Firewise Community Assessment

Mt Herman Community
El Paso County, Colorado

April 2015

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Introduction

The Firewise Communities/USA program is designed to provide an effective management approach for preserving wildland living aesthetics. The program can be tailored for adoption by any community and/or neighborhood association that is committed to ensuring its citizens maximum protection from wildland fire. The following community assessment is intended as a resource to be used by Mt Herman Community (hereafter called the Community) residents for creating a wildfire safety action plan. The plan developed from the information in this assessment should be implemented in a collaborative manner, and updated and modified as needed.

Numerous neighborhood residents participated in data gathering and analysis. Inventory was based on areas or “flanks” of the Community, with a team lead for each flank.

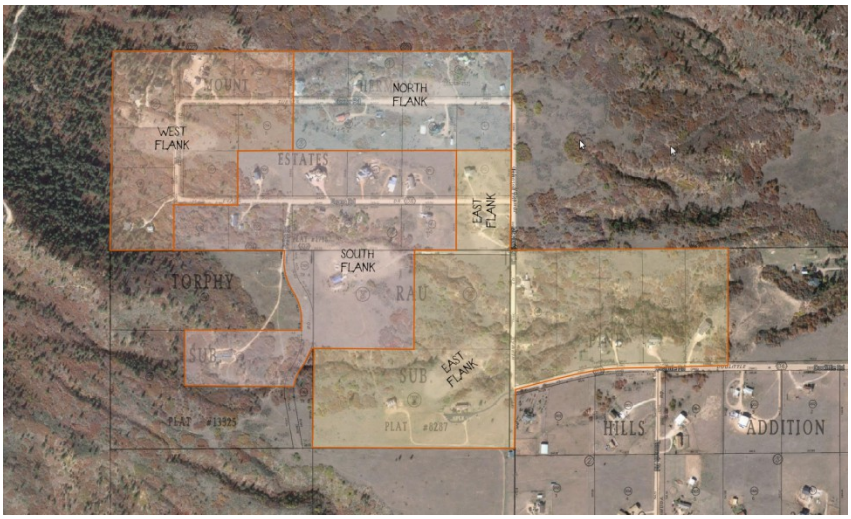

Illustration 1: Mt Herman Community - Flank Boundaries

We are fortunate to have a very engaged community of whom many are community leaders, military commanders, spiritual leaders, IT/computer specialists, technical writers, foresters and arborists, and firefighters. Our flank leads are Steve Roscio, Mark Schumann, Steve Hein and Brad Baker. Our technical advisor is Diane Strohm (USFWS). Additional residents participating in this assessment included Sharann Mills, Quinton Turner, Heather Jacobson, Bryan Kolosinski, Ken Emry, Toni Niswonger, Bob Giles, Jim Gilbreath, Kim Hawthorne, and Justin Bottin.

The Home Ignition Zone

Fire Happens.

The Community is located in a wildfire environment. Wildfires will happen. Exclusion is not a choice. The variables in a fire scenario are when and where a fire will occur. This assessment addresses the wildfire-related characteristics of the Community. It examines the area's exposure to wildfire as it relates to ignition potential. The assessment does not focus on specific homes, but examines the community as a whole.

A house burns because of its interrelationship with everything in its surrounding home ignition zone (HIZ) - the house and its immediate surroundings. To avoid a home ignition, a homeowner must eliminate the wildfire's potential relationship with his/her house. This can be accomplished by interrupting the natural path a fire takes. Changing a fire's path by clearing an HIZ can result in avoiding home loss. To accomplish this, flammable items such as dead vegetation must be removed from the area immediately around the structure to prevent flames from contacting it. Also, reducing the volume of live vegetation will affect the intensity of the wildfire as it enters the HIZ.

Included in this assessment are observations made while visiting the Community. The assessment addresses the ease with which home ignitions can occur under severe wildfire conditions and how these ignitions might be avoided within the HIZ of affected residents. Mt Herman residents can reduce their risk of destruction during a wildfire by taking actions within their HIZ. This zone principally determines the potential for home ignitions during a wildland fire; it includes a house and its immediate surroundings within 100 to 150 feet.

The result of the assessment is that wildfire behavior will be dominated by the residential characteristics of this area. By addressing community vulnerabilities, residents will be able to substantially reduce their exposure to loss. Relatively small investments of time and effort will reap great rewards in wildfire safety.

Wildland Fire Characteristics

A description of the severe case wildland fire that could threaten the community.

Fire intensity and spread rate depend on fuel type and condition (live versus dead), weather conditions prior and during ignition, and topography. Generally the following relationships hold between fire behavior and fuel, weather and topography:

- Fine fuels ignite more easily and spread faster with higher intensities than coarser fuels. For a given fuel, the more there is and the more continuous it is, the faster the fire spreads and the higher the intensity. Fine fuels take a shorter time to burn out than coarser fuels.

- Weather conditions affect the moisture content of dead and live vegetative fuels. Dead fine fuel moisture content is highly dependent on relative humidity and degree of sun exposure. The lower the relative humidity and the greater the sun exposure, the lower will be the fuel moisture content. Lower fuel moistures produce higher spread rates and fire intensities.

- Wind speed significantly influences the rate of fire spread and fire intensity. The higher the wind speed, the greater the spread rate and intensity.

- Topography influences fire behavior principally by the steepness of the slope. However, the configuration of the terrain such as narrow draws, saddles and so forth can influence fire spread and intensity. In general, the steeper the slope, the higher the uphill fire spread and intensity.

Several potential wildfire scenarios threaten the Community. The terrain is relatively gentle, with an east aspect and most slopes less than 10%. There are, however, several deeply incised gullies which could exacerbate fire behavior, with some stretches closely approaching residences. The western edge of the neighborhood features becomes much steeper as it approaches the Pike National Forest boundary, with slopes up to 30%. Prevailing winds during the most prevalent wildfire period are from the southwest and west. A fire originating on U.S. Forest Service (USFS) land from these directions would pose a considerable threat to the neighborhood, due to continuity of fuels, dissected terrain, and lack of access from the southwest. The Waldo Fire posed a major threat, with primary spread direction heading north and northeast. The ability of firefighters, coupled with good fortune of nature halted this wildfire at the Air Force Academy, only several miles to the south. Conversely, there are several areas of high recreational use on USFS land to the north, northwest and northeast of the Community. These represent higher risk as ignition sources, posing the threat of a fire spreading to the south across the dense second growth Gambel oak stands that have proliferated since the 1989 Berry fire. These areas still have heavy amounts of dead standing fuel from the fire, posing a serious threat. Were a fire to approach from the east, rate of spread could be increased through the chimney effect in the various east-west draws, threatening numerous homes. Because the Community is bordered on three sides by USFS land, fuel mitigation on this adjacent federal land to complement mitigation efforts of private property is critical.

Fire History

The Community and surrounding areas have been threatened by numerous wildfires for as long as recorded history. Of recent history, in 1989 the *Berry Fire* started and burned in our own community, consuming 1000 acres. The next closest was the *Spaatz Fire* in 2002, just weeks before the infamous

Hayman Fire. The *Spaatz Fire* was human-caused and within one mile of the CWPP area. It was contained at approximately 40 acres, but had the potential to quickly burn through the entire Mt. Herman area. We were fortunate in that the USFS Pike Interagency Hotshot crew was at their home base in Monument, quickly calling in air support to quell the fast-moving flames. In addition, our own neighborhood water tender fleet – the *Hose Monkeys* – rapidly mobilized to deliver tens of thousands of gallons of water to the ground crews. Just over a month later, the human-caused *Hayman Fire* started in Teller County, raging across 138,000 acres over the next month and threatening numerous neighborhoods in its path. This included the Monument and Palmer Lake areas, which were on standby for evacuation for days. Many residents did leave. These incidents, in addition to the 2012 *Waldo Canyon Fire*, the 2013 *Black Forest Fire*, and continuing drought and high fire danger conditions, have raised awareness and concern about the need to prepare for another such event.

Site Description

Welcome … This is us!

The Mt Herman Community is located in a Wildland Urban Interface (WUI) zone approximately four miles southwest of Monument, Colorado, in the northwest corner of El Paso County. It includes 36 parcels, with 24 existing homes and 55 people. Subdivision zoning requires a minimum of 2.5 acres per parcel; many landowners own five acre lots or more. The large lot size and juxtaposition to National Forest land provides considerable solitude and privacy, cherished by residents. Previously used for potato farming, the area was subdivided beginning in the 1950s.

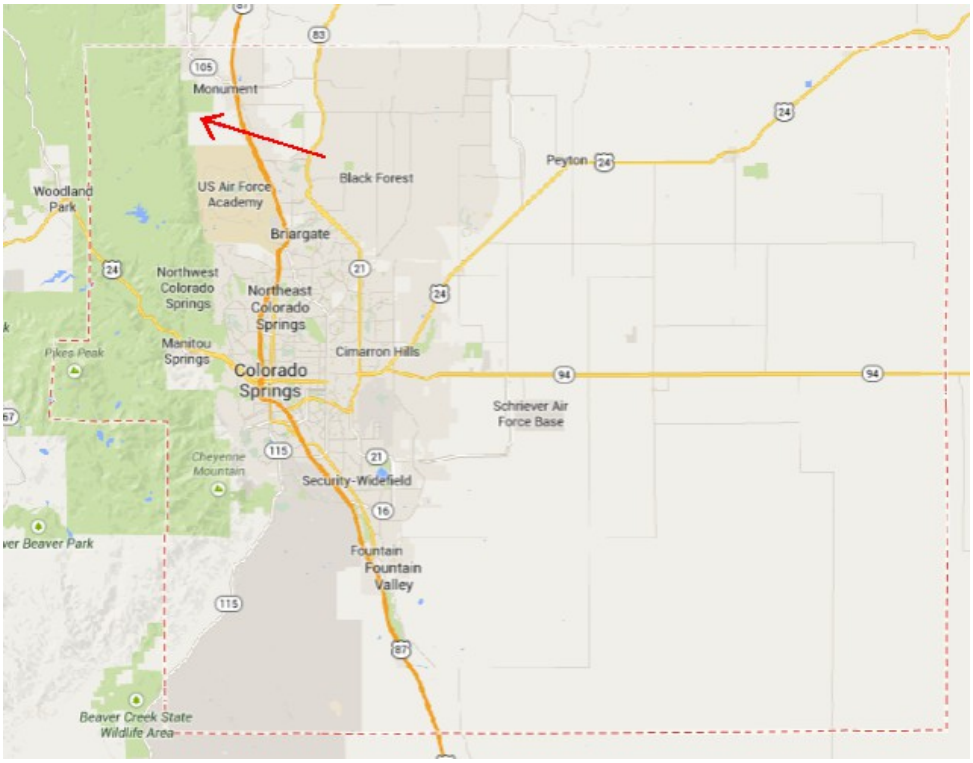

Illustration 2: Mt Herman Community Location

Periphery

The Community is surrounded on three sides by the Pike National Forest. The Monument Interagency Hotshot Center is located due north. Outside of the restricted administrative site, this area (known locally as the "Monument Preserve") provides numerous popular multi-use trails for hiking, horseback riding, and mountain biking. The well-known Memorial Grove is located one-half mile north of the Community, commemorating past USFS employees. There are several historic sites in this area surrounding a USFS tree nursery that thrived in the early 1900s. Old house foundations and rows of trees planted by the Civilian Conservation Corps (CCC) in the 1930s are part of this notable landscape. Unfortunately, these foundations have attracted vandalism and illegal campfires lately, and are of concern, not only because of damage to an historic resource, but also due to the serious wildfire hazard posed by irresponsible, reckless visitors. There are also National Forest trails to the east and west of the Community, providing much-appreciated recreation but also increasing the chance of human-caused wildfires.

Fire Protection

The Community falls within the Tri-Lakes/Monument Fire Protection District. The Mt. Herman Estates subdivision has one access road for both ingress and egress: Mt. Herman Lane (formerly known as Johnson Road). Roads within the neighborhood are wide enough to accommodate passing vehicles, are well maintained and accessible by larger structural engines. Dissected terrain and encroaching Gambel oak in direct proximity to the south end of Mt. Herman Lane could prove dangerous during a wildfire, possibly precluding safe access into the Mt Herman Estates subdivision for fire vehicles, and safe egress out. This chokepoint, locally named *the Gauntlet*, has been a key area of concern and focus of recent community fuel mitigation efforts. Doolittle Road serves as primary access to the Community. Spaatz Lane provides access to the far southwestern residents, and offers a potential alternative route of egress outside of the Mt. Herman Estates subdivision.

Vegetation

Gambel oak is the most prevalent vegetative species, with continuous coniferous cover confined to primarily the west flank. Gambel oak varies from open-grown mature clumps, and contiguous areas of second-growth dense thickets. Grassy meadows with mountain mahogany and yucca are abundant. Portions of these meadows include populations of noxious weeds such as diffuse knapweed, yellow toadflax, common mullein, leafy spurge and Canada thistle. There are also invasive species such as cheatgrass, smooth brome and Russian thistle. Much of the Community has widely scattered ponderosa pine, including seedlings and saplings planted over the past decade. There are also isolated Douglas fir and Rocky mountain juniper.

The west edge of the Community transitions into a mixed conifer forest of Douglas fir and ponderosa pine. This area has considerable ladder fuels in dense fir regeneration and Gambel oak, in addition to a fair amount of downed woody fuel from past tree mortality. Much of the pine in this stretch is infected with the parasitic plant dwarf mistletoe, weakening these trees and leading to bark beetle infestation from both mountain pine beetle and Ips engraver beetles. The steeper slope lends concern to this more heavily forested area, which is contiguous with the mixed conifer forest to the west on the adjacent Pike National Forest.

Fuel Types in the Community

Three primary fuel types are found within and surrounding the Community, describing the predominant vegetation species relative to wildfire behavior. Numerous detailed fuel models exist for an array of fuel types across the country, addressing potential fire behavior, flame lengths, fire spotting, etc. These are utilized in complex fire behavior calculations and predictions. For the residents of the Community, fuel descriptions are simplified to Grasslands with Scattered Trees; Mature Brush with Scattered Trees; Mature Brush with Scattered Trees in Gullies and Drainages; and Heavy Timber.

> Note: the rate of spread and flame length information listed below are general figures for fires with no slope and low winds (5 miles per hour (mph)). Topography, high winds, fuel moisture and relative humidity will affect the rate of spread and flame length, and may be higher or lower during a wildfire.

Grassland with Scattered Trees: Low to Moderate Hazard

Illustration 3: Mt Herman Community – Grasslands with Scattered Trees

Typically light, flashy fuels with scattered yucca, tri-leaf sumac, mountain mahogany and Gambel oak. Occasional scattered ponderosa pine, Rocky Mountain juniper, pinon pine or Douglas fir. Noxious weeds include diffuse knapweed, yellow toadflax, common mullein, Canada thistle, Russian thistle, wild mustard and cheatgrass. The latter in particular can greatly increase wildfire spread. Tumbleweeds (primarily dead knapweed and Russian thistle) pose a serious hazard with the potential of spreading wildfire in wind events.

Anticipated Fire Behavior: flames less than five feet high, higher flare-ups rare; duration of high flame lengths brief; fire spread moderate to fast (~1 mile per hour); spotting is generally rare and short range.

Mature Brush with Scattered Trees: High Hazard

Illustration 4: Mt Herman Community – Mature Brush

Areas with heavy brush (Gambel Oak, tri-leaf sumac and mountain mahogany) and scattered ponderosa pine, Rocky Mountain juniper, pinon pine or Douglas-Fir. Much Gambel oak has heavy dead component from drought kill, bark borer attack, frost damage and fire mortality.

Anticipated Fire Behavior: flames 5-20 feet high, brief duration and with high rate of spread. Short range spotting from blown embers is common.

Mature Brush with Scattered Trees in Gullies or Drainages: Very High Hazard

Illustration 5: Mt Herman Community -- Mature Brush with Scattered Trees in Gullies or Drainages

Areas with heavy brush (Gambel Oak, tri-leaf sumac and mountain mahogany) and scattered trees within incised drainages. Heavier vegetation on north slopes, including thick ladder fuels underneath trees. South slopes primarily brush with few smaller trees, heavier grass component. Erosive soils. Gambel oak has heavy dead component.

Anticipated Fire Behavior: flames 10-30 feet high, brief duration with very high rate of spread. Chimney effect due to slopes will exacerbate fire behavior. Mid- range spotting from blown embers is common.

Heavy Timber with Understory trees on a slope: Severe Hazard

Illustration 6: Mt Herman Community – Heavy Timber with Understory Trees on a Slope

Areas with heavy, dense stands of ponderosa pine and Douglas-fir. A heavy layer of overtopped and suppressed trees contributes to ladder fuels, particularly young Douglas fir. This thick understory poses the risk of channeling a ground fire into the main tree canopy, resulting in a devastating, fast-moving crown fire. Crown fire potential is high.

Many ponderosa pines are infected with dwarf mistletoe, weakening and predisposing these to bark beetle attack. Considerable recent mortality in pine from mountain pine beetle and Ips pine engraver beetle.

Moderate to heavy downed woody fuel component due to dead trees that have fallen over or broken off, increasing overall fuel loading.

Anticipated Fire Behavior: flare-ups higher than tree tops (100 to 180ft high) are frequent to continuous; spread rates up to several miles per hour are possible under crown fire scenario; long-range spotting in excess of ¼ mile is possible.

Fuel Hazard Ratings

These fuel types are depicted spatially in the following map:

Assessment Process

The homeowners and landowners of the Mt Herman Community formed a Community Wildfire Protection Plan (CWPP) group with these goals:

1. Obtain and keep Firewise status
2. Develop, maintain, and follow a CWPP
3. Become a fire-adapted community

Although our assessment process was part of our overall CWPP, it aligns with the Firewise assessment requirements. Our process to-date is as follows:

- We began with an **organizational structure** for the CWPP, established monthly meetings, and a process for each. We set up a community website and blog (MtHerman.org), plus an email list and phone roster, to track planning progress, maintain meeting notes, share information, and announce events. We agreed on the scope and reach of the organization, established privacy policies, and communication guidelines.
- We then focused on **wildfire education** for our community. Each month we would address different areas, and invite outside experts to our meetings. These have included Dave Root from the CO State Forest Service, Jonathan Bruno from the Coalition for the Upper South Platte (CUSP), and Keith Worley from Forest Tree Development (for home ignition training).
- Next, we identified our **community values**, as well as those for our surrounding areas. Whenever we have decisions to make or priorities to determine, we measure them against these values.
- We **engaged** our local, regional, and state fire protection agencies and listened to their needs and priorities, so we could factor them into our plans.
- Realizing that we have a huge ongoing task at hand, we partitioned the CWPP area into four **administrative flanks**. This allows us to perform parallel work in each flank on a more manageable scale, which we then merge into our overall plans.
- Next we began our **area assessments**. Using the knowledge we've obtained from nearly a year of training (which is only the beginning!), we conducted individual flank assessments, focusing on specific threats to each area, mitigation options, and priorities.
- We then merged the information from the flanks into a **community assessment** and a project list. We quantified project areas by effort and resources needed, such that the result is a single **project plan** with *manageable* (½ day to 3 day) projects.
- We then **prioritized treatments** by sorting within each flank, and a combined list based on the overall impact to the Community.

While the above was underway, we did not wait to begin work. In the summer and autumn 2014, several landowners commenced **structural improvements** (i.e. vent screening, wood mulch and brush removal, replacing flammable siding with stone), in addition to **fuel hazard mitigation** within Zones 1 and 2 of their residences. Six landowners partnered with CUSP and the Juniper Valley SWIFT crew to effect key **fuels reduction** work on their properties over the winter of 2014/2015.

In April 2015, we tackled the ingress/egress problems at the “Gauntlet”, our highest priority **Community project**. A partnership between CUSP, the USAF Academy football team and approximately 15 Community residents, this project cleared fuels within the Mount Herman Lane right-

of-way (ROW), the sole ingress/egress route into the neighborhood. This project entailed developing a traffic plan and securing a ROW permit from the County. CUSP provided sawyers to begin clearing the ROW and reducing brush concentrations within the hazardous gullies on either side of the road which greatly exacerbated potential wildfire hazard. The April 4th, 2015 **volunteer day** involved hauling and chipping brush to enhance safety of this critical route. This was followed by another **chipper day** on April 24, in which ten neighborhood residents participated in clearing and chipping brush from across the neighborhood. We anticipate another chipper day this summer as work continues.

Important Considerations

The Firewise Communities/USA program seeks to create a sustainable balance that will allow communities to live safely while maintaining environmental harmony in a WUI setting. Homeowners already balance their decisions about fire protection measures against their desire for certain flammable components on their properties. It is important for them to understand the implications of the choices they are making. These choices directly relate to the ignitability of their HIZ during a wildfire.
The following sections illustrate some of the concerns our community is addressing.

Ingress/Egress Mitigation

The "Gauntlet" along Mt Herman Lane: the sole access to Mt Herman Estates, choked with highly flammable Gambel oak.

Note density, growth, and encroachment

The "Gauntlet" after initial community fuels reduction project on March 18th, 2015. The primary clearing effort occurred on April 4th (after this photograph), and future projects are planned.

Density and encroachment reduced; R.O.W. cleared

Home Ignition Zone concerns

Ignitability:

Wood is very dry and flammable

Horizontal-vertical wood interface

Tinder and Aerial fuels:

Dry vegetation as a flammable aerial fuel

Dry leaves and brush accumulating in eddies

Roof and siding:

Flammable cedar shake siding

Horizontal-vertical wood interfaces

Successful Firewise Modifications

When adequately prepared, a house can likely withstand a wildfire without the firefighter intervention. Further, a house and its surrounding community can be both Firewise and compatible with the area's ecosystem. The Firewise Communities/USA program is designed to enable communities to achieve a high level of protection against WUI fire loss even as a sustainable ecosystem balance is maintained.

A homeowner/community must focus attention on the HIZ to eliminate the fire's potential relationship with the house. This can be accomplished by disconnecting the house from high and/or low-intensity fire that could occur around it. The following photographs from the Community are examples of good Firewise practices.

Zone 1 Defensible Space Enhancements

Clearing around structures.

Zone 2 and 3 Fuels Reductions

Thinning and reduction of woody fuels.

Ingress/Egress Improvements

Illustration 7: Mt Herman Lane; Community Firewise Day – April 4, 2015

Illustration 8: Hauling brush

Illustration 9: CUSP Crew and Neighbors with Chipper

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Illustration 10: USAFA football team moving slash with a bucket brigade

Illustration 11: Running the Chipper -- Neighborhood Chipping Day - April 24th, 2015

Next Steps

After reviewing the contents of this assessment and its recommendations, the Mt Herman Community Firewise Board – part of the Mt Herman Community CWPP – in cooperation with the Tri-Lakes Fire Protection District will determine whether or not it wishes to seek Firewise Communities/USA recognition. If it does, the community will submit a the Firewise application and related materials by May 31st, 2015. The Firewise Communities/USA representative will contact the Firewise Board representative by [date] to receive its decision.

If the site assessment and recommendations are accepted and recognition will be sought, the Mt Herman Community Firewise Board will create agreed-upon, area-specific solutions to the Firewise recommendations, and create an action plan in cooperation with the Tri-Lakes Fire Protection District.

We will integrate these recommendations into our current (and constantly-updated) community fire mitigation projects.

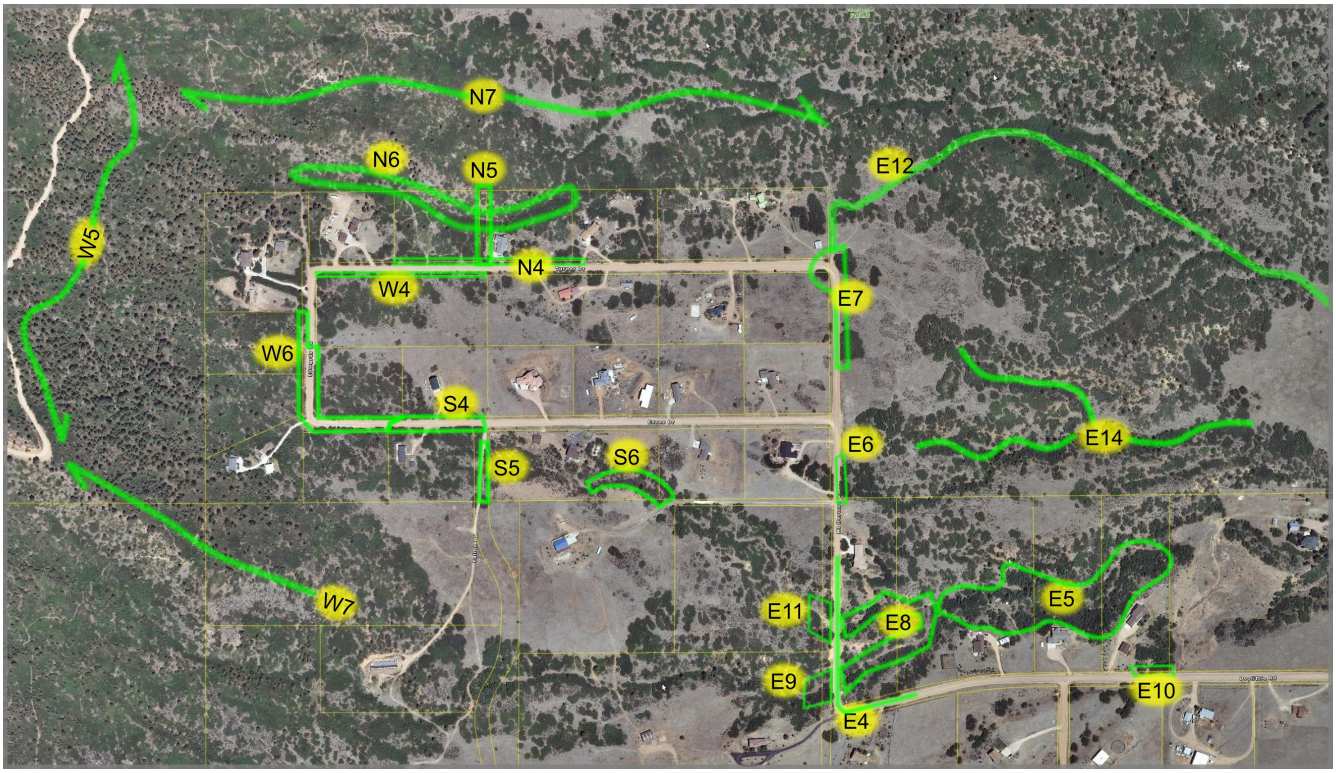

Illustration 12: Mt Herman Community Projects Map - As of April 2015

Assuming the assessment area seeks to achieve national Firewise Communities/USA recognition status, it will integrate the following standards into its overall CWPP plans of action:

- Sponsor a local Firewise board, task force, committee, commission or department that maintains the Firewise Community program and status.
- Enlist a WUI specialist to complete an assessment and create a plan from which it identifies

agreed-upon, achievable local solutions.

- Invest a minimum of $2.00 annually per capita in its local Firewise activities. Work done by municipal employees or volunteers, using municipal or other equipment can be included, as can state/federal grants dedicated to that purpose.
- Observe a Firewise Communities/USA Day each year that is dedicated to a local Firewise project.
- Submit an annual report to Firewise Communities/USA to document continuing participation in the program