WILDFIRE MITIGATION PLAN

UNITED POWER

Your Touchstone Energy® Cooperative

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Executive Summary

Objective

United Power is committed to responsibly delivering safe, dependable, reliable and affordable electric service to its members. This plan acknowledges the increasing threat of a wildfire and identifies actions to minimize risk of wildfire in United Power's service territory. Though much of this plan focuses on United Power's infrastructure and the effort to reduce fire ignitions, the primary objective is increased safety – to protect lives and property by reducing the risk of a utility involved wildfire.

The base of this plan is mitigation of risk, resulting in a series of actions to:

- Protect United Power's electric infrastructure
- System hardening and improvements
- Enhance vegetation management
- Community outreach and emergency response to wildfires

Background

United Power's Wildfire Mitigation Plan was formally adopted in 2019. It is reviewed and updated annually. Updates are designed to reflect current efforts to quantify safety, financial, and service reliability risks related to wildfires while reflecting the cooperative's 85+ years' operating history. Risks are not stagnant, and this plan will evolve over time to align with environmental, political, financial, and other factors that influence those risks.

Increase in Wildfire Activity

Climate conditions, drought, declining forest health, and an increased density of homes in the Wildland Urban Interface (WUI) areas have elevated wildland fires. Population growth within WUI increases wildfire risk and the effects to the people and property in the event of a wildfire. The frequency and size of wildfires combined with development in fire prone areas is projected to make wildfires one of the most significant environmental threats in the western United States.

Over the past several years, Colorado's threat and frequency of fires has increased. In 2023, there were 7,175 fires reported on all lands that burned a total of 40,996 acres. While 2023 was more of an average year for fire activity and impact, the December 2021 Marshall Fire (Boulder County), April 2023 Gageby Creek and 403 Fires (Bent County and Park/Teller Counties, respectively), and the early October 2023 Iron Fire (Moffat County) serve as unfortunate reminders that wildfire is a year-round issue, and every Coloradoan in every part of the state is at risk to its impact.

Public Safety Power Shutoffs

Some electric utilities are opting to preemptively shut down parts of their electric grid based on weather and fire conditions in an effort to mitigate wildfire risk. United Power is committed to providing safe and reliable electric service, and will continue to evaluate all options to maintain safe, reliable, and affordable electric service while also mitigating wildfire risks, but is not preemptively shutting down parts of the grid unless the cooperative has no other option to ensure the safety of its members, employees, and system.

Red Flag Warnings

The National Weather Service issues a Red Flag Warning when warm temperatures, low humidity, and fierce winds are expected. When combined, these conditions produce an increased risk of fire danger.

When a Red Flag Warning impacts the service territory, United Power will adjust system settings and operating procedures to reduce the risk of a potential fire hazard. If a tree or foreign object contacts a power line, the substation recloser will open automatically and remain de-energized until United Power field personnel have patrolled the entire power line affected. If no cause is found and no hazard has been reported, the field personnel and system operator will close the substation recloser to restore power. After power has been restored, field personnel will patrol the power line a second time to check infrastructure and field devices. The second patrol may identify an issue and prevent another outage.

Wildfire Mitigation Plan Goals

Objective

This plan details United Power's response to the increasing threat of wildfires to the electric system and commitment to provide safe, reliable electric service to members, recognizing the following goals. The plan will be reviewed and updated annually to ensure it is consistent with industry best practices and standards.

Goals of the Wildfire Mitigation Plan

- **Emergency Preparedness** – To recognize wildfire as a recurring threat to infrastructure, the communities the cooperative serves, employees, and members.
- **Promote Public & Employee Safety** – To protect physical assets, property, and human lives against the danger of wildfires. Identify fire potential as a manageable risk element of United Power's operating and maintenance plans.
- **Financial Protection** – To mitigate the likelihood and aftermath of financial costs and potential liability associated with wildland fires.

Risk Assessment

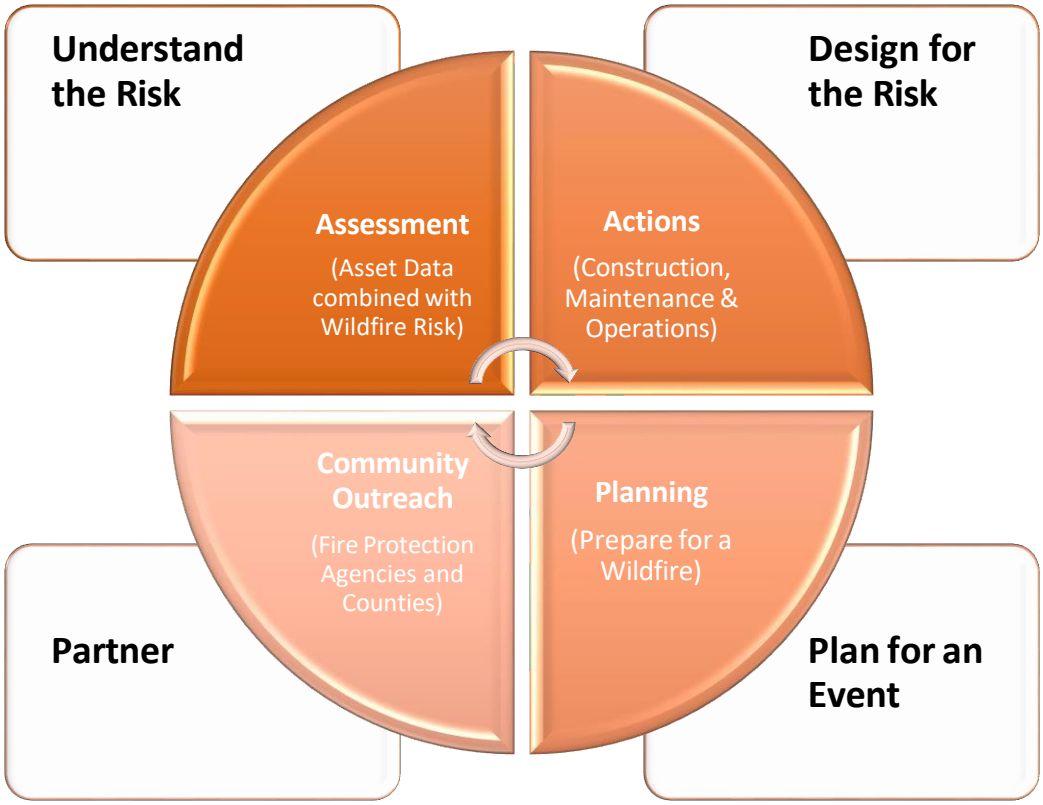
Actions recommended in this plan are based on United Power's risk analysis and asset management approach. Risk analysis establishes a guide for identifying, quantifying, and adopting recommendations.

Understand the risk – Combine infrastructure data with wildfire risk, suppression difficulty, and WUI to yield a 'risk potential' metric.

Design for the risk – Alter sub-transmission and distribution materials and construction to minimize the potential for utility involved fire ignition.

Plan for an event – Prepare field and office personnel through planning, training, and simulation exercises.

Community outreach – Collaborate with counties and fire protection agencies regarding wildfire mitigation plans. Educate members regarding safe vegetation to reduce surface fuels and tree contact with power lines.



Risk Assessment Methodology

The information below was collected from Colorado State Forest Service and is specific to United Power's service territory.

Wildfire risk: The overall composite risk occurring from a wildfire derived by combining burn probability and values at risk rating.

Burn probability: Annual probability of any location burning due to wildfire.

Values at risk rating: A composite rating of values and assets that would be adversely impacted from a wildfire by combining four main risk outputs – WUI, forest assets, riparian assets, and drinking water importance areas (watersheds).

Suppression difficulty rating: Reflects the difficulty or relative cost to suppress a fire given the terrain and vegetation conditions that may impact machine operability.

Infrastructure Data

United Power provides electric service to more than 5,500 meters in its Mountain District. The table below is infrastructure data for sub-transmission and distribution assets.[2]

Asset Classification	Asset Description
Substation assets	Assets include station transformers, protective devices, voltage regulators, capacitors, structures, relays, switchgear, and control houses.
Sub-transmission line assets	Assets include conductor, structures, and switches operating at 69kV and 34.5kV.
Distribution line assets	Assets include overhead conductor, underground conductor, structures, fiber optic cable, transformers, voltage regulators, capacitors, switches, line protective devices, meters, and streetlights.

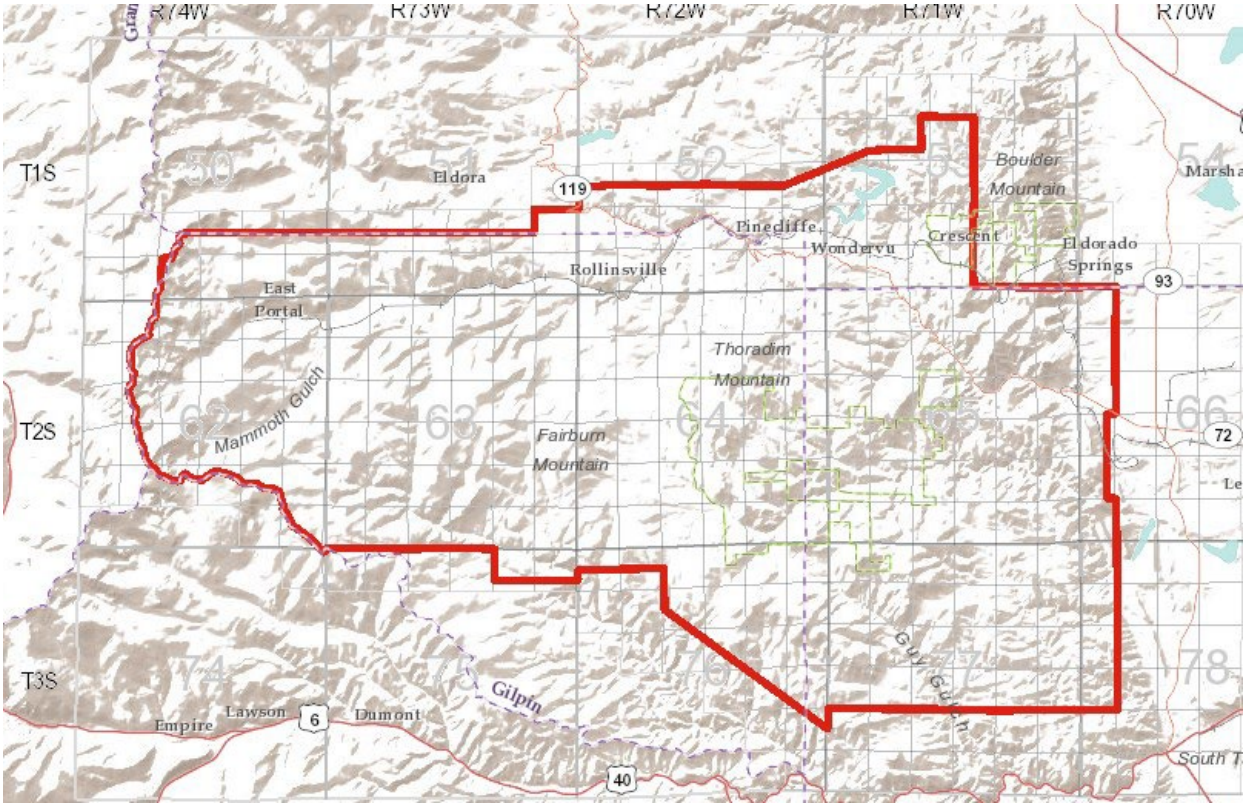
[2] Infrastructure Data from 2021

Mountain District Infrastructure Data

Asset	Miles of Conductor	Miles of Conductor in Wildfire Risk Area	Percentage in Wildfire Risk Area
Sub-transmission conductor	55	45	82%
Distribution conductor	405	363	95%
Fiber optic cable	26	17	65%

Asset	Quantity	Percentage in Wildfire Risk Area
Substations	5	100%
Structures	8940	100%

The following picture is United Power's Mountain District.



Risk Assessment – Mountain District

Wildfire risk is the overall composite risk occurring from a wildfire derived by combining infrastructure data, wildfire risk (which includes burn probability), and values at risk ratings along with suppression difficulty. The risks are categorized in four tiers: low, medium, high, and severe.

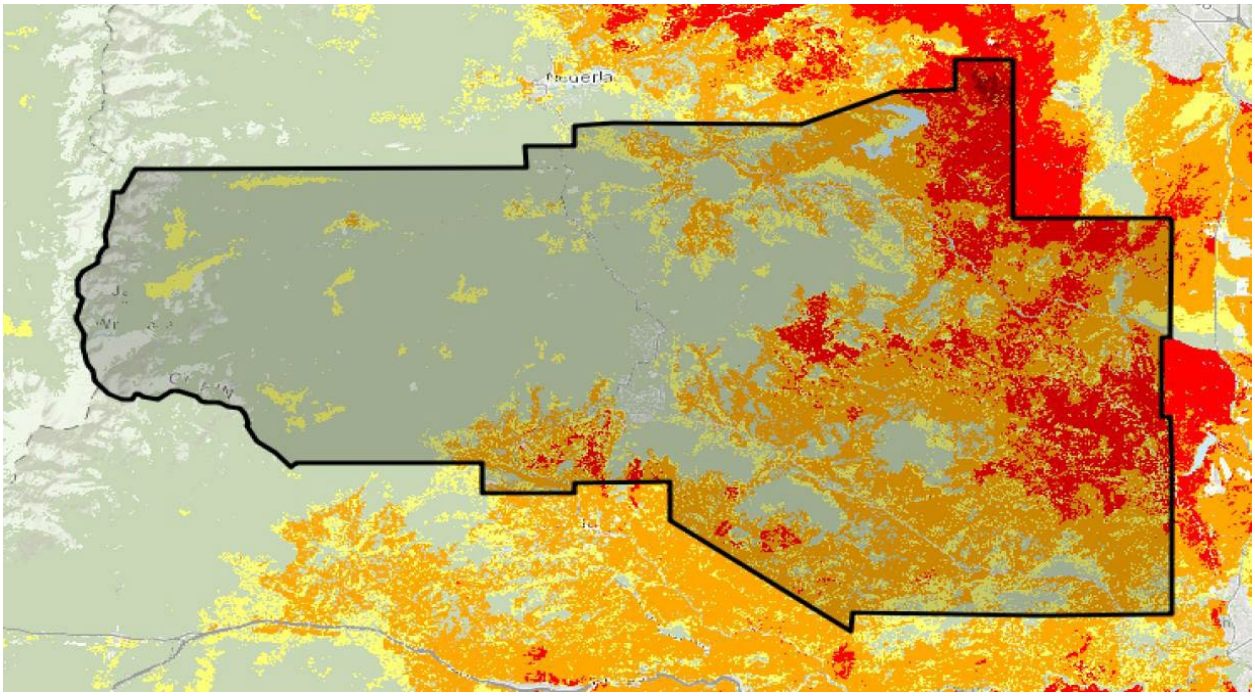
Tier 1 – Low levels of fuel and low housing densities (low)

Tier 2 – Moderate levels of fuel and low to moderate housing densities (medium)

Tier 3 – Moderate to elevated levels of fuel and medium housing densities (high)

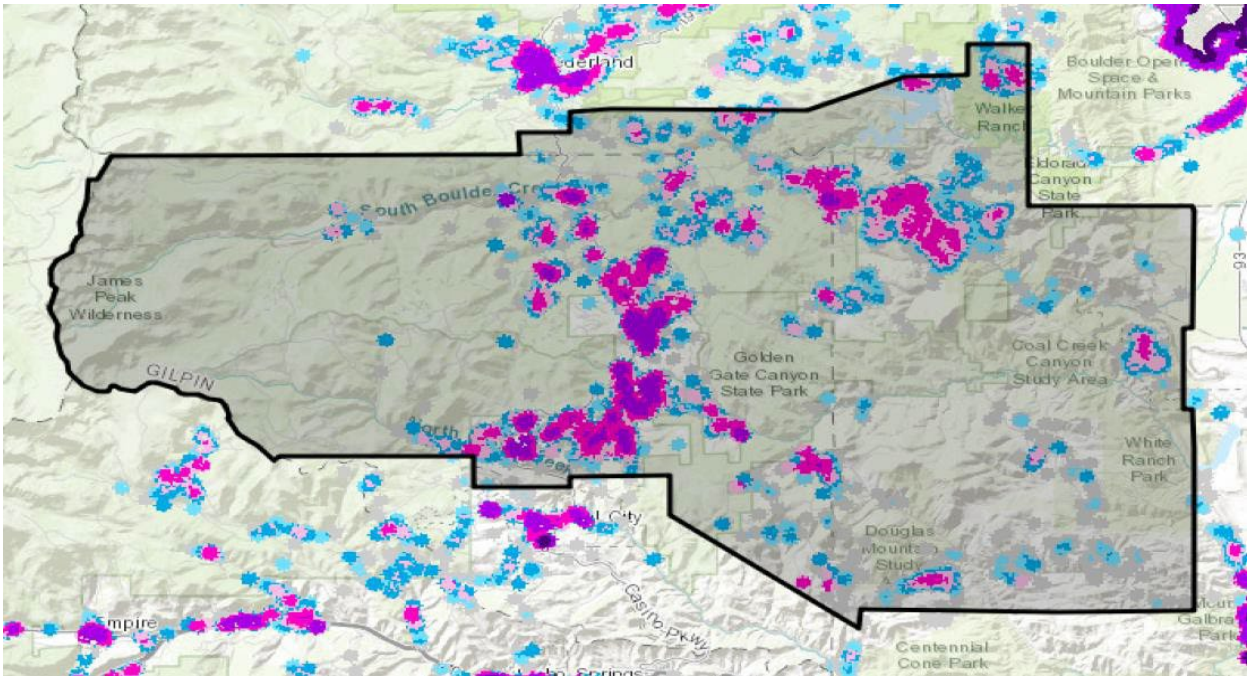
Tier 4 – High to severe levels of fuel and high housing densities (severe)

The following picture depicts an overall wildfire risk in the Mountain District.



Wildfire Risk Class	Rating	Acres (Approximate)	Percent
Tier 1	Low	70,927	51%
Tier 2	Medium	16,406	12%
Tier 3	High	37,106	27%
Tier 4	Severe	13,511	10%
Total		137,950	100%

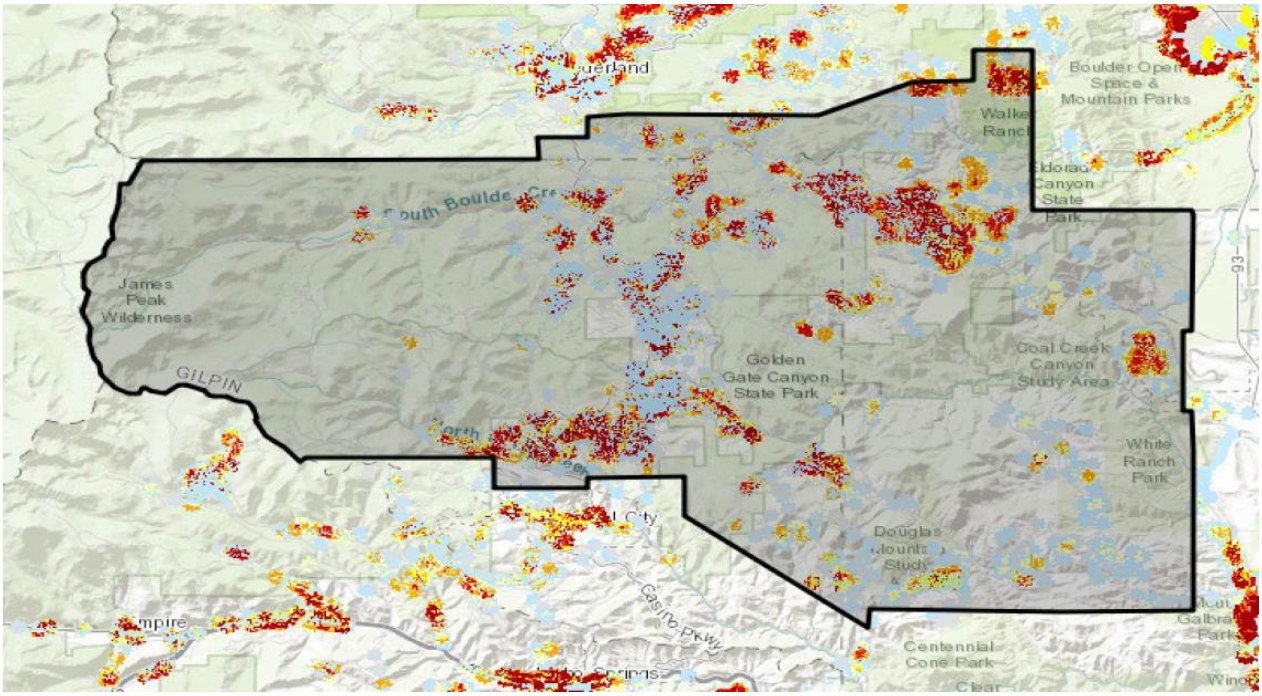
The following picture depicts WUI in the Mountain District



Housing Density	Percent of WUI Population	WUI Acres (approximate)	Percent of WUI Acres
Less than one house/40 acres	3%	10,980	33%
One house/40 acres to 1/20 acres	4%	4,930	15%
One house/20 acres to One house/10 acres	9%	5,660	17%
One house/10 acres to One house/5 acres	17%	5,235	15%
One house/5 acres to One house/2 acres	35%	4,970	15%
One house/2 acres to Three houses/1 acre	32%	1,670	5%
Total	100%	33,445	100%

WUI reflects housing density where humans and their structures intermix with wildland fuels.

The following picture depicts the WUI risk index in the Mountain District.

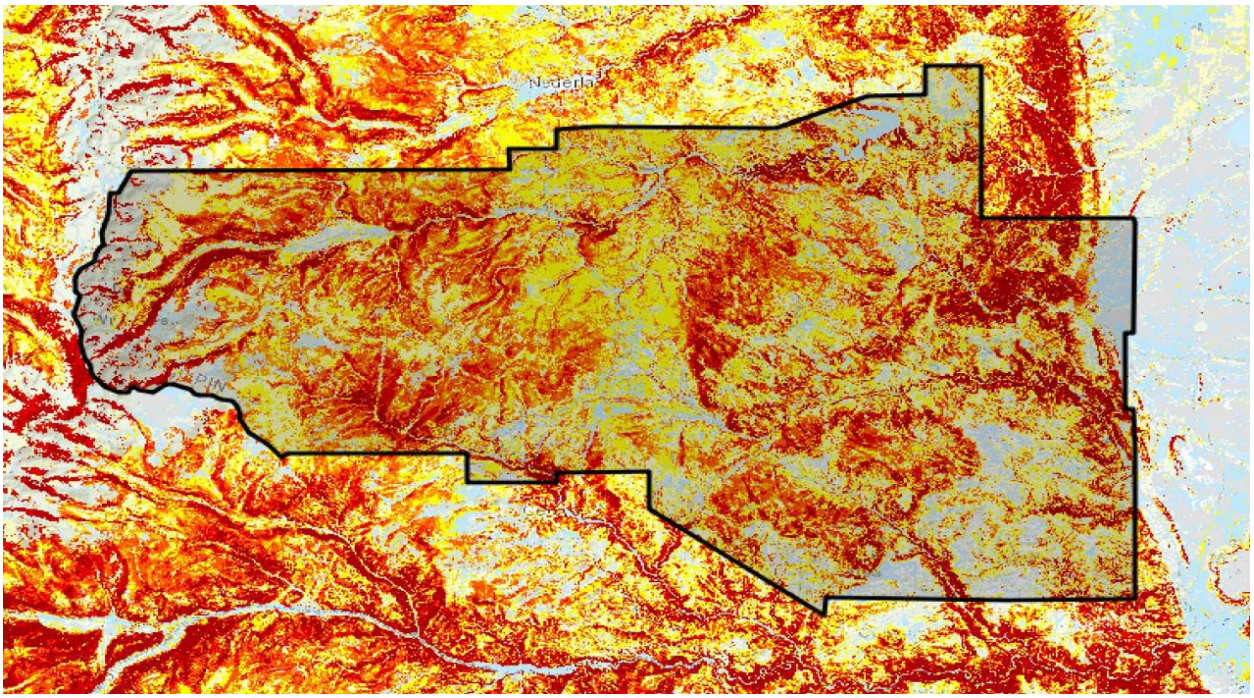


WUI Risk Class	Rating	Acres (approximate)	Percent
Tier 1	Low negative impact	20,170	59%
Tier 2	Medium negative impact	4,280	13%
Tier 3	High negative impact	4,520	14%
Tier 4	Severe negative impact	4,475	14%
Total		33,445	100%

The WUI risk index layer is a rating of the potential impact of a wildfire on people and their homes. The key input, WUI, reflects housing density consistent with the Federal Register of National Standards. The location of people living in the WUI and rural areas is essential for defining potential wildfire impacts to people and homes.[3]

[3] Colorado Wildfire Risk Assessment Summary Report based off United Power's Mountain District

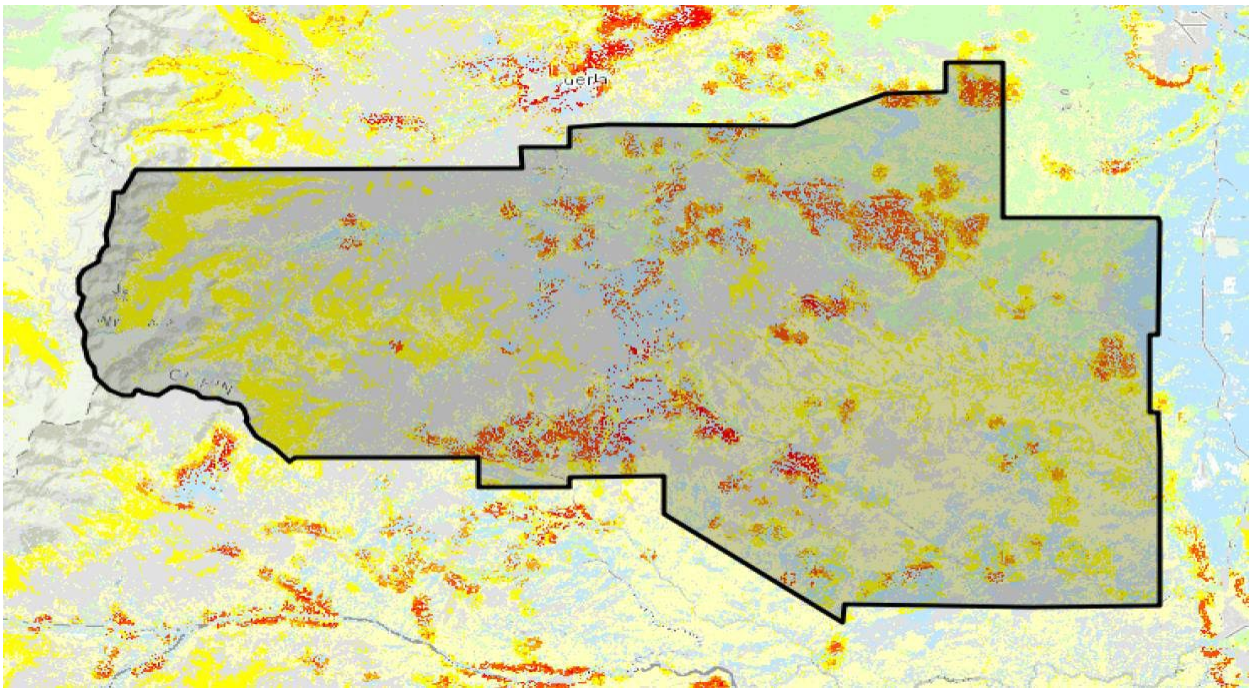
The following picture depicts the suppression difficulty in the Mountain District.



Suppression Difficulty Class	Rating	Percent
Tier 1	Slight to Moderate	17%
Tier 2	Moderate to Significant	47%
Tier 3	Significant to Severe	28%
Tier 4	Inoperable	8%
Total		100%

The suppression difficulty rating reflects the difficulty or relative cost to suppress a fire given terrain and vegetation conditions. This rating combines slope steepness, vegetation, and fuel type characteristics to identify areas where it would be difficult or costly to suppress a fire.

The following picture depicts the values at risk rating in the Mountain District.



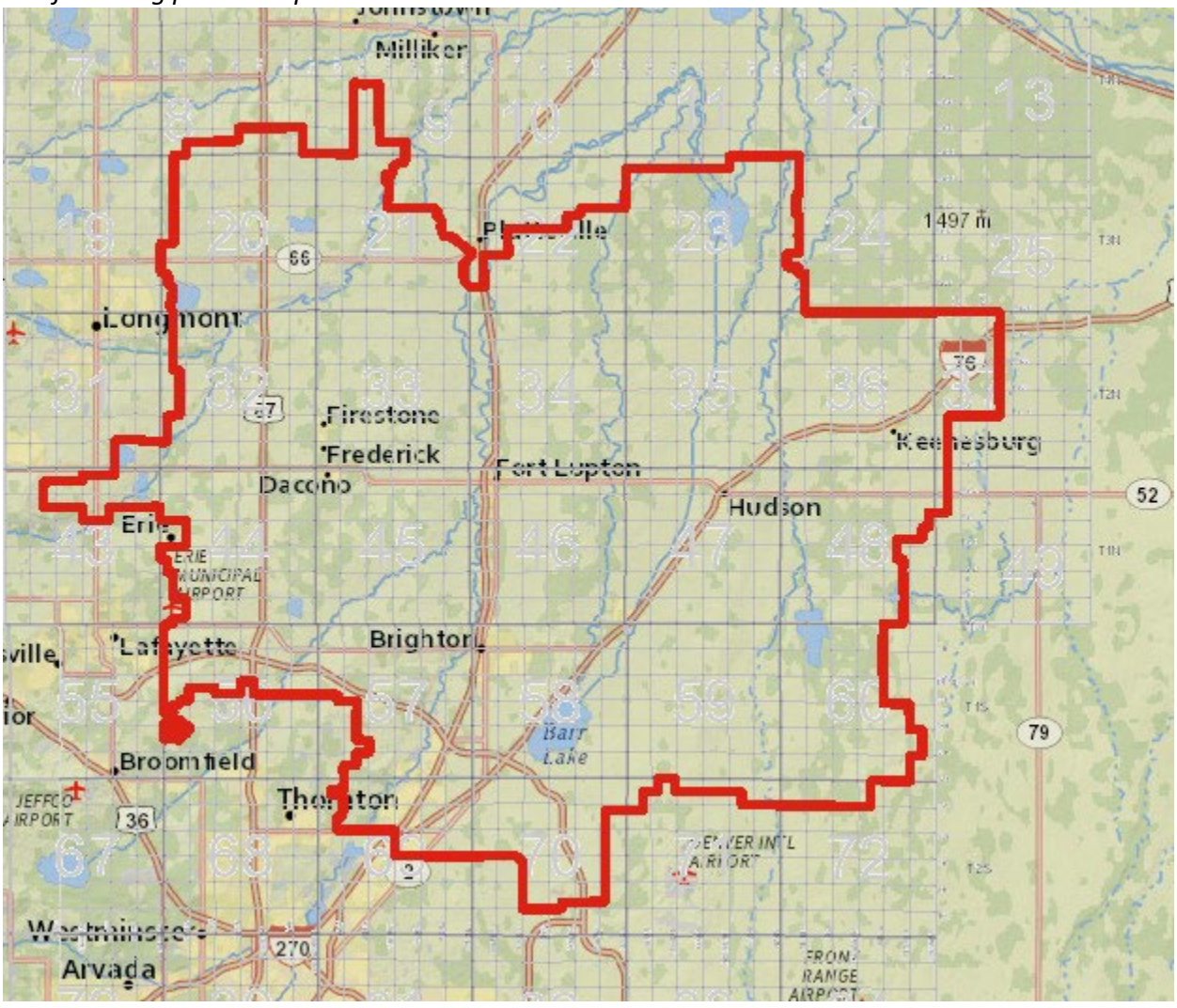
Values at Risk Class	Rating	Percent
Tier 1	Low Negative Impact	51%
Tier 2	Medium Negative Impact	41%
Tier 3	High Negative Impact	6%
Tier 4	Severe Negative Impact	2%
Total		100%

Values at risk rating represents other assets that would be adversely impacted by a wildfire. These assets are WUI, forest assets, riparian assets, and drinking water importance areas. Calculating the values at risk rating requires spatially defined estimates of the intensity of fire integrated with the identified resource value. The fire intensity level is based off flame length for a location.

Plains District Risk Data

While the Plains District does not have a high wildfire risk, the possibility of a grassland fire exists; therefore, the risks have been evaluated and included in the Wildfire Mitigation Plan. United Power is following an initiative-taking approach to mitigate the risk which is detailed in the Mitigation Action Summary.

The following picture depicts United Power's Plains District.



Risk Assessment – Plains District

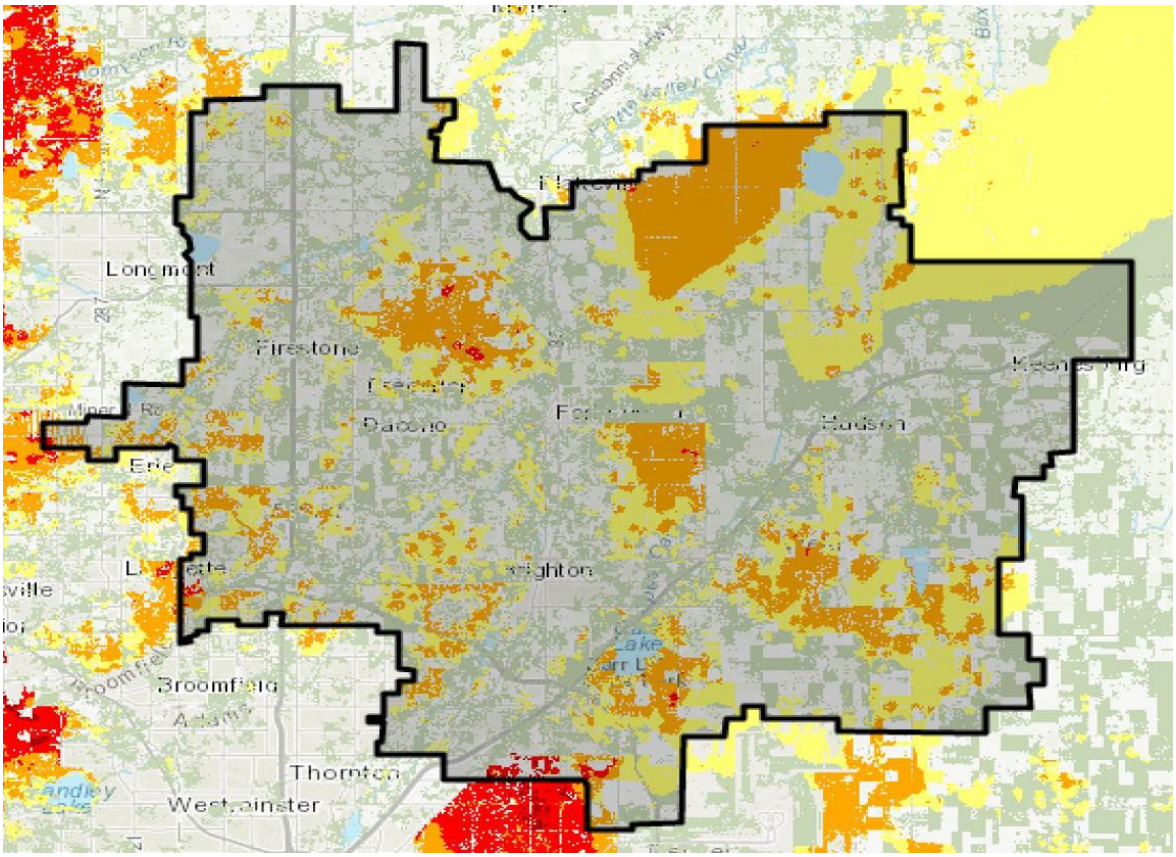
Tier 1 – Non-burnable/lowest risk

Tier 2 – Low risk

Tier 3 – Medium risk

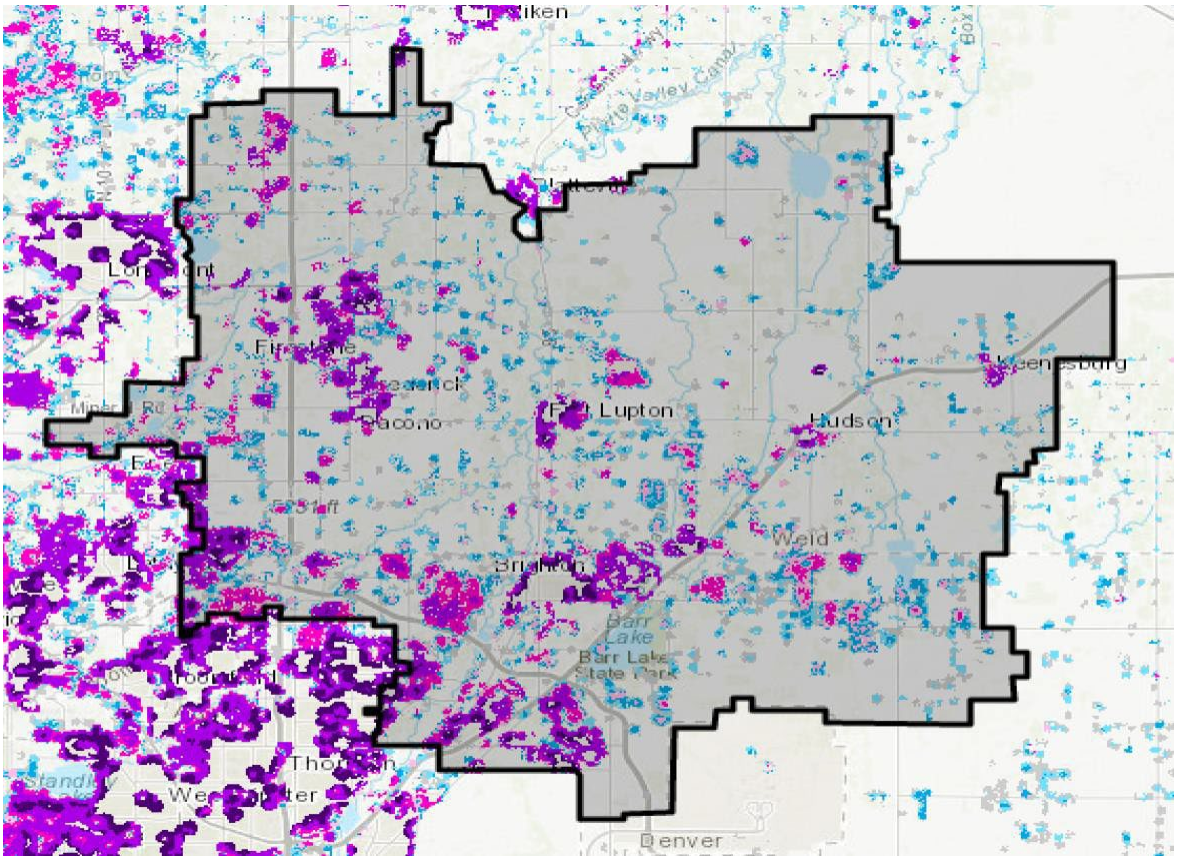
Tier 4 – High risk

The following picture depicts the overall wildfire risk in the Plains District.



Wildfire Risk Class	Rating	Acres (Approximate)	Percent
Tier 1	Non-burnable/lowest	303,665	69%
Tier 2	Low	79,295	18.5%
Tier 3	Medium	53,710	12%
Tier 4	High	1,660	0.5%
Total			100%

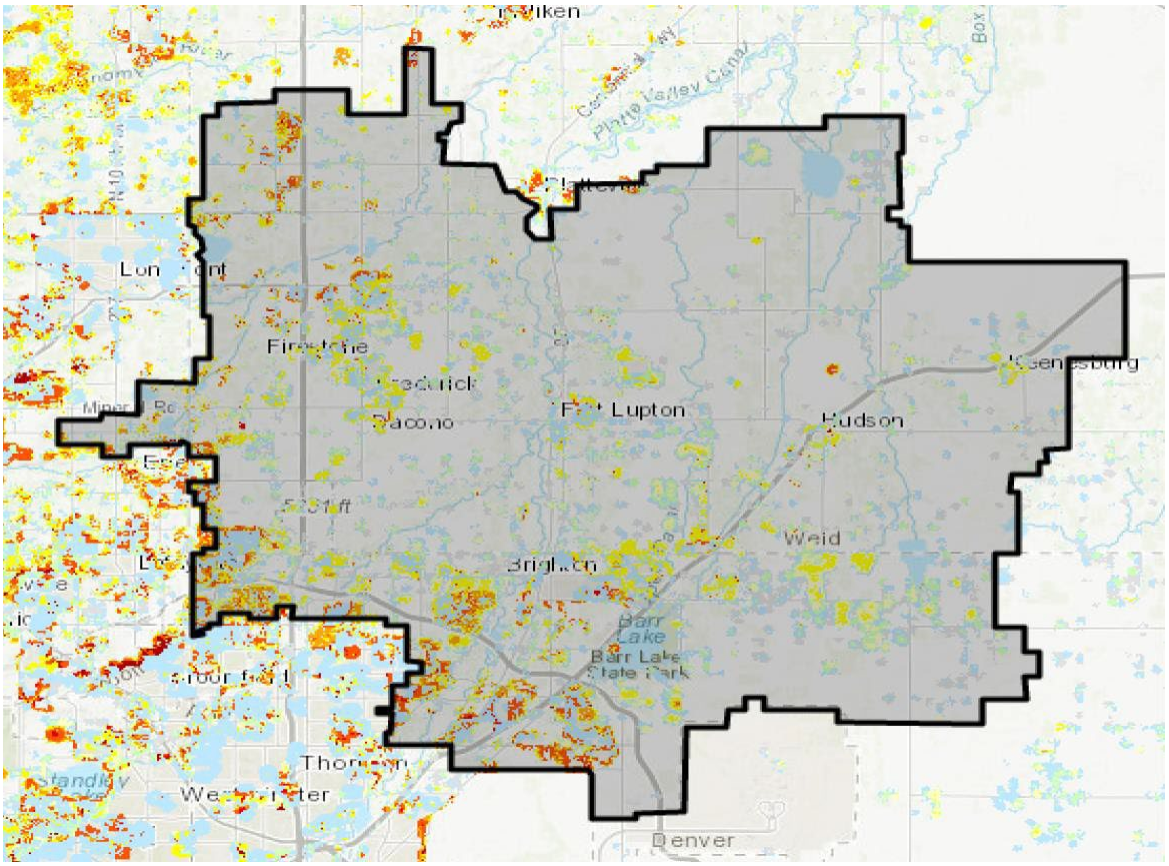
The following picture depicts WUI in the Plains District.



Housing Density		Percent of WUI Population	WUI Acres (approximate)	Percent of WUI Acres
Less than one house/40 acres	to one house/20 acres	3%	38,620	37%
One house/20 acres to One house/10 acres		3%	16,150	16%
One house/10 acres to one house/5 acres		4%	13,315	13%
One house/5 acres to One house/2 acres		9%	13,400	13%
One house/2 acres to Three houses/1 acre		45%	17,050	17%
More than three houses/acres		36%	3,540	4%
Total		100%	102,075	100%

WUI reflects housing density where humans and structures mix.

The following picture depicts the WUI risk index in the Plains District.

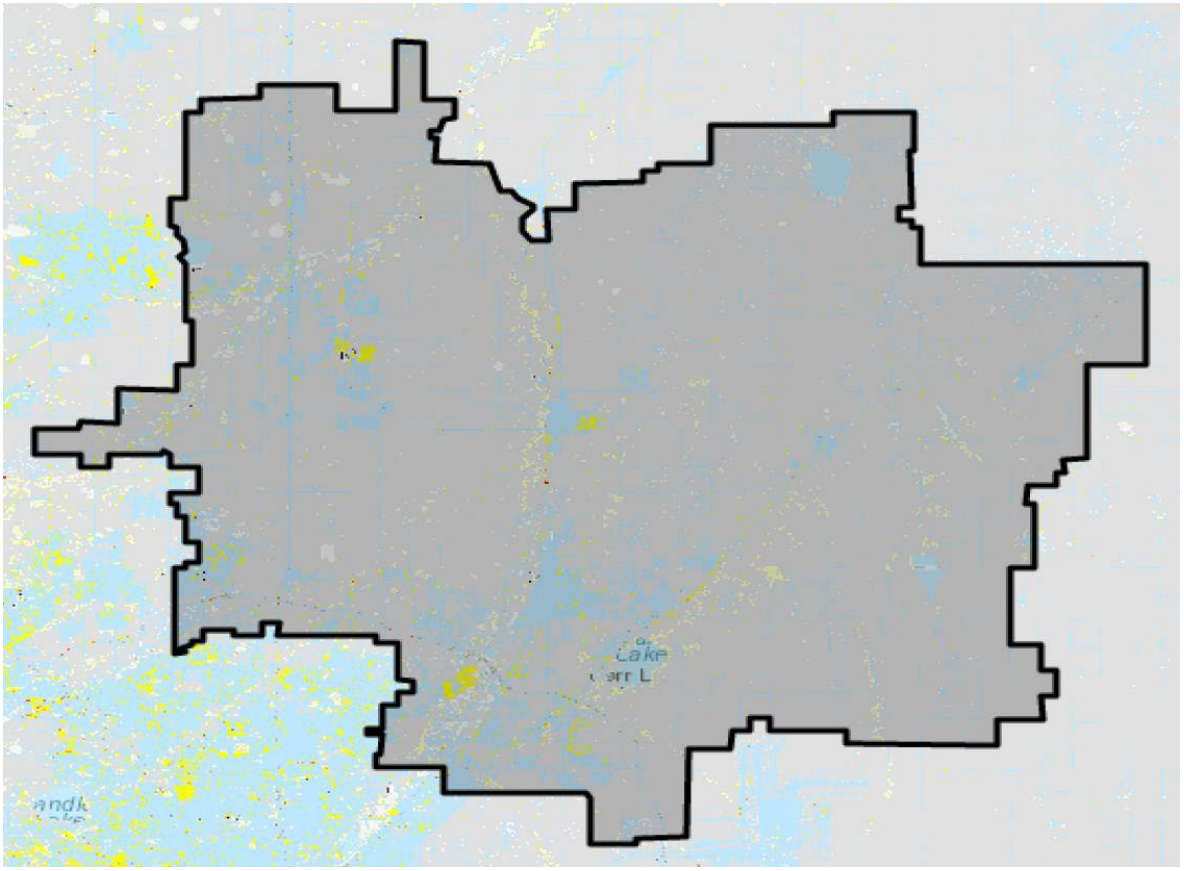


WUI Risk Class		Rating	Acres (approximate)	Percent
Tier 1		Least negative impact	54,210	51%
Tier 2		Low negative impact	26,250	26%
Tier 3		Medium negative impact	21,225	22%
Tier 4		High negative impact	390	1%
Total			102,075	100%

The WUI risk index layer is a rating of the potential impact of a wildfire on people and their homes. The key input, WUI, reflects housing density consistent with the Federal Register of National Standards. The location of people living in the WUI and rural areas is essential for defining potential wildfire impacts to people and houses.[4]

[4] Colorado Wildfire Risk Assessment Summary Report based off United Power's Plains District

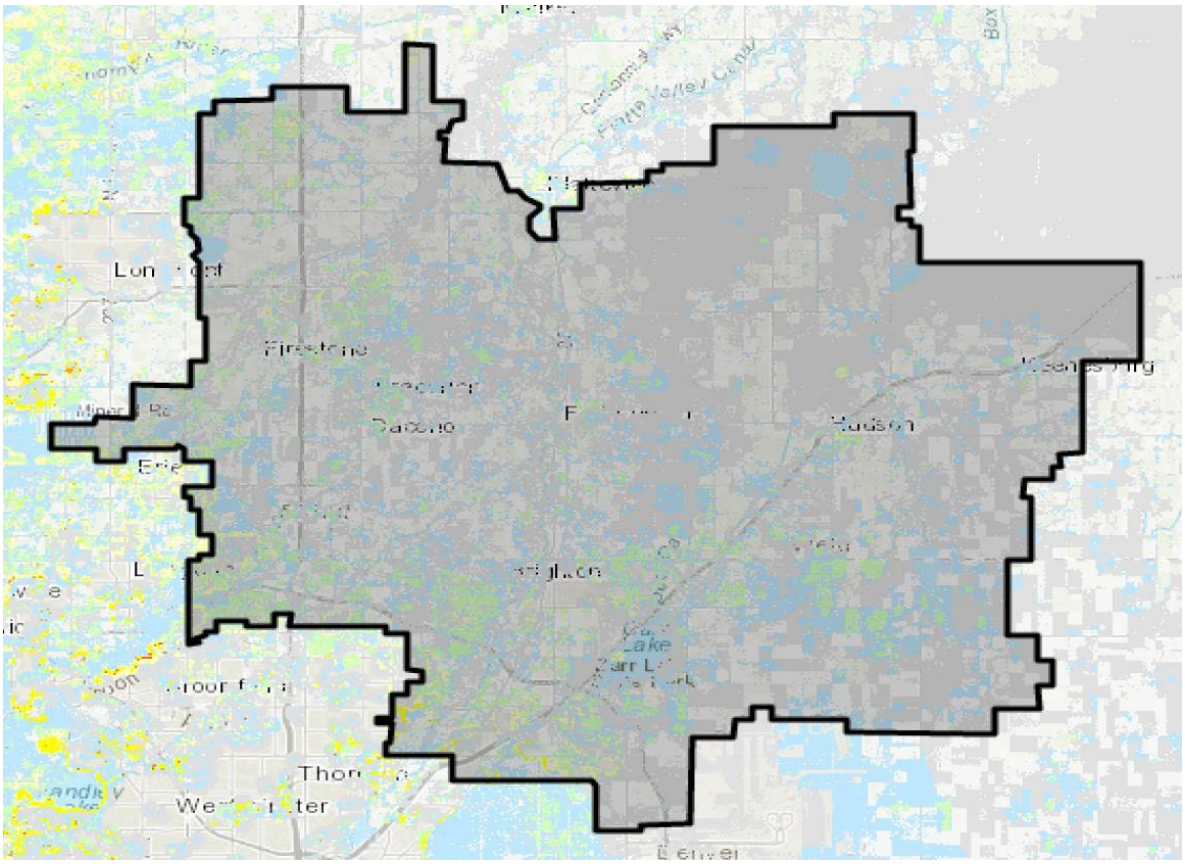
The following picture depicts the suppression difficulty in the Plains District.



Suppression Difficulty Class	Rating	Percent
Tier 1	No to slight limitations	98.8%
Tier 2	Moderate to significant	1.2%
Tier 3	Significant to severe	0.0%
Tier 4	Inoperable	0.0%
Total		100%

The suppression difficulty rating reflects the difficulty or relative cost to suppress a fire given terrain and vegetation conditions. This rating combines slope steepness, vegetation, and fuel type characteristics to identify areas where it would be difficult or costly to suppress a fire.

The following picture depicts the values at risk rating in the Plains District.



Values at Risk Class	Rating	Percent
Tier 1	Low negative impact	98.2%
Tier 2	Medium negative impact	1.8%
Tier 3	High negative impact	0.0%
Tier 4	Severe negative impact	0.0%
Total		100%

Values at risk rating represents other assets that would be adversely impacted by a wildfire. These assets are WUI, forest assets, riparian assets, and drinking water importance areas. Calculating the values at risk rating requires spatially defined estimates of the intensity of fire integrated with the identified resource value. The fire intensity level is based off flame length for a location.

Mitigation Action Summary

The following summary includes actions that United Power is taking to reduce the chance of a wildfire in its service territory. Actions may be in various stages of planning, construction, or completion.

System hardening – Replace infrastructure in fire prone areas, including running power lines underground to significantly reduce the likelihood of a spark-ignition source which could cause a wildfire.

Routine inspections and maintenance – Regular maintenance and inspection of the electrical system helps to ensure safe reliable electric service and protects critical infrastructure from the impacts of a wildfire.

Vegetation management – Identify potential vegetation encroachment on the cooperative's infrastructure and then plan, prioritize, and eliminate risks based on criticality. Create fire breaks for defensible space near critical infrastructure. Reduce vegetative fuels while cycle trimming or removing trees.

Situational awareness – Add technology and field equipment to allow personnel to monitor and respond efficiently to variable weather and fire threat conditions. Ensure field personnel and contractors are prepared to respond to a wildfire, through training, tabletop drills, and firefighting equipment.

Community outreach – Communicate with various groups, such as County Offices of Emergency Management, fire departments, and members regarding United Power's Wildfire Mitigation Plan. Participate in wildfire preparedness committees and task forces. Build partnerships to ensure a resilient community.

The following tables provides information about current mitigation actions.

SYSTEM HARDENING			
Actions	**Benefits**	**Status**	**District**
Fire protection wraps for wood poles	Protects wood poles from fire damage.	Ongoing Installations	Mountain
			Plains
Hendrix covered cable system	Reduces outages caused by high winds and/or momentary tree contact.	Ongoing Installation	Mountain
Eliminator fuse (ELF) – current-limiting dropout fuse	Internally contains the possible arc during a fault interruption and limits the amount of fault current.	Ongoing Installation	Mountain
Covered conductor	Prevents faults due to contact by trees or animals, resists abrasion, electrical tracking, and UV degradation.	Ongoing Installation	Mountain
Underground Cable	Significantly reduces the impact of a wildfire, improves reliability, and reduces vegetation maintenance costs.	Ongoing Installation	Mountain
			Plains
Schweitzer Engineering Laboratories (SEL) Arc Sense™ Technology	High-impedance fault detection.	Installation complete	Mountain
Power pole inspections	Identify decay or defects in wood poles. Apply remedial treatments to extend the life of pole and ensure safety.	Ongoing	Mountain
			Plains
Substation inspections	Visual inspection and condition-based maintenance to check the reliability of equipment. Infrared cameras to detect hot spots.	Ongoing	Mountain
			Plains
Drone inspections	Obtain visual photos of structures and attached hardware. Thermal imaging detects heat or hot spots to ensure system integrity.	Ongoing	Mountain
			Plains

VEGETATION MANAGEMENT			
Actions	**Benefits**	**Status**	**District**
Digital data collection	Helps detect vertical clearance between power lines and trees.	Ongoing	Mountain
		In planning	Plains
Cycle trim	Analysis for future trim year at circuit, line segment, and span level.	Ongoing	Mountain
		In planning	Plains
Hazard tree management	Remove dead, dying, or diseased trees from power lines.	Ongoing	Mountain
			Plains
Planning and tracking actions for contractors	Verify pre-trim and post-trim inspections through intelligent vegetation management system. Drone post flights.	Ongoing	Mountain
		In planning	Plains
Fire break at critical infrastructures	Remove vegetation around substations and near Coal Creek Canyon Office.	Ongoing	Mountain
			Plains
Dig safe, plant safe	Safe tree planting information guide available.	Ongoing	Mountain
			Plains
Fuel reduction	Track quantities of vegetative fuels being removed during cycle trims/tree removals.	Ongoing	Mountain
		In planning	Plains

SITUATIONAL AWARENESS			
Actions	**Benefits**	**Status**	**District**
Supervisory control and data acquisition (SCADA)	Allows monitoring of Substation equipment and specific field devices.	Ongoing	Mountain
			Plains
Weather forecasting	United power utilizes NOAA weather data to forecast Red Flag warnings and other weather-related events to respond appropriately.	Daily	Mountain
			Plains
Wildfire camera	Detect, verify, and monitor wildfire. Communicates directly with local fire authorities in our mountain area and United Power.	In Planning	Mountain
		In Planning	Plains
N5 shield sensor	Chem Node Sensor to detect smoke, heat, humidity, and gas particulates for wildfire and/or emergency situations.	Ongoing; Install 100 more in partner with Gilpin County for 2025	Mountain
Truck-mounted and backpack fire pumps for Mountain District crew	Ready access to water in case of emergency.	Ongoing	Mountain

COMMUNITY OUTREACH			
Actions	**Benefits**	**Status**	**District**
Colorado Utility Wildfire Consortium	Discuss fire mitigation, joint efforts, and lessons learned with neighboring utilities.	Ongoing (Annual)	Mountain
			Plains
Office of Emergency Management	As a stakeholder, be involved with training, coordinating efforts, and preparation if an emergency occurs.	Ongoing	Mountain
Fire protection agencies	Discuss fire mitigation with first responders.	Ongoing	Mountain
			Plains
Fire mitigation flyer	Information for United Power communities regarding the cooperative's fire mitigation efforts.	Ongoing	Mountain
			Plains
Community events	Meet, inform, and build relationships with members at community events.	Ongoing	Mountain
			Plains

Mitigation Actions by Category

System Hardening

Wood pole protection – United Power has utilized multiple fire protectants such as Osmose Fire-Guard®, Osmose fire resistant paint, and most recently, Genics Fire Mesh™, to protect wood poles from damage if exposed to fire. The products vary in appearance but do not encapsulate moisture or promote decay and allow the pole to breathe protecting wood poles, which reduces the cost or may eliminate the need to replace a wood pole post fire. Products can withstand years of outdoor weathering and multiple burns, depending on the intensity and duration of the burn.

Hendrix covered cable system – Also known as spacer cable, has been installed on both sub-transmission and distribution circuits. Benefits include durability, the high-density outer layer resists abrasion, electrical tracking, and UV degradation. It can withstand high winds and temporary contact with trees and limbs, which may prevent faults due to contact.

ELF – current-limiting dropout fuses – Replacing standard expulsion fuses with new current limiting dropout fuses in the Mountain District. This type of fuse has two main benefits for fire prevention. First, the fuse will internally contain the resulting arc during a fault interruption. Second, the fuse will limit the amount of fault current that goes through a fuse prior to the fuse blowing, which also limits the amount of heat energy given off at a fault location. Additionally, the ELF fuse operates silently, unlike expulsion fuses.

Covered conductor – Similar to the Hendrix covered cable system, the difference being that standard construction methods are utilized when installing covered conductor. Specific areas in the Mountain District have been rebuilt with covered conductor and will continue, as necessary. When and where it is possible, installing underground cable will be the preferred choice.

Underground cable – There are many benefits to using underground cable, including lower cost for maintenance and vegetation management and longer useful life. Although initial cost to install underground cable is greater, the useful life is longer than overhead lines. Underground cable also improves reliability and reduces service interruptions caused by wind, ice, heavy snow, and lightning. Lastly, the impact of a wildfire is dramatically reduced.

Arc Sense Technology (AST) – AST from SEL is an innovative solution that detects HIFs (high impedance faults) on distribution systems. Detecting HIFs has challenged utilities and researchers for years. SEL-patented AST detects electrical arcing, allowing the technology to identify more HIFs than conventional ground overcurrent protection elements. Using AST results in enhanced protection system security and fewer false trips.

An HIF, such as one caused by a downed live conductor, draws low fault current, and although

it is unlikely to cause thermal damage to electrical distribution equipment, an HIF poses a significant danger to humans (utility employees and the public), livestock, and property. Downed live conductors can electrocute people and animals that encounter them, or they can initiate fires that cause significant property damage. Such faults are difficult to detect and may exist in the distribution system for an extended period, increasing their risk. AST helps detect and clear these distribution system faults while maintaining protection security.

In the Mountain District at Crescent, Lincoln Hills, and Ralston Creek substations, reclosers with SEL relay AST have been installed. This technology looks for high impedance fault, such as downed conductor or a line in contact with a tree. These work by 'learning' the system and looking for slight changes in the current and harmonics based against historical data. If the relay determines there is a high impedance fault, an alarm is sent via SCADA to United Power's System Operations department who will notify field personnel.

Power pole inspections – Ground inspections are critical to ensure safe, reliable structures for field personnel and public safety. There are over 59,000 power poles between the Mountain and Plains Districts. Approximately 6,000 poles are inspected every year, with each pole inspected on a 7-year cycle. Inspectors identify decay, measure defects, and estimate the pole's remaining useful life. Through regular inspection and maintenance, the life of a pole can be extended by applying effective remedial treatment. If a pole fails inspection, it is red tagged, and a work order is created to replace the pole.

Substation inspections – Inspections of substation equipment is necessary for reliable electric service. Visual inspections of transformers, circuit breakers, CTs, PTs (current transformers and potential transformers), and disconnects identify any visible abnormality or failure. "Condition based" monitoring identifies internal defects or abnormalities so that preventive action can be taken. Infrared cameras detect hot spots where a loose or failing connection might be located. Additionally, the grounding system is checked for loose connections on structures, panels, and other equipment.

Drone inspections – Colorado Aerial Imaging specializes in using drones to take pictures and/or videos of United Power infrastructure. This technology allows a bird's eye view of the structure and attached hardware and can detect problems missed by ground inspections. The drone gives a broader view of structures, material, and terrain which is beneficial for job planning. To easily identify locations, all photos are tagged with geographical coordinates. Field personnel can study photos and get material and equipment for the job prior to being onsite, which improves efficiency. The drone can also fly power lines quickly and with minimal intrusion to cooperative members. In 2024, United Power began implementing LiDAR on these flights, which captures vegetation density and the health of the surrounding environment. This information is valuable to maintaining infrastructure and preventing potential outages. United Power has been utilizing Colorado Aerial Imaging since 2015.

Vegetation Management

- To maintain vegetation management in the Mountain District a solution developed by AiDash was implemented in 2021. AiDash's Intelligent Vegetation Management System™ (IVMS) leverages the power of artificial intelligence in combination with satellite imagery to identify vegetation encroaching power lines. While the technology is complex, the solution is quite simple. IVMS uses current satellite imagery to detect horizontal and vertical distances between power lines and trees. It then leverages several years of historical satellite imagery to create a growth rate model of all vegetation to predict an accurate and optimal trim cycle for each segment along the United Power system. Lastly, IVMS assigns a criticality score to all circuits/segments of the electric system based on how many members would be affected by an outage if a tree fell into a power line. Through IVMS, all future vegetation work can be prioritized, scheduled, and sent to contractors. Post trim audits are also preformed through satellite imagery, ensuring areas are trimmed according to specifications. This IVMS data is invaluable for optimizing the budget and improving planning process. In 2024, United Power began implementing IVMS in the Plains District. United Power also received an award for Wildfire Reduction Impact from AiDash, the cooperative's partnership with them has allowed innovation and real-world results using their products in conjunction with the United Power Wildfire Mitigation Plan.

- In the Mountain District, vegetation was removed creating a 'fire break' near critical infrastructure . Heat from a fire can be as dangerous to infrastructure as the fire itself. United Power continues to maintain and remove hazardous vegetative fuels such as grasses and weeds around the perimeter fence lines of substations and its Coal Creek Office to mitigate wildfire risk.

- United Power provides information to members regarding its wildfire mitigation efforts, vegetation management, and the effects of planting trees close to power lines via the co-op's website and informational flyers.

- United Power has partnered with Gilpin County Office of Emergency Management, Timberline Fire Protection District Two, vegetation contractors, and various homeowner associations to help property owners remove vegetative fuels from their property.

Situational Awareness

- United Power's substation devices in the Plains and Mountain Districts can be controlled remotely by the System Operations department via SCADA. United Power utilizes SCADA to monitor the electric system in real time. This allows the cooperative to react sooner to events that could contribute to a wildfire.

- There are several options to monitor weather and fire conditions in Colorado. United Power System Operators will monitor conditions closely to ensure readiness if a wildfire threat occurs.

- United Power continues to install the N5 shield sensors strategically throughout the Mountain District to monitor areas with an increased risk of wildfire. The N5 shield sensor is solar powered and detects smoke, heat, humidity, and gas particulates. If the N5 shield sensor detects a hazardous condition an alert is sent to the cooperative's System Operations department and Mountain Area Manager, as well as local fire entities. Depending on the conditions, field personnel will be dispatched.

- Mountain District trucks are equipped with mounted water tanks and field personnel carry backpack fire pumps during fire season. This allows easy, quick access to water in case of emergency.

Community Outreach

- The Colorado Utility Wildfire Summit is an annual event attended by electric utilities throughout the state. The conference allows utilities to share recent technology, lessons learned, and new opportunities to mitigate wildfire and grassland fire risk. United Power was honored to host this event in 2024.

- United Power continues building strong working relationships throughout its service territory. Specifically, in the Mountain District, partnering with Gilpin County Office of Emergency Management (OEM), Timberline Fire Protection Department, Coal Creek Fire Department, Boulder County OEM, and other entities in the Coal Creek Canyon area, creating a resilient mountain community.

- United Power partnered with Gilpin County OEM and Gilpin County School District to install a 625-kW generator at the school district's campus. The generator was installed as a safety enhancement to serve both the school and mountain community. In the event of a disaster, Gilpin County OEM can use the site as an emergency shelter.

- United Power is actively involved with the community; attending local celebrations, parades, and festivals to show members that it values their support and to keep them informed about fire mitigation, vegetation management, and more. Wildfire mitigation is a shared responsibility. It is important that cooperative members manage vegetation on their property and promptly notify United Power of any issues with electrical distribution equipment.

Distribution Operations

The primary objective of wildfire mitigation is to reduce the potential of a utility involved ignition event and minimize infrastructure damage from wildfires. Much of that effort is established in long-term planning, implementing methods to clear vegetation away from power lines, installing modern technology, and protecting critical infrastructure from fire damage.

The Marshall Fire occurred 2.5 miles away from United Power's Plainview substation, which is critical infrastructure for serving the Mountain District. System Operations, executive management, and the Engineering department monitored the situation and took necessary steps to ensure safe operations of the electrical system.

Historically, United Power focused on outage restoration. While major storms present employee and public safety challenges, wildfires heightened those safety challenges. United Power will continue wildfire mitigation, monitor field equipment, and review operational procedures to provide safe reliable electric service.

Actions	**Benefits**
Evaluate recloser data	Validate operation data for incidents
Fuse coordination assessment	Confirm proper fuse size at field locations
Track cause of outage	Record cause outages such as down conductor for fire ignitions
Track backpack water pump usage	Ensure field personnel have necessary resources and document usage
Wildfire notification	Establish a notification plan for wildfire occurrence

Budget Impacts

Mitigating wildfires involves various proactive measures, including system hardening, vegetation management, situational awareness, and community outreach. While these efforts require significant investment, the cost of prevention is minimal compared to the potential financial and operational impacts of a wildfire.

Cost Breakdown

System Hardening

Covered conductor installation: Estimated at $1.75 million per mile or $332 per foot. This includes the cost of materials, labor, and any necessary equipment.

Underground cable installation: Higher initial costs compared to overhead lines but offers long-term savings in maintenance and reliability. Specific cost estimates vary based on terrain and other factors. Some areas unfortunately are not feasible for undergrounding.

Fire protection wraps for wood poles: Ongoing installations to protect poles from fire damage, reducing replacement costs post-fire.

Vegetation Management

Cycle trimming and hazard tree removal: Regular maintenance to prevent vegetation encroachment. Costs are managed through prioritization based on criticality and risk.

Fire break creation: Establishing defensible spaces around critical infrastructure. Costs include labor and equipment for vegetation removal.

Situational Awareness

N5 shield sensors: Installation of sensors to detect smoke, heat, and gas particulates. Costs include the purchase of sensors and ongoing monitoring.

Wildfire cameras: Installation and maintenance of cameras for early detection. Initial installation costs are followed by minimal ongoing operational expenses.

Community Outreach

Partnerships and training: Costs associated with participating in wildfire preparedness committees, training sessions, and community events. These are low compared to the benefits of increased community resilience.

Financial Benefits

Reduced outage costs: Preventing wildfires reduces the frequency and duration of power outages, saving on restoration costs and improving service reliability.

Lower liability: Mitigating wildfire risks reduces potential legal and financial liabilities associated with utility-caused fires.

Long-term savings: Investments in underground cables and covered conductors lead to long-term savings in maintenance and reduced vegetation management costs.

The overall budget impact of wildfire mitigation is justified by the significant reduction in potential costs associated with wildfire damage and service interruptions. By investing in proactive measures, United Power ensures the safety and reliability of its electric service while protecting lives and property.

Conclusion

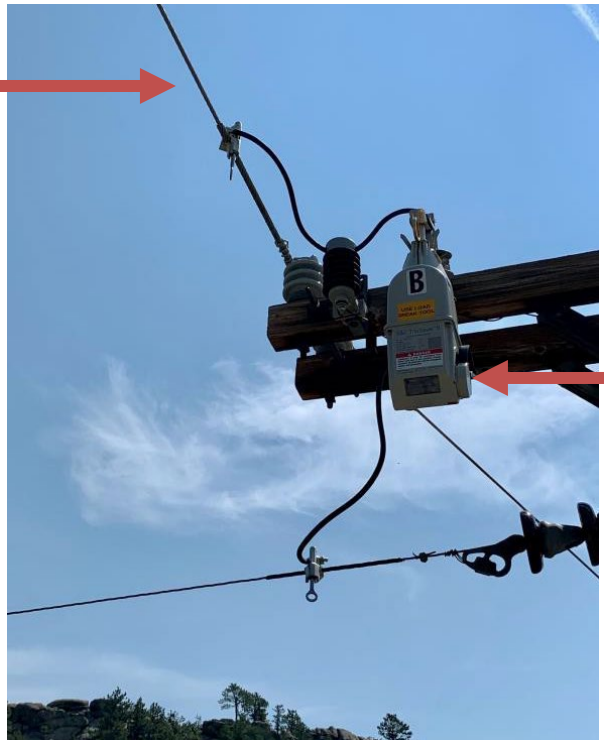
United Power is committed to reducing the risk of wildfire by incorporating practical and effective measures. While it is impossible to eliminate wildfire risk to the electrical system, the cooperative can significantly impact it by continuing to harden its infrastructure, removing encroaching vegetation, engaging members, and upholding the highest safety standards.

United Power's Wildfire Mitigation Plan builds on the foundational efforts of the 2019 plan, focusing on identifying, repairing, and replacing any deficient facilities. This plan will evolve over time, incorporating advanced technology and ongoing enhancements to the cooperative's electric system.

Pictures

Water tanks on digger derricks for dust control and spot fire control.

Three-phase covered conductor.
(Blue Mountain 2)



New covered conductor.
New ‘smart’ recloser for isolating power lines.

Hendrix spacer cable.
(Sub-transmission – Plainview 1)
(Distribution – Under build Crescent 7)

Osmose Fire-Guard Wood Pole Fire Protection.

Clean right of way.
(Sub-transmission line between Crescent & Lincolns Hills substations)