

3.6 WILDLAND-URBAN INTERFACE

This 2018 Gallatin County CWPP update defines the concept of Wildland-Urban Interface (WUI) as:

“Any area where the combination of human development and vegetation have a potential to result in negative impacts from wildfire on the community.”

As a means of comparison, the 2017 Montana Code Annotated (MCA), Title 76. Land Resources and Use, Chapter 13. Timber Resources, Part 1. Protection of Forest Resources, has the following definition:

(16) *“The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.”*

and, the Gallatin County Subdivision Regulations (2014) include the following definition:

“An area where improved property and wildland fuels are both present.”

The formal definition of WUI is found in the Code of Federal Regulations (CFR) and describes conditions under which vegetation and structures meet or intermix. This definition uses levels of structure density or population density to subdivide WUI into Interface and Intermix categories. Interface refers to areas where structures directly border wildland fuels, but there is a clear line of demarcation between developed and wildland areas. Intermix refers to areas where structures are scattered throughout a wildland area. While the CFR guidelines for structure density are helpful, the definitions are still vague in terms of geographically defining WUI with a set of mappable criteria.

This CWPP generally adopts the approach used by the U.S. Forest Service in mapping WUI for the conterminous U.S. from 2010 U.S. Census data. Based on Federal Register definitions, this approach combines structure density data and landcover data depicting wildland vegetation to map the categories of WUI. For the Gallatin County WUI mapping, structure density was derived from county-level address point data, instead of structure density numbers at the census block polygon level used in the national mapping work. As a means of connecting WUI mapping to fire behavior modeling included in this CWPP, any areas mapped as having burnable wildland fuels for the purposes of modeling were considered to be wildland vegetation for the purposes of WUI.

An important difference between the WUI mapping criteria adopted in this CWPP and the criteria used for national WUI mapping is the use of a lower structure density threshold to define WUI. In the Federal Register and the national WUI mapping, areas must have at least 6.18 structures per square kilometer (1 per 40 acres) to be considered WUI. This leaves out sparsely populated areas with less than this density from the defined WUI area. As a conservative approximation of where future development could occur and recognizing that fire protection efforts are often undertaken for any structure regardless of density, the decision was made to include all areas with structure density greater than zero in the spatial definition of WUI for Gallatin County.

The spatial criteria for mapping WUI in this Gallatin County CWPP are:

1. **WUI Intermix** = Areas with structure density > 0, and ≥ 50% cover of wildland vegetation within a 40-acre radius. These are places where structures and wildland vegetation are interspersed.
2. **WUI Interface** = Areas with structure density > 0, and < 50% cover of wildland vegetation within a 40-acre radius, located within 1.5 miles of a large, contiguous

area of wildland vegetation (i.e., > 1,235 acres with $\geq 75\%$ wildland vegetation). These are developed areas with less cover of natural vegetation, but within a distance where embers from wildfire in adjacent wildlands could cause wildfire impacts.

3. **Non-WUI Inhabited** = Areas with structure density > 0, and < 50% cover of wildland vegetation within a 40-acre radius, located further than 1.5 miles from a large, contiguous area of wildland vegetation. These are developed areas far enough from wildland vegetation that they have reduced likelihood of wildfire impacts.
4. **Non-WUI Uninhabited** = Areas with structure density = 0. These are areas with burnable fuels and no development.

A map of the WUI for Gallatin County based on these criteria is shown in **Figure 3-7**. The WUI map was completed by developing mapping for: (1) “at-risk communities”, as defined in the Federal Register based on structure densities, and applying methods developed by the SILVS lab (USFS – RMRS).

<https://www.federalregister.gov/documents/2001/01/04/01-52/urban-wildland-interface-communities-within-the-vicinity-of-federal-lands-that-are-at-high-risk-from>, and (2) the area surrounding the at-risk communities (using spatial criteria as defined above) <https://www.fs.fed.us/projects/hfi/field-guide/web/page22.php>. The total designated WUI area within Gallatin County (as shown on Figure 3-7) is 1,100,017 acres, of which 753,342 acres is Intermix, and 246,765 acres is Interface.

Additional high-value resources and assets that were included in the WUI mapping include the following:

1. Designated travel/egress routes with a 0.5-mile buffer on either side.
2. Other areas designated as “at-risk” (USFS-CGNF) including FS buildings, high-value recreation areas and communication sites. These assets were buffered in the same manner as the structure address points.
3. Municipal watersheds, including Bozeman, Lyman Springs and Whiskey Springs (West Yellowstone).

3.6.1 Wildland Urban Interface Planning Areas

The Gallatin County CWPP is multi-jurisdictional and addresses all lands and ownership within the boundaries of the plan area. Primary fire protection and suppression on the majority of private lands across the county are provided by local fire districts/service areas or Gallatin County Rural Fire (“County Fire”), which provides fire protection and suppression on most private lands outside of organized fire protection agencies, under a Cooperative Fire Control Agreement with the State of Montana ([“DNRC Co-op Plan”], Gallatin County, 2015) (**Figure 3-8** shows the jurisdictional boundaries for the 15 local fire districts/service areas within the county. Note that three fire jurisdictions extend outside of the county boundary (Big Sky, Three Forks, and Willow Creek). All federal lands (USFS-CGNF and Yellowstone National Park) are under wildfire protection from their respective agencies. In addition, USFS provides wildland fire protection on BLM lands (Montana Cooperative Fire Management and Stafford Act Response Agreement, 2011); and on state land on behalf of the DNRC, under an agreement known as protection offset. USFS also provides primary response/protection on some privately-owned forest parcels that are within a designated wildland fire protection district (pursuant to Title 76, Chapter 13, Part 2, MCA), and “Affidavit Land”, where wildland fire protection is requested by the landowner via assessment (USFS-CGNF, 2016). As the designated protecting agency, the USFS has primary wildland suppression responsibility on Affidavit lands; however, structure fire suppression remains the sole responsibility of DNRC, County Fire or local fire districts.

Gallatin County, 2015, Rural Fire Protection Operating Plan.

USFS-CGNF, 2016, Fire Management Plan, Chapter 4, pages 24-32.

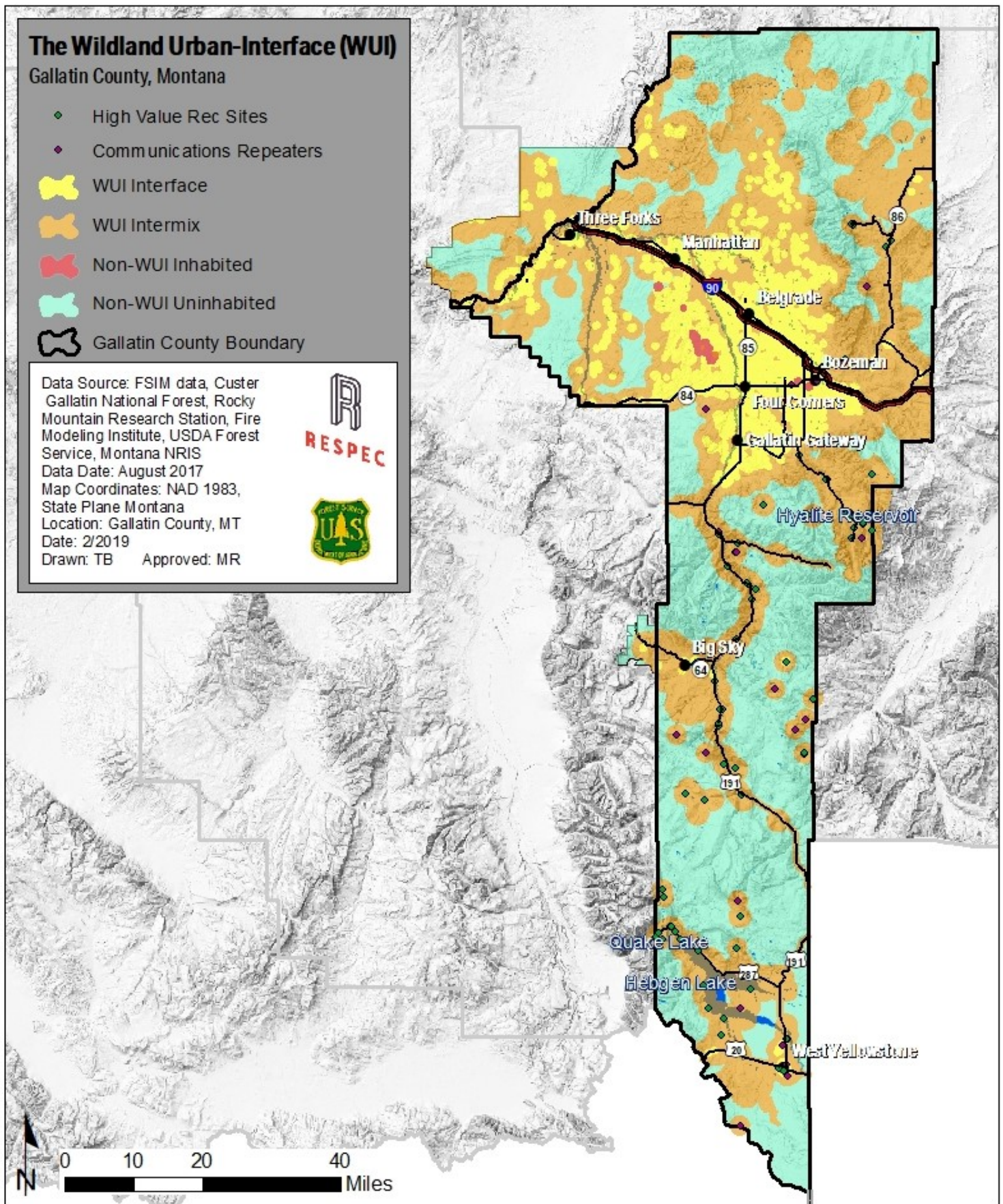


Figure 3-7. Gallatin County Wildland-Urban Interface

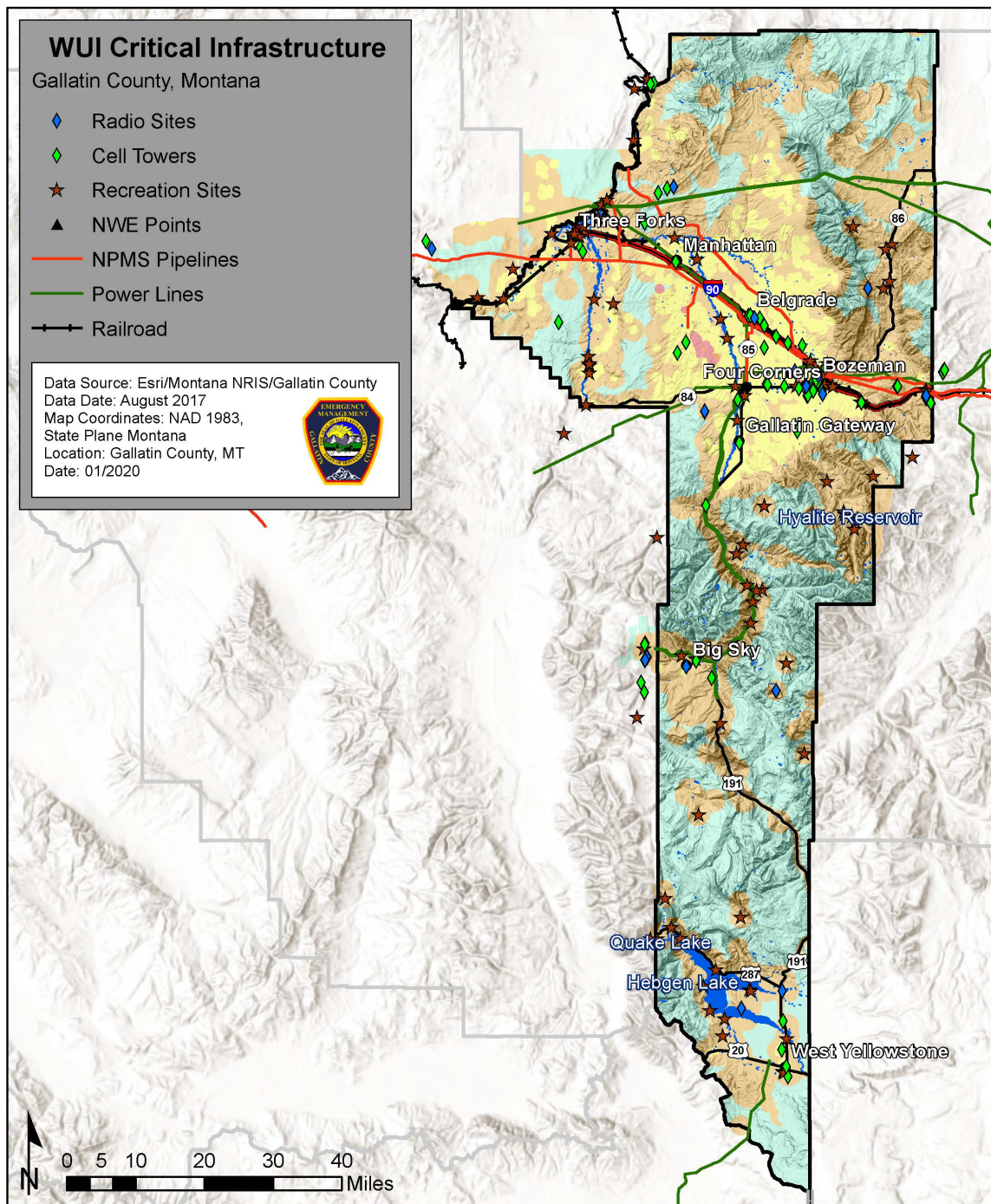


Figure 3-8. Critical Infrastructure Wildland-Urban Interface