

#### 4.4.10 Wildfire

##### 4.4.10.1 Description

A wildfire is an uncontrolled fire in a vegetated area. Wildfires are a natural part of the ecosystem. They have a purpose in nature and following years of fire suppression, many areas have built up fuels that can lead to larger, more intense fires. In Valley County, timber, shrubs, grasses, rangelands, and croplands make up the primary fuel sources. These fuels burn rapidly and readily when cured. These types of fires have the potential to destroy structures and natural resources while producing heavy amounts of smoke, particularly when spread by strong winds. Negative impacts of wildfire include loss of life, property and resource damage or destruction, severe emotional crisis, widespread economic impact, disrupted and fiscally impacted government services, and environmental degradation.

Any flame source can trigger a wildfire, but they are most often triggered by lightning. Another common ignition source in Valley County is the railroad activity. Once ignited, ambient conditions dictate whether the fire will spread or not. Moist, cool, and calm conditions or a lack of fuels will suppress the fire, whereas, dry, warm, and windy conditions and dry fuels will contribute to fire spread. The terrain, accessibility, water supplies, and capabilities of the fire agencies are also factors in the fire's growth potential.

Wildfire occurrence is weather dependent and highly variable from year to year. Fire season generally runs from March through November, but wildfires can occur at any time of year. The light, flashy fuels present in the region are capable of sustaining large, fast moving wildfires.

##### Vegetative Fuels and Landscape

Fire is a normal part of the ecosystem. Prior to suppression activities, wildfires would burn through vegetation, reducing the fuels available and returning nutrients to the soil. Dead and diseased trees, shrubs, and grasses would all typically burn. These periodic wildfires would reduce the build-up of hazardous fuels.

Since fire suppression activities became common practice about 100 years ago, the



**Figure 4.4.10.1A** Aerial photograph of the Theony area showing a variety of fuels.

natural cycle of frequent, low-intensity, surface fires was disrupted, and fuels, particularly in forested areas, have built up to hazardous levels. Those same habitats that would experience low-intensity fires now experience stand-replacing, high intensity fires.

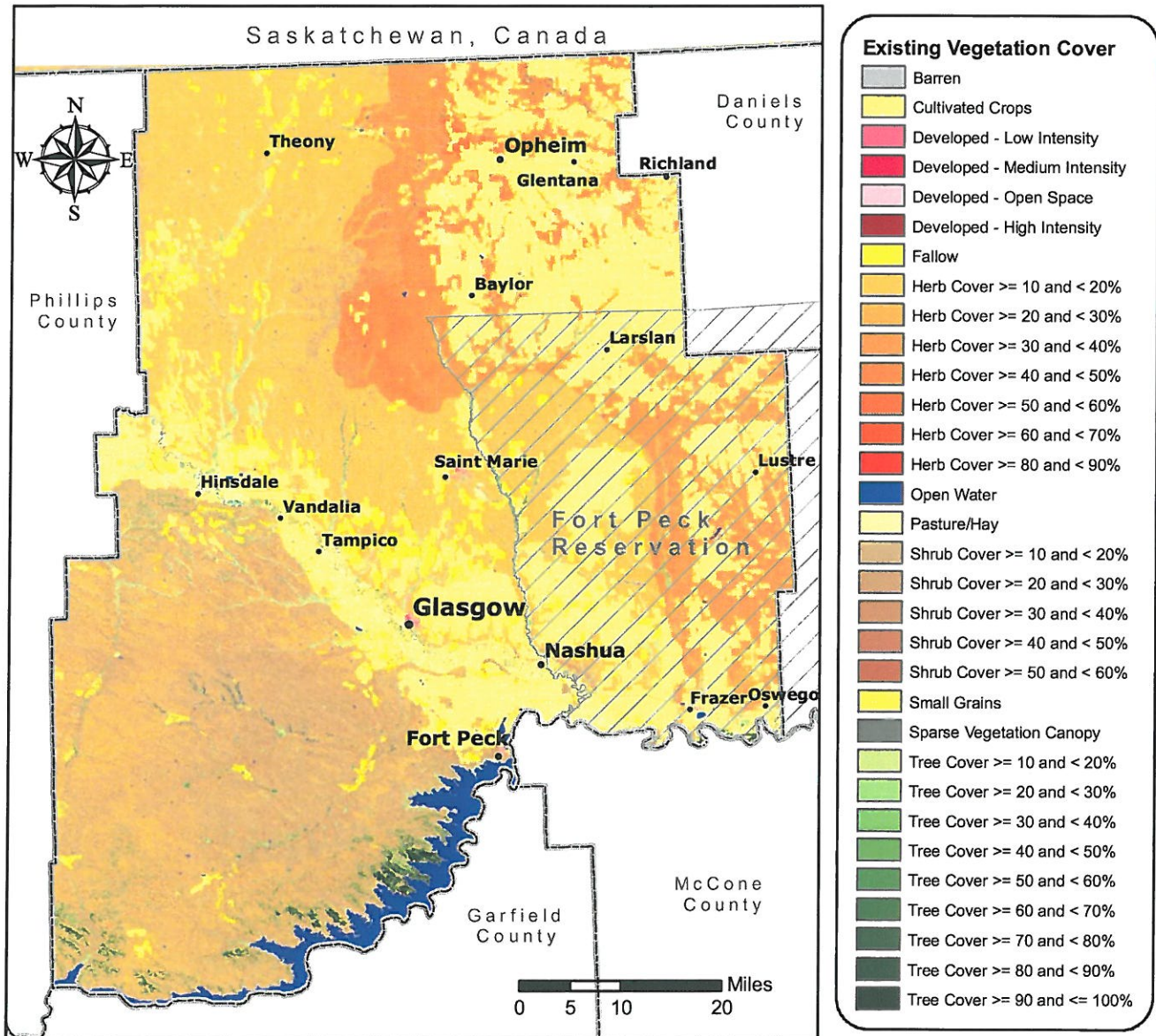
Other changes may also occur with the change in fire frequency. Different plant species may begin to change the make-up of the landscape without a regular fire regime. For example, ponderosa pine trees may encroach on grasslands without regular fires. Some species even rely on fire for seed dispersion. Fire suppression has created a more hazardous environment where fuels build up, leading to more intense and larger fires.

Valley County has a variety of fuel types and topography. Generally, south and west of the Milk River valley are intermixed sagebrush, shrub, and prairie grass fuels along rolling hills. Along the Fort Peck Reservoir in the extreme southern part of the county are timber stands, consisting mostly of ponderosa pines, and steep “breaks.” Most of the Milk River valley is devoted agriculture, including some irrigated lands. Areas north and east of the Milk River valley are generally non-irrigated rolling hill grasslands through the northwestern part and cultivated crops and irrigated agriculture lands through the northeastern part. Throughout the county, the riparian areas along rivers, creeks, and streams have deciduous trees such as cottonwoods and other wetland vegetation. Map 4.4.10.1B shows the general vegetative cover.

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Map 4.4.10.1B

# Existing Vegetation Cover Valley County, Montana



Data Source: LANDFIRE  
Data Date: 2006  
Map Coordinates: NAD 1983, State Plane Montana

Map Created by:  
Pam Shrauger  
April 2008



## Fire Regime

Different habitats have different natural frequencies and intensities of fire. Table 4.4.10.1C shows the various categories for fire regimes. Fire frequency is the average number of years between fires. Severity is the effect of fire on the dominant overstory vegetation. (US Forest Service, 2002)

**Table 4.4.10.1C Historical Natural Fire Regimes**

Code	Description
I	0-35 year frequency, low severity (most commonly associated with surface fires) to mixed severity (in which less than 75% of the dominant overstory vegetation is replaced)
II	0-35 year frequency, stand-replacement severity (greater than 75% of the dominant overstory vegetation is replaced)
III	35-200+ year frequency, mixed severity
IV	35-200+ year frequency, stand-replacement severity
V	200+ year frequency, stand-replacement severity

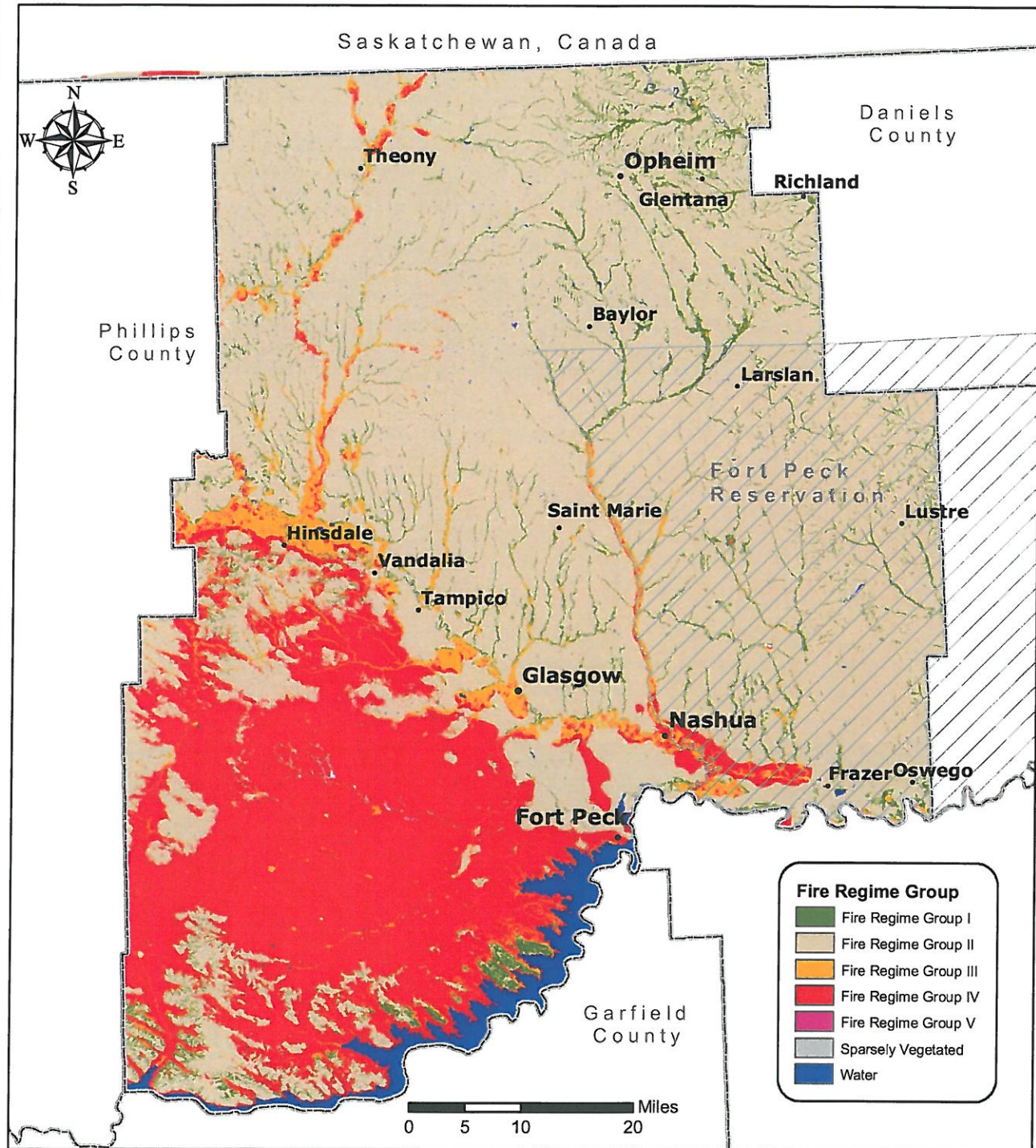
Source: Interagency Fuels Committee, 2005.

Map 4.4.10.1D shows the fire regime groups in Valley County. As this map shows, much of the forested, evergreen areas naturally experience fires of low to mixed severity every 0-35 years. The grassland and current agricultural areas normally also experience fires every 0-35 years but with stand-replacement severity. The wooded riparian areas generally experience mixed severity fires every 35-200 years. The shrub habitats usually experience stand replacement fires every 35-200 years.



Map 4.4.10.1D

## Fire Regime Groups Valley County, Montana



Data Source: LANDFIRE  
Data Date: 2006  
Map Coordinates: NAD 1983, State Plane Montana

Map Created by:  
Pam Shrauger  
May 2008



With fire suppression and land cover modifications, the fire regime has changed throughout the region. Changes to the ecosystem can have profound effects on the intensity and severity of wildland fires. To qualify the changes, fire ecologists use the term, fire regime condition class. Fire regime condition classes measure the degree of departure from “natural” conditions. Table 4.4.10.1E shows the classes and definitions accepted by many agencies.

**Table 4.4.10.1E Fire Regime Condition Class**

Condition Class	Description
I	Fire regimes are within a historical range, and the risk of losing key ecosystem components is low. Vegetation attributes (species composition and structure) are intact and functioning within a historical range.
II	Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historical frequencies by one or more return intervals (either increased or decreased). This results in moderate changes to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been moderately altered from their historical range.
III	Fire regimes have been significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. This results in dramatic changes to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been significantly altered from their historical range.

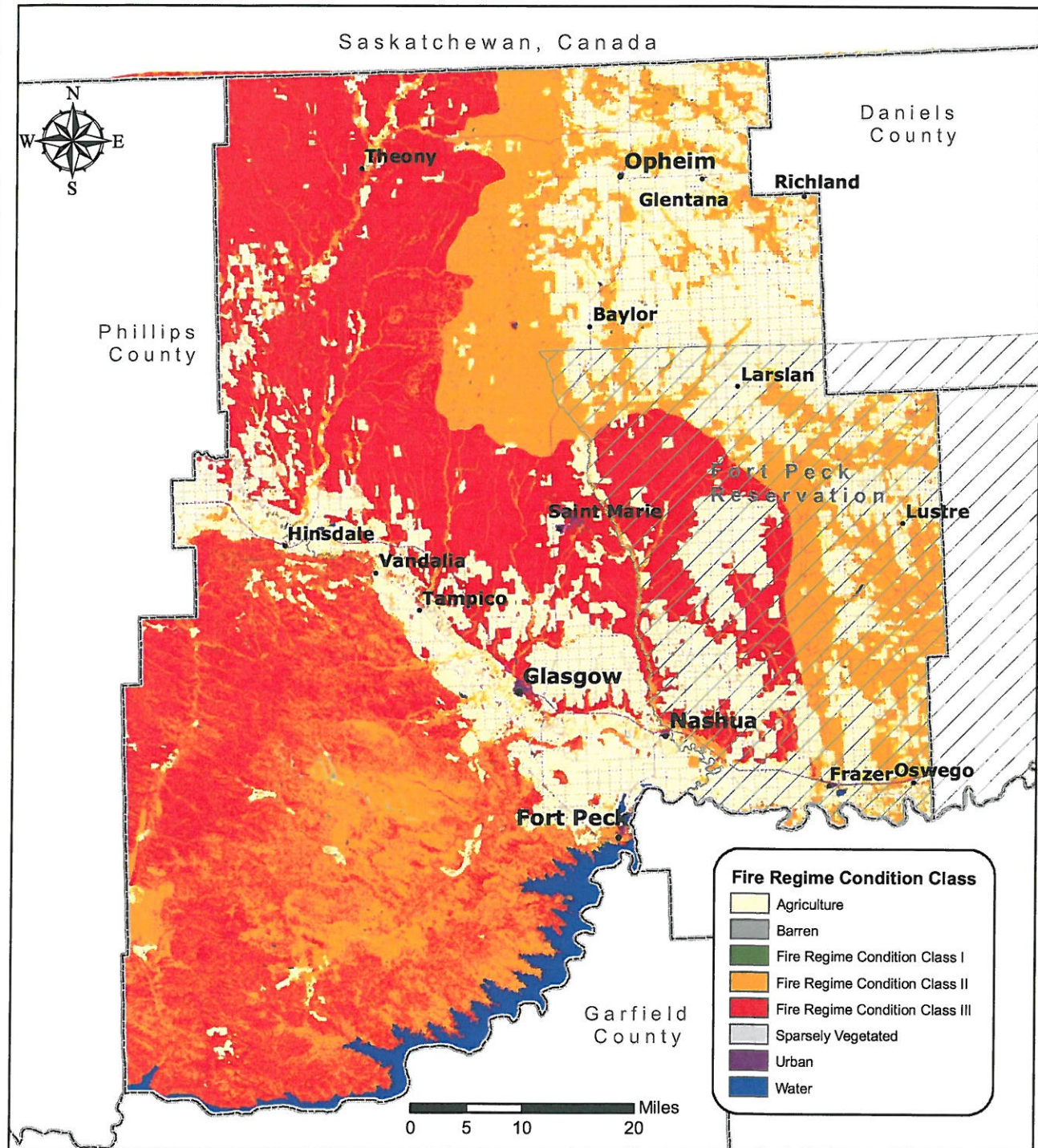
Source: US Forest Service, 2002.

Map 4.4.10.1F shows the fire regime condition classes for Valley County in 2006. Much of the county has not experienced wildfires in frequency or severity as would normally be expected. This departure indicates that fuels have likely built up in many areas, and therefore, future fires could burn larger, more intensely, more severely, or in different patterns than would be historically expected.



Map 4.4.10.1F

## Fire Regime Condition Class Valley County, Montana



Data Source: LANDFIRE  
Data Date: 2006  
Map Coordinates: NAD 1983, State Plane Montana

Map Created by:  
Pam Shrauger  
May 2008



### Land Management Practices

Valley County covers approximately 3,148,403 acres (excluding Fort Peck Reservoir). Table 4.4.10.1G shows the breakdown of the land ownership. Much of the federal ownership is through the US Bureau of Land Management.

**Table 4.4.10.1G Valley County Land Ownership**

Type	Area
Private	1,447,958 acres
Federal Government	1,143,842 acres
Tribal Government	304,122 acres
State Government	217,364 acres
Local Government	25,360 acres
Water	7,823 acres
Right-of-Ways	1,781 acres
Undetermined	151 acres

Source: Montana Department of Revenue, 2007.

Valley County has large areas of government owned lands. The US Bureau of Land Management lands, totaling roughly 1,015,086 acres, are primarily in the western half of the county. The US Fish and Wildlife Service manages the lands around Fort Peck Lake in the Charles M. Russell National Wildlife Refuge. State government has lands scattered throughout the county, but large areas exist just north of Saint Marie and in the Richland area. The southeastern portion of the county has tribal lands and is part of the Fort Peck Reservation. This scattering of government, tribal, and private ownership can present unique firefighting challenges and opportunities.

In 2002, Valley County had 743 farms and 2,051,667 acres in farmland, including 845,928 acres of cropland. (US Department of Agriculture, 2002) Tillage on the crop lands and grazing in the pastures typically reduces the fuels available for wildfires.

Some of the privately-owned, undeveloped lands within Valley County are part of the Conservation Reserve Program (CRP). The US Department of Agriculture (USDA) Farm Service Agency's Conservation Reserve Program (CRP) is a voluntary program available to agricultural producers to safeguard environmentally sensitive lands. Producers enrolled in CRP establish long-term, resource-conserving covers to improve the quality of water, control soil erosion, and enhance wildlife habitat. In return, the Farm Service Agency provides participants with rental payments and cost-share assistance. (Farm Service Agency, 2004) Although the CRP benefits the environment in many respects, CRP lands may increase the fuels available and therefore the wildfire risk to nearby communities. As of 2007, Valley County had 214,491 acres participating in the CRP. (Farm Service Agency, 2008)



### Wildland Urban Interface

Problems with wildfire occur when combined with the human environment. People, structures, property, rangelands, and croplands near wildfires can be threatened unless adequately protected through evacuation, mitigation, or suppression. The wildland urban interface is defined as the zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuel. In northeast Montana, the wildland urban interface typically is where the edge of local communities adjoin agricultural and non-irrigated fields. Specifically, those Valley County communities designated as “Communities at Risk” in the Federal Register include:

- Baylor
- Fort Peck
- Glasgow
- Glentana
- Hinsdale
- Nashua
- Opheim
- Richland
- Tampico
- Theony
- Vandalia

(US Bureau of Land Management, 2004)

Fire can threaten lives, structures, livestock, equipment, fences, feed supplies, and other resources. Given the arid climate and an abundance of natural vegetation, essentially all areas of Valley County are at some risk for wildfire. Those areas with high fuel loads, rough terrain, or limited access are at an elevated risk.

Generally, the hazard areas in Valley County are prioritized as follows:

*High Hazard Areas: Forested areas, areas along the railroad, and lands in close proximity to Community Reserve Program (CRP), US Bureau of Land Management (BLM), and state lands.*

Along Fort Peck Reservoir are several ponderosa pine forested areas. These areas are generally used for recreation, including the area known as “The Pines.” The “breaks,” areas of steep cliffs along the Missouri basin, also generally coincide with the timbered areas of southern Valley County and create access problems.



**Figure 4.4.10.1H** Aerial photography of The Pines peninsula area and homes in the interface.

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The immediate vicinity of the railroad is considered a high hazard area because of the probability for fire starts due to railroad sparks. After lightning, the railroad causes the most wildfire starts in Valley County, according to local officials.

Federal and state lands are generally left in a natural state and are undeveloped. Similarly, CRP lands are not significantly managed to provide nesting habitats and soil conservation. For these reasons, large tracts of these lands can provide fuels favorable for rapid wildfire spread, particularly during wind events. Those adjacent to these lands can then be at greater risk for wildfires, unless the hazard is somehow mitigated.

*Moderate Hazard Areas: Non-irrigated shrublands and grasslands with a Fire Regime Condition Class of II or III and wooded river bottoms.*

The shrublands south of the Milk River valley and the grasslands to the north both have built up fuels due to a lack of regular wildfires. These extra fuels allow fires to burn in more extreme ways and often threaten people and homes. Similarly, the wooded river and creek beds see significant fuel build up during wet years that can then become very dry and flammable during periods of drought. With the right weather conditions, these types of fuels can support rapid and intense fire growth.

*Low Hazard Areas: All other areas of Valley County, including irrigated agricultural and residential lands and urban areas.*

Lands that are kept green year-round, such as irrigated croplands and green lawns, and urban areas lacking significant amounts of natural fuels, are generally less likely to suffer from wildfires. These areas cannot be completely eliminated from the wildfire potential, as natural, unmanaged fuels may be interspersed or spot fires may travel into developed areas.



**Figure 4.4.10.1I** Aerial photography of the Town of Fort Peck interface area.

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Fire Protection Organizations and Capabilities

*Local Firefighting Entities and Equipment*

Fire protection and associated activities in Valley County are provided by a number of agencies. Valley County does not have a system of rural fire districts. County fire protection is provided by the Long Run Rural Fire Company. The City of Glasgow and the Towns of Fort Peck, Nashua, and Opheim have local fire departments. Other minimally organized volunteer departments include Frazer, Hinsdale, Lustre, Richland, and Saint Marie. When requested, Montana Department of Natural Resources and Conservation can provide firefighting support. Federal firefighting agencies with responsibilities in Valley County include the US Bureau of Land Management, the US Fish and Wildlife Service, and the US Bureau of Indian Affairs/Fort Peck Reservation. (Montana Department of Natural Resources and Conservation, 2001)

Table 4.4.10.1J shows the firefighting equipment across the county.

**Table 4.4.10.1J Valley County Firefighting Vehicles**

<b>Department</b>	<b>Owner/Agency</b>	<b>Vehicle</b>
Frazer	BIA	2,500 gallon tender/engine
Glasgow	City of Glasgow	1,000 gallon pumper
Glasgow	City of Glasgow	1,000 gallon pumper
Glasgow	City of Glasgow	750 gallon pumper
Glasgow	City of Glasgow	750 gallon pumper
Glasgow	City of Glasgow	1,250 gallon pumper
Hinsdale	DNRC	200 gallon engine
Hinsdale	Hinsdale VFD	750 gallon engine, 6x6
Valley County Long Run	DNRC	200 gallon engine
Valley County Long Run	Valley County Long Run VFD	1,500 gallon engine
Valley County Long Run	Valley County Long Run VFD	2,500 gallon water tender
Valley County Long Run	DNRC	500 gallon engine
Valley County Long Run	Valley County Long Run VFD	1,000 gallon engine
Valley County Long Run	Valley County Long Run VFD	860 gallon engine
Lustre	DNRC	200 gallon engine
Nashua	Town of Nashua	250 gallon engine
Opheim	DNRC	200 gallon engine
Opheim	Town of Opheim	250 gallon engine
Valley County Long Run (located in the Pines area)	Valley County Long Run VFD	250 gallon engine
Valley County Long Run (located in the Pines area)	Valley County Long Run VFD	250 gallon flatbed truck
Richland	Richland VFD	1,200 gallon water tender
Richland	Richland VFD	250 gallon engine
Richland	BLM/Valley County	200 gallon slip-on on 1-ton flatbed
Fort Peck	DNRC	200 gallon engine
Saint Marie	Saint Marie VFD	200 gallon engine/1,000 gallon pumper



Table 4.4.10.1J Valley County Firefighting Vehicles (continued)

Department	Owner/Agency	Vehicle
Saint Marie	Saint Marie VFD	150 gallon slide-in unit
Valley County Long Run (located at Burke Ranch south of Glasgow)	Valley County Long Run	Slide-in unit
Valley County Long Run (located at Fisher Ranch south of Saco)	Valley County Long Run	Slide-in unit

Source: Montana Department of Natural Resources and Conservation, 2001

#### *Montana Department of Natural Resources and Conservation*

The state firefighting agency, Montana Department of Natural Resources and Conservation (DNRC), provides resources to communities when wildfires exceed the community's capabilities. In support of these efforts, DNRC keeps about six vehicles within the county that the local fire departments are authorized to use. The Northeastern Land Office in Lewistown provides firefighting support for Valley County.

#### *US Bureau of Land Management (BLM)*

Valley County is part of the Malta Bureau of Land Management Field Office, however, initial fire attack comes from the Lewistown Field Office. Under the Malta Field Office Fire Management Plan, Valley County is within the "Prairie Potholes" and "Eastern Plains" Fire Management Units. Part of the BLM's fire management objective for the "Prairie Potholes" unit in northern Valley County is, "...wildland fire is not desired due to the large amount of private and state land and agricultural production throughout the area. Unplanned fire events will be aggressively suppressed while allowing for firefighter and public safety as the top priority." In the "Eastern Plains" unit in southern Valley County, a fire management objective is, "Wildland fire should not be used to manage hazardous fuel due to large amounts of private land and rural home sites." (US Bureau of Land Management, 2004)

#### *US Fish and Wildlife Service (FWS)*

The US Fish and Wildlife Service protects the Charles M. Russell National Wildlife Refuge in southern Valley County. Initial attack is dispatched from the Lewistown Interagency Dispatch Center with firefighters stationed at the Fort Peck Wildlife Station, Sand Creek Wildlife Station, and Jordan Wildlife Station.

#### *US Bureau of Indian Affairs (BIA)*

Wildfires on the Fort Peck Reservation are managed by the US Bureau of Indian Affairs in Poplar. Units for the Fort Peck Reservation are dispatched by the Billings Interagency Dispatch Center.

#### *Valley County Sheriff's Office*

The Valley County Sheriff's Office has responsibility for law enforcement throughout the county, except in the City of Glasgow. When an emergency proclamation or disaster declaration establishes a mandatory evacuation, the sheriff's office has the authority and responsibility to implement and enforce the evacuation. Otherwise, an evacuation advisory may be issued, and the sheriff's office is responsible for notifying the public. The Sheriff's Office may also provide traffic control and enforcement of fire laws.



#### *Valley County Disaster and Emergency Services*

Disaster and Emergency Services (DES) within Valley County is provided by a full-time employee that is devoted part-time to emergency management. Local emergency management is supported by state emergency management with a full-time district representative located in Lewistown. During wildfires, DES assists with disaster and emergency declarations and coordinating additional resources needed to support the evacuation and response efforts.

#### *Valley County Road Department*

The Valley County Road Department can use heavy equipment during a wildfire to assist with containment efforts. The county has six Cat motor graders, one D-8 Cat dozer, and one Loboy truck and trailer.

#### *Mutual Aid*

Mutual aid can be used to call up additional resources from other jurisdictions. Montana law allows for fire departments to request mutual aid from other local departments, even if a mutual aid agreement is not in place. (MCA 10-3-209) Additionally, Valley County has specific mutual aid agreements with Montana DNRC, and Montana DNRC has mutual aid agreements with the federal firefighting agencies. Similarly, law enforcement can request assistance from neighboring jurisdictions and Montana Highway Patrol.

#### *Valley County Policies/Recommendations*

The Valley County Resource Use Plan dated April 2003 addresses fire management in coordination with federal, tribal, and state agencies. The fire management goal is, "Encourage utilization of fire and fire suppression to support and expand multiple uses and achieve management goals." Objectives include:

- "Encourage utilization of fire suppression in areas where fire would endanger human safety and private property, or valuable vegetation that will support and expand multiple uses."
- "Do not participate in consideration of a "let it burn" policy. Open range fires need to be under direct management because of the potential to become unmanageable."
- "Encourage development of policies for grazing rest prescriptions related to either wildfires or prescribed burns on a site-specific basis."
- Encourage the adoption of the following policies by regulatory entities:
  1. Rest prescriptions where appropriate - they may include the year of the burn, light late-season use in the year following the burn or moderate late season use in the second year following the burn.
  2. Post-fire grazing will not be limited when monitoring and evaluation produces relevant, accurate data that demonstrates grazing will not unduly harm the range.
  3. In the planning of prescribed burns, where feasible, market the renewable resource before burning.

#### Community Preparedness

Most people in Valley County are good at taking care of themselves and neighbors. With wildfires throughout the region almost annually, many are aware of the potential for wildfires locally. Therefore, the wildfire awareness in the community is fair. Problems sometimes exist with getting residents to comply with fire restrictions. Enforcement and communication of restrictions can be challenging. Local officials

indicate residents are becoming more aware of the wildfire hazards due to recent changes in the burn permit process.

Fire prevention programs in Valley County include education, burn permits, and restrictions and closures. Education tools used by Valley County include Fire Prevention Week, brochures, a booth at the county fair, “Keep Montana Green” poster contest, school presentations and materials, newspaper articles, and safety videos.

#### Warnings, Watches, and Advisories

The National Weather Service issues several products to alert for significant wildfire potential or hazards. These include:

- Fire Weather Watch: A fire weather watch is issued when Red Flag conditions (see red flag warning) are expected in the next 24 to 72 hours.
- Red Flag Warning: A red flag warning is issued when Red Flag criteria are expected within the next 12 to 24 hours. A Red Flag event is defined as weather conditions that could sustain extensive wildfire activity and meet one or more of the following criteria in conjunction with “Very High” or “Extreme” fire danger:
  - Sustained surface winds, or frequent gusts, of 25 mph or higher
  - Unusually hot, dry conditions (relative humidities less than 20%)
  - Dry thunderstorm activity forecast during an extremely dry period
  - Anytime the forecaster foresees a change in weather that would result in a significant increase in fire danger. For example, very strong winds associated with a cold front even though the fire danger is below the “Very High” threshold.
- Fire Warning: A fire warning may be issued by local officials when a spreading wildfire or structure fire threatens a populated area. Information in the warning may include a call to evacuate areas in the fire’s path as recommended by officials according to state law or local ordinance.
- Dense Smoke Advisory: Dense smoke advisories are issued when the widespread visibilities are expected at a ¼ mile or less for a few hours or more due to smoke.

(National Weather Service, 2006)

#### **4.4.10.2 History**

Valley County has a long history of wildfires ranging from small to large. Some have caused damages and others have not. The extent of damages often depends on the fire spread rate, the effectiveness of suppression and mitigation measures, and the property and infrastructure in the fire’s path. The history of wildfires can be difficult to compile because of the various firefighting entities involved and a variety of recordkeeping measures over the years. The Valley County Emergency Operations Plan, Wildfire Annex, estimates close to 200 fire starts occur annually in the county. From 1984-2003, 301,874 acres burned in Valley County. (Valley County Disaster and Emergency Services, 2008) A listing of the more significant wildfire fires follow. Map 4.4.10.2A shows the locations of wildfires in Valley County from two databases – one from the US Bureau of Land Management (BLM) during the years 1980-2007 and another from the Rocky Mountain Research Station for the years 1986-1996.

**Oswego Fire - September 11, 1971** – A raging prairie fire consumed 15,000 acres and burned the community of Oswego in Valley County and the Fort Peck Reservation. Thirteen occupied homes were completely destroyed, along with several other vacant buildings, one of the community's two grain elevators, and a highway bridge. The local utility company suffered losses when many of their poles burned and downed electrical wire. The grass fire burned over 2.8 miles of railroad ties on Burlington Northern's tracks. The source of the fire started at the community's garbage dump where near hurricane force winds blew sparks into a haystack. The fire in Oswego was not the first that community had suffered. Twice in its history, prairie fires decimated the Oswego; the last large one was about 1922. (Wolf Point Herald, 1971)

**Langen Fire - April 11, 1988** – This early season fire burned 8,360 acres in north central Valley County. (US Bureau of Land Management, 2008)

**Grant Coulee Fire - September 26-30, 1995** – A fire near Larb Creek in southwestern Valley County consumed 3,506 acres. (US Bureau of Land Management, 2008)

**The Pines Fire – July 31-August 2, 1998** – A fire pushed by 40 mph winds threatened cabins in The Pines Recreation Area on Fort Peck Reservoir, in southwestern Valley County. The fire was human-caused and began near the Pines Youth Camp facility. It burned approximately 1,250 acres in a heavily timbered area. A number of residences were threatened. (Wolf Point Herald, 1998) Suppression costs were estimated at \$115,000. (Center for International Disaster Information, 2008)

**Castle Fire - July 27-August 1, 2001** – The Castle Fire in extreme southwestern Valley County burned 2,640 acres in ponderosa pine, sagebrush, and grass under windy conditions. Twenty foot flame lengths were observed. Suppression costs were estimated at \$300,000. (US Bureau of Land Management, 2008; Center for International Disaster Information, 2008)

**Mickey Butte Fire – July 15-20, 2003** – The Mickey Butte Fire burned 3,500 acres in grass, juniper, and timber in southwestern Valley County on the Charles M. Russell National Wildlife Refuge and cost about \$100,000 for suppression. (National Weather Service, 2008d; Center for International Disaster Information, 2008)

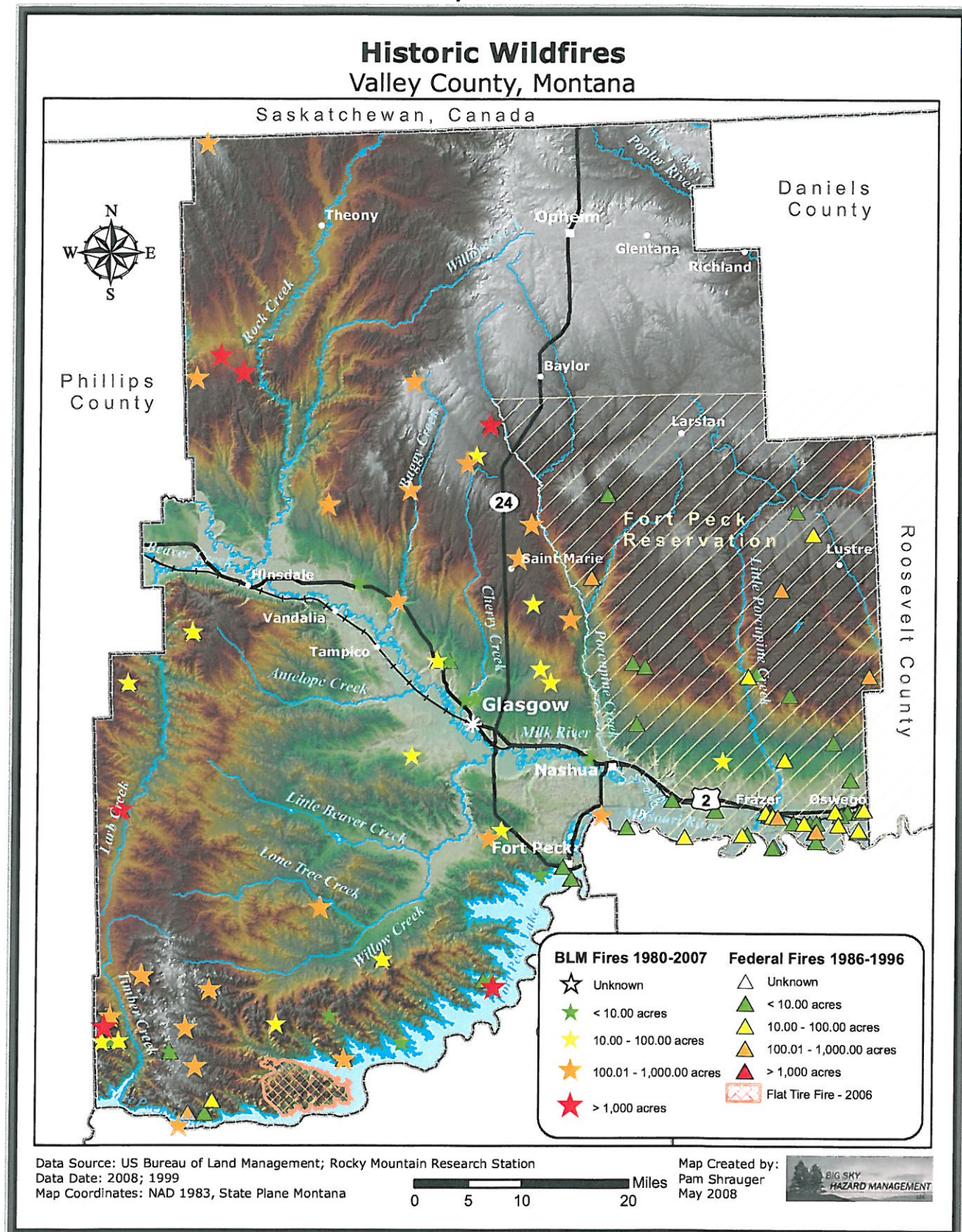
**Flat Tire Fire – July 16-21, 2006** – The lightning-caused Flat Tire Fire burned approximately 18,585 acres in ponderosa pine, sagebrush, and grass, mostly on the Charles M. Russell National Wildlife Refuge in southwest Valley County. Suppression costs were estimated at \$403,000. (Center for International Disaster Information, 2008)

**Larb Creek Fire – July 2006** - The Larb Creek fire burned 14,000 acres and destroyed one home and an outbuilding. (National Weather Service, 2008d)



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Map 4.4.10.2A





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**Table 4.4.10.2B Valley County Wildfire Declared Disasters and Emergencies**

Declaration	Location	Date	Magnitude	Casualties	Damages
N/A	Statewide	August 1979	Activation of National Guard for wildfires.	None	\$8,411 State*
N/A	Statewide	August-September 1988	Wildfire emergency statewide.	None	Unknown
State EO 31-91	Statewide	October 1991	Wildfire emergency statewide.	None	Unknown
State EO 19-94	Valley County	September 1994	Wildfire emergency and activation of National Guard.	None	Unknown
State EO 21-96	Statewide	August 1996	Wildfire emergency statewide and activation of National Guard.	None	\$151,644 State*
State EO 15-98	Statewide	September 1998	Wildfire emergency statewide and activation of National Guard.	None	\$46,963 State*
State EO 10-99	Valley County	July 1999	Wildfire emergency and activation of National Guard.	None	Unknown
State EO 18-00	Statewide	July 2000	Wildfire emergency statewide and activation of National Guard.	None	Unknown
State EO 20-00	Statewide	August 2000	Wildfire disaster statewide and activation of National Guard.	None	Unknown
State EO 14-03	Statewide	July 2003	Wildfire emergency statewide and activation of National Guard.	None	Unknown
State EO 16-03	Statewide	August 2003	Wildfire disaster statewide and activation of National Guard.	None	Unknown
State EO 16-05	Statewide	August 2005	Wildfire emergency statewide and activation of National Guard for training.	None	\$32,503 State*
State EO 34-06 and 36-06	Statewide	July-August 2006	Wildfire emergency statewide and activation of National Guard.	None	Unknown
State EO 37-06	Statewide	August 2006	Wildfire disaster statewide and activation of National Guard.	None	Unknown

\*Figures are for all areas declared.

Source: Montana Disaster and Emergency Services, 2008a.

### **4.4.10.3 Probability**

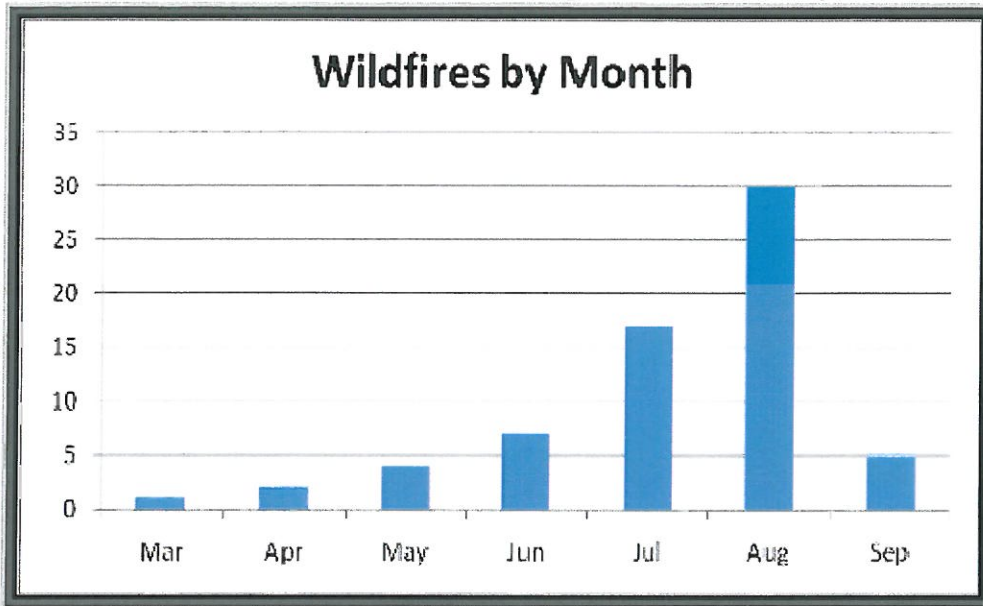
Wildfires are an annual occurrence in Valley County. The frequency and size of the wildfires depend on the ambient conditions and other factors. Valley County estimates 200 fire starts annually. The largest wildfire in recent history was the Flat Tire Fire that burned over 18,000 acres. Even larger wildfires are possible in

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Valley County. The probability of a damaging wildfire that burns uncontrollably despite firefighting efforts is difficult to assess. Generally, the summer months, particularly during droughts, create conditions favorable to wildfires. If the weather conditions and fuels allow, especially if the winds are strong, wildfires can grow rapidly with little warning.

Using the BLM database, Figure 4.4.10.3A shows the historical incidence of wildfires by month.

**Figure 4.4.10.3A US Bureau of Land Management Wildfires by Month Discovered from 1980-2007**



Data Source: US Bureau of Land Management, 2008.

### Ignition Risks

One of the key factors in the probability of wildfires, besides weather and fuel conditions, is the likelihood of fire ignition. In the database maintained by the US Bureau of Land Management, Valley County has 66 fires listed from 1980-2007. Of those 66 events, 45 were lightning caused, 11 had unknown causes, 5 were equipment caused (including 2 by county road graders), 1 was smoking caused, 1 was a prescribed fire, 1 was started by children, 1 was fireworks caused, and 1 was miscellaneous. (US Bureau of Land Management, 2008) The Rocky Mountain Research Station (RMRS) database had 81 fires in Valley County from 1986-1996 (including some duplicates from the BLM database). Of those 81 events, 21 were lightning caused, 18 were caused by debris burning, 8 were smoking caused, 8 were caused by miscellaneous sources, 7 were railroad caused, 6 were equipment caused, 6 were caused by children, 4 were caused by campfires, 2 were incendiary caused, and 1 had an unknown cause. (Rocky Mountain Research Station, 1999) Table 4.4.10.3B shows the percentage of ignitions by cause and database. Note that these figures only include federal fires and not those suppressed by the local fire department.

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**Table 4.4.10.3B Valley County Wildfire Ignitions**

Cause	BLM Data 1980-2007	RMRS Data 1986-1996
Lightning	68%	26%
Debris Burning	-	22%
Equipment	8%	7%
Smoking	2%	10%
Railroad	-	9%
Children	2%	7%
Campfires	-	5%
Incendiary	2%	2%
Prescribed Fire	2%	-
Miscellaneous	2%	10%
Unknown	17%	1%

Sources: US Bureau of Land Management, 2008; Rocky Mountain Research Station, 1999.

Most wildfires in Valley County are initiated by lightning strikes. Lightning ground strikes, with or without rain, can easily produce enough heat to start a fire. Lightning develops when ice particles in a cloud move around, colliding with other particles. These collisions cause a separation of electrical charges. Positively charged ice particles rise to the top of the cloud and negatively charged ones fall to the middle and lower sections of the cloud. The negative charges at the base of the cloud attract positive charges at the surface of the Earth. Invisible to the human eye, the negatively charged area of the cloud sends a charge called a stepped leader toward the ground. Once it gets close enough, a channel develops between the cloud and the ground. Lightning is the electrical transfer through this channel. The channel rapidly heats to 50,000 degrees Fahrenheit and contains approximately 100 million electrical volts. The rapid expansion of the heated air causes thunder. (National Weather Service, 2008b) Positive lightning strikes originate from the top of the cloud and contain higher voltages based on the longer distance the charge must travel. Lightning strikes can occur anywhere in the county. These natural ignitions can only be observed and monitored. All areas of the county are at high risk for lightning ignitions.

Besides lightning strikes, other human-caused ignition risks exist. Common human-caused ignition risks include campfires, cigarettes, ranch and road equipment, controlled burns, railroads, fireworks, and children with matches. Valley County does have a burn permit system. The probability of ignitions from controlled burns anywhere in the county and along the railroad from railcars is moderate. Holidays such as the Fourth of July can increase the probability of an ignition from fireworks. Areas recognized for their potential ignition risks include recreation areas. These areas are at higher risk of ignitions from campfires. Areas along highways are more vulnerable to ignitions from tossed cigarettes.

*Overall Wildfire Probability for Valley County, Fort Peck, Nashua, and Opheim: Moderate-High*  
*Overall Wildfire Probability for Glasgow: Moderate*



#### 4.4.10.4 Magnitude

The magnitude of future wildfires depends on many factors such as climate, weather, fuel availability, and fire suppression capabilities. History has shown that fires up to and exceeding 10,000 acres are possible. Neighboring counties have also shown such magnitudes; even fires to 100,000 acres in size have occurred.

##### Weather and Climate

Weather and climate can influence the size and number of wildfires in any given season. Warm, dry conditions will increase the probability of significant wildfires whereas cool, wet conditions inhibit fire growth. The climate dictates the overall conditions leading up to a wildfire. Valley County is generally known as having an arid climate with only about 10-16 inches of annual precipitation. The rainiest months are May, June, and July and the driest are November, December, January, and February. Climate variability exists such that the county experiences some years with higher than normal precipitation, such as 1938 when Glasgow received over 20 inches, and lower than normal precipitation, such as 1934 and 1984 when Glasgow received less than 7 inches. Drought is common with impacts on agriculture and fuel moistures.

Seasonal changes often play a role in wildfire behavior. During the coldest months of December, January, and February, grasses are typically dead and could ignite, however, any fires during these months are generally low intensity fires due to the cold temperatures and possible snow on the ground. March, April, and May are often “green-up” months where grasses regenerate and live fuel moisture increases. Prior to greening, however, low intensity fires can occur. During the transition into summer during June and July, temperatures rise, spring rains subside, and fuels begin to dry. The hot months of July and August typically have the most wildfires. The weather conditions during those months are often conducive to wildfire growth. The fall months of September, October, and November are generally cooler but can exhibit extreme wildfire behavior with strong wind events and dead, frost-killed light fuels.

Key to the growth of any given wildfire, regardless of season, is the weather (a shorter time scale than climate). Specifically, wind, temperature, and relative humidity are important factors in fire behavior. Valley County often experiences strong, gusty winds. Winds greater than 15 mph can cause significant fire behavior in grass fires. Winds over 30 mph can result in extreme crown fires in forested areas. Generally, the wind direction will dictate the direction of fire spread, pushing the fire on to nearby fuels. Only under light wind conditions will fire be more influenced by topography and other factors. Temperatures over 80°F can also dry fuels and lead to quicker ignitions of fuels. Similarly, relative humidity, a measure of the amount of moisture in the air, can dictate the amount of fuel moisture; low relative humidities can lead to more extreme fire behavior. Generally, fire activity is greatest during the afternoon because of the high temperatures and lower relative humidities. Active fire behavior can occur at night due to strong winds, however.

Dry thunderstorms occur when dry air at the surface combined with atmospheric instability contributes to high-based clouds. The moisture associated with the cumulus clouds rarely hits the ground. This phenomenon is called virga, rain that evaporates before reaching the ground. In some of the stronger cells, gusty downdrafts can be produced and are often accompanied by dry lightning. Lightning, both in dry or



wet thunderstorms, can serve as an ignition source, however, dry lightning typically has dry fuels to ignite and is not suppressed by ambient rainfall.

Valley County is located in fire weather zones typified by frequent high wind events, thunderstorms, and low relative humidity. Historic weather pattern graphs show that every portion of the county is subjected to very high to extreme burning conditions throughout the traditional fire season. (Valley County Disaster and Emergency Services, 2008)

### Fire Behavior

Fire behavior is primarily influenced by three factors: fuels, weather, and terrain. The interrelationships between these factors can be complex. Generally, however, drier fuels are more easily burned. Wildfires advance when heat from burning fuels is transferred to other fuels that then combust. Weather, primarily wind, temperature, and relative humidity, influences fire in the ways described in the previous subsection. Terrain can also play a role in fire behavior. The shape of landscape, exposure to sunlight, elevation, and natural or human-created barriers can all influence fire behavior. Generally, in the absence of wind, fire will burn upslope as flames ignite fuels higher up. Often, wildfires begin as ground fires that can then climb ladder fuels and become crown fires given the appropriate vegetation, such as that found in southern Valley County.

BehavePlus 3.0 is modeling software used to model fire behavior at the stand level for a single place and time. Outputs of the model include surface rate of spread, spotting distances, size of a point source fire, and probability of ignition from a firebrand. Inputs and results into the various models are shown in Tables 4.4.10.4A through 4.4.10.4D.

**Table 4.4.10.4A BehavePlus Run – Tall Grass Fire with Winds at 5 mph**

<b>Inputs</b>	
Fuel Model	Tall Grass
1-Hour Fuel Moisture	3%
Mid-flame Wind Speed (upslope)	5 mph
Slope Steepness	0%
<b>Results</b>	
Surface Rate of Spread	159.7 ch/h (2.0 mph)
Size at 2 hours, unsuppressed	3,962.6 acres
Fire Length at 2 hours, unsuppressed	336.9 ch (4.2 miles)
Maximum Fire Width at 2 hours, unsuppressed	149.7 ch (1.9 miles)
Size at 4 hours, unsuppressed	15,850.2 acres
Fire Length at 4 hours, unsuppressed	673.9 ch (8.4 miles)
Maximum Fire Width at 4 hours, unsuppressed	299.5 ch (3.7 miles)

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**Table 4.4.10.4B BehavePlus Run – Tall Grass Fire with Winds at 15 mph**

<b>Inputs</b>	
Fuel Model	Tall Grass
1-Hour Fuel Moisture	3%
Mid-flame Wind Speed (upslope)	15 mph
Slope Steepness	0%
<b>Results</b>	
Surface Rate of Spread	654.3 ch/h (8.2 mph)
Size at 2 hours, unsuppressed	28,961.7 acres
Fire Length at 2 hours, unsuppressed	1,323.5 ch (16.5 miles)
Maximum Fire Width at 2 hours, unsuppressed	278.6 ch (3.5 miles)
Size at 4 hours, unsuppressed	115,846.9 acres
Fire Length at 4 hours, unsuppressed	2,646.9 ch (33.1 miles)
Maximum Fire Width at 4 hours, unsuppressed	557.2 ch (7.0 miles)

**Table 4.4.10.4C BehavePlus Run – Timber Wildfire with Winds at 15 mph**

<b>Inputs</b>	
Fuel Model	Timber with Litter and Understory
1-Hour Fuel Moisture	3%
10-Hour Fuel Moisture	5%
100-Hour Fuel Moisture	8%
Live Woody Moisture	80%
Mid-flame Wind Speed (upslope)	15 mph
Slope Steepness	5%
<b>Results</b>	
Surface Rate of Spread	51.5 ch/h (0.64 mph)
Size at 2 hours, unsuppressed	179.3 acres
Fire Length at 2 hours, unsuppressed	104.2 ch (1.3 miles)
Maximum Fire Width at 2 hours, unsuppressed	21.9 ch (1,445 feet)
Size at 4 hours, unsuppressed	717.4 acres
Fire Length at 4 hours, unsuppressed	208.3 ch (2.6 miles)
Maximum Fire Width at 4 hours, unsuppressed	43.8 ch (2,891 feet)

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Table 4.4.10.4D BehavePlus Run – Timber Wildfire with Winds at 30 mph

Inputs	
Fuel Model	Timber with Litter and Understory
1-Hour Fuel Moisture	3%
10-Hour Fuel Moisture	5%
100-Hour Fuel Moisture	8%
Live Woody Moisture	80%
Mid-flame Wind Speed (upslope)	30 mph
Slope Steepness	5%
Results	
Surface Rate of Spread	137.0 ch/h (1.71 mph)
Size at 2 hours, unsuppressed	697.9 acres
Fire Length at 2 hours, unsuppressed	274.9 ch (3.4 miles)
Maximum Fire Width at 2 hours, unsuppressed	32.3 ch (2,132 feet)
Size at 4 hours, unsuppressed	2,791.8 acres
Fire Length at 4 hours, unsuppressed	549.7 ch (6.9 miles)
Maximum Fire Width at 4 hours, unsuppressed	64.7 ch (4,270 feet)



### Severity Factors

Many factors exist that can increase the magnitude and severity of wildfires in Valley County. Factors such as the fuel type, accessibility, topography, water supplies, and weather conditions all become important for fire growth and suppression. These factors can make the difference between fire control and a large, raging wildfire. The most critical factors in Valley County are the remoteness of many areas, the lack of water supplies, and communications.

The remoteness and expanse of Valley County becomes an especially important factor when fighting wildfires. Western Valley County, in particular, has very few quality roads. Several areas are over 50 miles from Glasgow. This leaves many areas inaccessible or marginally accessible by fire crews. The time spent locating and accessing the fire gives the fire more time to grow and become harder to manage.

Water supplies can become a limiting factor in places lacking community water systems. Unless another readily available water supply is found, such as a ranch stock pond that the owner approves for use, water tenders and firefighting vehicles must travel back and forth to the closest supply for water. For the more remote locations in the county, this can be very time and resource consuming.

Communications become critical during wildfires involving different agencies. Although improving, the interoperability of radio systems and antiquated equipment can make radio communications difficult.



**Figure 4.4.10.4E** Aerial photography of a remote area of southwest Valley County.

#### 4.4.10.5 Mapping

Land cover demonstrates the type of fuels available for particular wildfires. In the case of agriculture, the flammability depends on the crop, its condition at that point in the growing season, and whether or not the land is irrigated. Grasslands and shrublands are not usually managed significantly and may contain a build-up of flashy fuels year round. Map 4.4.10.5A shows the land cover in Valley County overlaid by the estimated structure locations and road network. Those structures located near timbered areas, government lands, CRP lands, or other non-irrigated vegetation are generally considered higher risk. Areas along the active railroad in the county are also at greater risk due to the elevated potential for railroad ignited fires. The entire county, however, is at some risk from wildfire.

As described in the Wildland Urban Interface section, the hazard areas in Valley County are as follows:

- *High Hazard Areas:* Forested areas, areas along the railroad, and lands in close proximity to Community Reserve Program (CRP), US Bureau of Land Management (BLM), and state lands.
- *Moderate Hazard Areas:* Non-irrigated shrublands and grasslands with a Fire Regime Condition Class of II or III and wooded river bottoms.
- *Low Hazard Areas:* All other areas of Valley County, including irrigated agricultural and residential lands and urban areas.

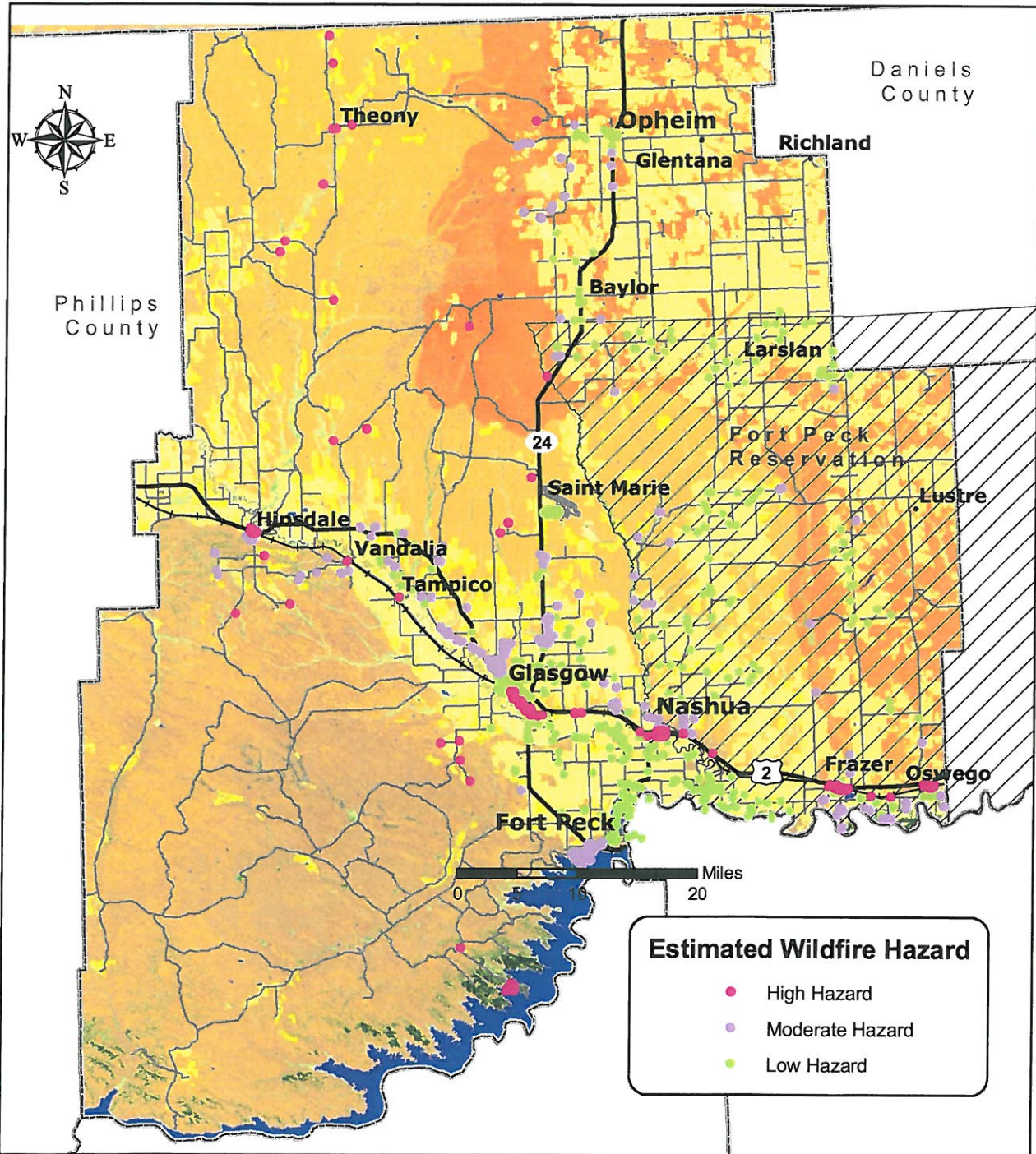
Using the county's structure database, a more detailed assessment of the wildland urban interface can be made. Comparing the structure location to the land cover, topography, and fire regime condition class data, each structure can be ranked based on their general wildfire hazard. Note this assessment does not replace an on-site field assessment of individual properties. This assessment should only be used for planning purposes. Those with high and moderate rankings are particularly encouraged to get an individual risk assessment for their properties.

Since CRP lands are not digitally mapped, the high hazard structures were chosen as those structures within the forested areas, in close proximity to remote, large tracts of government lands, or outside the urban areas but within a quarter mile of the railroad. The moderate hazard structures are the additional structures within a Fire Regime Condition Class II or III or in the wooded river bottoms. All remaining structures were given a low hazard rating.



Map 4.4.10.5A

## Wildland Urban Interface Valley County, Montana



Data Source: LANDFIRE  
Data Date: 2006  
Map Coordinates: NAD 1983, State Plane Montana

Map Created by:  
Pam Shrauger  
May 2008





#### 4.4.10.6 Associated Hazards and Other Factors

Other hazards often related to wildfire include:

- Drought
- Smoke
- Poor air conditions
- Aircraft accidents
- Flash flood, in and around the burn area

As if a raging wildfire isn't bad enough, the charred ground and thick smoke plumes it produces can create other hazards. The heavy smoke may lead to unhealthy air conditions affecting those with respiratory problems and otherwise healthy people. The air conditions are often monitored and alerts may be issued. Air quality advisories and forecasts are issued daily during the wildfire season by the Montana Department of Environmental Quality. Table 4.4.10.6A lists the categories used when rating air quality.

**Table 4.4.10.6A Air Quality Index for Particulate Matter**

Category	Visibility	Health Effects
Good	10 miles or greater	None
Moderate	6-9 miles	Possibility of aggravation of heart or lung disease among persons with cardiopulmonary disease and the elderly.
Unhealthy for Sensitive Groups	3-5 miles	Increasing likelihood of respiratory symptoms in sensitive individuals, aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly.
Unhealthy	1½-2½ miles	Increased aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; increased respiratory effects in the general population.
Very Unhealthy	1-1¼ miles	Significant aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; significant risk of respiratory effects in the general population.
Hazardous	¾ mile or less	Serious aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; serious risk of respiratory effects in the general population.

Source: Montana Department of Environmental Quality, 2008.

#### 4.4.10.7 Vulnerabilities

Wildfires have the greatest potential to threaten structures lacking defensible space. Defensible space is a buffer zone between a structure and flammable fuels. Irrigation, mowed areas, fuels thinning, roads, and waterways can serve as buffers to wildfires in some cases. The threat to a structure can truly only be assessed on a case-by-case basis.

##### Critical and Special Needs Facilities

Using the wildland urban interface parameters, the critical and special needs facilities in Valley County can be generally categorized based on their wildfire hazard, as shown in Table 4.4.10.7A. Note that all structures have at least some risk.

**Table 4.4.10.7A Critical and Special Needs Facilities in High and Moderate Wildfire Hazard Areas**

Facility	Wildfire Hazard Area
Frazer – All Frazer Critical and Special Needs Facilities	High Hazard
Hinsdale – All Hinsdale Critical and Special Needs Facilities	High Hazard
Nashua – All Nashua Critical and Special Needs Facilities	High Hazard
Northern Border Pipeline Compressor Station	High Hazard
Northwestern Energy Power Station, Glasgow	High Hazard
Pines Fire Station	High Hazard
WAPA Electric Substation, Glasgow	High Hazard
Cherry Creek Water District Pump Stations	Moderate Hazard
Fort Peck Air Strip	Moderate Hazard
Fort Peck Marina	Moderate Hazard
Fort Peck Rural Water District	Moderate Hazard
Nemont Telephone, Duck Creek	Moderate Hazard
Montana Fish, Wildlife & Parks Shop, Fort Peck	Moderate Hazard
Valley County Pump House, Marco #4	Moderate Hazard

Possible losses to critical and special needs facilities in Valley County include:

- Structural losses
- Contents losses
- Critical functional losses
- Critical data losses

*Expected Wildfire Impact to Critical and Special Needs Facilities in Valley County, Fort Peck, and Nashua:*  
Moderate-High

*Expected Wildfire Impact to Critical and Special Needs Facilities in Glasgow and Opheim:* Moderate

**Valley County, Montana • City of Glasgow • Towns of Fort Peck, Nashua, and Opheim  
Pre-Disaster Mitigation Plan • Community Wildfire Protection Plan • July 2008**

## Structures

All residences, ranches, and businesses could potentially be threatened by wildfires. Comparing the estimated structure locations to the hazard areas, Table 4.4.10.7B shows the estimated number of structures at enhanced risk from wildfires. Note that not all structures in the county have been mapped, so this estimation might be somewhat low.

**Table 4.4.10.7B Structures in the Wildfire Hazard Areas**

<b>Wildfire Hazard Area</b>	<b>Estimated Number of Structures</b>	<b>Estimated Building Value</b>
High Hazard (The Pines)	68 structures	\$4,039,200
High Hazard (Within ¼ mile of the railroad, excluding Glasgow)	569 structures	\$14,556,048
High Hazard (Within close proximity to large tracts of government lands)	25 structures	\$875,600
Moderate Hazard (In and near large areas of fire regime condition class II or III)	552 structures	\$55,489,309
Low Hazard (All other areas)	3,668 structures	\$174,035,937

A damage factor is rather difficult to determine because the losses will be highly dependent on the fire characteristics and its location. Not all areas in the high or moderate risk categorizations will be affected by one particular wildfire, however, structures in the fire perimeter could have a high loss rate. Using the scenario of a wildfire in The Pines area that destroyed all of the structures, losses would total over \$4,000,000 with nearly 70 structures destroyed. History has shown that personal property losses can be much greater than just that of residences. Outbuildings, fences, equipment, livestock, pastures, and crops are often additional losses.

The Valley County Emergency Operations Plan states that over 2,300 homes in the county, representing almost 8,000 residents and \$145 million in property, have been identified as being in the “high” or “high to severe” risk categories for wildland fuel hazards. The methodology or source for this determination was not described. (Valley County Disaster and Emergency Services, 2008)

Structures typically catch on fire through one of three mechanisms: firebrands, radiation, or convection.



**Figure 4.4.10.7C** Aerial photography of the Town of Nashua. Note the railroad that passes through the middle of town.



Firebrands are pieces of burning materials that are carried by fire drafts and winds. The burning embers can land on a structure and ignite it depending on the size of the firebrand, how long it burns after contact, and the materials, design, and construction of the structure. Radiation is the transfer of heat through light wavelengths. A sunburn is an example of a burn created by sun radiation. Structures near a wildfire can ignite through radiation depending on the intensity, duration, and proximity of the flaming front. Ignition by convection occurs when the flame comes in direct contact with the structure. Structures on a slope have a greater probability of ignition by convection as the flames climb up a hill. (National Wildland/Urban Interface Fire Protection Program, 1998)

The building materials and surrounding vegetation are critical factors in the probability of a structure igniting from a wildfire. Structures constructed with non-flammable, class A roofing materials with screened vents and no gaps for firebrands to travel into the rafters is much more resistant to wildfires than one that has a wood shake roof, for example. Fire-resistant siding and decking can also prevent fire from engulfing a home. The landscaping around a structure can also make a big difference in the probability of ignition from a wildfire. Removing dead vegetation such as leaves and branches from the immediate vicinity of the structure, moving firewood piles from away from the structure, clearing slash piles, and thinning trees surrounding the structure can make the area more fire resistant. (FireWise Communities, 2008) Mowing and irrigating around structures can also significantly reduce the risk of ignition by a grass fire.

Possible losses to structures in Valley County include:

- Structural losses
- Contents losses
- Vehicle and equipment losses
- Displacement losses

*Expected Wildfire Impact to Structures in Valley County and Nashua: Moderate-High*

*Expected Wildfire Impact to Structures in Glasgow, Fort Peck, and Opheim: Moderate*

### Infrastructure

Often regional electric infrastructure passes through wildland and non-irrigated agricultural areas. In particular, the electric substations and transmission lines are usually buffered by or overhang natural fuels. A wildfire could disrupt electricity should this infrastructure be damaged. Major electric transmission lines pass through Valley County from the Fort Peck Dam Power Plants.

Propane tanks also become hazardous infrastructure when a wildfire threatens a structure. Temporary disruptions or low flows on the public water systems may occur if large amounts of water are used to fight a fire, particularly during periods of drought or peak usage times. Overhead and road infrastructure can be better protected during wildfires if excess vegetation is removed from the road right-of-ways and slash piles in the vicinity are removed. Dirt and gravel roads, particularly private roads, can become very rugged and sometimes impassable for emergency response vehicles. It is often the responsibility of the road or driveway owner to maintain these access points for fire suppression.

Possible losses to infrastructure in Valley County include:

- Electric power disruption
- Telephone service disruption
- Water shortages
- Inaccessibility due to poor road conditions

*Expected Wildfire Impact to Infrastructure in Valley County, Fort Peck, Nashua, and Opheim: Moderate*  
*Expected Wildfire Impact to Infrastructure in Glasgow: Low-Moderate*

### Population

Generally, the population at risk can evacuate before a wildfire moves into their area. Using the estimate of 1,214 structures in the high and moderate hazard areas, roughly 1,942 people in Valley County live with elevated wildfire risk. Occasionally when strong winds are in place, wildfires can move very rapidly and catch people by surprise, or people may just refuse to evacuate; fatalities and injuries are possible. In these types of situations, firefighters can also be at risk from rapidly moving wildfires. Many people are often reluctant to leave their pets and livestock behind or want to stay and protect their property. Often these people choose to leave at the last minute; most wildfire fatalities of the evacuating population occur when frantic drivers or poor visibilities due to smoke cause an accident or a roadway is blocked by fire.

*Expected Wildfire Impact to the Population in Valley County and the Incorporated Jurisdictions:*  
Low-Moderate

### Economic, Ecologic, Historic, and Social Values

Possible economic losses in Valley County include:

- Crop and forage losses
- Livestock losses
- General agricultural economic losses, such as outbuildings, fencing, and equipment losses

Possible historic losses in Valley County include:

- Structure and site losses
- Contents losses

Possible social losses in Valley County include:

- Restricted recreational activities due to burn bans and closures

*Expected Wildfire Impact to the Values in Valley County and the Incorporated Jurisdictions: Moderate*

### Future Development

Remote, isolated areas are becoming more popular places to live or to have a second home, as national trends show. Growth in these parts of Valley County is possible. Regulating growth in these areas is a

delicate balance between protecting private property rights and promoting public safety. Future development could increase wildfire vulnerabilities, putting more people and property in harm's way.

The Valley County Subdivision Regulations do address the wildfire hazard to some extent, including the follow items:

- "The developer shall provide a second access in major subdivisions and all subdivisions located in high fire hazard areas."
- Subdivisions must meet requirements with regard to ingress and egress, building sites, defensible space, and water supplies.
- Subdivisions in "high fire hazard areas", including heads of draws, excessive slopes, dense fuel growth, or other hazardous components, must meet additional requirements with respect to roads, fuels reductions in road right-of-ways, building sites, densities, water supplies, and defensible space.
- A subdivision's restrictive covenants may include landscaping requirements and design and construction standards.
- Homes in mobile/manufactured home parks must be skirted with fire-resistant material within 30 days of occupying a space.

These regulations may mitigate some of the potential wildfire hazards for new subdivisions, if enforced. These regulations do not apply to single residential development or properties already subdivided.

*Expected Wildfire Impact to Future Development in Valley County: Moderate*

*Expected Wildfire Impact to Future Development in Glasgow, Fort Peck, Nashua, and Opheim:*  
Low-Moderate

#### **4.4.10.8 Data Limitations**

The data limitations related to the wildfire hazard for Valley County include:

- Lack of a comprehensive, multi-agency, historic wildfire digital database containing information on start location, cause, area burned, suppression costs, and damages