Tri-County Regional Community Wildfire Protection Plan

Prepared By:

The Tri-County FireSafe Working Group

2020 Update - DRAFT

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Acknowledgements

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This CWPP update would not have been possible without the dedication and commitment of those who contributed to and collaborated on this and previous versions. Thanks are never enough, but hopefully the recognition provided here in some way helps compensate for the sacrifices they've made in their service to others. One day all those you've served will understand the extent of your dedication and stand astounded at all you've accomplished: Dave Larsen (*dec.*), Sally Buckles (*ret.*), Paul Spangler (*ret.*) Sonny Stiger (*ret.*), Sean Logan (*ret.*); Tri-County Project Manager Pat McKelvey, Tri-County Executive Director Ray Prill; Tri-County Board members Rocky Infanger, Lois Olsen, Reese Martin, and Ed Shindoll; former Tri-County Board member Mike Koehnke; Jessica Haas (USFS-RMRS), David Nunn (USFS-HLCNF), Terina Goicoechea (BLM), Kevin Smith (USFS-BDNF), John George and Nancy Sweeney (NRCS), John Huston (MTDNRC), Eric Spangenberg (Lewis and Clark Co. GIS), Greg McNally (Lewis and Clark Co. Planning Dept.), the Lewis and Clark County CPAW team, and the team at Headwaters Economics.

Doug Dodge
Jefferson County DES
Tri-County FireSafe Working Group

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Plan Adoption

The undersigned, by the power and authority vested in me by the laws of the State of Montana, hereby adopts this Tri-County Regional Community Wildfire Protection Plan. All previous versions are superseded by this plan. Plan maintenance and updates shall be performed according to the procedure outlined in Section 1, Chapter 5.

_____ Date: _____
Chair, Broadwater County Commission

_____ Date: _____
Sheriff, Broadwater County

_____ Date: _____
Chair, Jefferson County Commission

_____ Date: _____
Sheriff, Jefferson County

_____ Date: _____
Chair, Lewis and Clark County Commission

_____ Date: _____
Sheriff, Lewis and Clark County

_____ Date: _____
Mayor, City of Townsend

_____ Date: _____
Mayor, City of Boulder

_____ Date: _____
Mayor, Town of Whitehall

_____ Date: _____
Mayor, City of Helena

_____ Date: _____
Mayor, City of East Helena

_____ Date: _____
Chief, Augusta VFD

_____ Date: _____
Chief, Basin VFD

_____ Date: _____
Chief, Baxendale VFD

_____ Date: _____
Chief, Birdseye VFD

_____ Date: _____
Chief, Boulder VFD

_____ Date: _____
Chief, Broadwater VFD

_____ Date: _____
Chief, Bull Mountain VFD

_____ Date: _____
Chief, Canyon Creek VFD

_____ Date: _____
Chief, Clancy VFD

_____ Date: _____
Chief, Dearborn VFD

_____ Date: _____
Chief, East Helena VFD

_____ Date: _____
Chief, East Valley VFD

_____ Date: _____
Chief, Eastgate VFD

_____ Date: _____
Chief, Elk Park VFD

_____ Date: _____
Chief, Jefferson City VFD

_____ Date: _____
Chief, Lewis and Clark VFD

_____ Date: _____
Chief, Lincoln VFD

_____ Date: _____
Chief, Marysville VFD

_____ Date: _____
Chief, Montana City VFD

_____ Date: _____
Chief, Tri-Lakes VFD

_____ Date: _____
Chief, West Valley VFD

_____ Date: _____
Chief, Whitehall VFD

_____ Date: _____
Chief, Willow Creek VFD

_____ Date: _____
Chief, Wolf Creek/Craig VFD

_____ Date: _____
Chief, York VFD

Plan Concurrence

The undersigned do hereby concur with this Tri-County Regional Community Wildfire Protection Plan. All previous versions are superseded by this plan. Plan maintenance and updates shall be performed according to the procedure outlined in Section 1, Chapter 5.

_____ Date: _____
Broadwater County Local Emergency Planning Committee

_____ Date: _____
Broadwater County Planning Department

_____ Date: _____
Jefferson County Fire Council

_____ Date: _____
Jefferson County Local Emergency Planning Committee

_____ Date: _____
Jefferson County Planning Department

_____ Date: _____
Lewis and Clark Fire Council

_____ Date: _____
Lewis and Clark County Local Emergency Planning Committee

_____ Date: _____
Lewis and Clark County Planning Department

_____ Date: _____
City of Helena Fire Dept.

_____ Date: _____
Montana Department of Natural Resources & Conservation
Central Land Office

_____ Date: _____
Bureau of Land Management

_____ Date: _____
United States Forest Service
Helena-Lewis and Clark National Forest

_____ Date: _____
United States Forest Service
Beaverhead-Deerlodge National Forest

Record of Distribution

Date	Agency	Name/Email Address	Format

Date	Agency	Name/Email Address	Format

Date	Agency	Name/Email Address	Format

Record of Changes

Change #	Date	Page(s) Changed	Changed By	Change Summary
1	2005	2005 CWPP	TCFSWG Committee	CWPP Issued
2	2015	2015 CWPP	TCFSWG Committee	CWPP reviewed and updated
3	7/14/2017	2015 CWPP-26	Paul Spangler & TCFSWG	Corrected WUI Map
4	5/21/2018	2015 CWPP-i	Ray Prill & TCFSWG	Updated Table of Contents to reflect new Chapter 18 and Appendix D
5	5/21/2018	2015 CWPP-33/34	Ray Prill & TCFSWG	Corrected and updated Chapter 13
6	5/21/2018	2015 CWPP-40	Ray Prill & TCFSWG	Added Chapter 18, Structure Ignitability
7	5/21/2018	2015 CWPP-50	Ray Prill & TCFSWG	Added Appendix D
8		2020 CWPP	Doug Dodge & TCFSWG	CWPP reviewed, updated, and re-written

Section 1: Executive Summary

1. Introduction

Broadwater, Jefferson, and Lewis & Clark Counties (the tri-county region) have long recognized that wildfires do not stop at city or county lines, and that a collaborative, cohesive strategy is the best method to mitigate that wildfire hazard in the interest of the citizens of each jurisdiction. The Tri-County Fire Safe Working Group (TCFSWG), a 501(c)3 organization whose membership includes individual citizens, local governments, state and federal agencies, interested contractors, and fire suppression departments from all three counties, has spearheaded that collaboration effort since 1984. This Regional Community Wildfire Protection Plan update is one of the many results of that collaboration.

The enactment of the Healthy Forests Restoration Act (HFRA) in 2003 incentivized communities to engage in comprehensive forest planning and project prioritization. This legislation included statutory incentives for the US Forest Service and the Bureau of Land Management to consider the priorities of local communities as they developed and implemented forest management and hazardous fuel reduction projects. It also provided communities with an opportunity to influence where and how federal agencies implemented fuel reduction projects on federal lands, as well as an opportunity to influence the distribution of additional federal funds for projects on nonfederal lands.

This document, the Tri-County Regional Community Wildfire Protection Plan (CWPP), allows communities in the tri-county region to take full advantage of the opportunities presented by HFRA, and meets or exceeds the statutory minimum requirements for a CWPP as defined in the HFRA:

1. Local and state government representatives, in consultation with federal agencies and other interested parties, collaboratively developed this Tri-County Regional CWPP.
2. This Tri-County Regional CWPP identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment that will protect one or more at risk communities and essential infrastructure.
3. This Tri-County Regional CWPP recommends measures that homeowners and communities can take to reduce the ignitability of structures.
4. Local county and city governments, local fire departments, and the Montana Department of Natural Resources and Conservation, by their representative's signatures on this plan, mutually agree to this Tri-County Regional CWPP.
5. Additionally:
   - Each county has a FEMA approved Pre-Disaster Mitigation (PDM) plan;

- The Federal Register identifies Communities-At-Risk in all three counties;
- All three counties in the region share the same Population Protection Plan template, reinforcing regional collaboration and cohesiveness.
- Many federal, state, county, and local public and private agencies and individuals in the tri-county region, including TCFSWG, have identified and maintained mitigation and education projects and plans that this CWPP supports.

2. Purpose

The purpose of this plan is to serve as a collaborative, cohesive, scientifically sound strategy to identify and mitigate wildfire risk in the tri-county region. This tri-county approach provides an opportunity for greater contiguity of mitigation projects across jurisdictional boundaries to increase the efficacy of those projects and leverage limited funds to achieve even greater mitigation potential. This regional approach also serves as a planning and educational tool for collaborating agencies and individuals to utilize to increase community and individual wildfire resilience.

This purpose significantly aligns with our partner's all-hands, all-lands strategy as outlined in the Montana DNRC's *Forests in Focus 2.0.* (Montana Department of Natural Resources and Conservation Forestry Division, 2018) and the National Cohesive Strategy. As such, this regional CWPP supports, and reflects, that cross-boundary collaborative approach to addressing forest health and wildfire risk.

3. Scope and Relationship to Other Plans

This CWPP applies to all of Broadwater, Jefferson, and Lewis & Clark Counties. This CWPP relates to and references plans that cover the tri-county region while supporting and building upon those plans to accomplish a collaborative, cohesive wildfire mitigation strategy.

This CWPP also supports and encourages the establishment of individual county, local, fire district or neighborhood CWPPs. This CWPP can be a foundation for such entities to review and plan for their own unique needs.

This CWPP is not an incident response plan, though response agencies may use some of the information in the CWPP to create their own plans and procedures. Specifically, jurisdictional Population Protection Plans (PPP) have a direct relationship with this CWPP because mitigation work along identified ingress/egress routes, access control points, staging areas, reception and distribution centers, shelter locations, and other critical infrastructure locations are critical in protecting values at risk.

4. Plan Development

Broadwater, Jefferson, and Lewis & Clark Counties first adopted this CWPP in 2005 and approved an update for it again in 2015. Since that time, TCFSWG, in cooperation with its stakeholders, issued several revisions to the plan. In 2018, TCFSWG began the process for the 2020 CWPP update. That process included CWPP committee meetings, stakeholder meetings, and public hearings (see

Appendix 1) which resulted in the following updates to the plan:

- Updates to the layout and structure of the plan.
- Updates to the plan purpose and goals.
- Updates to the community profiles covered by the plan.
- A refined definition of the wildland-urban interface (WUI) for the tri-county region.
- Updates to the wildfire environment profile presented by the plan.
- Updates to the hazard assessment of the region.
- Updates to the risk assessment of the plan.
- Updates to the mitigation strategy provided in the plan.

5. Plan Maintenance

This plan should be reviewed and updated every five years by the TCFSWG, or sooner if changes are deemed necessary. Interim changes to the plan can be proposed and adopted without re-issuance of jurisdictional signatures using the following procedure:

- All proposed changes shall include a 30-day comment period.
- All proposed changes shall be forwarded via electronic mail, with delivery and read receipt requested, to those listed in the Record of Distribution 30 days prior to the end of the comment period. It is the responsibility of each jurisdictional signatory agency or any other stakeholder listed in the Record of Distribution to provide the TCFSWG Executive Director with up-to-date email addresses.
- A legal notice summary of proposed changes shall be placed in the newspaper of record for each county 30 days prior to the end of the comment period. The summary shall provide direction regarding how the public may review proposed changes and comment upon them.
- Proposed changes shall become official if no objections are received (as outlined in the legal notice above) within the 30-day comment period.
- An additional 10-day jurisdictional review will begin immediately after the expiration of the 30-day comment period if any objections are received within that 30 days.
    - Objections received within the 30-day comment period shall be provided electronically to all jurisdictional signatory agencies upon receipt.
- During the 10-day jurisdictional review, any jurisdictional signatory agency may request adoption of any objection received. Should no jurisdictional signatory agency request adoption of any objection received within the 10-day jurisdictional review, the proposed changes shall become official and the objection shall not be included in the proposed update.
- Any adjustments to the proposed changes due to the adoption by a jurisdictional signatory agency of an objection received shall be re-distributed as a new proposed change, with a new 30-day comment period/10-day jurisdictional review beginning upon the re-issuance of the proposed changes.

6. Clarification of Terminology

In any endeavor, clarifying the meaning of words or terms is critical in effective communication. This Chapter is not a comprehensive glossary, however important terms used in this plan are defined here to provide a clear understanding of that which is being conveyed. For this purpose, we turn to the US Forest Service Rocky Mountain Research Station General Technical Report (RMRS GTR) – 349, *Risk Terminology Primer: Basic Principles and a Glossary for the Wildland Fire Management Community* (Thompson, Zimmerman, Mindar, & Taber, 2016). The following are some terms contained in this plan and their definitions per RMRS GTR 349, except where noted:

Dense Canopy:

Evacuation Route: See Ingress/Egress Route.

Exposure: The contact of an entity, asset, resource, system, or geographic area with a potential hazard.

NOTE: In landscape assessments, resource and asset exposure can be quantified by overlaying spatial fire likelihood and intensity outputs with maps of resources and assets.

Hazard: Any real or potential condition that can cause damage, loss, or harm to people, infrastructure, equipment, natural resources, or property.

NOTE: Hazards associated with fire typically include fire line intensity, flame length, and crown fire potential.

NOTE: Other hazards associated with the fire response environment may include snags, steep slopes, equipment malfunction, and smoke inhalation.

Hazard Assessment: The review of a hazard in a given location (TCFSWG).

Hazard Reduction: Coordinated activities and methods directed to reduce or eliminate conditions that can cause damage, loss, or harm from real or potential hazards.

Home Ignition Zone: A home itself and the immediately surrounding 30 to 200 feet (or more) susceptible to ignition from a wildfire (Living With Fire, p. 6).

Ignition Resistant Construction: The use of materials and systems in the design and construction of a building or structure to safeguard or provide reasonable protection against the ignition and/or spread of fire to or from buildings or structures (FireSafe Montana, n.d.).

Ingress/Egress Routes: Travel corridors utilized by civilians to evacuate an area ***and*** by responders to access the area of an incident (TCFSWG).

Mitigation: The activities designed to reduce or eliminate risks to persons or property or to lessen the actual or potential effects or consequences of an incident. (FEMA, n.d.)

Open Canopy:

Pre-Disaster Mitigation Plan (PDM): A plan that profiles significant hazards to a community and identifies mitigation projects that can reduce those impacts. The purpose of the PDM Plan is to promote sound public policy designed to protect residents, critical facilities, infrastructure, private property, and the environment from natural and man-made hazards (Tetra Tech, Inc., 2017).

Population Protection Plan (PPP): A jurisdictional incident pre-plan that outlines the authorities, roles, responsibilities, and procedures of agencies during an evacuation incident. A PPP creates pre-established Access Control Points, Ingress/Egress Routes, possible staging and reception areas, and evacuation procedure guidelines (TCFSWG).

In the Tri-County region, jurisdictions are encouraged to adopt a standardized PPP format and layout for a more seamless mutual aid response.

Risk: A measure of the probability and consequence of uncertain future events.

NOTE: Risk has also been defined as "the effect of uncertainty on objectives," meaning that consequences are evaluated in light of objectives and desired conditions.

NOTE: The type of risk will depend on the type of uncertain future event in question.

NOTE: The nature of the consequences (good or bad) will depend on the context in which risks are being evaluated.

NOTE: Expected value is often used as a simple measure of risk, although expressing the full range of consequences and their respective probabilities is more informative.

Risk Assessment: A product or process that collects information and assigns values (relative, qualitative, or quantitative) to risks for the purpose of informing priorities, developing or comparing courses of action, and informing decision making. As a product: A focused collection of data, information, results, and reports that characterize wildland fire risk relevant to the appropriate scale. As a process: A set of activities that identify, analyze, and evaluate wildland fire risk across spatial, temporal, and management scales.

NOTE: Risk assessment results in some ultimate characterization of the risk, which can be quantitative (e.g., monetary loss estimates) or qualitative (e.g., categories).

NOTE: In landscape assessments, the processes typically consider the interaction of hazard, exposure, and effects to a given set of resources and assets in a given area.

NOTE: The same basic framework can be, and has been, used to assess opportunities that individuals or organizations face.

Strategy: The general plan or direction selected to accomplish objectives. (FEMA, n.d.)

Survivable Space: Survivable Space is the modification of landscape design, fuels, and building materials that make a home ignition caused by wildfire unlikely, even without direct firefighter intervention (Living With Fire, p. 5). It is important to note that Survivable Space refers to the survival of the home itself from wildfire, individuals should not assume a home mitigated to provide survivable space is safe for human occupation during a wildfire.

Values at Risk: Those ecologic, social, and economic assets and resources that could be impacted by fire or fire management actions.

Section 2: Regional Cohesive Strategy

1. Tri-County Region Cohesive Strategy

The Federal Land Assistance, Management, and Enhancement Act of 2009 (FLAME Act) required the development of a national cohesive wildland fire management strategy (Cohesive Strategy) for the United States. The Cohesive Strategy that emerged from this effort engaged partners from federal, state, local and tribal governments, non-governmental organizations, and public stakeholders to identify a vision for the next century: *To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire*. (Wildland Fire Leadership Council, 2014)

The Cohesive Strategy identified three national goals to achieve that vision:

1. Restore and maintain landscapes.
2. Create fire-adapted communities.
3. Implement safe, effective, efficient risk-based wildfire management decisions.

Those Cohesive Strategy goals are the heartbeat of the TCFSWG; therefore, this CWPP incorporates those goals in the following ways:

A. Restoring and Maintaining Landscapes.

The unique nature of a tri-county regional CWPP, created through the TCFSWG, lends itself to landscape level restoration and maintenance activities. Through cooperation and collaboration across jurisdictional lines, the three counties and their private, local, state, and federal partners may achieve landscape level mitigation not achievable within traditional political boundaries.

B. Creating fire-adapted communities.

Creating fire-adapted and fire-resilient communities becomes much more likely with a multitude of mitigation resources available. By utilizing the resources of the TCFSWG, the public and private organizations and jurisdictions within the tri-county region have access to a shared knowledge base of educational tools and methods that are adaptable and scalable from the smallest of neighborhoods to the largest incorporated cities or counties.

C. Implementing safe, effective, efficient risk-based wildfire management decisions.

While active wildfire management decisions are best left to the responders themselves, TCFSWG encourages consideration for pre-wildfire management decisions that may affect wildfire risk. The TCFSWG does not limit its educational programs to fuel mitigation activities alone. Opportunities for responder and public official collaboration and education are available at the monthly TCFSWG meetings, as well as during special presentations available throughout the year.

Section 3: Regional Plan Goals

1. Introduction

The purpose of this plan, as stated in **Section 1**, is to serve as a collaborative, cohesive, scientifically sound strategy to identify and mitigate wildfire risk in the tri-county region. To fulfill that purpose, this CWPP seeks to achieve the following goals:

Goal 1:
Provide a foundation for collaborative, cohesive, scientifically sound wildfire mitigation strategies (see **Sections 1-3**).

Goal 2:
Provide a community profile for each jurisdiction covered by the plan and identify the region's primary value at risk (see **Section 4**).

Goal 3:
Provide a regional wildland urban interface (WUI) definition that accounts for all of the values at risk in the region and incorporates the requirements of emergency response agencies to protect those values at risk (see **Section 5**).

Goal 4:
Provide a wildfire environment profile for the jurisdictions covered by the plan to identify the current conditions in the region (see **Section 6**).

Goal 5:
Provide a wildfire hazard assessment for the jurisdictions covered by the plan to identify the impact of potential wildfires in the region (see **Section 7**).

Goal 6:
Provide a wildfire risk assessment for the jurisdictions covered by the plan by comparing the exposures (values at risk) present to the hazard faced which includes consideration for the unique challenges inherent in WUI communities (see **Section 8**).

Goal 7:
Provide a cohesive mitigation plan that includes the strategy and tactics to reduce the identified risk in the region (see **Section 9**).

Section 4: Regional Values at Risk

1. Tri-County Region Overview

The tri-county region that includes Broadwater, Jefferson and Lewis & Clark County covers over 6,300 square miles in the heart of southwestern and west central Montana (United States Census Bureau, 2018). While central and northern Lewis & Clark and southern Broadwater and Jefferson County are rural in nature, southern Lewis and Clark and central and northern Broadwater and Jefferson County share a micropolitan area anchored by the city of Helena[1].

Federal and State agency partners in the tri-county region include the Butte Ranger District of the Beaverhead-Deerlodge National Forest and the Lincoln, Rocky Mountain, Helena, and Townsend Ranger Districts of the Helena-Lewis and Clark National Forest. The Bureau of Land Management (BLM) partner in the region is the Butte Field Office, while the Natural Resources Conservation Service (NRCS) partners are the Helena, Townsend, and Whitehall Field Offices. Finally, the Montana Department of Natural Resources & Conservation (DNRC) partner is the Helena Unit of the Central Land Office.

The US Forest Service and the Montana Department of Natural Resources and Conservation are the Federal and State agencies that have firefighting resources available in the tri-county region.

Local governments in the region include the county seats in Boulder, Helena, and Townsend, and the incorporated cities of Boulder, East Helena, Helena, Townsend, and the town of Whitehall. The 25 fire service areas/fire districts in the region with their own elected trustees are additional local government partners, as are the sheriffs elected in each county.

The only local jurisdiction in the tri-county region with a fully paid fire service is the City of Helena, while the remainder of the jurisdictions rely on volunteers for fire protection.

Numerous private partner organizations and individuals are also stakeholders in this plan. Those should include such entities as power supply companies, insurance companies, real estate developers and sales offices, construction contractors and related supply companies, fuel mitigation contractors, landscaping businesses and contractors, home inspection services, conservation organizations, farm and ranch operations, and the citizens who live, work and play in the tri-county region.

[1] While the US Census only includes Jefferson and Lewis & Clark Counties in its Helena micropolitan statistical area, Broadwater County should be included because of the integrated labor market area it contains.

2. Tri-County Region Values at Risk

The Healthy Forest Restoration Act of 2003 (HFRA) defines an At-Risk Community as:

> A. An area that is comprised of-
>
> i. An interface community as defined in the notice Wildland Urban Interface Communities Within the Vicinity of Federal Lands That Are at High Risk From Wildfire issued by the Secretary of Agriculture and the Secretary of the Interior in accordance with Title IV of the U.S. Department of the Interior and Related Agencies Appropriations Act, 2001 (114 Stat. 1009) (66 FR 753, January 4, 2001); or
>
> ii. A group of homes and other structures with basic infrastructure and services (such as utilities and collectively maintained transportation routes) within or adjacent to Federal land; and
>
> B. In which conditions are conducive to a large-scale wildland fire disturbance event; and
>
> C. For which a significant threat to human life or property exists as a result of a wildland fire disturbance event.

While helpful, relying upon the federal definition above of a community at risk is inadequate in identifying the values at risk in the tri-county region because any human life, not just the lives of those who fall within certain densities or proximity boundaries, is a primary value at risk. The U.S. Census estimates the 2017 population of the three counties at 85,600 people (United States Census Bureau, 2018), and this CWPP defines each of those individuals, as well as those who may be visiting or working in the region, as the primary value at risk in the region.

With that universal value recognized, the natural outgrowth for summarizing other common values at risk in the region would include that which is necessary to support life safety, or what the U.S. Department of Homeland Security calls critical infrastructure.

Generally, critical infrastructure includes government, law enforcement, fire department, and emergency medical services facilities, hospitals and health care facilities, schools, transportation corridors, power line corridors and facilities, natural gas line corridors and facilities, water treatment facilities including the source of the water itself, wastewater systems, communication systems, and places or sources of commerce and employment. Each county has identified their own specific critical infrastructure in each of their Pre-Disaster Mitigation Plans.

Identifying the region's population within each county is the next step in identifying possible threats to the life safety of that population. The following three sub-chapters of this section provide a closer look into that subject.

A. Broadwater County

Broadwater County encompasses over 1,192 square miles and is framed by the Elkhorn Mountains to the west and the Big Belt Mountains to the north and east. The population of Broadwater County has increased 5.8% since 2010 to include an estimated 5,936 people as of 2017 (United States Census Bureau, 2018). Privately owned land consists of 59.8% of all land in Broadwater County, while the federal government owns 35.2% of the land and the State of Montana owns 5% (Headwaters Economics, 2018).

The US Census Bureau lists the following communities in Broadwater County as census-designated places: Radersburg, Spokane Creek, The Silos, Toston, Wheatland, and Winston (United States Census Bureau, 2018). The only incorporated municipality in Broadwater County is the county seat in Townsend (Montana League of Cities and Towns, 2018). Townsend is also the only community in Broadwater County listed in the Federal Register as an urban wildland interface community at risk (Federal Register, 2018).

Residential development trends in Broadwater County can aid in providing a better understanding of the values at risk. Urban/suburban residential development (average lot sizes of < 1.7 acres) in the County increased from 463 acres in the year 2000 to 655 acres in 2010 (the most recent data available), an increase of over 41%. Exurban residential development (average lot sizes between 1.7 – 40 acres) in the same period increased from 2,541 acres to 7,246 acres, an increase of 4,705 acres, or just over 185%. (Headwaters Economics, 2018).

B. Jefferson County

Jefferson County encompasses over 1,656 square miles. It is buttressed by the Boulder Mountains to the west and bisected by the Elkhorn Mountains in the north and the Boulder Mountains in the south. The population of Jefferson County has increased 4.3% since 2010 to include an estimated 11,891 people as of 2017 (United States Census Bureau, 2018). Privately owned land consists of 44.2% of all land in Jefferson County, while the federal government owns 52.4% of the land and the State of Montana owns 3.4% (Headwaters Economics, 2018).

The US Census Bureau lists the following communities in Jefferson County as census-designated places: Basin, Clancy, Elkhorn, Jefferson City, Montana City, South Hills, Cardwell, and Rader Creek (United States Census Bureau, 2018). The incorporated municipalities in Jefferson County include the county seat in Boulder and the Town of Whitehall (Montana League of Cities and Towns, 2018). Boulder, Cardwell, Clancy, Jefferson City, and Whitehall are listed in the Federal Register as urban wildland interface communities at risk (Federal Register, 2018).

Residential development trends in Jefferson County can aid in providing a better understanding the values at risk. Urban/suburban residential development (average lot sizes of < 1.7 acres) in the County increased from 973 acres in the year 2000 to 1,139 acres in 2010 (the most recent data available), an increase of over 17%. Exurban residential development (average lot sizes between 1.7 – 40 acres) in the same period increased from 10,413 acres to 22,416 acres, an increase of 12,003 acres, or just over 115%. (Headwaters Economics, 2018).

C. Lewis and Clark County

Lewis and Clark County encompasses over 3,458 square miles. The continental divide and the southernmost reaches of the Rocky Mountain Front to the west, the Boulder Mountains to the south, and the Big Belt Mountains to the east cradle the southern portion of the County. The continental divide and the Rocky Mountain Front wall off the northern part of the county to the west while the northeast part of the County yawns open to face the plains of Montana's golden triangle. The population of Lewis and Clark County has increased 6.9% since 2010 to include an estimated 67,773 people as of 2017 (United States Census Bureau, 2018). Privately owned land consists of 43.7% of all land in Lewis and Clark County, while the federal government owns 48.3% of the land and the State of Montana owns 7.9% (Headwaters Economics, 2018).

The US Census Bureau lists the following communities in Lewis and Clark County as census-designated places: Augusta, Helena Valley Northeast, Helena Valley Southeast, Helena Valley West Central, Helena West Side, Lincoln, Marysville, Wolf Creek, and Craig (United States Census Bureau, 2018). The incorporated municipalities in Lewis and Clark County include the county seat in Helena and the city of East Helena (Montana League of Cities and Towns, 2018). Augusta, Canyon Creek, East Helena, Helena, Lincoln and Wolf Creek are listed in the Federal Register as urban wildland interface communities at risk (Federal Register, 2018).

Residential development trends in Lewis and Clark County can aid in providing a better understanding the values at risk. Urban/suburban residential development (average lot sizes of < 1.7 acres) in the County increased from 7,804 acres in the year 2000 to 9,346 acres in 2010 (the most recent data available), an increase of over 19%. Exurban residential development (average lot sizes between 1.7 – 40 acres) in the same period increased from 39,316 acres to 56,208 acres, an increase of 16,892 acres, or just under 43%. (Headwaters Economics, 2018).

3. Tri-County Region Summary

The tri-county region reflects the typical characteristics seen in much of the intermountain west: a growing population within established communities combined with exponential residential development within the wildland areas that surround them. All three counties, as well as the State of Montana, unanimously agree in their current Pre-Disaster Mitigation Plans that wildfire is the greatest hazard they face. That identified hazard combined with the life safety exposure of substantial residential development into the wildland underscores the importance of more clearly identifying the details of the wildland urban interface profile, the wildfire hazard that may affect it, the associated risk assessment, and most importantly, the mitigation steps that may reduce that risk.

Section 5: Regional Wildland Urban Interface

1. The Wildland Urban Interface - Locating Values at Risk

After identifying the region's values at risk (see **Section 4),** specifically defining where people live and work in the region in relation to the wildland is the next step in assessing how wildfire may affect those values.

The term Wildland Urban Interface (WUI) conjures many different visions. The Healthy Forests Restoration Act of 2003 (HFRA) defines WUI as:

A. An area within or adjacent to an at-risk community identified in recommendations to the Secretary in a Community Wildfire Protection Plan; or
B. In the case of any area for which a Community Wildfire Protection Plan is not in effect:
    i. An area extending 1/2 mile from the boundary of an at-risk community
    ii. An area within 1 1/2 miles of the boundary of an at-risk community, including any land that:
        I. Has a sustained steep slope that creates the potential for wildland fire behavior endangering the at-risk community
        II. Has a geographic feature that aids in creating an effective firebreak, such as a road or ridgetop; or
        III. Is in Condition Class 3, as documented by the Secretary in the project-specific environmental analysis; and
    iii. An area that is adjacent to an evacuation route for an at-risk community that the Secretary determines, in cooperation with the at-risk community, requires hazardous-fuel reduction to provide safer evacuation from the at-risk community.

The federal definition listed above is inadequate for the needs of the tri-county region because, as outlined in **Section 4**, any human life, not just the lives of those who fall within certain density or proximity boundaries of at-risk communities, is a part of the primary value at risk identified by this CWPP. Additionally, 1 ½ (one and one-half) miles (the HFRA definition) should be the ***absolute minimum*** boundary of the WUI, with local conditions dictating any increase in that radius to accommodate population protection, safe evacuation procedures, and the ability to protect critical infrastructure.

Time is the greatest importance when protecting the population, protecting critical

infrastructure, or conducting evacuations, not necessarily mileage distance. The sheriffs of the three counties agreed (see **Appendix 2**) that *at least* two hours are required to conduct an evacuation. A 1 ½ mile WUI buffer allows for a fire with a forward rate of spread of ¾ (three-quarters) of a mile per hour to cover that distance within that 2-hour period.

Therefore, this tri-county CWPP defines our local WUI as:

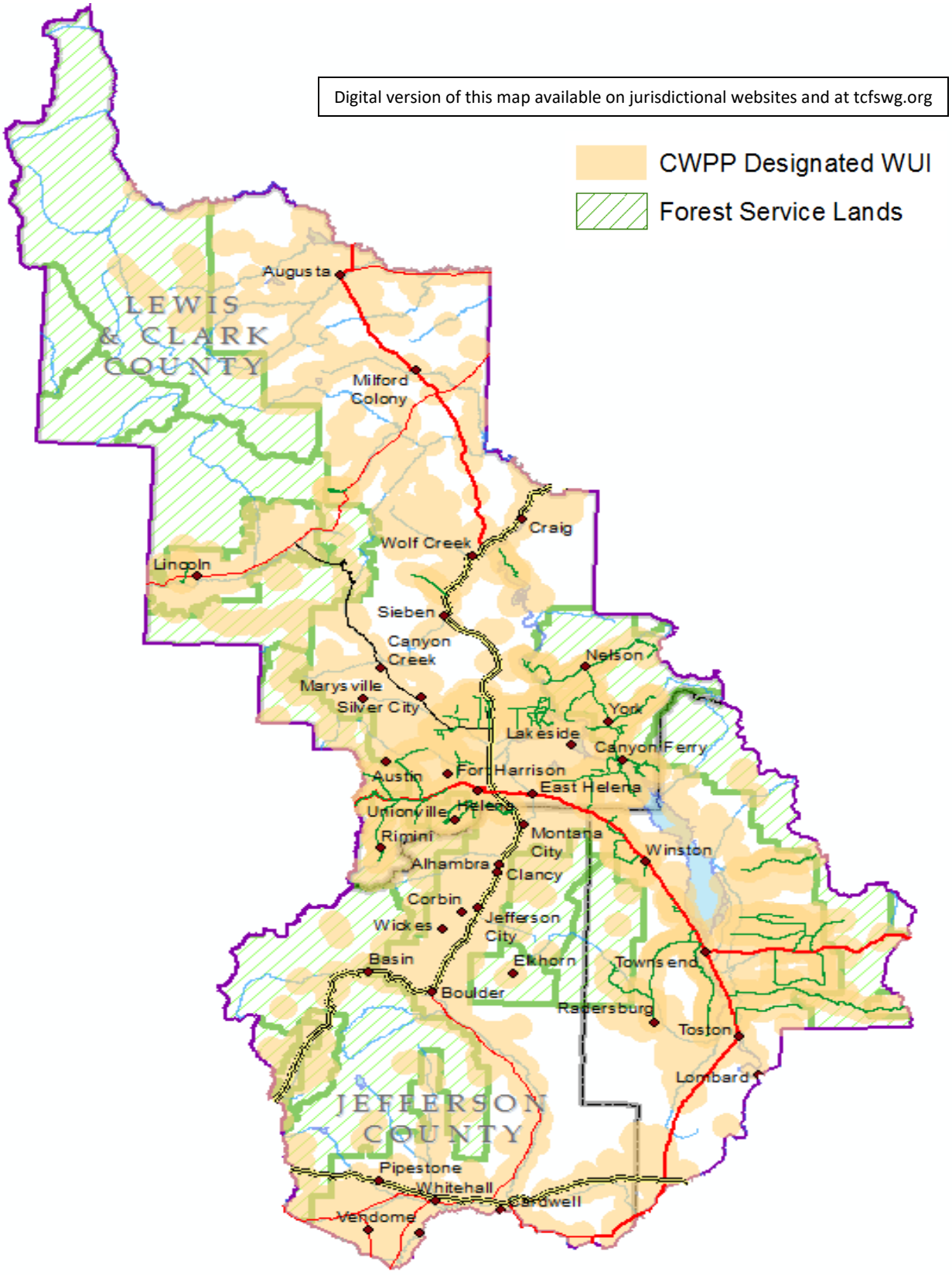
A. An area extending at least 1 ½ (one and one-half) miles around any structure that is capable of human occupation.
B. An area extending at least 1 ½ (one and one-half) miles around any critical infrastructure as identified in each county's Pre-Disaster Mitigation Plan.
C. An area extending at least 1 ½ (one and one-half) miles around the centerline of any ingress/egress (evacuation) route identified in jurisdictional Population Protection Plans.
D. Any locally adjusted areas beyond 1 ½ miles if local emergency response agencies determine a greater distance is necessary for the protection of human life, critical infrastructure, or ingress/egress routes.
    i. Any locally adjusted WUI boundaries should be forwarded to the Executive Director of TCFSWG for inclusion in the WUI boundary mapping of this CWPP. Such additions should also be recorded in the Record of Changes of this CWPP.

A regional WUI map based upon this definition is provided in Chapter 2 of this Section, however more specific County level WUI mapping based upon this definition can be found in **Appendix 3** (Broadwater County), **Appendix 4** (Jefferson County), and **Appendix 5** (Lewis and Clark County).

It should be noted that another term, the Wildland Urban Intermix, may be used to differentiate types of locations where human development and habitation interact with the wildland environment. Because both the intermix and interface describe locations generally thought by the public to be interface, and because, as will be shown in **Section 8** of this CWPP, wildland fuels extend into the developed areas in the region, this CWPP does not differentiate between the two, and both should be considered a part of the Wildland Urban Interface.

After establishing the region's values at risk and more clearly identifying where those values occur, it is next important to identify the environment that surrounds those values to understand the nature of their vulnerability to wildfire.

2. Regional Wildland Urban Interface Map



Section 6: Regional Wildfire Environment

1. Regional Wildfire Environment

To understand the wildfire hazard that could affect the region's values at risk, it is first important to have a clear understanding of the environmental conditions where those wildfires may occur. That wildfire environment plays a key role in the potential receptivity, growth rate, intensity, and eventual size of wildfires, all of which directly affect those who call the tri-county region home.

Many environmental variables seriously influence wildfire behavior and are important to consider when analyzing the tri-county wildfire environment:

- Land Cover Type: The type of land cover can seriously affect wildfire rate of spread. Grasses tend to burn quickly but with less intensity, while heavier fuels such as trees and shrubs can burn with greater ferocity. A general overview of the land cover types common in the region is included in Chapter 2 below.
- Fuel Arrangement and Condition: While land cover type provides a broad perspective of wildland fuel hazards, the way that fuel is arranged, and its condition, more accurately reflects the true wildfire hazard the region faces. It is critical to note that fuel arrangement and condition includes not just vegetation, but also homes and structures. Many wildfires become urban conflagrations due to the receptivity of homes and structures to the ember showers produced by wildfire. Finally, fuel arrangement and condition are the *only* variables we can modify to lessen the impact of wildfire. This CWPP's Fuel Mitigation Classification system examines this in detail in Chapter 3 of this Section.
- Weather: Local conditions including humidity and wind, as well as long-term conditions such as drought and climate change, can exacerbate extreme wildfire behavior. A regional summary of typical weather conditions experienced by the tri-county region is included in Chapter 4 of this Section.
- Wildfire History: When and where previous wildfires occurred in the region and how large they became can provide a generational outlook regarding the pattern of risk the region faces. Chapter 5 of this Section includes that perspective.
- Local Topographical Features: While this CWPP cannot account for every wrinkle on the landscape, it is important to mention the affect topography may have on a wildfire:
    - Slope: An important consideration as it simulates wind in its effect on fire spread. Changing from level ground to a 30% slope approximately doubles rate-of-spread in surface fires.
    - Aspect: Southern exposures are prone to be drier than northern exposures and are therefore usually more receptive to ignition and can play a role in the growth of wildfire.
    - Chutes, Chimneys, Ridges, or Canyons: On their own and especially

when combined with wind, can exponentially increase extreme fire behavior.

2. Land Cover Types

When considering the regional wildfire environment, it is first helpful to highlight the types of land cover that occur in each county to recognize the general wildland fuel potential.

The dominant type of land cover in Broadwater County is grassland (53%), while forest (19%), mixed cropland (12%) and shrub land (10%) round out the other most common land cover types. Jefferson County contains 48% forest cover, with other common types being grassland (35%), shrub land (10%) and mixed cropland (5%). Similar to Jefferson County, the dominant type of land cover in Lewis and Clark County is forest (45%), with grassland (36%), shrub land (10%) and mixed cropland (5%) making up the other land cover types (Headwaters Economics, 2018).[2]

3. Fuel Mitigation Classes

While land cover type can provide a bird's eye view of the possible carriers of wildfire, investigating the specific condition and arrangement of those wildfire fuels provides a much clearer picture of the fuel hazard, and therefore the wildfire environment in the region.

Jessica Haas, MS Ecologist with the US Forest Service Rocky Mountain Research Station (RMRS) in Bozeman, Montana, in coordination with RMRS staff, Headwaters Economics staff and partners, and other subject matter experts involved in the Community Planning Assistance for Wildfire (CPAW) process in Lewis and Clark County, developed eight mitigation classes and corresponding maps in 2017 to profile more accurately the wildfire environment in the region. This CWPP adopts those mitigation classes, which replace the Fuel Hazard Classes from previous versions of this CWPP.

The following table identifies the Mitigation Class designations, briefly describes the characteristics for each Class, and provides a summary discussion for each Class that includes expected wildfire behavior and possible mitigation potential. The mitigation class maps created for this CWPP as an outgrowth of this table are in **Appendix 6** (Broadwater County), **Appendix 7** (Jefferson County) and **Appendix 8** (Lewis and Clark County).

[2] Headwaters Economics combined NASA's MODIS land cover type classes in the following ways: Forest (Evergreen Needleleaf Forest, Evergreen Broadleaf Forest, Deciduous Needleleaf Forest, Deciduous Broadleaf Forest, and Mixed Forest); Grassland (Grasslands, Savannas); Shrubland (Closed Shrubland, Open Shrubland, and Woody Savannas); Mixed Cropland (Croplands and Cropland/Natural Vegetation Mosaic).

Regional Mitigation Classes

Class	Characteristics	Mitigation Descriptions
0	Ember Impact	Barren ground/water/sparse vegetation or land. Mitigation potential should involve appropriate home ignition zone and IR structure construction to mitigate ember impacts.
1	Grass life forms and agricultural areas on flat ground	Fires are typically easier to suppress in these areas. However high winds combined with dry conditions lead to potentially dangerous fast-moving high intensity fires. Mitigation potential may involve a combination of irrigation, mechanical (mowing) treatment, frequent burning, and fuel breaks in conjunction with appropriate home ignition zone and IR structure construction.
2	Grass life forms on steep (≥30%) slopes	Harder to construct fuel breaks, difficulty in mechanical (mowing) treatment, increased potential for erosion, increased rate of spread and intensity may make frequent prescribed burning more difficult. Focus should be on appropriate slope setbacks, home ignition zone and IR structure construction mitigation
	Shrubs on flat slopes	Fires are typically harder to suppress than grassfires in these areas. High winds combined with dry conditions leads to potentially dangerous fast-moving high intensity fires with fire fighter access concerns. Mitigation potential may involve a combination of mechanical (mastication) treatment, moderately frequent burning, and fuel breaks in conjunction with appropriate home ignition zone and IR structure construction.
3	Shrubs on steep (≥30%) slopes	Harder to construct fuel breaks, difficulty in mechanical (mastication) treatment, increased potential for erosion, increased rate of spread and intensity may make frequent prescribed burning more difficult. Focus should be on a combination of appropriate mechanical treatment or burning, slope setbacks, home ignition zone and IR structure construction mitigation.
	Trees on flat slopes with open canopy	Open canopy must be maintained to prevent increase crown fire potential. Surface fuels must be treated/maintained in a state that reduces the chances of fast-moving surface fires in conjunction with appropriate home ignition zone and IR structure construction mitigation
4	Trees on steep slopes (≥30%) with open canopy	Open canopy must be maintained to prevent increased crown fire potential, which may be more difficult due to the slope. Surface fuels must be treated/maintained in a state that reduces the chances of fast-moving surface fires. Mitigation should also include appropriate slope setbacks, home ignition zone and IR structure construction mitigation
	Trees on flat slopes with dense canopy	Dense canopy needs to be thinned to reduce crown fire potential. Surface fuels must be treated to reduce risk of fast-moving surface fires. Mitigation should also include appropriate home ignition zone and IR structure construction mitigation.
5	Trees on steep slopes (≥30%) with dense canopy	Dense canopy needs to be thinned to reduce crown fire potential, which may be more difficult due to the slope. Surface fuels must be treated/maintained in a state that reduces the chances of fast-moving surface fires. Mitigation should also include appropriate slope setbacks, home ignition zone and IR structure construction mitigation.
6	Complex ecosystems	Due to the ecological system of these areas mitigation is extremely difficult and/or dangerous. Advanced vegetation management / mitigation plans will be necessary and highly skilled personnel will need to determine if any mitigation can be achieved. Avoiding new development in these areas should be considered. At a minimum, the most stringent standards should be applied to slope setbacks, the structure ignition zone and IR structure construction mitigation
7	Extremely dangerous areas to mitigate	Due to the current state of these lands mitigation is extremely dangerous. Advanced vegetation management / mitigation plans will be necessary and highly skilled personnel will need to determine if any mitigation can be achieved safely. Avoiding new development in these areas should be considered. At a minimum, the most stringent standards should be applied to slope setbacks, the structure ignition zone and IR structure construction mitigation.

(Wildland Professional Solutions, Inc.; Wildfire Planning International, LLC; Land Solutions, LLC, 2017)
IR = Ignition Resistant

4. Weather

Fuel condition and arrangement are an important part of the regional wildfire profile, but that profile should also include the weather experienced by the region to reflect the nature of the wildfire hazard, as weather impacts both fuel condition and wildfire behavior.

A. Climate Overview

The tri-county region is usually clear, sunny and dry. Low humidity levels make both summer and winter temperatures seem more comfortable than those temperatures would seem in other parts of the country. Because the three counties are on the dry side of the continental divide, there are generally more sunny days than west of the divide. During the summer months, these conditions, especially when combined with thunderstorms, provide an excellent opportunity for wildfire ignitions and active wildland fires.

i. Regional Climate Averages (Western Regional Climate Center, n.d.)

Location	Average Annual Precipitation	Average Daily High Temperature (July)
Augusta	13.84”	82.2°F
Boulder	10.97”	82.7°F
Helena	11.85”	83.1°F
Lincoln	21.14”	77.8°F
Toston	11.72”	85.1°F
Townsend	10.65”	83.4°F
Whitehall	10.22”	87.3°F

ii. Regional Fire Weather Zones

Five fire weather zones cover the tri-county region:

- MTZ110, Deerlodge/Western Beaverhead National Forest in northern and western Jefferson County.
- MTZ111, Eastern Beaverhead-Deerlodge National Forest in northern and central Jefferson County.
- MTZ114, Lewis and Clark National Forest Rocky Mountain District-Rocky Mountain Front, in northern Lewis and Clark County.
- MTZ116, Lincoln Ranger District of the Helena National Forest in northwestern Jefferson County and western Lewis and Clark County.
- MTZ118, Helena and Townsend Ranger Districts of the Helena National Forest in central and southern Lewis and Clark County, eastern and northern Jefferson County, and Broadwater County.

B. Climate Change

The Executive Summary of the 2017 Montana Climate Assessment paints a bleak future for Montana's forests and grasslands, with warmer temperatures and associated drought leaving the forests more susceptible to insects and fire. The Assessment projects that over the course of the next half century, annual temperatures in Montana may increase between 4.5° – 6.0°F. Along with those projected warmer annual temperatures, the Assessment states that changes in average precipitation may be increasingly variable, which could produce reduced snowpack and earlier spring snowmelt. (Whitlock C, 2017)

The Jefferson County and Lewis and Clark County Pre-Disaster Mitigation Plans further delineate the issue:

> "A recent analysis from the Montana Fire Science Laboratory indicates that the fire season over the next 95 years will increase by 17 days (32% increase); fire danger (ERC) will increase by around 15 percent; drought will increase by 16 percent; and fuel moistures will decrease by 16 percent. Larger, more severe, and more frequent fires may affect the people, property and critical facilities by increasing the risk from ignition from nearby fire sources. As a result, the Assessment forecasts a statewide increase in fire risk, with both increased occurrence and severity of wildfire expected." (Tetra Tech, Inc., 2017)

5. Regional Wildfire History

Understanding wildfire history is an important component in profiling the wildfire environment that exists in the tri-county region. The acreage burned, and number of fires can provide an idea of what the region may face in the future. Additionally, knowing the location and size of previous wildfires can help fire managers plan for expected fire behavior for currently burning wildfires in the same area, depending upon how recently the previous fire burned. Finally, the location and extent of past wildfires can help point to areas of the region that may be more susceptible to wildfire.

The wildfire history of the tri-county region was obtained by combining information from the Beaverhead-Deerlodge National Forest, the Helena-Lewis and Clark National Forest, and the Montana Department of Natural Resources and Conservation. That data indicates that between 1984 and 2018, 133 wildfires over 100 acres have occurred within the tri-county region, burning a total of approximately 775,390 acres. Human sources caused 46 of those wildfires (35%), lightning caused 68 of them (51%), and 19 were of unknown origin (14%). Although many wildfires had no accompanying written information and therefore were not included in wildfire occurrence data, this information does give a glimpse into the wildfire history of the area. Additionally, wildfires that escaped detection would not be included. **Appendix 15** of this CWPP lists the specific wildfires included in this chapter.

Section 7: Regional Hazard Assessment

1. Hazard Assessment

As outlined in **Sections 4** and **5** of this CWPP, the exurban growth in the tri-county region has been substantial. That growth into the wildland, combined with the existing communities already designated at risk, make it imperative to understand the likelihood and intensity of potential wildfires where values at risk may be impacted. The first step in gaining that understanding is developing a wildfire hazard assessment for the region. This CWPP again adopts the 2017 work performed by Jessica Haas (USFS-RMRS) and presents a regional version of those Hazard maps in the chapters below, while the more detailed, County Specific versions are in **Appendix 9** (Broadwater County), **Appendix 10** (Jefferson County), and **Appendix 11** (Lewis and Clark County).

Two hazard maps are presented, and it is essential to explain the differences between them to ensure their appropriate use. Jessica Haas explains the distinctions:

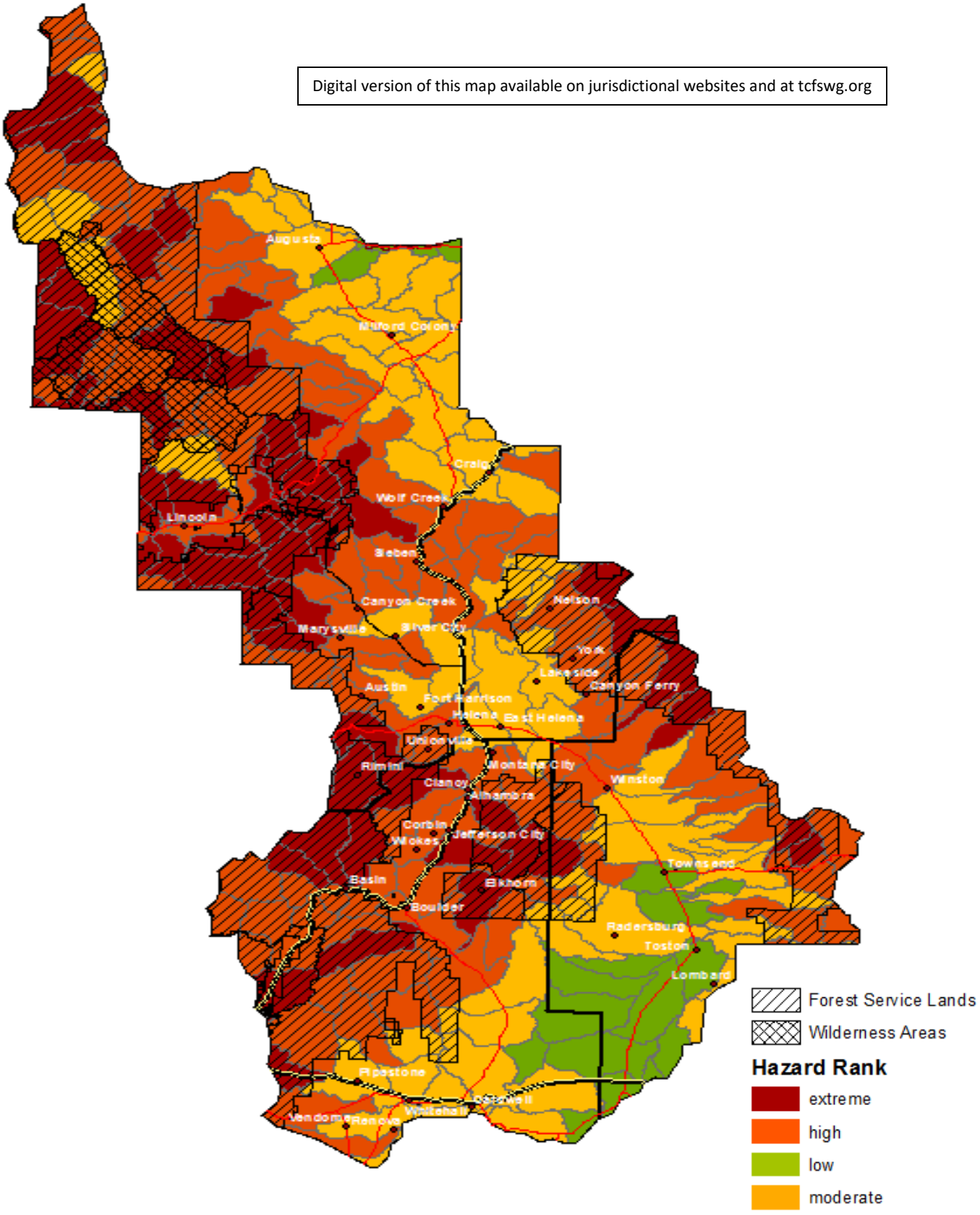
> *"Including characterizations of wildfire hazard at both landscape and local scales affords a two-pronged assessment of potential fire behavior; we see what kind of fire behavior we could experience under a range of conditions that have occurred in recent history [Landscape Hazard], and we also get a picture of fire behavior that could occur under extreme conditions [Local Hazard]."* (Haas, 2017, p. 48)

The Landscape Hazard map, then, should be used as a broad reference, as it is representative of an *average* of possible fire weather conditions over larger divisions of land. The greatest severity of the local wildfire hazard, and any locally achieved mitigation accomplishments, will not appear on the landscape level map. This overall view is useful because it provides a perspective of the hazard the region faces on an average day.

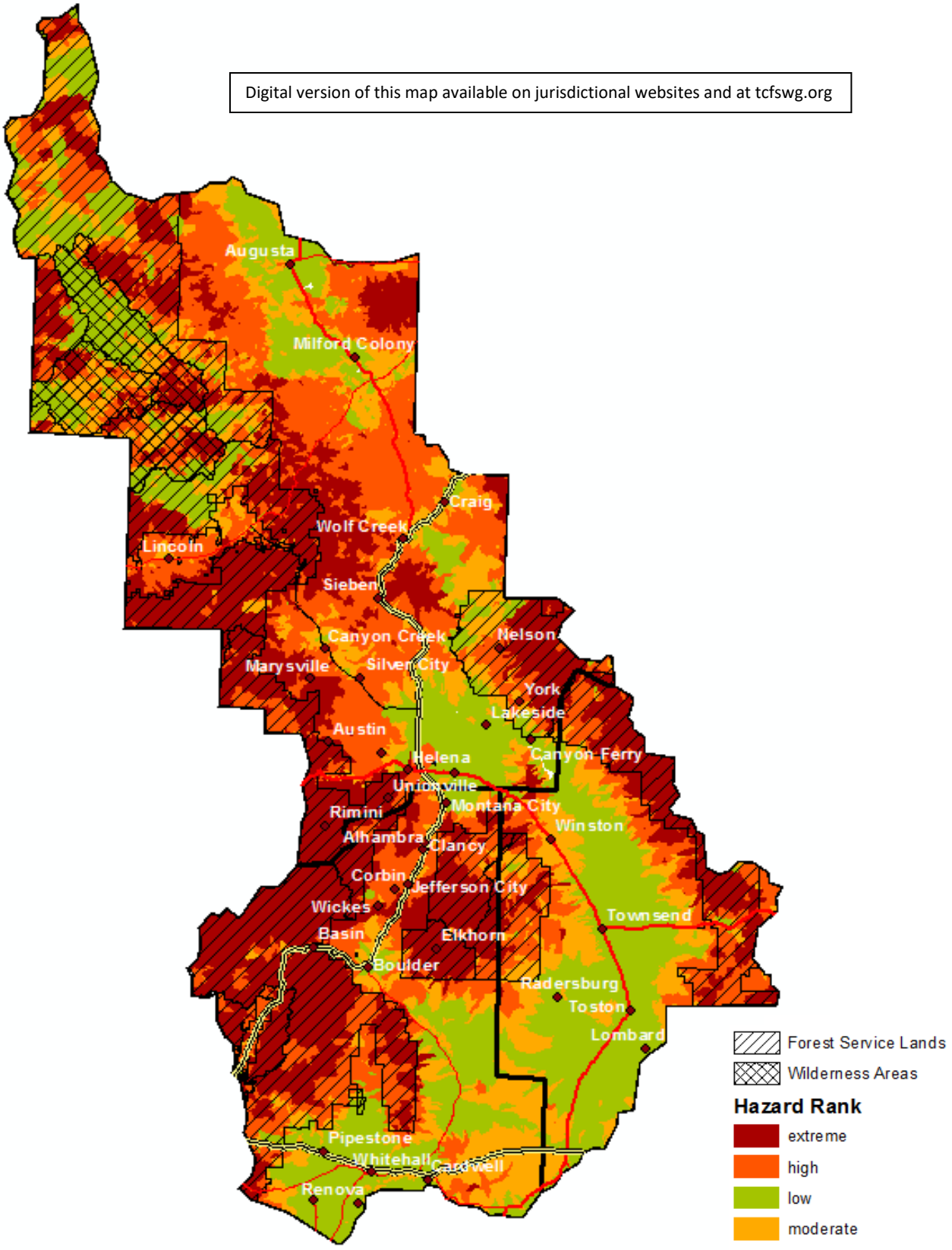
Alternatively, the Local Hazard map is more useful in understanding the scope of the wildfire hazard under extreme conditions. It represents the hazard in a worst-case scenario and does so over smaller divisions of land. This more specific perspective is useful because it informs local responders and the public about the local hazard a severe wildfire in their area could impose. It directly corresponds with the evacuation requirements outlined in **Section 5**, and it will show locally achieved mitigation accomplishments. Therefore, the Risk Assessment performed in **Section 8** and the Mitigation Strategy outlined in **Section 9** of this CWPP will utilize the Local Hazard map to depict the extent of the wildfire risk to the region.

2. Regional Landscape Hazard Map

Digital version of this map available on jurisdictional websites and at tcfswg.org



3. Regional Local Hazard Map



Section 8: Regional Risk Assessment

1. Regional Risk Assessment – Putting It All Together

This CWPP established the region's values at risk in **Section 4**. The plan outlined the spatial distribution of those values on the landscape in **Section 5**. **Section 6** profiled the wildfire environment that surrounds those values. The plan then delineates the wildfire hazard the region faces in **Section 7**. Now it is possible to assess the magnitude of the risk wildfire to the population in the region by combining the information presented in the four sections listed above. Due to the amount of data involved, a single Risk Assessment map for all three Counties on one page of this plan would be too compact to be useful, therefore, each County's Risk Assessment Maps are presented separately in **Appendix 12** (Broadwater County), **Appendix 13** (Jefferson County), and **Appendix 14** (Lewis and Clark County).

Reviewing the data, the regional Risk Assessment provides some sobering statistics:

A. WUI Acres per Classification:

	Extreme	High	Moderate	Low
Broadwater	35,089	64,495	106,502	227,584
Jefferson	182,858	147,275	113,421	162,842
Lewis and Clark	333,592	421,067	170,256	226,349
Total:	**551,539**	**632,837**	**390,179**	**616,775**

B. Address points per Classification:

	Extreme	High	Moderate	Low
Broadwater	46	72	757	2533
Jefferson	646	1986	850	2446
Lewis and Clark	3490	9155	3919	17438
Total:	**4182**	**11213**	**5526**	**22417**

2. What to Do Now

The risk assessment provided in this Section provides the region with a clear opportunity to more effectively target and reduce the wildfire risk present to the region's values at risk. **Section 9** of this CWPP explores that topic.

Section 9: Regional Mitigation Plan

1. Reducing the Risk

This Section defines the regional mitigation plan with specific mitigation strategies and tactics and provides fuel reduction opportunities and processes that are present in the tri-county region, informed by the data reviewed in the previous sections.

2. Regional Mitigation Strategy

This regional CWPP establishes the following Mitigation Strategy:

A. Support mitigation projects that protect values at risk, create fire-adapted communities, restore and maintain landscapes, and reduce extreme fire behavior.
   i. Support mitigation projects around all structures capable of human occupation, around ingress/egress routes, and around critical infrastructure to protect values as risk.
   ii. Support mitigation projects across jurisdictional boundaries in the Wildland Urban Interface (WUI) established by this CWPP to reduce the risk of wildfire to the region's values at risk, critical infrastructure and ingress/egress routes.
   iii. Support mitigation projects across jurisdictional boundaries in areas that border the WUI established by this CWPP to reduce the risk of wildfire spreading into the WUI and threatening values at risk.
   iv. Support fuels reduction burning (prescribed fires, fires for resource benefits) when and where appropriate to complete a comprehensive fuel reduction strategy.
      - Support fuels reduction on treatment areas to be burned as well as areas contiguous to the burn prior to ignition where appropriate.
   v. Support contiguous and/or landscape level mitigation projects where possible to leverage treatment and cost efficacy.
   vi. Support previous project maintenance efforts, including re-entry into past projects as necessary, to ensure mitigation successes are preserved.

B. Support ignition resistant construction in new and retrofit projects.

C. Support the review and update of jurisdictional Population Protection Plans (PPPs) and incorporate updates into this CWPP.

D. Support safe, effective, efficient risk-based pre-wildfire management decisions.

E. Support the Tri-County Fire Safe Working Group (TCFSWG) as the lead organization in the three counties that provides wildfire education and fuels reduction program services as well as project prioritization and collaboration.

F. Support and implement Montana DNRC's cross boundary collaborative

approach as outlined in *Forests in Focus 2.0* (Montana Department of Natural Resources and Conservation Forestry Division, 2018).

G. Support and implement the National Cohesive Strategy.

3. Regional Mitigation Tactics

A. Fuel Reduction Methods

There are three ways for wildland fuel reduction to occur:

- Natural/Unnatural wildfire (natural or human caused unplanned fires).
- Fuels reduction burning (prescribed fire – planned fires).
- Mechanical and/or hand treatment.

More detailed descriptions and recommended applications of these three methods are detailed in the rest of this chapter.

i. This CWPP recommends that most unnatural wildfires (human caused unplanned wildfires) be managed for full suppression. Where appropriate, and as fuel and weather conditions allow, land management agencies should manage natural wildfires for resource objectives.

ii. Restoring the landscape with prescribed fire may be possible and effective in stands that have moderate or low tree densities, minimal ladder fuels, and moderate slopes that preclude mechanical and/or hand treatment. Prescribed fire does however, require expertise in personnel to plan and implement. Prescribed burning can be performed over several hundred acres or as small as a homeowner's yard. Prescribed burning can be utilized to reduce the accumulation of flammable debris but must be accomplished under controlled conditions of weather and fuel moisture and must be carried out in compliance with local policies and regulations. Landowners should consult with a fire or fuels management specialist before planning or implementing a prescribed burn. Prescribed burning, especially when combined with other fuels treatments, can have a substantial impact on improving the landscape and reducing wildfire risk.

iii. Mechanical and/or hand treatment works best on fuels that are too densely packed, lack the personnel or proper arrangement to burn safely, that may have nearby markets for small-diameter trees, or where risk of fire escape or smoke management issues preclude burning. Mechanical treatment can be an effective method to reduce or remove large amounts of fuels that would be overwhelming and prohibitively expensive for hand crews to complete. Tools and machinery used in mechanical treatment include tractors, mowers, chippers and masticators. Hand clearing, while labor intensive, can be

effective for small areas of fuel reduction or to prepare or complete larger areas of mechanical treatment or prescribed burns. Debris from hand clearing or mechanical treatment, unless chipped or masticated, must be removed or piled for later burning. Specific mechanical and/or hand treatment methods include the following, many of which should be combined to create a more effective treatment:

- *Thinning*: Thinning involves removing a portion of the trees in a given area while leaving others. Various spacing of leave trees can be used depending on planned objectives. Spacing will usually vary from 10 feet to 20 feet between leave tree crowns. Effective thinning can include clumps or groups of trees with thinned areas around them to maintain a more natural appearance. Thinning is effective as both a primary and maintenance level mitigation tool.
- *Pruning*: Pruning is usually done in conjunction with thinning or as maintenance on a previously treated area. After the trees to be removed are thinned, the remaining trees and shrubbery around them are pruned. Pruning is used to remove unwanted ladder fuels that can carry fire from the ground to the tree crown. Both dead and live lower branches are removed during tree pruning. Pruned trees should retain a minimum of 30% live crown after pruning, meaning that at least 30% of the total tree height is composed of live branches.
- *Timber Harvest*: Selective timber harvest under carefully prescribed conditions will reduce the fuels on a site, and in some locations provide a profit from the harvested trees. Depending on size class and stand conditions, different harvest methods should be used. Methods vary from removing all trees in a given area to removing only selected trees. A trained forester or silviculturist should be consulted to determine the appropriate harvest method. Timber harvest will likely result in other debris that must be piled and burned, chipped, masticated, or removed from the site.
- *Piling and Burning*: The piling and burning of residues created by thinning, pruning and/or logging is one way to dispose of the fuel that results from these operations. Piling can be done either by hand or machine. Normally, unusable boles, limbs, etc., from thinning and pruning operations can be reduced in size small enough to hand pile. Unusable logging residue normally requires machine piling. Piles must be kept well away from any live vegetation, so it is not impacted when the piles are ignited. Pile burning requires a debris-burning permit that must be activated *prior* to burning and is subject to closure depending upon jurisdictional fuel, weather, and resource conditions. A Montana DEQ permit may also be required if the burning takes

place outside that agency's open burning season.

- *Chipping and Mastication*: Chipping and mastication mechanically grind wildland fuels into smaller pieces. These methods eliminate the need to burn, and thus the chance for an escaped pile burn and/or smoke dispersion problems. Chipping and mastication may also be less expensive than hauling the debris from the site. Scattering the chips over the site can inhibit grass and shrub growth thus reducing the fine fuels that can carry fire when dry.
- *Grazing*: Grazing can be a useful method to reduce some fine fuels such as grasses and shrubs. Cattle, sheep, goats and other livestock can be employed depending on terrain and vegetation type.
- *Chemical*: The application of herbicides either to kill existing plants or to prevent the growth of undesirable vegetation can reduce fuel density and growth.
- *Irrigation*: While not a fuel reduction method per se, irrigation can be utilized to increase live and dead fuel moisture content during prolonged dry weather to reduce wildfire risk.

It is important to note that the reduction of over story vegetation can modify the under-story microclimate. Treating timber stands (creating more open tree canopies) may have consequences to the finer fuels below them. Such treatment may allow incoming solar radiation to better penetrate to the forest floor, increasing surface temperatures while decreasing fine fuel moistures and relative humidity, conditions that can increase surface fire intensity. An increase in surface fire intensity may increase the likelihood that over story tree crowns may ignite and lead to an active crown fire. Therefore, it is important that the gap between the surface and crown fuels (ladder fuels) be treated along with the over story. All fuel strata need to be treated to maximize the efficacy of any fuel reduction project.

The most effective fuels reduction method for a given location will vary depending upon the specific conditions at that location. Therefore, it is important to develop a fuels reduction plan prior to treatment. Fire or fuels management specialists, such as those available through the TCFSWG, local fire departments, or local emergency management agencies, may provide important input into any potential fuel reduction plan.

B. Ignition Resistant Construction – Reducing Structure Ignitability

Trees, grasses, and shrubs are not the only fuel for wildland fire on the landscape in the tri-county region. Our homes themselves are a fuel in the wildland and need to be mitigated from the impact of wildfire just like the other

fuels. Adapting our homes to wildfire is just as important as decreasing burning intensities around the home through fuels reduction projects.

In their *Ignition Resistant Construction Guide,* FireSafe Montana provides important steps that homeowners may take to reduce the risk of wildfire to their homes (FireSafe Montana, n.d.). This CWPP recommends the methods outlined in the guide, including:

- Installing Class A roofing.
- Installing ignition resistant siding free of flammable decorative features or features that may melt.
- Installing ignition resistant protection on overhangs, structural projections, and at the base of exterior walls.
- Installing exterior doors and dual pane windows that are resistant to ignition and will not melt.
- Protecting exterior vent openings with 1/8" metal screening to prevent ember intrusion.
- Installing ignition resistant gutters and keeping them clean.
- Installing ignition resistant decks, fencing, or other attachments, and removing attachments that are more susceptible to wildfire.
- Installing ignition resistant protection to prevent ember traps such as underneath decks.
- Installing spark arresters on chimneys.

The TCFSWG, local fire departments, or local emergency management agencies can provide home ignition zone assessments to assist homeowners by reviewing their homes exposure to wildfire and making recommendations to reduce that risk.

C. Population Protection Plans

Each jurisdiction in the region is responsible for maintaining and updating their own Population Protection Plans. This CWPP adopts into its designated WUI each jurisdiction's ingress/egress routes, access control points, staging areas, reception and distribution centers, shelter locations, and any other critical infrastructure necessary to support life safety in the event of a wildfire. Such locations should be included in the mapping for this CWPP as they are established and/or updated.

D. Pre-Wildfire Management Decisions

On-the-ground mitigation is critical to reducing wildfire risk, but other, less obvious considerations can have just as big of an impact. Decisions provided by local, state, and federal officials and agencies could assist by providing tools to help create fire-adapted communities, reduce current wildfire risk, and prevent exposure to future wildfire risks. Some of those tools include:

i. Promoting individual responsibility for structure survivability and

property protection through education and outreach.

ii. Supporting the establishment, identification, and maintenance of adequate ingress/egress routes to protect values at risk.
iii. Supporting rural addressing programs.
iv. Supporting the development of mitigation pre-planning.
v. Supporting implementation of WUI subdivision regulations.
- Supporting firefighting water supply requirements in new subdivisions.
- Supporting the installation of firefighting water supply systems in existing subdivisions.
- Supporting pre-development fuel mitigation treatments.

vi. Encouraging homeowner insurance incentives for mitigated structures.
vii. Supporting streamlined legal and bureaucratic processes for wildland fuels reduction.
viii. It is important for a comprehensive, cohesive fuels mitigation program to have access to geospatial data or locational data regarding where previous fuel hazard reduction projects have been accomplished in the region. This CWPP encourages its partners to maintain that locational information and encourages further that the data be mapped.
- An incoming incident management team could be saved hours of planning/preparation work for population and firefighter protection if they could be handed a map showing where past work has been completed. It will also be important to know where projects have been accomplished to strive for contiguity with other private, state or federal projects in the future.

E. Cohesive, Cross Boundary Collaboration

Individuals, public and private agencies and organizations, and jurisdictions within the tri-county region must take concrete steps to reduce the risk of wildfire to the region's values at risk, but that is just the start.

i. Mitigation actions should take place within the framework of the regional mitigation plan established by this CWPP.
ii. Mitigation actions should complement each other across jurisdictional boundaries whenever possible to maximize the efficacy of risk reduction and to leverage limited mitigation funds.
iii. The TCFSWG provides at its monthly meetings the opportunity for individuals, public and private agencies and organizations, and jurisdictions within the tri-county region to collaborate on and prioritize projects to more efficiently and effectively produce mitigation successes. Participation by all stakeholders in the TCFSWG is encouraged to ensure a cohesive and collaborative wildfire mitigation and education strategy for the region into the future.

4. Specific Mitigation Recommendations: Implementing the Strategy and Tactics

A. Mitigation Project Types - Projects ranked as the highest priority

i. Implement mitigation projects to create Survivable Space around structures that are capable of human occupation to protect values at risk and increase fire resiliency. Survivable Space is created by performing

fuel treatments around a structure ***and*** utilizing ignition resistant construction so that the structure may be able to survive a wildfire without the need for direct firefighter intervention.

- It is important to note that Survivable Space refers to the survival of the home itself from wildfire, individuals should not assume a home mitigated to provide survivable space is safe for human occupation during a wildfire.

ii. Implement fuels reduction projects in the WUI defined by this CWPP (at least 1 ½ miles around any occupiable structure) to protect values at risk and critical infrastructure by reducing potential wildfire intensity. Less extreme fire behavior in the WUI reduces the likelihood of structure loss, increasing fire resiliency.

iii. Implement fuels reduction in areas at least 1 ½ miles around the centerline of ingress/egress routes to protect values at risk in the event of an evacuation due to wildfire.

iv. Implement fuels reduction in municipal watersheds to protect city and town water supplies to create fire-resilient communities.

v. Implement fuels reduction to create fuel breaks and dispersed treatment areas where strategically significant both inside and outside of the project types listed above to protect values at risk and critical infrastructure from potential wildfire spread to bolster the protection of fire-adapted communities and to create healthy, more resilient forests.

vi. Implement fires for resource benefits when and where appropriate.

vii. Implement fuels reduction, home ignition zone, and post wildfire mitigation maintenance projects to preserve mitigation accomplishments.

- It should be noted that generally, 30 years after a wildfire has occurred, an area may be ready to burn again. Ongoing maintenance of mitigation projects is critical to preserve life safety.

5. Regional Mitigation Opportunities

A. Chapter 4, part A. above lists the high priority project types for this regional CWPP. **Appendix 16** of this CWPP lists areas of the tri-county region wherein identified mitigation project opportunities exist.

B. Federal, State, and Local jurisdictions, whether agency, county, city, town, fire district, or neighborhood are encouraged to develop their own potential mitigation opportunities in collaboration with this regional CWPP and TCFSWG.

6. Regional Mitigation Process

A. Generally, when a landowner is interested in investigating a mitigation project opportunity on their property, jurisdictions and/or agencies in the tri-county region may refer that landowner to the TCFSWG for assistance with project planning and investigation of grant availability and applicability to complete

the project. Project analysis may include:

i. The fuel model present on the property,
ii. The risk assessment of the property (based upon the mapping in this CWPP and a home ignition zone assessment),
iii. The contiguity of the potential project with other projects (public or private); and,
iv. Residence(s) present on the property.
v. In some instances, the TCFSWG may refer interested landowners to other agencies and/or coordinate with other agencies whose grants may better suit a specific project.

Section 10: Regional CWPP Conclusion

1. Regional CWPP Conclusion

The stakeholder involvement in the creation of this plan is only the beginning of the regional mitigation process. Implementing creative, cross-boundary, cohesive, and collaborative mitigation projects is critical to mitigate wildfire risk in the region. Broadwater, Jefferson, and Lewis and Clark Counties and other jurisdictions in the Tri-County region are committed to continuing to support the TCFSWG and its mitigation and education projects, and this plan helps lay the foundation for those efforts.

This plan can provide a springboard for a wide range of mitigation and educational opportunities, and the plan encourages all jurisdictions and public and private entities in the region to utilize the data, strategy, and tactics presented to develop their own plans and projects that fit cohesively within this plan.

Finally, wildfire mitigation is a shared responsibility between public and private local, state, and federal agencies/organizations and each citizen. This plan represents another effort to bridge that divide. This regional CWPP presents citizens, agencies and organizations, public and private, with the information and tools necessary to identify and respond to their own mitigation responsibilities, while establishing a collaborative, cohesive, scientifically sound strategy to support those efforts. Through this commitment to act in the context of that shared responsibility, we can create landscapes and communities that are more adapted and resilient to wildfire.

Appendix 1: Planning Process

1. Stakeholder Meetings

The Tri-County Firesafe Working Group (TCFSWG) CWPP Committee, in consultation with the public and local, state, and federal stakeholders developed this regional CWPP. TCFSWG held 13 CWPP stakeholder meetings on the following dates (minutes of these meetings are in Appendix 18 of this CWPP):

- 3/8/2018; 3/28/2018; 3/29/2018; 4/20/2018; 9/25/2018; 10/23/2018; 11/7/2018; 12/5/2018; 12/10/2018; 12/18/2018; 1/10/2019; 6/3/19; 6/19/19.

Stakeholders who participated in the development of this CWPP include:

- The citizens of Broadwater, Jefferson, and Lewis and Clark Counties
- Broadwater County Office of Disaster and Emergency Services
- Broadwater County Rural Fire Department
- Broadwater County Sheriff's Office
- Broadwater County Commissioners
- Jefferson County Office of Disaster and Emergency Services
- Jefferson County Rural Fire Council
- Jefferson County Sheriff's Office
- Jefferson County Commissioners
- Jefferson County Planning Department
- Lewis and Clark County Office of Disaster and Emergency Services
- Lewis and Clark County Rural Fire Council
- Lewis and Clark County Sheriff's Office
- Lewis and Clark County Commissioners
- Lewis and Clark County Chief Administration Officer
- Lewis and Clark County GIS Department
- Lewis and Clark County Planning Department
- The Cities of Boulder, East Helena, Helena, Townsend and the Town of Whitehall
- The Elkhorn Restoration Committee
- Montana Department of Natural Resources and Conservation (DNRC)
- United States Forest Service (USFS)
- United States Bureau of Land Management (BLM)
- United States Natural Resources and Conservation Service (NRCS)

2. Public Meetings

TCFSWG held 9 public meetings on the following dates and corresponding locations to review and accept comments on the draft plan (sign-in sheets and any comments received are in Appendix 18 of this CWPP).

City/Town	Date	Location
Augusta		
Boulder	6/24/2019	Clerk & Recorder's Office
Craig		
East Helena		
Helena		
Lincoln		
Montana City		MT City VFD Station 1
Townsend		
Whitehall	6/25/2019	USDA Service Center

The draft plan was also presented at the following meetings with a request for comments (sign-in sheets and any comments received are in Appendix 18 of this CWPP).

Meeting	Date	City/Town
Broadwater County LEPC		Townsend
Jefferson County LEPC	7/18/2019	Boulder
Jefferson County Rural Fire Council	7/16/2019	Jefferson City
Lewis & Clark County LEPC		Helena
Lewis & Clark Rural Fire Council	7/8/2019	Helena

Note: A Rural Fire Council does not exist in Broadwater County.

Finally, the draft plan was also posted on the County websites for Broadwater, Jefferson, and Lewis and Clark Counties from XX/XX/XX to XX/XX/XX, with a corresponding request for comments (any comments received are in Appendix 18 of this CWPP).

Appendix 2: Sheriff's Letter

From: Sheriff Leo Dutton
Lewis and Clark County, MT

Sheriff Craig Doolittle
Jefferson County, MT

Sheriff Wynn Meehan
Sheriff Broadwater County, MT

To: Ray Prill
Executive Director
Tri-County FireSafe Working Group Helena, MT

May 7, 2018

Upon review of the 2015 Tri-County Wildfire Protection Plan (CWPP) which includes the record of change in 2017, it is our opinion that the Wildland Urban Interface (WUI) zones identified are currently the bare minimum needed to support a safe and orderly evacuation during a wildfire event. Based on our past wildfire evacuations and experiences (i.e. Corral fire, Holmes Gulch Fire, Maudlow-Toston Fire, Buck Snort Fire, Alice Creek Fire, Cabin Gulch Fire and 19 Mile Fire) notifications and orderly evacuations can take anywhere from 2 hours to days. During these evacuations, dispatch centers (911) and responding officers become quickly overburdened which increases evacuation times. In addition, multiple fires or simultaneous non-fire responses limit the number or available officers to assist with evacuations; further delaying evacuations. Therefore, we recommend to Tri-County FireSafe Working Group to revisit the population density standard of greater than 28 people per square mile. It is our opinion that every life matters during a disaster and recommend lowering the density or designating an alternate WUI around each residence/commercial structure.

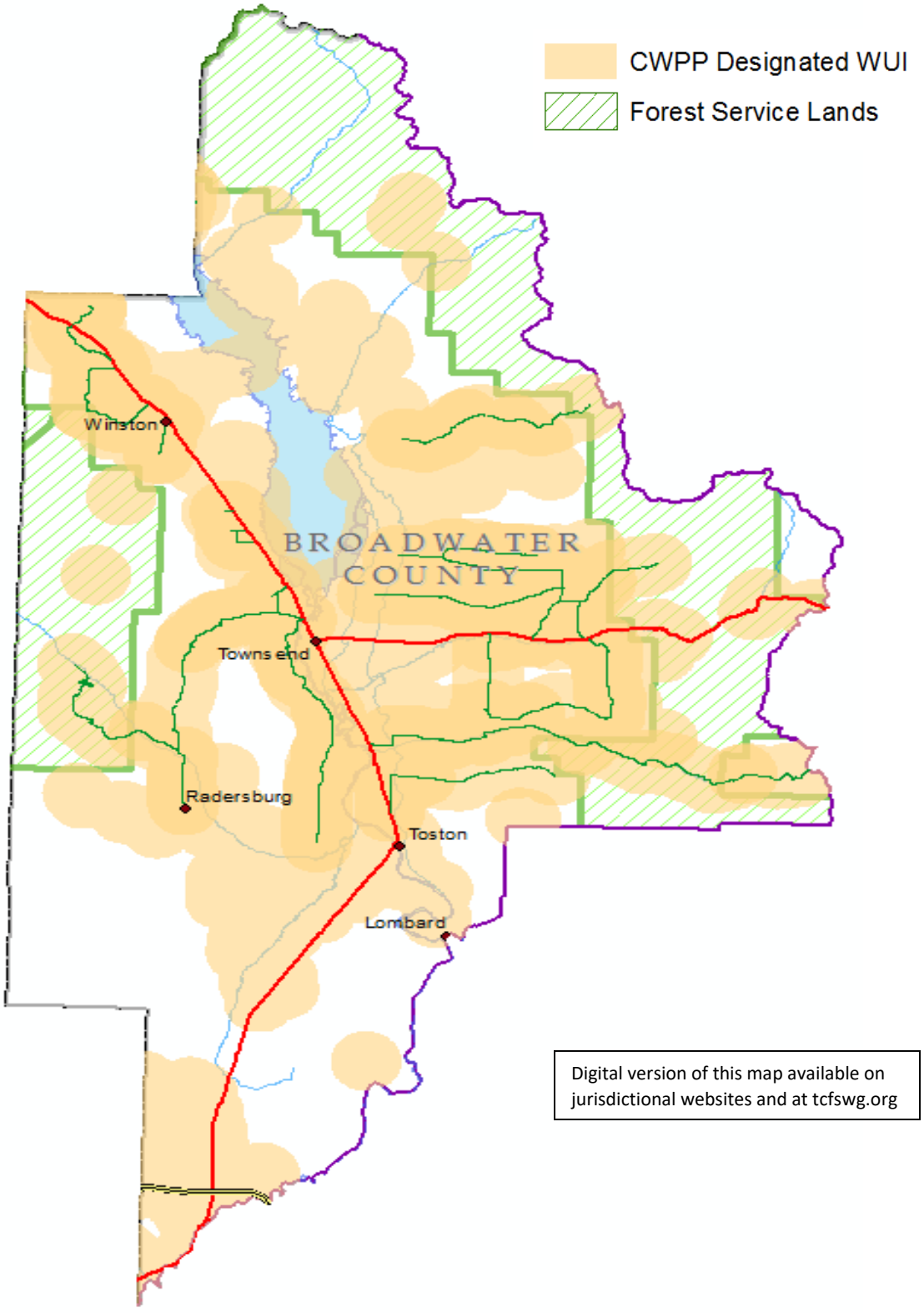
It is also our recommendation that the CWPP recognize and emphasize to land management agencies that fuel treatments are placed and implemented in such a way to delay fire spread allowing for timely, orderly and safe evacuations.

Sheriff Leo Dutton

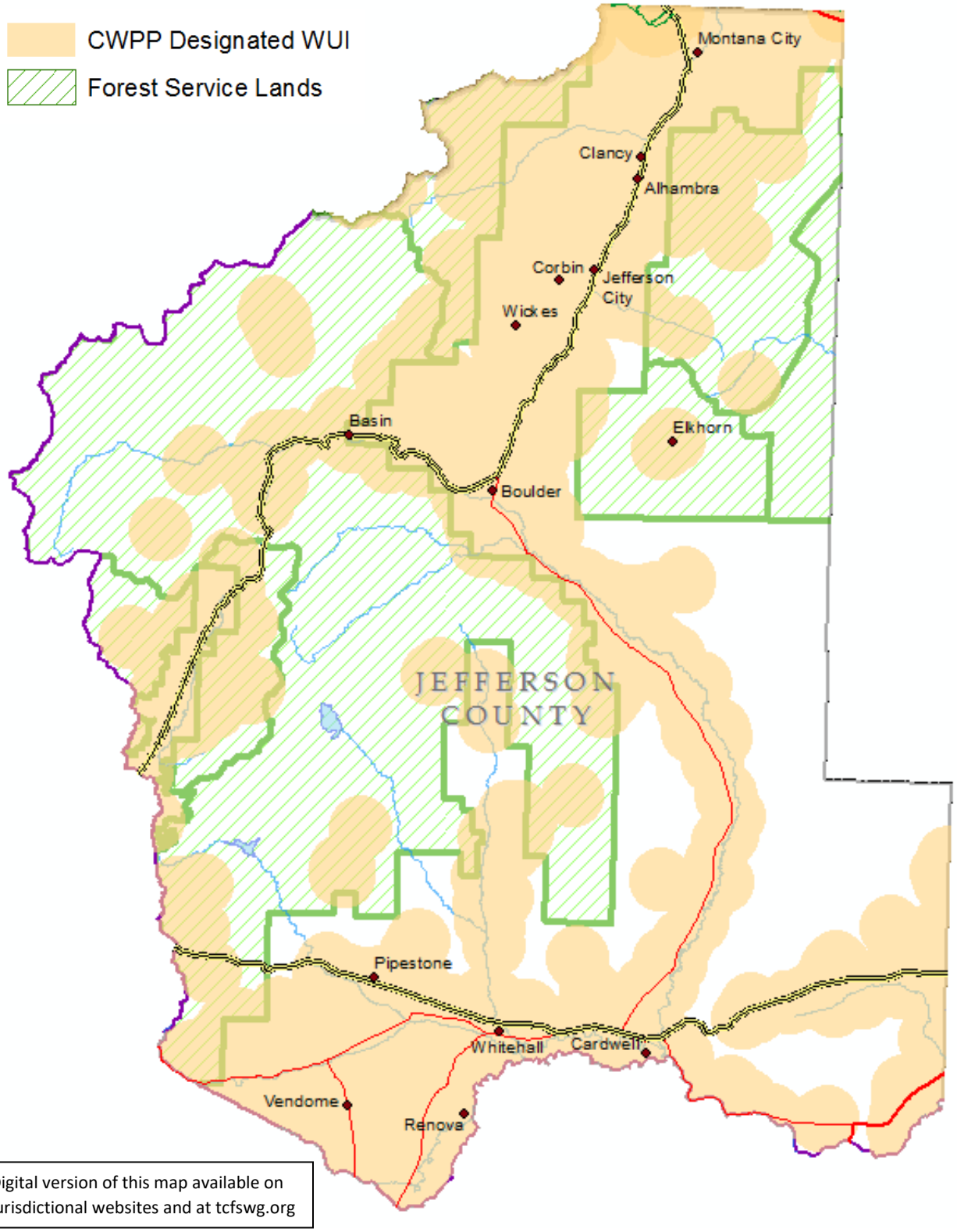
Sheriff Wynn Meehan

Sheriff Craig Doolittle

Appendix 3: Broadwater County WUI Map

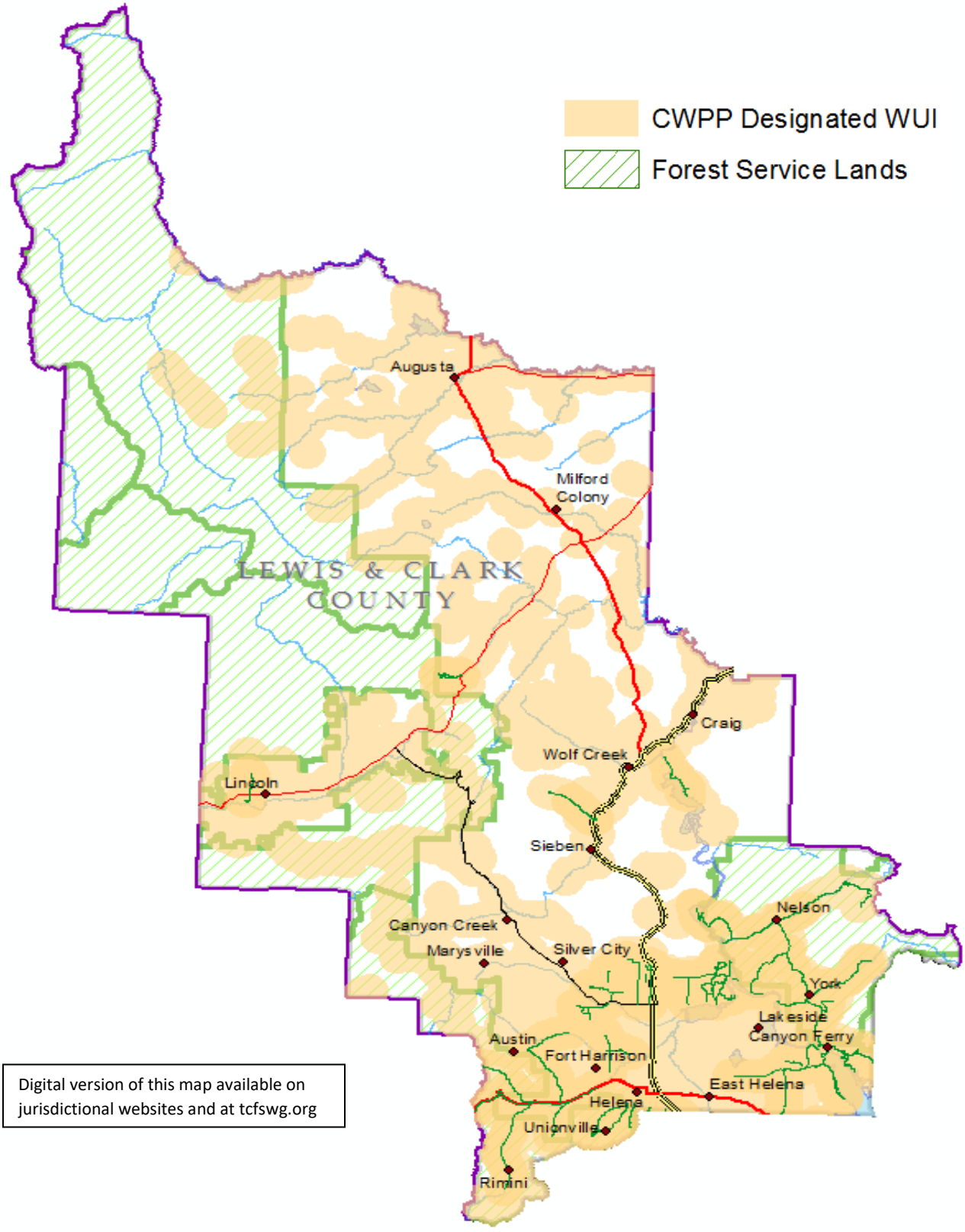


Appendix 4: Jefferson County WUI Map



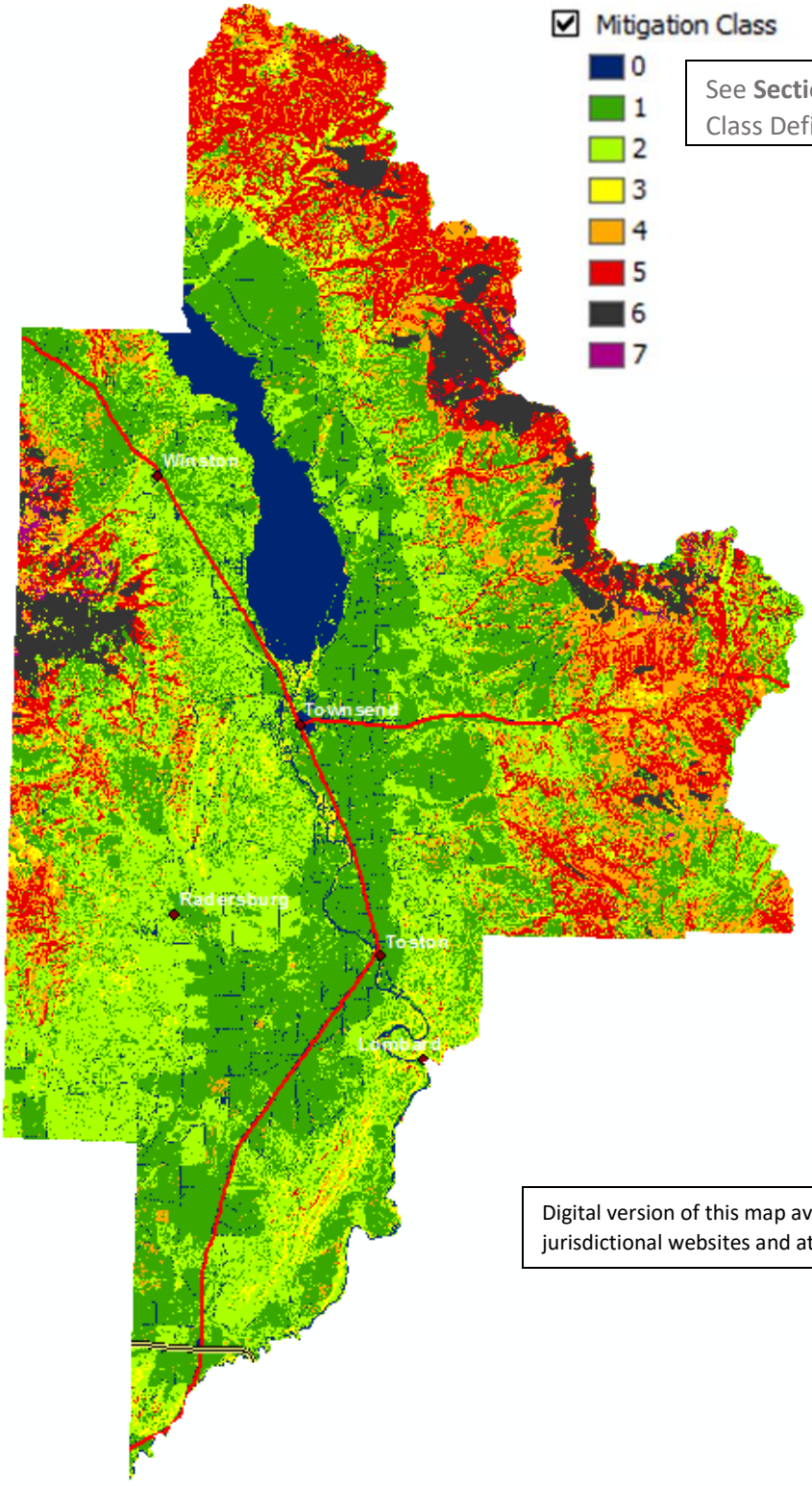
Digital version of this map available on jurisdictional websites and at tcfswg.org

Appendix 5: Lewis and Clark County WUI Map



Digital version of this map available on jurisdictional websites and at tcfswg.org

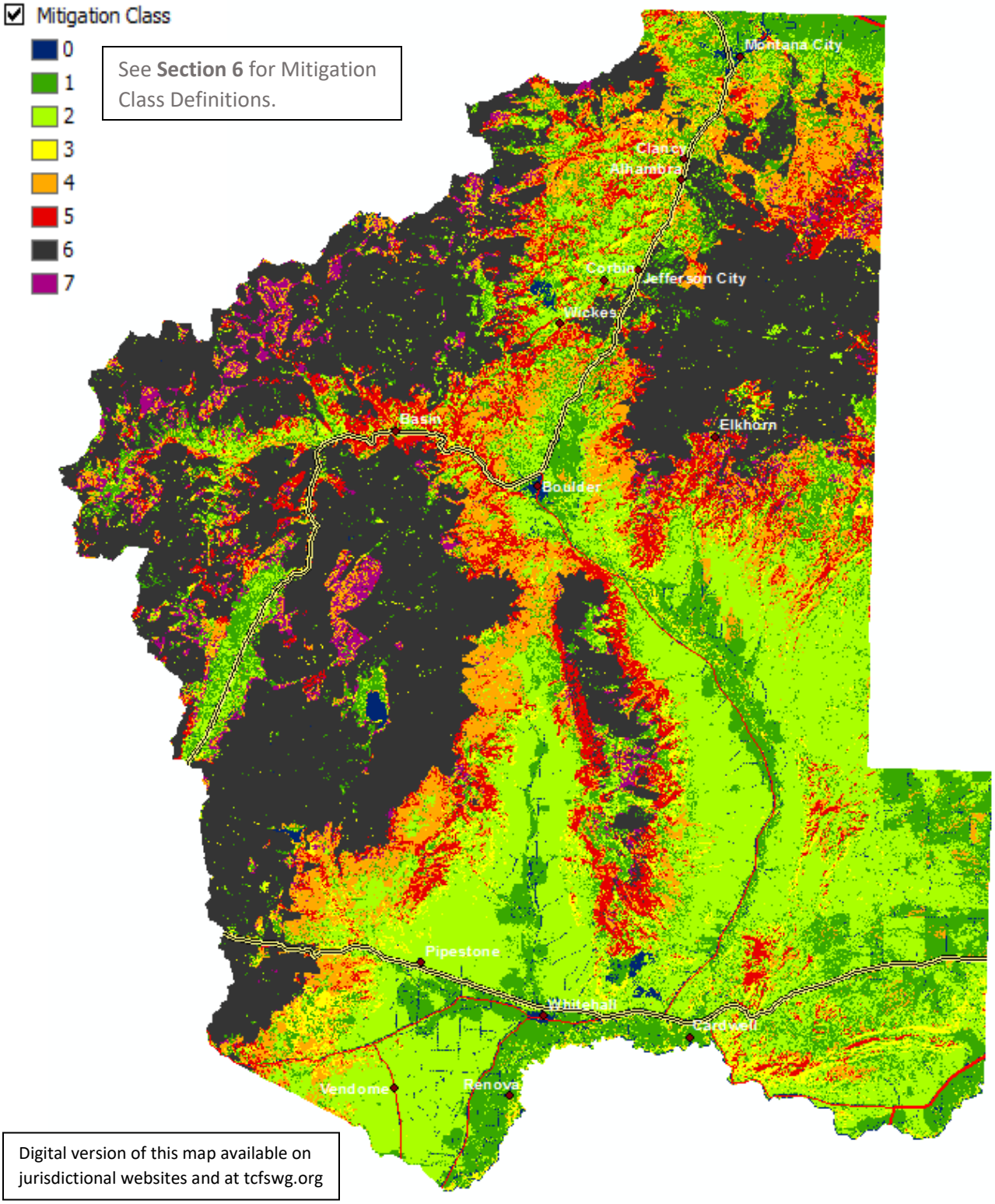
Appendix 6: Broadwater County Mitigation Class Map



See **Section 6** for Mitigation Class Definitions.

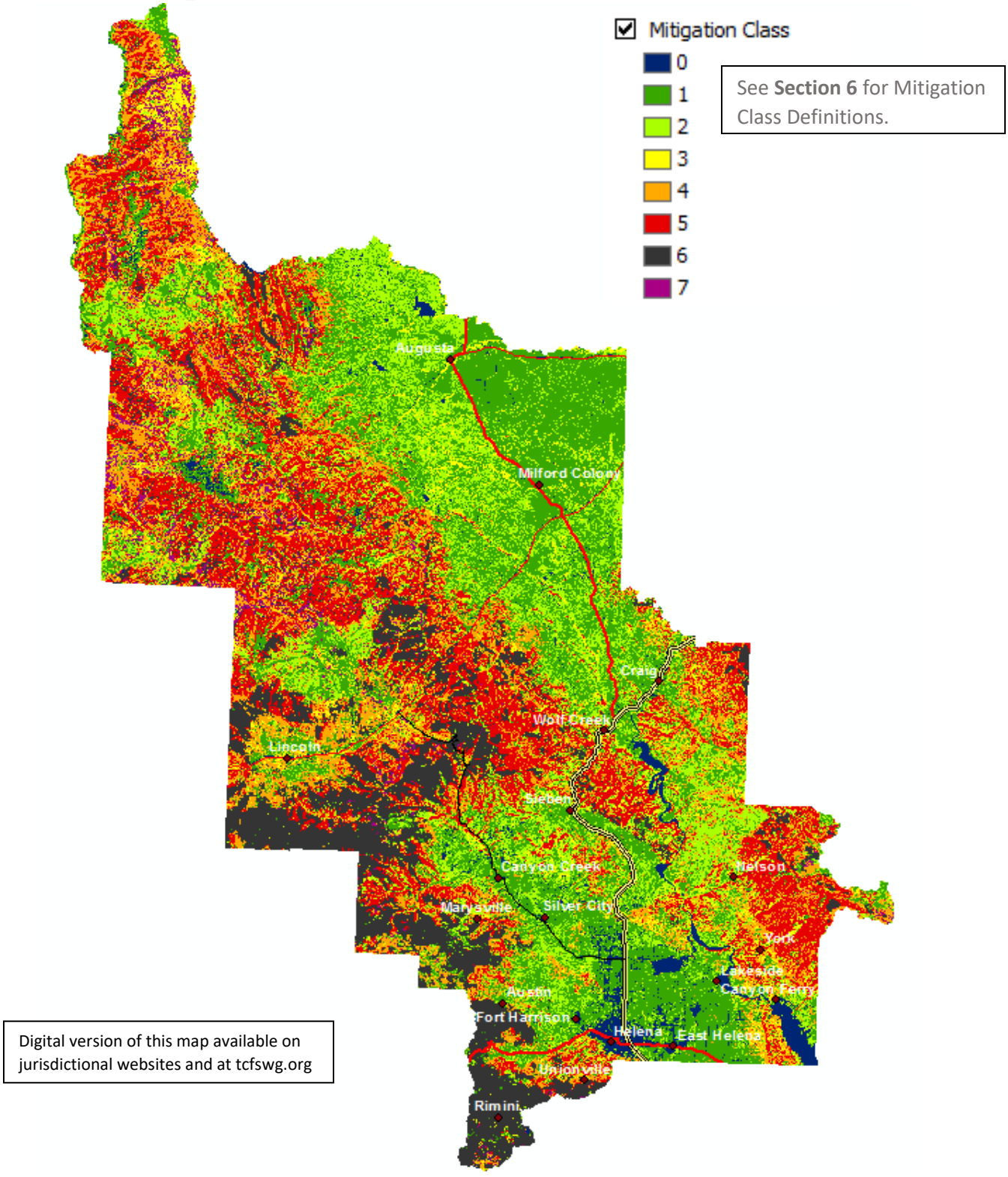
Digital version of this map available on jurisdictional websites and at tcfswg.org

Appendix 7: Jefferson County Mitigation Class Map



Digital version of this map available on jurisdictional websites and at tcfswg.org

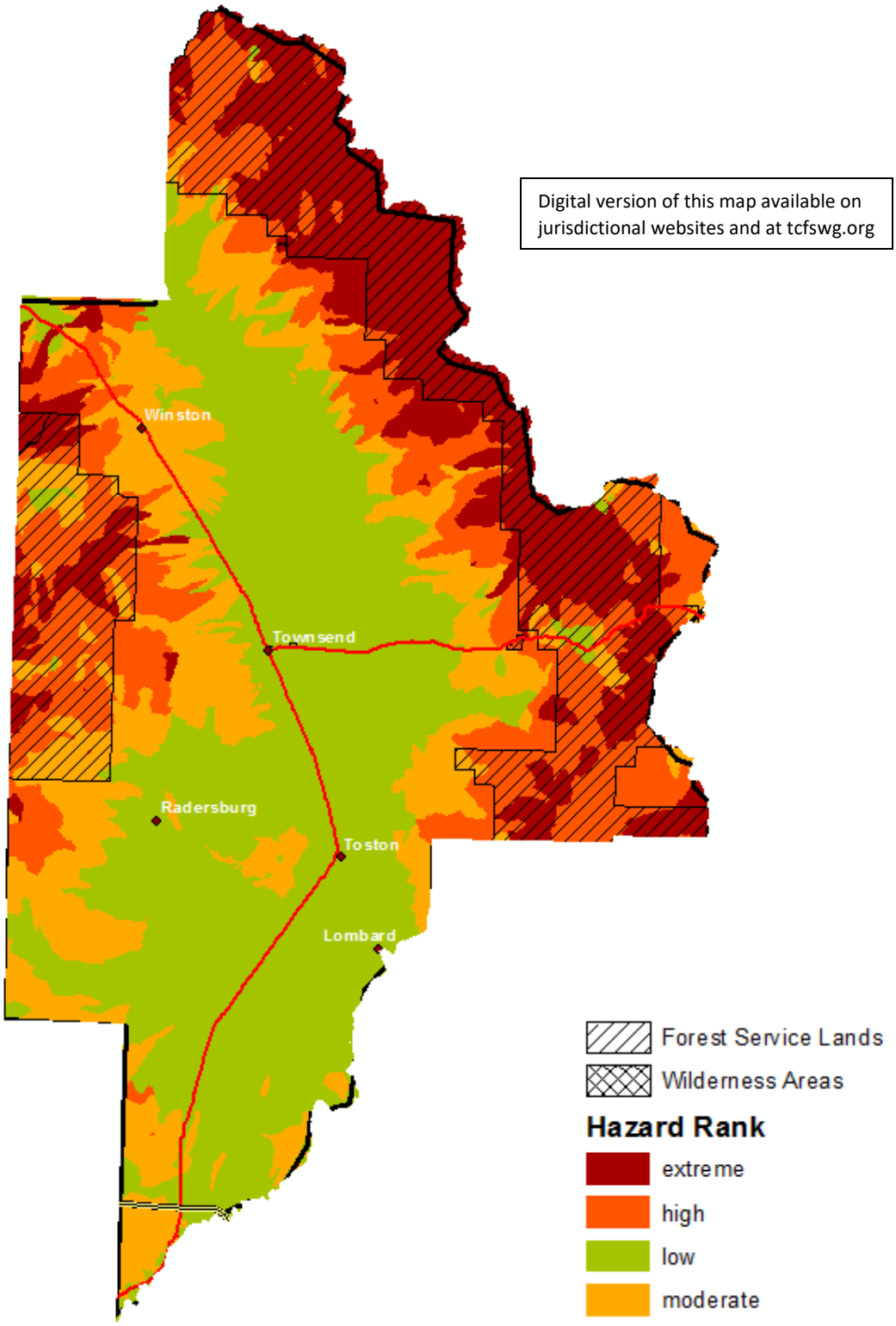
Appendix 8: Lewis and Clark County Mitigation Class Map



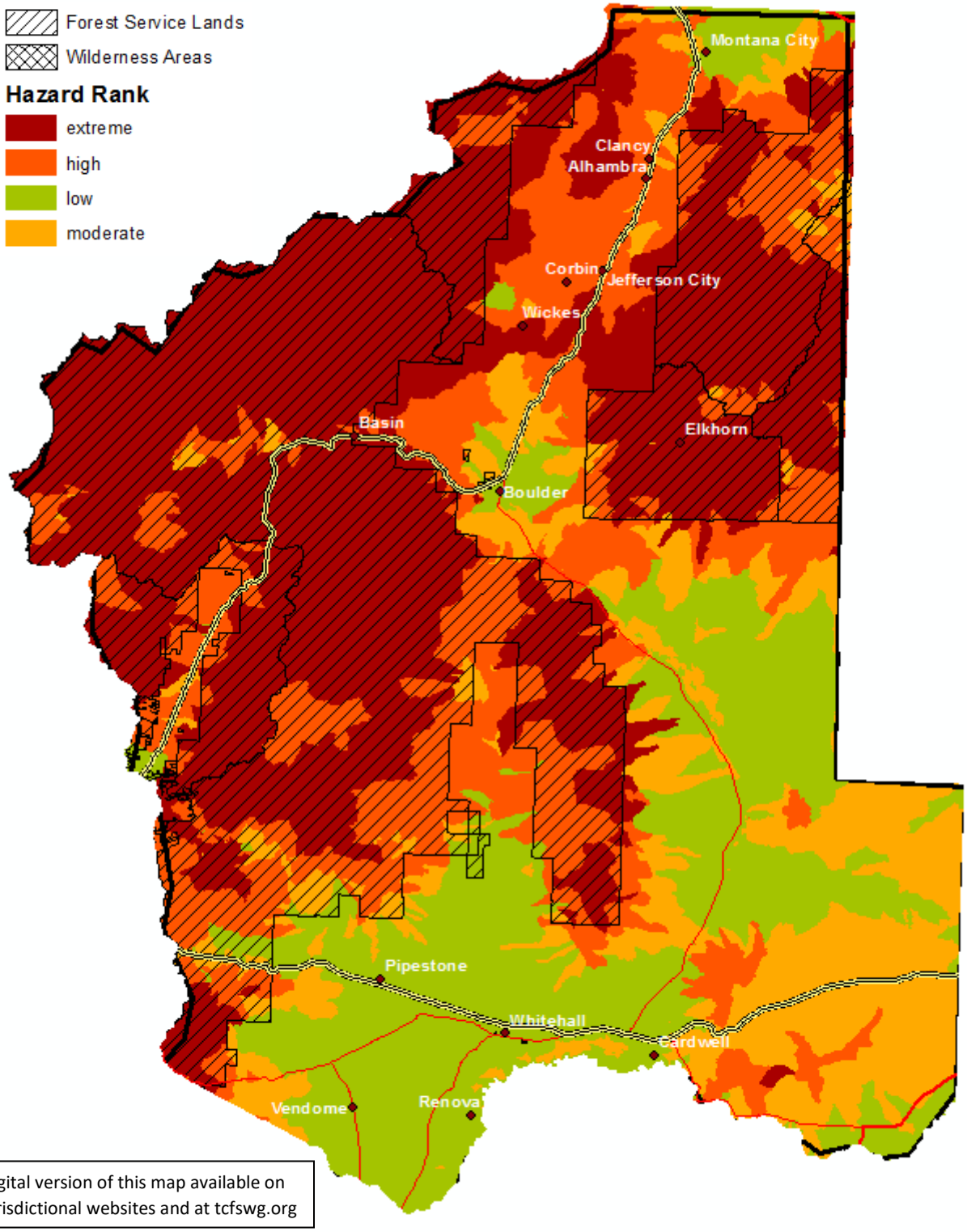
See **Section 6** for Mitigation Class Definitions.

Digital version of this map available on jurisdictional websites and at tcfswg.org

Appendix 9: Broadwater County Local Hazard Assessment Map

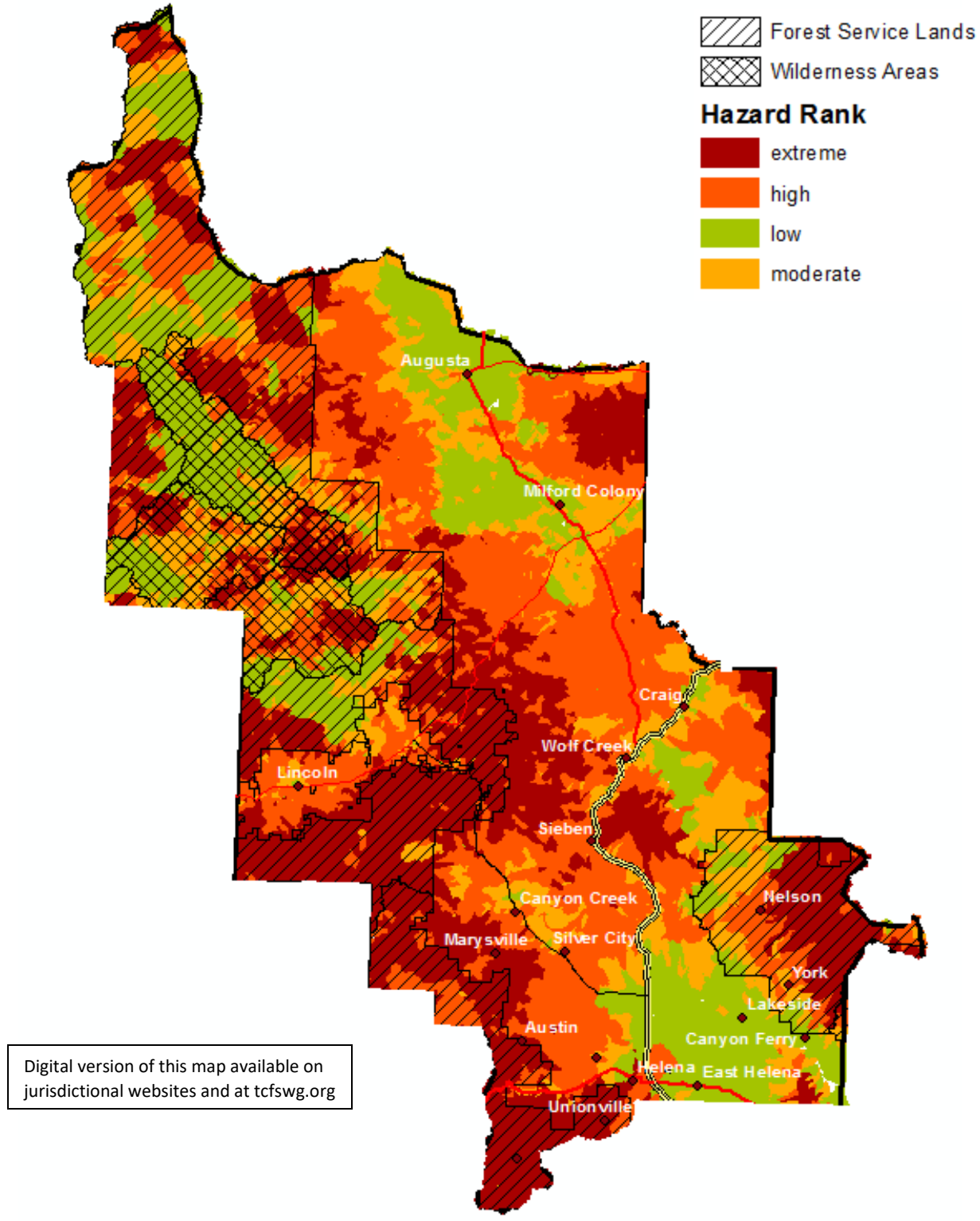


Appendix 10: Jefferson County Local Hazard Assessment Map



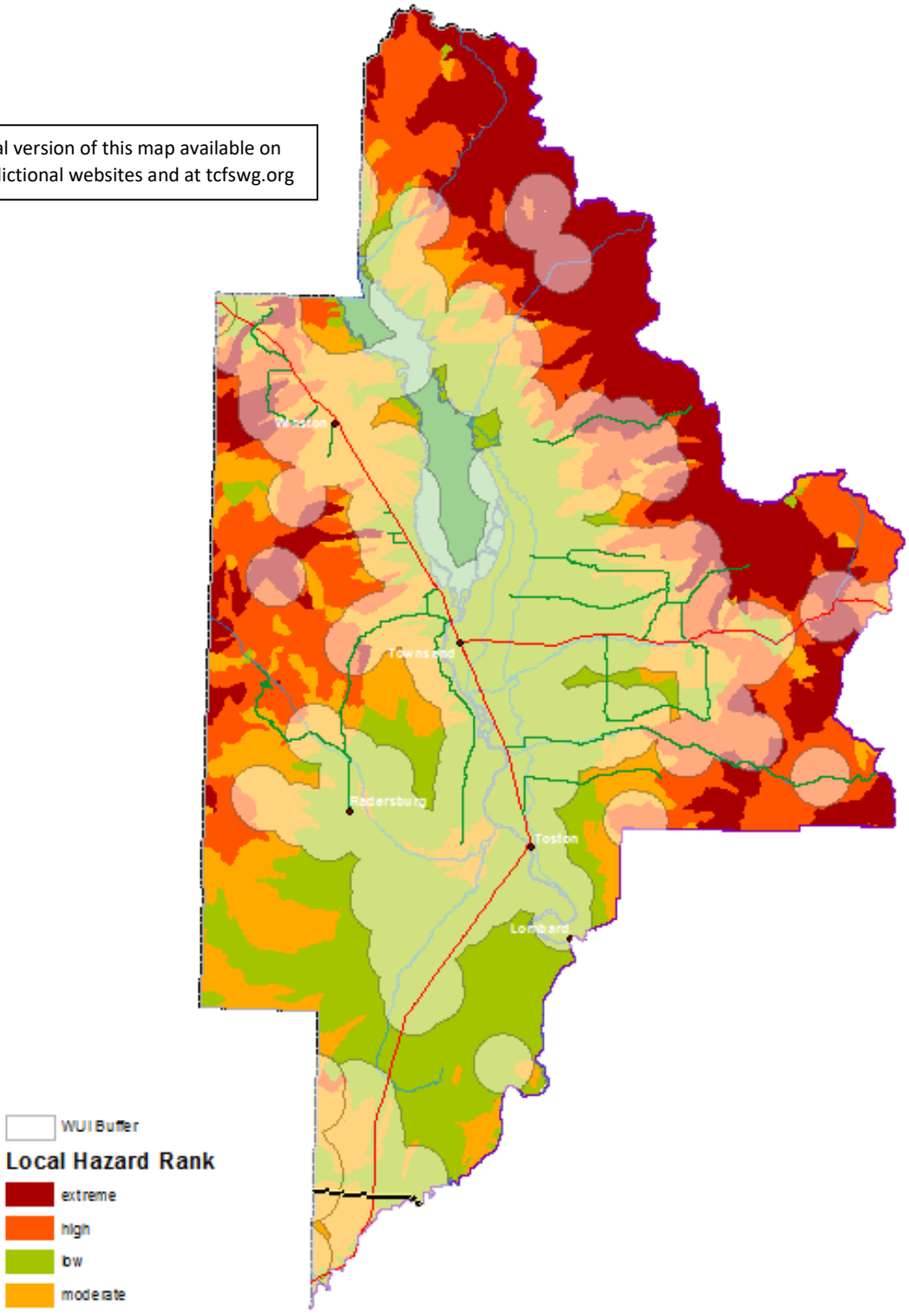
Digital version of this map available on jurisdictional websites and at tcfswg.org

Appendix 11: Lewis and Clark County Local Hazard Assessment Map



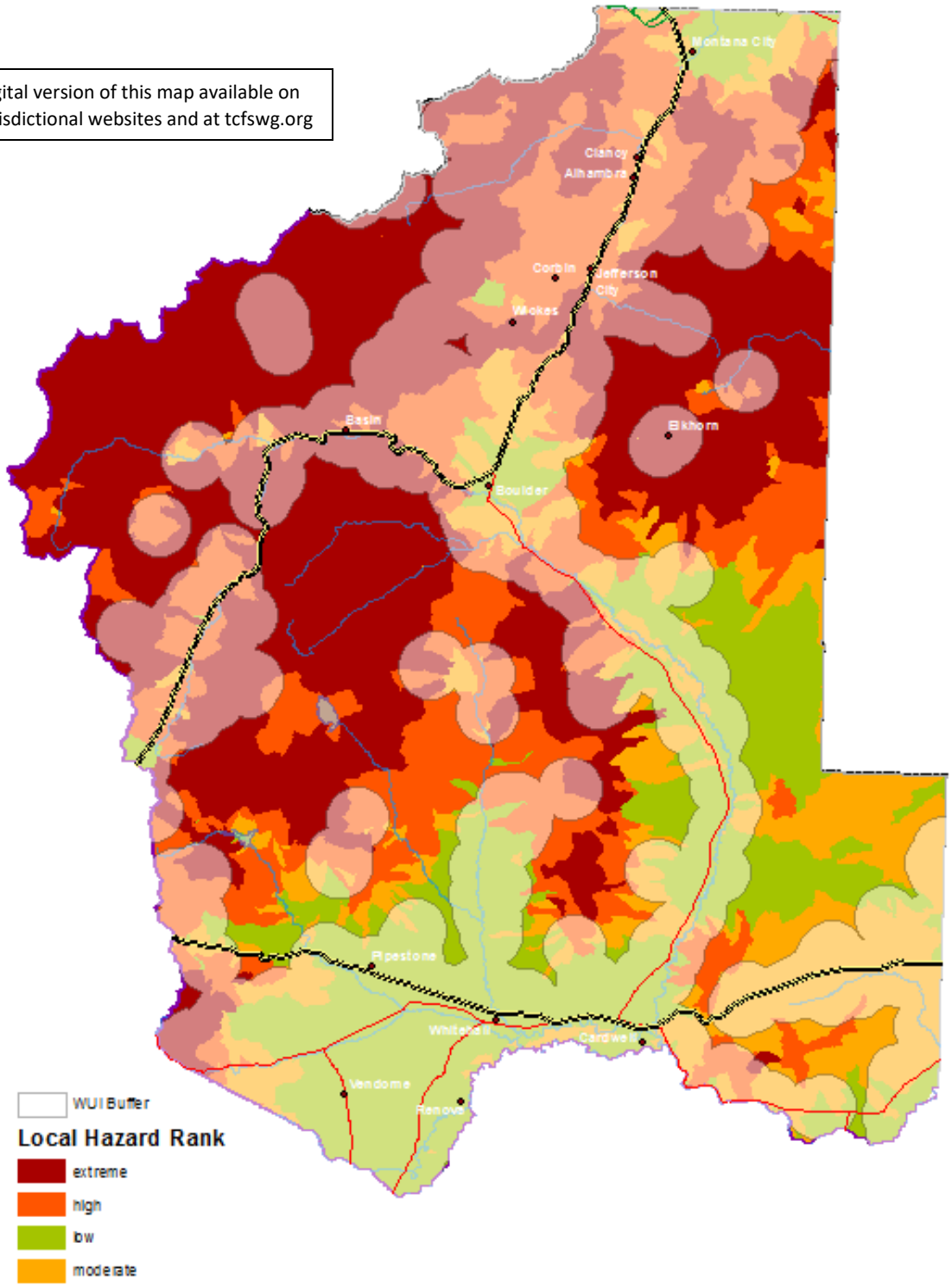
Appendix 12: Broadwater County Risk Assessment Map

Digital version of this map available on jurisdictional websites and at tcfswg.org

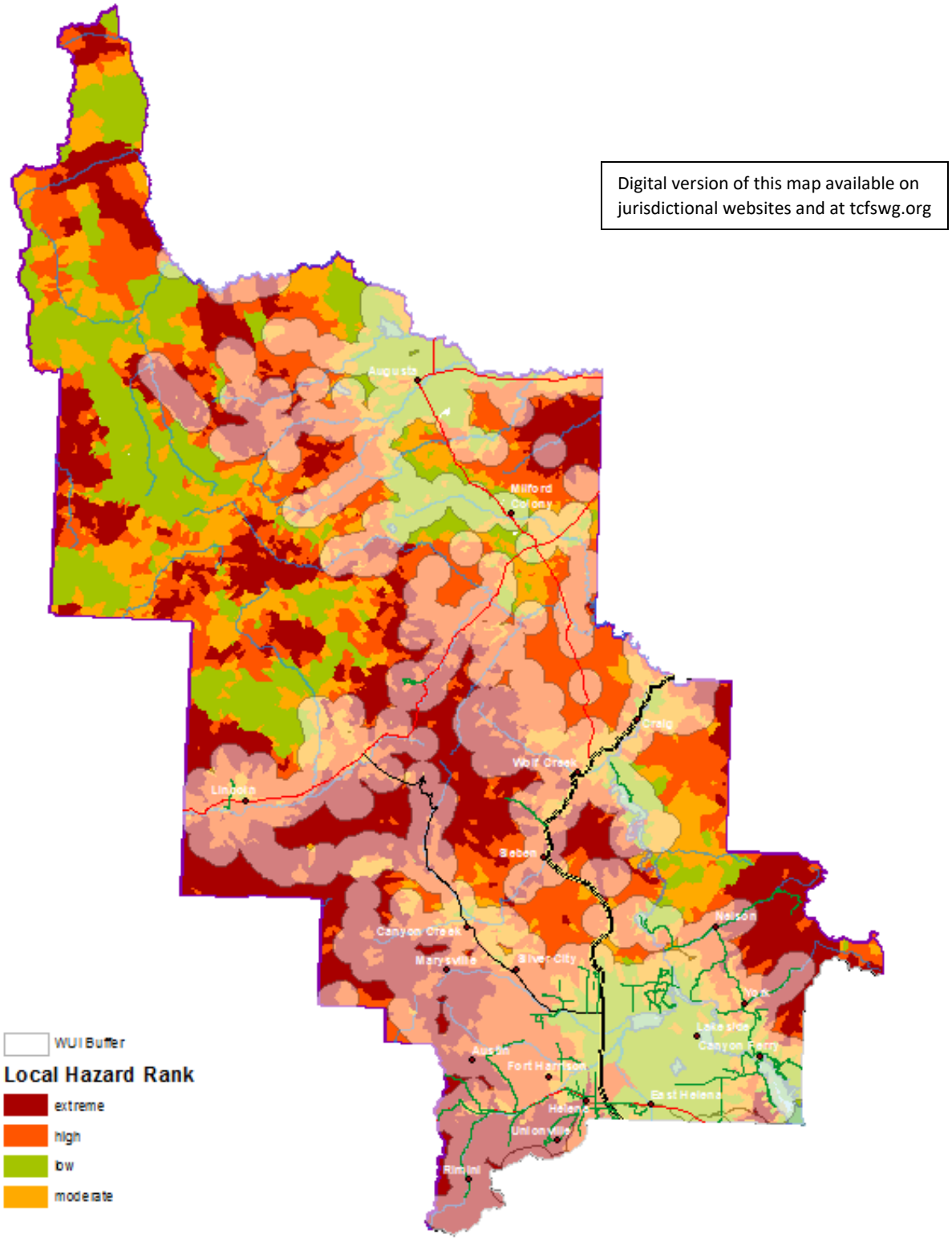


Appendix 13: Jefferson County Risk Assessment Map

Digital version of this map available on jurisdictional websites and at tcfswg.org



Appendix 14: Lewis and Clark County Risk Assessment Map



Appendix 15: Regional Wildfire History

Year	Fire Name	Acres	County	Cause	Data Source
1984	Little Sheep Creek	275	Lewis and Clark	Human	DNRC
1984	North Hill	26,950	Lewis and Clark	Human	DNRC
1984 Total:		**27,225**			
1985	Woodward Ranch	1,120	Jefferson	Lightning	DNRC
1985 Total:		**1,120**			
1986	No Name	710	Lewis and Clark	Human	HNF
1986 Total:		**710**			
1987	Broadwater Complex	175	Broadwater	Lightning	DNRC
1987 Total:		**175**			
1988	Canyon Creek	99,483	Lewis and Clark	N/A	HNF
1988	Canyon Creek East	20,636	Lewis and Clark	Lightning	HNF
1988	Gates Park	50,000	Lewis and Clark	Lightning	HNF
1988	Goldflint	355	Jefferson	N/A	B-D
1988	Holter Lake	468	Lewis and Clark	Human	DNRC
1988	Roberts Mountain	550	Lewis and Clark	Lightning	DNRC
1988	Sheep Gulch	125	Jefferson	Human	DNRC
1988	Squaw Gulch	129	Lewis and Clark	N/A	DNRC
1988	Warm Springs	46,900	Jefferson	Human	DNRC
1988	Whitehall	1,630	Jefferson	Human	DNRC
1988 Total:		**220,276**			
1989	Indian Creek	2,400	Broadwater	Human	HNF
1989 Total:		**2,400**			
1990	Beartooth Complex	32,968	Lewis and Clark	Human	DNRC
1990 Total:		**32,968**			
1991	Holter Lake	125	Lewis and Clark	Human	DNRC
1991 Total:		**125**			
1992	Black Butte	1,466	Jefferson	Human	DNRC
1992	Dearborn River	175	Lewis and Clark	Human	DNRC
1992	Gobblers Knob	760	Lewis and Clark	Human	DNRC
1992	Spokane Creek	166	Lewis and Clark	Human	DNRC
1992 Total:		**2,567**			
1993	Lyons Creek	135	Lewis and Clark	Human	DNRC
1993 Total:		**135**			
1994	Missouri River Fire	246	Broadwater	Human	DNRC
1994	West White Beaver	600	Broadwater	Lightning	DNRC
1994 Total:		**846**			
1995	Foster Gulch	100	Lewis and Clark	Human	DNRC
1995	Sentinel Ranch	180	Lewis and Clark	Human	DNRC
1995 Total:		**280**			
1996	Angus	2,100	Broadwater	Lightning	DNRC

1996	Cavern Fire	135	Jefferson	Human	DNRC
1996	Electric Mountain	320	Lewis and Clark	Lightning	DNRC
1996	Exit 216	110	Lewis and Clark	Lightning	DNRC
1996	Lower Coxcy	452	Lewis and Clark	Human	HNF
1996	Ostrich	175	Lewis and Clark	Lightning	DNRC
1996	Timberman	110	Lewis and Clark	Lightning	DNRC
1996 Total:		**3,402**			
1997	Willow Creek	1,940	Lewis and Clark	Human	DNRC
1997 Total:		**1,940**			
1998	Cooper Creek	110	Lewis and Clark	Human	HNF
1998	Greer Gulch	120	Jefferson	Lighting	DNRC
1998	Spring	200	Lewis and Clark	Lighting	DNRC
1998	Toston	100	Broadwater	Human	DNRC
1998 Total:		**530**			
1999	Burned Point	750	Lewis and Clark	Lightning	HNF
1999	Hauser Dam	220	Lewis and Clark	N/A	DNRC
1999	Little Hellgate	200	Lewis and Clark	Human	DNRC
1999 Total:		**1,170**			
2000	Boulder Hill	2,482	Jefferson	N/A	DNRC
2000	Bucksnort	15,311	Lewis and Clark	Human	DNRC
2000	Bunyan Point	1,184	Lewis and Clark	Lightning	HNF
2000	Cave Gulch	30,000	Lewis and Clark	Human	HNF
2000	High Ore	873	Jefferson	N/A	B-D
2000	High Ore Road	9,978	Jefferson	N/A	DNRC
2000	Indian Trial	389	Lewis and Clark	Human	DNRC
2000	Reef	100	Lewis and Clark	N/A	DNRC
2000	Toston/Maudlow	81,220	Broadwater	Human	DNRC
2000	Wheatland	1,380	Broadwater	Lightning	DNRC
2000	Wolf Creek	389	Lewis and Clark	Human	DNRC
2000 Total:		**143,306**			
2001	Biggs Flat	7,600	Lewis and Clark	Lightning	HNF
2001	Cabin Creek	2,084	Lewis and Clark	Lightning	HNF
2001	Wheat	150	Jefferson	Lightning	DNRC
2001 Total:		**9,834**			
2002	Rock Creek	104	Lewis and Clark	Human	DNRC
2002 Total:		**104**			
2003	Flat Creek 2	372	Lewis and Clark	Lightning	DNRC
2003	High	122	Lewis and Clark	Lightning	HNF
2003	Lincoln Complex	3,279	Lewis and Clark	Lightning	DNRC
2003	Jimtown	1,210	Lewis and Clark	Human	HNF
2003	Sheep Camp	840	Broadwater	Human	HNF
2003	Slim Sam	137	Broadwater	Lightning	HNF
2003	Snowbank	37,405	Lewis and Clark	Lightning	HNF
2003	Talon	500	Lewis and Clark	Lightning	HNF

2003 Total:		**43,865**			
2005	518	169	Jefferson	Human	DNRC
2005 Total:		**169**			
2006	Cigarette Rock	2,271	Lewis and Clark	Lighting	HNF
2006	Ford Creek	323	Lewis and Clark	Lighting	HNF
2006	Juedeman	176	Lewis and Clark	Human	DNRC
2006	Keep Cool	302	Lewis and Clark	Lighting	HNF
2006 Total:		**3,072**			
2007	Ahorn	52,505	Lewis and Clark	Lightning	HNF
2007	Conger Creek	25,150	Lewis and Clark	Lightning	HNF
2007	Fool Creek	60,038	Lewis and Clark	Lightning	HNF
2007	Fort Harrison	732	Lewis and Clark	Human	DNRC
2007	Goodwin	183	Jefferson	Lightning	B-D
2007	Little Wolf Creek	548	Lewis and Clark	Lightning	DNRC
2007	Meriwether	17,374	Lewis and Clark	Lightning	DNRC
2007	Novak	1,527	Lewis and Clark	Lightning	DNRC
2007 Total:		**158,057**			
2008	Bear Gulch	755	Broadwater	N/A	DNRC
2008	Cactus	518	Jefferson	Lightning	DNRC
	2008 Total:	**1,273**			
2009	Copper Creek	109	Lewis and Clark	N/A	DNRC
2009	Indian Trail	4,409	Lewis and Clark	Human	DNRC
2009	Macdonald Pass	170	Lewis and Clark	N/A	HNF
2009	Noble	130	Lewis and Clark	Human	DNRC
2009	Rescue	586	Lewis and Clark	Lightning	HNF
2009 Total:		**5,404**			
2010	Davis	2,015	Lewis and Clark	N/A	HNF
2010	Lakeside	855	Lewis and Clark	N/A	HNF
2010	North Lyon Creek	104	Lewis and Clark	Human	DNRC
2010	North Fork	309	Lewis and Clark	Lightning	DNRC
2010 Total:		**3,283**			
2011	Bald Bear	497	Lewis and Clark	Lightning	HNF
2011	Chevallier Ranch	105	Lewis and Clark	N/A	DNRC
2011	Porcupine	133	Lewis and Clark	Lightning	HNF
2011	Stadler Creek	633	Lewis and Clark	Lightning	HNF
2011	Upper Ayres	174	Lewis and Clark	Lightning	HNF
2011 Total:		**1,542**			
2012	19 Mile	2,758	Jefferson	Lightning	DNRC
2012	Antelope Lane	272	Jefferson	Lightning	DNRC
2012	Bar Creek	4,033	Lewis and Clark	Lightning	HNF
2012	Black Beach	1,450	Lewis and Clark	Lightning	DNRC
2012	Corral	1,851	Lewis and Clark	Human	DNRC
2012	Dalton	440	Lewis and Clark	Human	DNRC
2012	East Fork	420	Lewis and Clark	Lightning	HNF

2012	Elbow Pass Complex	17,319	Lewis and Clark	Lightning	HNF
2012	Falls Point	350	Lewis and Clark	Lightning	HNF
2012	Indian Creek	480	Broadwater	N/A	HNF
2012	Rapid Creek	4,556	Lewis and Clark	Lightning	HNF
2012	Wegner	121	Lewis and Clark	Lightning	DNRC
2012 Total:		**34,050**			
2013	Copper City	390	Broadwater	N/A	HNF
2013	Hunter Gulch	145	Lewis and Clark	Human	HNF
2013	Kelly Gulch #3	750	Lewis and Clark	N/A	HNF
2013	Kelly Gulch #4	750	Lewis and Clark	N/A	HNF
2013	Kelly Gulch #5	250	Lewis and Clark	N/A	HNF
2013	Red Shale	12,379	Lewis and Clark	Lightning	HNF
2013	Rock Creek 2	589	Lewis and Clark	Lightning	HNF
2013	Sweats Gulch	308	Lewis and Clark	Human	HNF
2013 Total:		**15,561**			
2014	Log Gulch	215	Lewis and Clark	Human	DNRC
2014 Total:		**215**			
2015	Bray Gulch	748	Lewis and Clark	Lightning	DNRC
2015	Cabin Gulch	1,616	Broadwater	Human	DNRC
2015	Eustis	8,721	Broadwater	Lightning	DNRC
2015	Moose Ridge	9,863	Lewis and Clark	Lightning	HNF
2015	Klondike	550	Lewis and Clark	Lightning	HNF
2015	RV Ranch	116	Lewis and Clark	Human	DNRC
2015	Three Sisters	487	Lewis and Clark	Lightning	HNF
2015	Sucker Creek	2,300	Lewis and Clark	Lightning	HNF
2015	Sheep Mountain	2,895	Lewis and Clark	Lightning	HNF
2015 Total:		**27,296**			
2016	Nez Perce	699	Jefferson	Lightning	B-D
2016	Rattlesnake	582	Lewis and Clark	Lightning	DNRC
2016 Total:		**1,281**			
2017	Alice Creek	10,505	Lewis and Clark	Lightning	DNRC
2017	Arrastra	7,209	Lewis and Clark	Lightning	HNF
2017	Conrow	1,751	Jefferson	Lightning	DNRC
2017	Holmes Gulch	110	Jefferson	Lightning	DNRC
2017	Lookout	381	Lewis and Clark	Lightning	DNRC
2017	Park	10,791	Lewis and Clark	Lightning	HNF
2017 Total:		**30,747**			
2018	Cottonwood	462	Broadwater	Human	DNRC
2018 Total:		**462**			
Acres Burned 1984-2018:		**775,390**			

Only reported fires greater than 100 acres listed.

B-D=Beaverhead-DeerLodge National Forest; HNF=Helena-Lewis and Clark National Forest; DNRC=Montana Department of Natural Resources and Conservation.

1. Broadwater County Wildfire History

Year	Fire Name	Acres	County	Cause	Data Source
1987	Broadwater Complex	175	Broadwater	Lightning	DNRC
1987 Total:		**175**			
1989	Indian Creek	2,400	Broadwater	Human	HNF
1989 Total:		**2,400**			
1994	Missouri River Fire	246	Broadwater	Human	DNRC
1994	West White Beaver	600	Broadwater	Lightning	DNRC
1994 Total:		**846**			
1996	Angus	2,100	Broadwater	Lightning	DNRC
1996 Total:		**2,100**			
1998	Toston	100	Broadwater	Human	DNRC
1998 Total:		**100**			
2000	Toston/Maudlow	81,220	Broadwater	Human	DNRC
2000	Wheatland	1,380	Broadwater	Lightning	DNRC
2000 Total:		**82,600**			
2003	Sheep Camp	840	Broadwater	Human	HNF
2003	Slim Sam	137	Broadwater	Lightning	HNF
2003 Total:		**977**			
2008	Bear Gulch	755	Broadwater	N/A	DNRC
2008 Total:		**755**			
2012	Indian Creek	480	Broadwater	N/A	HNF
2012 Total:		**480**			
2013	Copper City	390	Broadwater	N/A	HNF
2013 Total:		**390**			
2015	Cabin Gulch	1,616	Broadwater	Human	DNRC
2015	Eustis	8,721	Broadwater	Lightning	DNRC
2015 Total:		**10,337**			
2018	Cottonwood	462	Broadwater	Human	DNRC
2018 Total:		**462**			
Acres Burned 1984-2018:		**101,622**			

Only reported fires greater than 100 acres listed.

B-D=Beaverhead-DeerLodge National Forest; HNF=Helena-Lewis and Clark National Forest; DNRC=Montana Department of Natural Resources and Conservation.

2. Jefferson County Wildfire History

Year	Fire Name	Acres	County	Cause	Data Source
1985	Woodward Ranch	1,120	Jefferson	Lightning	DNRC
1985 Total:		**1,120**			
1988	Goldflint	355	Jefferson	N/A	B-D
1988	Sheep Gulch	125	Jefferson	Human	DNRC
1988	Warm Springs	46,900	Jefferson	Human	DNRC
1988	Whitehall	1,630	Jefferson	Human	DNRC
1988 Total:		**49,010**			
1992	Black Butte	1,466	Jefferson	Human	DNRC
1992 Total:		**1,466**			
1996	Cavern Fire	135	Jefferson	Human	DNRC
1996 Total:		**135**			
1998	Greer Gulch	120	Jefferson	Lighting	DNRC
1998 Total:		**120**			
2000	Boulder Hill	2,482	Jefferson	N/A	DNRC
2000	High Ore	873	Jefferson	N/A	B-D
2000	High Ore Road	9,978	Jefferson	N/A	DNRC
2000 Total:		**13,333**			
2001	Wheat	150	Jefferson	Lightning	DNRC
2001 Total:		**150**			
2005	518	169	Jefferson	Human	DNRC
2005 Total:		**169**			
2007	Goodwin	183	Jefferson	Lightning	B-D
2007 Total:		**183**			
2008	Cactus	518	Jefferson	Lightning	DNRC
	2008 Total:	**518**			
2012	19 Mile	2,758	Jefferson	Lightning	DNRC
2012	Antelope Lane	272	Jefferson	Lightning	DNRC
2012 Total:		**3,030**			
2016	Nez Perce	699	Jefferson	Lightning	B-D
2016 Total:		**699**			
2017	Conrow	1,751	Jefferson	Lightning	DNRC
2017	Holmes Gulch	110	Jefferson	Lightning	DNRC
2017 Total:		**1,861**			
Acres Burned 1984-2018:		**71,794**			

Only reported fires greater than 100 acres listed.

B-D=Beaverhead-DeerLodge National Forest; HNF=Helena-Lewis and Clark National Forest; DNRC=Montana Department of Natural Resources and Conservation.

3. Lewis and Clark County Wildfire History

Year	Fire Name	Acres	County	Cause	Data Source
1984	Little Sheep Creek	275	Lewis and Clark	Human	DNRC
1984	North Hill	26,950	Lewis and Clark	Human	DNRC
1984 Total:		**27,225**			
1986	No Name	710	Lewis and Clark	Human	HNF
1986 Total:		**710**			
1988	Canyon Creek	99,483	Lewis and Clark	N/A	HNF
1988	Canyon Creek East	20,636	Lewis and Clark	Lightning	HNF
1988	Gates Park	50,000	Lewis and Clark	Lightning	HNF
1988	Holter Lake	468	Lewis and Clark	Human	DNRC
1988	Roberts Mountain	550	Lewis and Clark	Lightning	DNRC
1988	Squaw Gulch	129	Lewis and Clark	N/A	DNRC
1988 Total:		**171,266**			
1990	Beartooth Complex	32,968	Lewis and Clark	Human	DNRC
1990 Total:		**32,968**			
1991	Holter Lake	125	Lewis and Clark	Human	DNRC
1991 Total:		**125**			
1992	Dearborn River	175	Lewis and Clark	Human	DNRC
1992	Gobblers Knob	760	Lewis and Clark	Human	DNRC
1992	Spokane Creek	166	Lewis and Clark	Human	DNRC
1992 Total:		**1,101**			
1993	Lyons Creek	135	Lewis and Clark	Human	DNRC
1993 Total:		**135**			
1995	Foster Gulch	100	Lewis and Clark	Human	DNRC
1995	Sentinel Ranch	180	Lewis and Clark	Human	DNRC
1995 Total:		**280**			
1996	Electric Mountain	320	Lewis and Clark	Lightning	DNRC
1996	Exit 216	110	Lewis and Clark	Lightning	DNRC
1996	Lower Coxcy	452	Lewis and Clark	Human	HNF
1996	Ostrich	175	Lewis and Clark	Lightning	DNRC
1996	Timberman	110	Lewis and Clark	Lightning	DNRC
1996 Total:		**1,167**			
1997	Willow Creek	1,940	Lewis and Clark	Human	DNRC
1997 Total:		**1,940**			
1998	Cooper Creek	110	Lewis and Clark	Human	HNF
1998	Spring	200	Lewis and Clark	Lighting	DNRC
1998 Total:		**310**			
1999	Burned Point	750	Lewis and Clark	Lightning	HNF
1999	Hauser Dam	220	Lewis and Clark	N/A	DNRC
1999	Little Hellgate	200	Lewis and Clark	Human	DNRC
1999 Total:		**1,170**			
2000	Bucksnort	15,311	Lewis and Clark	Human	DNRC

2000	Bunyan Point	1,184	Lewis and Clark	Lightning	HNF
2000	Cave Gulch	30,000	Lewis and Clark	Human	HNF
2000	Indian Trial	389	Lewis and Clark	Human	DNRC
2000	Reef	100	Lewis and Clark	N/A	DNRC
2000	Wolf Creek	389	Lewis and Clark	Human	DNRC
2000 Total:		**47,373**			
2001	Biggs Flat	7,600	Lewis and Clark	Lightning	HNF
2001	Cabin Creek	2,084	Lewis and Clark	Lightning	HNF
2001 Total:		**9,684**			
2002	Rock Creek	104	Lewis and Clark	Human	DNRC
2002 Total:		**104**			
2003	Flat Creek 2	372	Lewis and Clark	Lightning	DNRC
2003	High	122	Lewis and Clark	Lightning	HNF
2003	Lincoln Complex	3,279	Lewis and Clark	Lightning	DNRC
2003	Jimtown	1,210	Lewis and Clark	Human	HNF
2003	Snowbank	37,405	Lewis and Clark	Lightning	HNF
2003	Talon	500	Lewis and Clark	Lightning	HNF
2003 Total:		**42,888**			
2006	Cigarette Rock	2,271	Lewis and Clark	Lighting	HNF
2006	Ford Creek	323	Lewis and Clark	Lighting	HNF
2006	Juedeman	176	Lewis and Clark	Human	DNRC
2006	Keep Cool	302	Lewis and Clark	Lighting	HNF
2006 Total:		**3,072**			
2007	Ahorn	52,505	Lewis and Clark	Lightning	HNF
2007	Conger Creek	25,150	Lewis and Clark	Lightning	HNF
2007	Fool Creek	60,038	Lewis and Clark	Lightning	HNF
2007	Fort Harrison	732	Lewis and Clark	Human	DNRC
2007	Little Wolf Creek	548	Lewis and Clark	Lightning	DNRC
2007	Meriwether	17,374	Lewis and Clark	Lightning	DNRC
2007	Novak	1,527	Lewis and Clark	Lightning	DNRC
2007 Total:		**157,874**			
2009	Copper Creek	109	Lewis and Clark	N/A	DNRC
2009	Indian Trail	4,409	Lewis and Clark	Human	DNRC
2009	Macdonald Pass	170	Lewis and Clark	N/A	HNF
2009	Noble	130	Lewis and Clark	Human	DNRC
2009	Rescue	586	Lewis and Clark	Lightning	HNF
2009 Total:		**5,404**			
2010	Davis	2,015	Lewis and Clark	N/A	HNF
2010	Lakeside	855	Lewis and Clark	N/A	HNF
2010	North Lyon Creek	104	Lewis and Clark	Human	DNRC
2010	North Fork	309	Lewis and Clark	Lightning	DNRC
2010 Total:		**3,283**			
2011	Bald Bear	497	Lewis and Clark	Lightning	HNF
2011	Chevallier Ranch	105	Lewis and Clark	N/A	DNRC

2011	Porcupine	133	Lewis and Clark	Lightning	HNF
2011	Stadler Creek	633	Lewis and Clark	Lightning	HNF
2011	Upper Ayres	174	Lewis and Clark	Lightning	HNF
2011 Total:		**1,542**			
2012	Bar Creek	4,033	Lewis and Clark	Lightning	HNF
2012	Black Beach	1,450	Lewis and Clark	Lightning	DNRC
2012	Corral	1,851	Lewis and Clark	Human	DNRC
2012	Dalton	440	Lewis and Clark	Human	DNRC
2012	East Fork	420	Lewis and Clark	Lightning	HNF
2012	Elbow Pass Complex	17,319	Lewis and Clark	Lightning	HNF
2012	Falls Point	350	Lewis and Clark	Lightning	HNF
2012	Rapid Creek	4,556	Lewis and Clark	Lightning	HNF
2012	Wegner	121	Lewis and Clark	Lightning	DNRC
2012 Total:		**30,540**			
2013	Hunter Gulch	145	Lewis and Clark	Human	HNF
2013	Kelly Gulch #3	750	Lewis and Clark	N/A	HNF
2013	Kelly Gulch #4	750	Lewis and Clark	N/A	HNF
2013	Kelly Gulch #5	250	Lewis and Clark	N/A	HNF
2013	Red Shale	12,379	Lewis and Clark	Lightning	HNF
2013	Rock Creek 2	589	Lewis and Clark	Lightning	HNF
2013	Sweats Gulch	308	Lewis and Clark	Human	HNF
2013 Total:		**15,171**			
2014	Log Gulch	215	Lewis and Clark	Human	DNRC
2014 Total:		**215**			
2015	Bray Gulch	748	Lewis and Clark	Lightning	DNRC
2015	Moose Ridge	9,863	Lewis and Clark	Lightning	HNF
2015	Klondike	550	Lewis and Clark	Lightning	HNF
2015	RV Ranch	116	Lewis and Clark	Human	DNRC
2015	Three Sisters	487	Lewis and Clark	Lightning	HNF
2015	Sucker Creek	2,300	Lewis and Clark	Lightning	HNF
2015	Sheep Mountain	2,895	Lewis and Clark	Lightning	HNF
2015 Total:		**16,959**			
2016	Rattlesnake	582	Lewis and Clark	Lightning	DNRC
2016 Total:		**582**			
2017	Alice Creek	10,505	Lewis and Clark	Lightning	DNRC
2017	Arrastra	7,209	Lewis and Clark	Lightning	HNF
2017	Lookout	381	Lewis and Clark	Lightning	DNRC
2017	Park	10,791	Lewis and Clark	Lightning	HNF
2017 Total:		**28,886**			
Acres Burned 1984-2018:		**601,974**			

Only reported fires greater than 100 acres listed.

B-D=Beaverhead-DeerLodge National Forest; HNF=Helena-Lewis and Clark National Forest; DNRC=Montana Department of Natural Resources and Conservation.

Appendix 16: Mitigation Opportunities

The projects listed here are not an all-inclusive list and are regional in nature. Project opportunities not on this list should be pursued as they become apparent.

1. Broadwater County Mitigation Opportunities

A. Utilize the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to perform mitigation in the City of Townsend, the census-designated places in Broadwater County, and the areas listed in the Federal Register as urban wildland interface communities at risk (see **Section 4**).
B. Utilize the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to perform mitigation in the Broadwater County WUI established by this CWPP (see **Section 5**).
C. Utilize the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to perform mitigation adjacent to ingress/egress routes and critical infrastructure in Broadwater County.
D. See **Attachment 1** of this Appendix for maps of potential project areas.

2. Jefferson County Mitigation Opportunities

A. Utilize the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to perform mitigation in the City of Boulder.
B. Utilize the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to perform mitigation in the Town of Whitehall.
C. Utilize the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to perform mitigation in the census-designated places in Jefferson County and the areas listed in the Federal Register as urban wildland interface communities at risk (see **Section 4**).
D. Utilize the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to perform mitigation in the Jefferson County WUI established by this CWPP (see **Section 5**).
E. Utilize the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to perform mitigation adjacent to ingress/egress routes and critical infrastructure in Jefferson County.
F. See **Attachment 2** of this Appendix for maps of potential project areas.

3. Lewis and Clark County Mitigation Opportunities

A. Utilize the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to perform mitigation in the City of East Helena.
B. Utilize the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to perform mitigation in the City of Helena.
C. Utilize the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to perform mitigation in the census-designated places in

Lewis and Clark County and the areas listed in the Federal Register as urban wildland interface communities at risk (see **Section 4**).

D. Utilize the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to perform mitigation in the Lewis and Clark County WUI established by this CWPP (see **Section 5**).
E. Utilize the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to perform mitigation adjacent to ingress/egress routes and critical infrastructure in Lewis and Clark County.
F. See **Attachment 3** of this Appendix for maps of potential project areas.

4. Collaborative Mitigation Opportunities

A. Leverage tools to conduct contiguous fuels mitigation work utilizing the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP to create buffer zones around private property on public land in the Tri-County Region. Buffer zone mitigation projects that coincide with private property mitigation projects should be given priority, as they can create economies of scale to reduce the overall price of such combined projects.
B. Utilizing the mitigation strategy and specific mitigation recommendations in **Section 9** of this CWPP, Local, State, and Federal governments and agencies should coordinate mitigation projects through the TCFSWG to create economies of scale to reduce the overall price of such combined projects and increase the efficacy of treatment areas.
C. See **Attachment 4** of this Appendix for maps of potential project areas.

Appendix 16, Attachment 1: Broadwater County Potential Mitigation Project Areas

[INSERT MAPS WITH POLYGONS HERE]

Appendix 16, Attachment 2: Jefferson County Potential Mitigation Project Areas

[INSERT MAPS WITH POLYGONS HERE]

Appendix 16, Attachment 3: Lewis and Clark County Potential Mitigation Project Areas

[INSERT MAPS WITH POLYGONS HERE]

Appendix 16, Attachment 4: Potential Collaborative Mitigation Project Areas

1. Bureau of Land Management Potential Future Project Areas*:

A. Fiscal Year 2020: Marysville
B. Fiscal Year 2021: Helena North Hills
C. Fiscal Year 2022: Helena North Hills
D. Fiscal Year 2023: Ward Ranch, Scratch Gravel Hills
E. Fiscal Year 2024: Scratch Gravel Hills

2. Helena-Lewis and Clark National Forest Potential Future Project Areas*:

A. Fiscal Year 2020 & 2021: Telegraph project, Tenmile South Helena Project, Clancy Unionville, Beaver Soup (York/Nelson area), Bull Sweats (York/Nelson area), Cabin Gulch, Johnny Crow (Elkhorn Mountains), 1988 Elkhorns, Priest Pass.
B. Fiscal Year 2022: Telegraph, Tenmile South Helena, Cabin Gulch, Johnny Crow, Boulder Baldy (south Big Belts), Middleman (Avalanche Butte to Gates of the Mountains wilderness), Priest Pass.
C. Fiscal Year 2023: Telegraph, Tenmile South Helena, Cabin Gulch, Johnny Crow, Boulder Baldy, Middleman, Priest Pass.
D. Fiscal Year 2024: Telegraph, Tenmile South Helena, Cabin Gulch, Johnny Crow, Boulder Baldy, Middleman, Priest Pass, North Elkhorns.

3. Beaverhead-Deerlodge National Forest Potential Future Project Areas*:

A. Fiscal Year 2020:
B. Fiscal Year 2021:
C. Fiscal Year 2022:
D. Fiscal Year 2023:
E. Fiscal Year 2024:

*-Project lists were provided by each Agency to TCFSWG in 2019 and are subject to change. Annual review and update of these lists should be implemented at TCFSWG meetings to maintain coordination for future project areas and determine specific areas for treatment.

Appendix 17: References

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Appendix 18: Meeting Minutes, Attendance

The following table of contents contains the page numbers for the minutes and attendance information from the 2020 CWPP development meetings.

TRICO FireSafe Working Group – CWPP Subcommittee

Serving the Montana counties of Lewis & Clark, Jefferson and Broadwater

Meeting Minutes

March 8th, 2018

NAME	AGENCY/GROUP
Rocky Infanger	Tri-County
Doug Dodge	Jefferson County DES
Ray Prill	Tri-County
Mike McFerrin	Tri-County

1. Rocky called to order and led introductions.
2. Not much new information to review, would like to see minor updates completed by May 1st.
3. Chapter 13, Appendix B, and Appendix C edits were discussed.

Meeting adjourned around 1pm

Next meeting: March 28th 0930 Montana City Fire Hall

TRICO FireSafe Working Group – CWPP Subcommittee

Serving the Montana counties of Lewis & Clark, Jefferson and Broadwater

Meeting Minutes

March 28th, 2018

NAME	AGENCY/GROUP
Rocky Infanger	Tri-County
Doug Dodge	Jefferson County DES
Ray Prill	Tri-County
Mike McFerrin	Tri-County
Pat McKelvey	Tri-County
Kyle Inabnit	USFS
Michael Kazer	USFS
Ed Shindoll	Tri-County
Lois Olsen	ERC
Jessica Haas	USFS

1. Rocky called to order at 0930 and led introductions.
2. Goals of the CWPP discussed.
3. Update is two-part process, minor corrections, and then begin review for 2020 update.
4. Minor corrections discussed.
    a. Corrections to calculations and minor changes to Chapter 13 wording recommended. Ray will issue update to signatories.
    b. Rocky will work on minor corrections for fire history in appendices.
5. 2020 update discussed.
    a. Re-write recommended. Doug will begin authorship with updates at Tri-County meetings.
    b. Jessica provided graphical representations for identifying communities and values at risk.
    c. Importance of identifying evacuation time discussed. Follow up meeting with the Sheriffs of the three counties will take place on April 20th.

Meeting adjourned around 3pm

Next meeting: March 29th 0930 Montana City Fire Hall

TRICO FireSafe Working Group – CWPP Subcommittee

Serving the Montana counties of Lewis & Clark, Jefferson and Broadwater

Meeting Minutes

March 29th, 2018

NAME	AGENCY/GROUP
Rocky Infanger	Tri-County
Doug Dodge	Jefferson County DES
Ray Prill	Tri-County
Michael Kazer	USFS
Lois Olsen	ERC

1. Rocky called to order at 0930 and led introductions.
2. Update is two-part process, minor corrections, and then begin review for 2020 update.
3. Minor corrections discussed.
    a. CWPP was reviewed chapter by chapter and minor changes were recommended. Ray will issue updates to signatories.
    b. Doug asked that Ray include notification of re-write to signatories when minor changes are issued.

Meeting adjourned around 12pm

Next meeting: April 4th 1200 Montana City Fire Hall, immediately following the Tri-County General Meeting.

TRICO FireSafe Working Group – CWPP Subcommittee

Serving Broadwater, Jefferson, and Lewis and Clark counties, Montana.

Meeting Minutes

April 20th, 2018

NAME	AGENCY/GROUP
Rocky Infanger	Tri-County
Doug Dodge	Jefferson County DES
Ray Prill	Tri-County
Sonny Stiger	Tri-County
Pat McKelvey	Tri-County
Mike Koehnke	Broadwater County DES
Craig Doolittle	Jefferson County Sheriff
Ed Shindoll	Tri-County
Wynn Meehan	Broadwater County Sheriff
John Huston	DNRC
Reese Martin	Lewis and Clark County DES
David Nunn	USFS-HLF
Roger Baltz	Lewis and Clark County Administration
Leo Dutton	Lewis and Clark County Sheriff

1. Rocky called the meeting to order at 1000 and led introductions.
2. Ray reviewed the purposes and history of the CWPP.
3. Ray highlighted the reason for the meeting; to gain input from the subject matter experts, the County Sheriffs, regarding their minimum time requirements for evacuation.
4. Sheriff Dutton indicated a four-hour notice would be the absolute minimum, with a six-hour notice preferred, as anything less would substantially increase panic, and therefore substantially increase the probability of loss of life.
5. Sheriff Doolittle agreed, adding that four hours is only enough time to stop at a residence to say, “Get out now” and then leave, without providing enough time to answer citizen questions, which must occur to reduce panic.

6. Sheriff Meehan agreed, adding that four hours may not be enough depending upon where in the counties the evacuation occurred, as resources would have to be mobilized to the location before the evacuation even begins.
7. It was further agreed that variables including: night operations, available resources, resistance of the population, location of the incident, panic by citizens, citizens outside the impacted area coming to look at the incident, fuels conditions, fire behavior, communication difficulty and the presence of populations with access and functional needs all might cause an evacuation to take longer than four hours.

Meeting adjourned around 12pm. Next **meeting: TBD**

Tricounty FireSafe Working Group
CWPP Review Subcommittee Notes

September 25, 2018

In attendance: Sean Logan, Doug Dodge, Lois Olsen, Kyle Inabnit, Rocky Infanger, David Nunn, Ed Shindoll, Mike Kaiser, Pat McKelvey, Ray Prill, Reese Martin

Doug began with a line-by-line review of the draft revision of the Tri-County CWPP. All suggested revisions during the meeting were marked in tracked changes and margin notes of the draft CWPP.

There was some discussion as to how individual PPPs (Population Protection Plans) related to the CWPP. There seemed to be consensus as to treating them as annexes.

A question arose as to when public meeting would occur. This subcommittee will set a formal schedule when draft review is complete. It is anticipated that public meetings will occur throughout 2019.

There was much discussion about WUI distances around critical infrastructure and evacuation routes. The consensus will be reflected in the language of Doug's update of the draft CWPP.

Doug will clarify the language about CX fuels sourcing and impacts on suppression.

The various agencies (USFS, DNRC, BLM, etc.) in the CWPP will revise the Regional Wildfire History section.

Ray suggested that this subcommittee look into alternative funding sources for publication of CWPPs (when complete) and public meeting costs.

Action Items: Doug will arrange a small group meeting (Doug, Rocky, Pat, Ray?) with Jessica Haas to gather her insight on various sections of the draft CWPP. This meeting will take place during the month of October.

Next meeting of the CWPP Review Subcommittee will occur in mid-November. Sean will arrange for the meeting place (most likely MCVFD, St. 1).

TRICO FireSafe Working Group – CWPP Subcommittee

Serving the Montana counties of Lewis & Clark, Jefferson and Broadwater

Meeting Minutes

October 23rd, 2018

NAME	AGENCY/GROUP
Jessica Haas	USFS
Doug Dodge	Jefferson County DES
Ray Prill	Tri-County
David Nunn	USFS

1. Doug called to order at 1pm and led introductions.
2. Mitigation Potential Class data was discussed.
3. Landscape and Local Hazard Map data was discussed.
4. Eric Spangenburg, with Lewis and Clark County GIS, should have the new mapping data we need, if not, Jessica can forward to him upon request.

Meeting adjourned around 2pm

Next meeting: TBD

TRICO FireSafe Working Group – CWPP Subcommittee

Serving the Montana counties of Lewis & Clark, Jefferson and Broadwater

Meeting Minutes

November 7th, 2018

NAME	AGENCY/GROUP
Eric Spangenberg	Lewis and Clark County GIS
Doug Dodge	Jefferson County DES
Ray Prill	Tri-County

1. Doug called to order around 1:45pm and led introductions.
2. Mitigation Potential Class data was discussed.
3. Landscape and Local Hazard Map data was discussed.
4. Doug outlined the mapping needs for the CWPP, and Eric will be able to provide his services for the CWPP. He will follow up with Jessica on any data that he needs, and coordinate with Doug on the process.

Meeting adjourned around 3pm

Next meeting: TBD

TRICO FireSafe Working Group – CWPP Subcommittee

Serving the Montana counties of Lewis & Clark, Jefferson and Broadwater

Meeting Minutes

December 5th, 2018

NAME	AGENCY/GROUP
Eric Spangenberg	Lewis and Clark County GIS
Greg McNally	Lewis and Clark County Planner
Doug Dodge	Jefferson County DES
Ray Prill	Tri-County

1. Doug called to order around 1:45pm and led introductions.
2. Mitigation Potential Class data was discussed.
3. Landscape and Local Hazard Map data was discussed.
4. Doug outlined the mapping needs for the CWPP, and Eric will be able to provide his services for the CWPP. He will follow up with Jessica on any data that he needs, and coordinate with Doug on the process.
5. Greg will coordinate a conference call with CPAW GIS personnel to get clarification on some data items.

Meeting adjourned around 3pm

Next meeting: TBD

TRICO FireSafe Working Group – CWPP Subcommittee

Serving the Montana counties of Lewis & Clark, Jefferson and Broadwater

Meeting Minutes

December 10th, 2018

NAME	AGENCY/GROUP
Eric Spangenberg	Lewis and Clark County GIS
Greg McNally	Lewis and Clark County Planner
Doug Dodge	Jefferson County DES
Kelly Johnston	Headwaters Economics

1. Greg called the teleconference to order around 9am and led introductions.
2. Mitigation Potential Class data was discussed.
3. Landscape and Local Hazard Map data was discussed.
4. Clarification on numerous metadata points were made, Doug will discuss with CWPP committee.

Meeting adjourned around 10am

Next meeting: TBD

TRICO FireSafe Working Group – CWPP Subcommittee

Serving the Montana counties of Lewis & Clark, Jefferson and Broadwater

Meeting Minutes

December 18th, 2018

NAME	AGENCY/GROUP
Rocky Infanger	Tri-County
Doug Dodge	Jefferson County DES
Ray Prill	Tri-County
Michael Kaizer	USFS
Lois Olsen	ERC
Sonny Stiger	Tri-County
John Huston	DNRC
Pat McKelvey	Tri-County
David Nunn	USFS
Lyn Stimpson	Mt. City VFD

1. Doug called to order at 1000 and led introductions.
2. Mitigation Potential Classes from Lewis and Clark CPAW were discussed. Background information on the data was discussed. Consensus was to incorporate those data sets into CWPP and replace the current Fuel Hazard Classes. Title to be changed to Mitigation Classes, but numbering system was to be retained to enhance consistency with state and federal partners.
    a. Project review forms will need to be changed to reflect the class numbering system.
3. Landscape and Local Hazard Maps from Lewis and Clark CPAW were discussed. Consensus was to incorporate both maps into the CWPP, replacing the probability of ignition mapping. Both new maps incorporate fire history in the data, along with fuels, weather conditions, topography, burn intensity, etc.
    a. A clear distinction needs to be made in the narrative to differentiate the maps and why both are included.
    b. The CWPP will mostly rely upon the Local Hazard Map and data, as it more closely relates to the goals of the CWPP, but the Landscape map should also be included for a broader perspective.
4. Travel corridors need to be turned on in the mapping outputs to account for evacuation routes.

Meeting adjourned around 1130am

Next meeting: TBD

TRICO FireSafe Working Group – CWPP Subcommittee

Serving the Montana counties of Lewis & Clark, Jefferson and Broadwater

Meeting Minutes

January 10th, 2019

NAME	AGENCY/GROUP
Eric Spangenberg	Lewis and Clark County GIS
Doug Dodge	Jefferson County DES

1. Doug called to order around 9:00am.
2. Doug outlined the mapping needs for the CWPP after TCFSWG's adoption of Jessica Haas' data, and Eric will be able to edit what is needed for the CWPP. He will follow up with Jessica on any data that he needs, and coordinate with Doug on the process.
3. Doug and Eric went over each map needed to complete the CWPP. Eric will need to get the Local Hazard data from Jessica, Doug will need to get the evacuation route data from Melissa Morris to Eric.
4. Eric will send Doug maps via OneDrive as he develops them for approval/addition to the CWPP.

Meeting adjourned around 10:00am

Next meeting: TBD

TRICO FireSafe Working Group – CWPP Subcommittee

Serving the Montana counties of Lewis & Clark, Jefferson and Broadwater

Meeting Minutes

June 3rd, 2019

NAME	AGENCY/GROUP
Eric Spangenberg	Lewis and Clark County GIS
Doug Dodge	Jefferson County DES

1. Doug called to order around 3:00pm.
2. Doug outlined the mapping needs still required for the CWPP after TCFSWG's adoption of Jessica Haas' data, and Eric was able to provide what is needed for the CWPP.
3. Eric will send Doug maps via OneDrive for approval/addition to the CWPP.

Meeting adjourned around 4:00pm

Next meeting: TBD

TRICO FireSafe Working Group – CWPP Subcommittee

Serving the Montana counties of Lewis & Clark, Jefferson and Broadwater

Meeting Minutes

June 19th, 2019

NAME	AGENCY/GROUP
Rocky Infanger	Tri-County
Lois Olsen	Tri-County
Ray Prill	Tri-County
Doug Dodge	Jefferson County DES

1. Doug called to order around 8:00am.
2. Rocky, Lois, and Ray provided edits and updates to the 2020 CWPP Draft. Doug will include suggested updates.
3. Public meetings on the Draft to be held June 24th in Boulder, 25th in Whitehall in Jefferson County.

Meeting adjourned around 11:00am

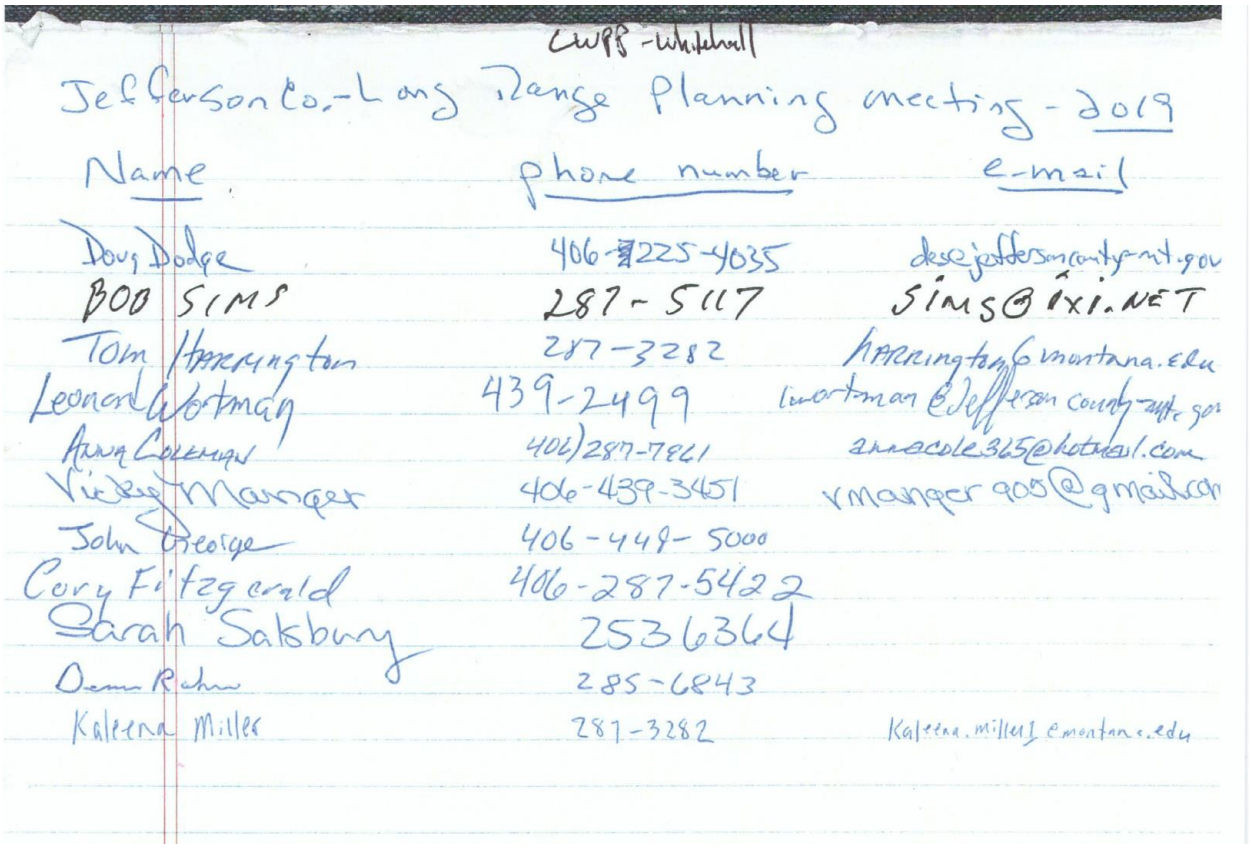
Next meeting: TBD

CWPP 2020 Update Public Review Attendance Sheet Meeting Date: 6/24/2019 Time: 1300 Location: Boulder, Montana

Name	Organization (if any)	Phone Number	Email Address	Address	Are you Federally Funded? (Yes/No)
Doug Dodge	Jefferson Co. DES	225-4035	desc@jeffersoncounty-mt.gov	PO Box H, Boulder, MT 59634	yes
GARY Buchanan	Elkhorn Health	459-2346	garybuchanan7@gmail.com		NO
Kaleena Miller	MSU Extension	287 3282	kaleena.miller1@montana.edu	163 W. Legion Whitehall	NO
Cory Kirsch	JeffCo Commission	225-4025	ckirsch@jeffersoncounty-mt.gov	PO Box H, Boulder	NO
Norm Tebay	Tebay Ranch	287-3390	normike@tebayranch.com	64 Tebay Ln Whitehall	NO
Tom Carey	XC Ranch / JVCD	287-5265	xcranch@[illegible].net	2235 MT Hwy 69 Boulder	NO
John Heidt	Heide Ranch JVCD	225-3640		59 Upper Valley Rd Boulder	NO
Pat McKelvey		459-8225	parm2850@gmail.com	2850 Grizzly Gulch Dr.	NO
[illegible] Sweeney	NRCS	287-3215 ext. 0029		3 Whitetail Rd - WH	yes
Nathan Matteson	NRCS	287-0029	nathan.matteson@USDA.gov	"	yes

Input Received:

1. Any property owner should have the opportunity to receive mitigation grants, not just property owners within a pre-designated area. (Pat M.)



CWPP - Whitehall

Jefferson Co. - Long Range Planning meeting - 2019

Name	phone number	e-mail
Doug Dodge	406-225-4035	dsejeffersoncounty-mt.gov
BOB SIMS	287-5117	SIMS@IXI.NET
Tom Harrington	287-3282	harrington@montana.edu
Leonard Wortman	439-2499	lwortman@jeffersoncounty-mt.gov
Anna Coleman	406)287-7861	annecole365@hotmail.com
Vicky Manager	406-439-3451	vmanager905@gmail.com
John George	406-449-5000	
Cory Fitzgerald	406-287-5422	
Sarah Salsbury	2536364	
Dean Rehm	285-6843	
Kaleena Miller	287-3282	Kaleena.miller1@montana.edu

Input Received:

1. Add fence/trail areas as potential project areas in Beaverhead-Deerlodge National Forest in and around grazing allotments (areas mapped by County Planner) to increase life safety and sustain economic production. (Leonard W.)

Lewis & Clark Rural Fire Council

CWPP Draft Presentation 7/8/19

Name	Agency/Dept	Phone #
Doug Dodge	Jefferson Co DES	225-4035
Ray Price	TRI-CO	495-9007
Dave Webster	St. Petes	459-6097
Sam Stigmar	CCRFD	438-2289
Crystal Wilkinson	CCRFD	916-8864
Jonathan Cunningham	CCRFD	916-8546
Marshal Trainor	VCCFSA	799-3839
John Kavanagh	DFSA	468-9803
Kyle Sturgill-Simon	Birdseye	465-6825
Doug Robinson	EVFD	459-0310
Todd Gr[illegible]	EVFD	439 5357
Bill Wegner	EVFD	431-2451
Bob Drake	Tri-Lakes	431-3600
Butch Kroll	MT DNRC	431-2563
Chris Splichof	MT DNRC	461-4688
Dave Mason	406 Fire	459-7717
CLINT LOSS	BAXENDALE VFD	431-0424
BRENT COLBERT	LCSO	422-6433
LEO DUTTON	LCSO	
PETE CALLAHAN	911	447-8233
Kelly Tuck	HRAA	431-0678
Mike Chambers	HFD	447-8494
Zach Muse	LRFD	465-7691
Lyn Stimpson	Mt City	461-4430
Robert Pearson	EVFD	439-8330
Terry LARSON	FSTS	868-0655
Jennifer Taylor	USFS	495-3939
JOHN Naylor	YORK FIRE	406-431-0711
Nick Schreiner	USFS	406-439-4515
Jordan Alexander	Baxendale	406-431-4669
DAVE SAMMONS	EAST VALLEY	406-459-5760

Mass Casualty Incid. CWPP present

7/16/19 Jefferson Co. Fire Council

Name	Agency	Phone #
~~KRISTI BURNS~~	JCSO	406-225-4075
Katy James	JUEMSR	406-431-4149
LaDana Hintz	Jeff. Co Planning	406-225-4040
TERRY LARSON	FSTS	406-868-0655
BRIAN GASCH	BASIN VFD	(406) 465-6282
FRANCINE JANIK	JVEMSR	406-491-4626
Jeremy Ward	Whitehall VFD	406-498-1883
Cory Kirsch	Jeffco Commission	406-949-3346
Bob Johnson	Clancy VFD	406-437-3680
George Reich	Willow Creek	406 5806676
Rhonda Buckallew	Willow Creek	406-595-9117
Nick Schreiner	USFS	406-439-4515
Lyn Stimpson	Mt City	461-4470
Bud Sidnell	JCVFD	406 461-7406
Steven Carey	Boulder, Bullitt VFD	406-498-2922
BRUCE SUENRAM	FIRE hoststais, Duc	406-459-3302