towns with creation of custom pieces or obtaining copies of other readymade materials for various applications identified in this plan.

6. Promote Firewise Communities Program within the two Towns.

The Towns will encourage and support area lake associations / districts, homeowners associations and other eligible groups in becoming designated Firewise Communities.

7. Hold Firewise workshops.

The Towns will work with the DNR to hold Firewise workshops to familiarize prospective groups with the program.

8. Coordinate Home Ignition Zone Assessment training with local personnel and DNR.

DNR will train key local fire department personnel in conducting home ignition zone assessments.

9. Provide Home Ignition Zone Assessments for landowners.

The Towns will promote home ignition zone assessments and provide them on request. They may be scheduled on a special event basis over the course of a specified timeframe or for a particular area such as a lake association.

10. Update / Distribute Vilas County structure zone maps.

The structure zone maps may need updating as a result of changes in the County addressing rules and should continue to be reviewed every five years. The WDNR and Vilas County should work to ensure area fire management personnel have the most recent zone maps.

11. Provide zone supervisor training.

Work with DNR to provide zone supervisor training for firefighters in the area.

12. Establish Conover chipping/compost site.

The Town of Conover will establish a brush site for residents to bring their brush and yard clippings. Funding may be available for components such as gates and signage. A chipper is desirable but would not likely qualify for a grant.

13. Investigate use of fuel breaks.

The Towns will work with County and State officials to evaluate if and where fuel breaks might be advantageous and how to best implement an identified break.

14. Undertake hazardous fuel reduction projects.

The towns, county and state should work cooperatively with private landowners to reduce hazardous fuel loading. Priority areas for these hazardous fuel reduction efforts (based on the risk assessment results) include the Buckatabon Unit (#9), the Portage Unit (#6), the North Twin Unit (#8), and the Land O' Lakes Unit (#3).

MITIGATION ACTION PLAN

The mitigation action plan for the Towns of Conover and Land O' Lakes was developed by the CWPP planning committee. The mitigation action plan is a stepwise approach to implement the identified priority mitigation projects described above. The action plan identifies priority mitigation projects that the Towns will work to accomplish over the next few years as well as when and who is responsible for overseeing the project, see Table 10. The action plan will better prepare Conover and Land O' Lakes for wildfire threats.

TABLE 10 MITIGATION ACTION PLAN				
	<i>Mitigation Projects</i>	<i>Timeframe</i>	<i>Ongoing</i>	<i>Responsible Party</i>
1	Continue On-going Wildfire Protection Working Groups at the Town Level	June 2009	X	Conover and Land O' Lakes
2	Establish Wildfire Webpage / Link off Town websites	July 2009	X	Conover and Land O' Lakes
3	Create /Distribute CWPP Summary	October 2009		Towns and WDNR
4	Distribute WI Firewise Landscaping Guide	May 2009		Conover and Land O' Lakes
5	Create/Distribute Wildfire/Firewise Informational Materials		X	Conover and Land O' Lakes and WDNR
6	Promote Firewise Communities Program Within The Two Towns		X	Conover and Land O' Lakes
7	Hold Firewise Workshops	2009 - 2010		WDNR and Conover and Land O' Lakes
8	Coordinate Home Ignition Zone Assessment Training w/ local personnel and WDNR	Summer 2009		Conover and Land O' Lakes and WDNR
9	Provide Home Ignition Zone Assessments for Landowners.		X	Conover and Land O Lake
10	Update / Distribute Vilas County Structure Zone Maps	2013		Vilas County and WDNR
11	Provide Zone Supervisor Training	Winter 2009-10		WDNR and Conover and Land O' Lakes
12	Establish Conover Chipping / Compost Site	2010		Town of Conover
13	Investigate Use of Fuel Breaks		X	Conover and Land O' Lakes, Vilas County and WDNR
14	Undertake Hazardous Fuel Reduction Projects		X	Private Land Owners, Conover, Land O' Lakes, and Vilas County

Source: Conover-Land O' Lakes CWPP Planning Committee

Review and Update Mitigation Action Plan

The CWPP planning committee intends to review the mitigation action plan on a regular basis beginning with a six-month review occurring after the CWPP is complete. Regular reviews will continue on a biannual to annual basis with complete plan updates occurring every five years.

Mitigation Projects Tracking

The towns working groups will work through the projects in the mitigation action plan by completing the tasks outlined in the list of "priority projects." With each biannual or annual review of the mitigation action plan, the priority projects will be replaced with new projects as they are completed.

APPENDIX: FUNDING OPPORTUNITIES

STATE ASSISTANCE

Forest Fire Protection Grant

Forest Fire Protection (FFP) grants are available to increase forest fire protection and suppression capabilities through cooperative efforts with local fire departments and county fire associations as per s.917, 1997 Wisconsin Act 27, Stats. Fire departments that have executed a forest fire suppression agreement acceptable to WDNR are eligible to apply.

Factors considered include:

1. Whether the fire departments serve in a WDNR organized fire protection area;
2. Whether fire departments respond to wildfires within their jurisdiction at no cost to the WDNR;
3. Whether fire departments have a majority of members meeting NFPA 1051 standards for firefighting training and;
4. Whether or not the fire department was awarded a FFP grant in the last funding cycle.

Fire departments that have executed a forest fire suppression agreement acceptable to WDNR are eligible to apply. County fire associations with a majority of the member fire departments having a forest fire suppression agreement with WDNR are eligible to apply. There is a 50 percent local match required. Eligible fire departments can receive a maximum grant award of \$10,000. Eligible county fire associations can receive a maximum grant award of \$25,000.

Wildland fire equipment is eligible in the following categories listed in priority order:

- Personal protective clothing
- Forest fire training
- Forest fire prevention projects
- Forest fire suppression equipment
- Dry hydrants
- Communications equipment
- Mapping equipment, maps, and GPS units
- Off road vehicles primarily used for forest fires including ATV's

A complete listing of eligible items can be found on the application web site. Applications are mailed to fire departments and county fire associations in late April. Applications must be returned to the WDNR by July 1 (unless otherwise provided for on the application) of the same year.

The FFP grant application packet is available online at <http://dnr.wi.gov/org/caer/cfa/lr/ffp/grants.html>. For more information, contact Eileen Trainor, Financial Assistance Specialist at (608) 267-0848 or by email at Eileen.Trainor@Wisconsin.gov.

Wisconsin DNR – Division of Forestry Hazard Mitigation Program

Hazard Mitigation Program grants aim to decrease the probability of a catastrophic wildfire affecting a Wisconsin community. Through the National Fire Plan program, states are able to compete for grants to fund projects that meet the goals of the program. The WDNR Division of Forestry manages these funds through their Hazard Mitigation program. Projects fall under a few general categories: readiness, prevention, fuel breaks, and vegetation management. Communities with Community Wildfire Protection Plans are eligible to apply for these funds to conduct projects such as fuels reduction, access improvement, prescribed burning, and education. Smaller associations within the community (e.g. lake associations) are eligible to apply for funds to carry out projects such as chipping days, defensible space creation, education, and property assessments.

For additional information or application materials, contact Jolene Ackerman at the WDNR Division of Forestry at Jolene.Ackerman@wisconsin.gov or (608) 267-7677.

FEDERAL ASSISTANCE

Assistance to Firefighters Grant Program

The purpose of the Assistance to Firefighters Grant (AFG) Program is to award one-year grants directly to fire departments and nonaffiliated emergency medical services (EMS) organizations of a state to enhance their abilities with respect to fire and fire-related hazards. The primary goal is to provide assistance to meet fire departments' and nonaffiliated EMS organizations' firefighting and emergency response needs. This program seeks to support organizations that lack the tools and resources necessary to protect the health and safety of the public and their emergency response personnel with respect to fire and all other hazards they may face.

The application period typically runs from March 6 to April 7. Each application includes a scored narrative with four parts:

- Project Description
- Financial Need
- Cost/Benefit
- Operational Outcomes

More information can be found online at <http://www.firegrantsupport.com>, by calling the grant help desk of (866) 274-0960 or by email Dawn Vick at dawn.vick@wisconsin.gov.

Fire Prevention and Safety Grant Program

The Fire Prevention and Safety (FP&S) grants are part of the Assistance to Firefighters Grants (AFG) and are under the purview of the Grant Programs Directorate in the Federal Emergency Management Agency. FP&S grants support projects that enhance the safety of the public and firefighters from fire and related hazards. The primary goal is to target high-risk populations and mitigate high incidences of death and injury. Examples of the types of projects supported by FP&S include fire prevention and public safety education campaigns, juvenile fire-setter interventions, media campaigns, and arson prevention and awareness programs. In fiscal year

2005, Congress reauthorized funding for FP&S and expanded the eligible uses of funds to include Firefighter Safety Research and Development.

The application period is open from October 22 to November 30. More information can be found online at <http://www.firegrantsupport.com/fps/>, by calling the grant help desk at (866) 274-0960 or by email at firegrants@dhs.gov.

Staffing for Adequate Fire and Emergency Response Grant Program

Staffing for Adequate Fire and Emergency Response (SAFER) grant was created to provide funding directly to fire departments and volunteer firefighter organizations in order to help them increase the number of trained, “front-line” firefighters available in their communities.

The goal of SAFER is to enhance the local fire departments’ abilities to comply with staffing, response, and operational standards. Specifically, SAFER funds should assist local fire departments to increase their staffing and deployment capabilities in order to respond to emergencies whenever they may occur. Because of enhanced staffing, response times should be sufficiently reduced with an appropriate number of personnel assembled at the incident scene. In addition, the enhanced staffing should provide that all front-line/first-due apparatus of SAFER grantees have a minimum of four trained personnel to meet OSHA standards. Ultimately, a faster, safer, and more efficient incident scene will be established and communities will have adequate protection from fire and fire-related hazards.

The purpose of the SAFER grants is to award grants directly to volunteer, combination, and career fire departments to help the departments increase their cadre of firefighters. Ultimately, the goal is for SAFER grantees to enhance their ability to attain 24-hour staffing and thus assuring their communities have adequate protection from fire and fire-related hazards. The SAFER grants have two activities that will help grantees attain this goal:

1. Hiring of firefighters and
2. Recruitment and retention of volunteer firefighters.

The application period is open from July 30 to August 30. More information can be found online at <http://www.firegrantsupport.com/safer/>, by calling the grant help desk at (866) 274-0960 or by email at firegrants@dhs.gov.

GLOSSARY

A

Aerial Fuels: All live and dead vegetation in the forest canopy or above the surface fuels, including tree branches, twigs and cones, snags, moss, and high brush.

Agency: Any federal, state, county, or city organization participating with jurisdictional responsibilities.

B

Biomass (includes small-diameter wood): The material from trees and woody plants, including limbs, tops, needles, leaves, and other woody parts, grown in a forest, woodland, farm, rangeland, or wildland urban interface environment, that are the by-products of forest management, ecosystem restoration, or hazardous fuel reduction treatments.

Biomass Utilization: The harvest, sale, offer, trade, and/or use of woody biomass to produce a full range of wood products. These products include timber, engineered lumber, paper and pulp, furniture and value-added commodities, as well as bio-energy, bio-fuels (ethanol and diesel), and bio-based products (plastics and solvents).

Brush: A collective term that refers to stands of vegetation dominated by shrubby, woody plants, or low growing trees, usually of a type undesirable for livestock or timber management.

Brush Fire: A fire burning in vegetation that is predominantly shrubs, brush and scrub growth.

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

Burning Conditions: The state of the combined factors of the environment that affect fire behavior in a specified fuel type.

C

Chipping: Reducing wood related material by mechanical means into small pieces to be used as mulch or fuel. Chipping and mulching are often used interchangeably.

Creeping Fire: Fire burning with a low flame and spreading slowly.

Crown Fire (Crowning): The movement of fire through the crowns of trees or shrubs more or less independently of the surface fire.

D

Dead Fuels: Fuels with no living tissue in which moisture content is governed almost entirely by atmospheric moisture (relative humidity and precipitation), dry-bulb temperature, and solar radiation.

Debris Burning: A fire spreading from any fire originally set for the purpose of clearing land or for rubbish, garbage, range, stubble, or meadow burning.

Defensible Space: An area either natural or manmade where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and the loss to life, property, or resources. In practice, “defensible space” is defined as an area a minimum of 30 feet around a structure that is cleared of flammable brush or vegetation.

Detection: The act or system of discovering and locating fires.

Duff: The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves immediately above the mineral soil.

E

Escape Route: A preplanned and understood route firefighters take to move to a safety zone or other low-risk area, such as an already burned area, previously constructed safety area, a meadow that will not burn, natural rocky area that is large enough to take refuge without being burned. When escaped routes deviate from a defined physical path, they should be clearly marked (flagged).

F

Fire Behavior: The manner in which a fire reacts to the influences of fuel, weather, and topography.

Fire Break: A natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work.

Fire Front: The part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified the fire front is assumed to be the leading edge of the fire perimeter. In ground fires, the fire front may be mainly smoldering combustion.

Fire Intensity: A general term relating to the heat energy released by a fire.

Fire Load: The number and size of fires historically experienced on a specified unit over a specified period (usually one day) at a specified index of fire danger.

Fire Perimeter: The entire outer edge or boundary of a fire.

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

Fire Weather: Weather conditions that influence fire ignition, behavior, and suppression.

Firebrand: Any source of heat, natural or man made, capable of igniting wildland fuels; flaming or glowing fuel particles that can be carried naturally by wind, convection currents, or gravity into unburned fuels.

Firewise Community: A community that takes responsibility for creating a safe community in the face of wildfire threat. The Firewise Community incorporates effective emergency response and individual responsibility for safer home construction and design, landscaping, and maintenance.

Firefighting Resources: All people and major items of equipment that can or potentially could be assigned to fires.

Flare-up: Any sudden acceleration of fire spread or intensification of a fire. Unlike a blow-up, a flare-up lasts a relatively short time and does not radically change control plans.

Flash Fuels: Fuels such as grass, leaves, draped pine needles, fern, tree moss, and some kinds of slash that ignite readily and are consumed rapidly when dry. Also called fine fuels.

Fuel: Combustible material. This includes, vegetation, such as grass, leaves, ground litter, plants, shrubs, and trees, which feed a fire.

Fuel Loading: The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area.

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

G

Ground Fuel: All combustible materials below the surface litter, including duff, tree, or shrub roots, punch wood, peat, and sawdust that normally support a glowing combustion without flame.

H

Hazard Reduction: Any treatment of a hazard that reduces the threat of ignition and fire intensity or rate of spread.

Home Ignition Zone: Includes the home and an area surrounding the home within 100 to 200 feet. The potential for ignition depends on the home's exterior materials and design and the amount of heat to the home from the flames within the home ignition zone.

Hotspot: A particular active part of a fire.

I

Incendiary: A criminal who illegally sets fire to property.

Incident: A human-caused or natural occurrence, such as wildland fire, that requires emergency service action to prevent or reduce the loss of life or damage to property or natural resources.

Initial Attack: The actions taken by the first resources to arrive at a wildfire to protect lives and property, and prevent further extension of the fire.

Interoperability: Is connecting people, data and diverse systems. Interoperability in regard to wildfires often focuses on getting diverse communication systems connected so that communication can occur between cooperating agencies, command and tactical units, air and ground units, etc.

L

Ladder Fuels: Fuels that provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

Litter: Top layer of the forest, scrubland, or grassland floor, directly above the fermentation layer, composed of loose debris of dead sticks, branches, twigs, and recently fallen leaves or needles, little altered in structure by decomposition.

Live Fuels: Living plants, such as trees, grasses, and shrubs, in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms rather than by external weather influences.

M

Mutual Aid Agreement: Written agreement between agencies and/or jurisdictions in which they agree to assist one another upon request, by furnishing personnel and equipment.

Mutual Aid Box Alarm System (MABAS): MABAS agencies, regardless of their geopolitical origin, are able to work together seamlessly on any emergency scene. All MABAS agencies operate on a common radio frequency and are activated for response through protocols developed to meet local risk needs. MABAS also provides mutual aid station coverage to a stricken community when their Fire/EMS resources are committed to an incident for an extended period.

N

Normal Fire Season: 1) A season when weather, fire danger, and number and distribution of fires are about average. 2) Period of the year that normally comprises the fire season.

P

Peak Fire Season: That period of the fire season during which fires are expected to ignite most readily, to burn with greater than average intensity, and to create damages at an unacceptable level.

Preparedness: Condition or degree of being ready to cope with a potential fire situation.

Prescribed Fire: Any fire ignited by management actions under certain, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Prevention: Activities directed at reducing the incidence of fires, including public education, law enforcement, personal contact, and reduction of fuel hazards.

S

Slash: Debris left after logging, pruning, thinning, or brush cutting; includes logs, chips, bark, branches, stumps and broken understory trees or brush.

Snag: A standing dead tree or part of a dead tree from which at least the smaller branches have fallen.

Spark Arrester: A device installed in a chimney, flue, or exhaust pipe to stop the emission of sparks and burning fragments.

Spot Fire: A fire ignited outside the perimeter of the main fire by flying sparks or embers.

Staging Area: Locations set up at an incident where resources can be placed while awaiting a tactical assignment on a three-minute available basis. Staging areas are managed by the operations section.

Structure Fire: Fire originating in and burning any part or all of any building, shelter, or other structure.

Suppression: All the work of extinguishing or containing a fire, beginning with its discovery.

Surface Fuels: Loose surface litter on the soil surface, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches that have not yet decayed enough to lose their

identity; also grasses, forbs, low and medium shrubs, tree seedlings, heavier branchwood, downed logs, and stumps interspersed with or partially replacing the litter.

T

Torching: The ignition and flare-up of a tree or small group of trees, usually from the bottom to the top.

U

Uncontrolled Fire: Any fire which threatens to destroy life, property, or natural resources.

W

Wildfire (or wildland fire): Any nonstructural fire, other than prescribed fire, that occurs in the wildland.

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