LIONS DEN SUBDIVISION

FIRE PROTECTION PLAN

June 10, 2026

Revised October 19, 2026

SF 2525

Rubicon Wildfire Solutions LLC. was engaged by Whitehead Engineering LLC. to develop a Fire Protection Plan for the Lions Den subdivision proposal. Lions Den subdivision will be located on currently vacant land with the exception of one (1) dwelling structure that will be included in the development plans. This site is located west of Casey Ln. and the intersection of Shoup Road in the commonly known Black Forest area (unincorporated) of El Paso County, CO.

Full build out of adjacent properties on Donavan Lane (west parallel street) and Glenridge Lane (east parallel street) as well as the built properties on the east side of Casey Lane will show a similar configuration to what the Lions Den subdivision on the west side of Casey Lane will represent. This configuration density is important in the fact it will not significantly change fire service delivery and resource needs by adding 6 structures with each dwelling built on 5 acre lots. With this lot configuration the Safe Structure Distance (30 feet or more) from neighboring structures brings the structure to structure ignition factor to the lowest probability that would exist, more comparable to the Agriculture Rural development configuration.

The Lions Den is a proposed subdivision of approximately 36.16 acres into seven (7) lots for single family dwelling structures. These buildable lots will each contain approximately 5 acres each.

Casey Lane will provide the addressing and access route for all traffic to the development site, including emergency services response. Casey Lane like the other adjoining streets provides single access as well as egress for residents addressed on Casey Lane.

AUTHORITY HAVING JURISDICTION

Black Forest Fire Rescue Protection District is the AHJ for the proposed Lions Den subdivision. Black Forest Fire Rescue Protection District is a combination (career/volunteer) response agency that provides structure firefighting, wildland firefighting, emergency medical services, emergency medical transport of patients and hazardous materials primary response.

BFFR (Black Forest Fire Rescue Protection District) is structured as **a Rural Fire Protection Classification** fire agency which uses NFPA 1750 Standard for the Organization and Deployment of Fire Suppression Operations, Medical Operations and Special Operations to the Public by Volunteer and Combination Fire Departments.

Staffing and Response/Arrival time benchmarks frame the more predominate Rural classification for Black Forest FRPD developing a response time of 14 minutes to a fire incident with 6 staff members 90% of the time. Black Forest Fire Rescue achieves this benchmark with 2 stations in the jurisdiction and nearby mutual/automatic aid partnership with Monument FPD, Colorado Springs FD and Falcon FPD.

As the Black Forest region continues to grow and develop the BFFR operations will be divided between a Rural Classification and a Suburban Classification which calls for an increase in staffing (10) and arrival on scene within 10 minutes instead of 14 minutes with 6 staff. **Currently the AHJ is more closely meeting the Suburban Classification for response and staffing**.

WATER SUPPLY

The Black Forest Fire Rescue Protection District faces the same challenges as any other Rural Classification fire protection districts, but the primary challenge is water sources for fire protection needs. Black Forest is primarily a Hauled Water (utilizing water carried on apparatus or specialized water tank trucks known as Tenders) operation to approximately 90% of their protected properties. The remaining 10% of the structures have access to fire hydrants that are owned and operated by the Park Forest Water District or other developing water districts in the AHJ.

The Lions Den subdivision is located in the defined Hauled Water Response Zone. This means that the requirements for water in suppression of fires to any development within this subdivision of an earlier division of lands was put into this category at the time of plats filed with El Paso County. The Black Forest VFD (as it was then known) determined that their

response distance to this area from then Station 1 was within an acceptable Engine and Tender Response area. The subsequent movement of Station 1 from Shoup Rd. and Black Forest Rd. to Teachout Rd. (current site) did not significantly change the dynamics of the response time as viewed by the Fire District Board of Directors and the Fire Administration at that time.

There are two challenges in the Hauled Water Evolution, the first being the agencies staff (either volunteer or career) to operate the water tenders to meet the fire flow requirements, if the answer is yes then the next question is location of a water source to reload a Tender after it has supplied a tactical engine. **In answering the first question BFFR has long had a resilient Hauled Water Evolution system in place utilizing a two unit dispatch (Engine and Tender) to respond to a reported structure fire. In addition the Mutual/Automatic Aid group has quickly supported operations with additional Tenders to establish a more than adequate cycle of respond, off load, return to fill and return to fire scene. This configuration was used to maintain the fire flow test at Wolford Elementary School for the ISO Hauled Water Evolution Evaluation which far exceeds the fire flow requirements for a single family dwelling.**

The utilization of the best advantage water source is critical in the rural fire service districts, the choice of a cistern or pond (static water source) with dry hydrants presents additional operational challenges over the pressurized or a gravity feed water source. In the static water source a fire engine with pump and suction capabilities must be used to pull water from the static source and pump it into the Water Tender. As one can imagine this has a severe impact on meeting the NFPA 1750 Standard for staff on the fire scene when a critical apparatus and crew is dedicated to pumping from the static water source. These are the primary reasons why most rural fire agencies will opt for a longer travel distance between the pressurized water source and the fire scene and use the dry hydrant as a last resort water source. Experienced rural fire officers will typically trade the drive time factor for Tenders to maintain a second engine on the fireground rather than dedicated to drafting and pumping into a Tender with a reliance on their mutual/automatic aid partners Tender assistance.

The pressurized water source through a fire hydrant is the preferred option as a water source. The hydrant systems also shows a higher level of confidence for fire personnel as they are regulated by NFPA and American Water Works Association Standards, they are not compromised by freezing of the hydrant, have larger volumes of water than a cistern and are managed by an entity such as a Water District instead of an HOA, which has the designated responsibility but has little to no oversight. Cisterns in some areas are the private property of the funding HOA, meaning the water cannot be used for any structure fire that is not in that particular HOA. The old philosophy that water from any source can be used by the fire district for any fire should no longer a standard belief. **In Colorado a cistern is located on private property and the use and distribution of that water is under the control of the HOA who owns the tank, land and water in the cistern.**

PRESSURIZED WATER SOURCE (FIRE HYDRANTS): The nearest pressurized water source (fire hydrants) to the Lions Den subdivision are those hydrants located in the parking lot of the strip mall at 11590 Black Forest Road. At this location 3 fire hydrants are in close proximity with an all weather driving and positioning surface (asphalt) present. Secondary pressurized fill sites exist across Black Forest Road and at the water district fill site south of the intersection of Black Forest Road and Burgess Road.

Travel distance to pressurized water (hydrants) to Lions Den subdivision: 2.46 miles.

These primary and secondary pressurized fill sites (fire hydrants) located near the intersection of Black Forest Road and Burgess Road, are owned, managed, maintained and tested by the Park Forest Water District to meet NFPA and American Water Works Association Standards.

There are no cisterns located along Shoup Road corridor to provide water support for operations as the developments in the area was focused on the Hauled Water Evolution with BFFR apparatus and mutual/automatic aid partners.

The travel distance to The Lions Dens Subdivision exceeds the BFFD allowed distance by 0.25 miles. Thus, a water source within 1 mile of the subdivision must be established. The lions Den Subdivision proposed to construct a Cistern to provide 30,000 gallons of water in conformance with BFFD requirements and NFPA 1142. Computation sheet attached. The proposed cistern will be located on Casey Lane between lots 1 & 2. An all-weather surface will be provided along with appropriate fire connection appurtenances. See attached plan.

ACCESS

The Response Route to the Lions Den subdivision would utilize the east/west corridor of Shoup Road which feeds access to Casey Lane and all parallel residential development roads in the area. **Shoup Road** is a two lane, paved roadway with grades not exceeding 4.5% that is maintained by El Paso County Public Works Department. The roadway surface, clear visual distance and lateral vision of side roads and shoulders is considered very good for a roadway in this timbered area of Black Forest and provides safe and adequate response speeds without compromising civilian or firefighter safety.

Snow removal in this region is conducted by the El Paso County Public Works Department with very active clearing of Shoup Road as a major arterial, school bus route and emergency access route. Casey Lane and parallel roads or lanes that run off of Shoup Road are periodically adjusted for priority snow removal by the EPCPWD.

Casey Lane Is maintained in periodic maintenance schedule inventory for repair of surface and snow removal by the El Paso County Public Works Department. Like parallel streets there are no secondary access/egress paths from Casey Lane as it was designed before such requirements were codified by El Paso County. **Casey Lane will undergo modification of the**

cul-de sac at the end of the lane to meet the turnaround radius required in the El Paso County Land Development Code and Black Forest Fire Rescue Protection District. The proposed diameter is 100 feet.

All paths or roadways designated as driveways into the lots of the Lions Den subdivision will meet the requirements of the El Paso County Land Development Code and the requirements of the Black Forest Fire Rescue Protection District to attain proper position of fire apparatus in relation to the structure placement as defined in the applicable International Fire Code at the time of Building Permit issuance. The driveways to access properties shall be of the proper compaction of soils and the proper weight load bearing all weather surface to support fire apparatus to within 150'of the furthest corner of the structure. The width of all weather driving surface will be dictated by the El Paso Land Development Code, the International Fire Code and the Black Forest Fire Rescue Protection District. Appropriate pull outs to allow passage of apparatus, turn arounds and hammer head parking and maneuvering surfaces shall be provided if determined necessary to operate fire apparatus on the property with the Code required distances of each driveway.

Since all lots in the Lions Den subdivision have a timber component the access driveways must be maintained clear of any tree, limb or brush to maintain sufficient access as dictated by the applicable code which typically requires 12 feet of horizontal clearance surface and 13'6" of vertical clearance for the movement of fire apparatus. **This must be verified with local Codes and requirements which may require differing measurements.**

It is suggested that the Homeowner coordinate with the Black Forest Fire Rescue Protection District as building plans are developed for compliance of local requirements. The Homeowner should discuss the new structure with their insurance carrier for any requirements that may not be code or fire agency requirements, but may impact their ability to obtain and maintain fire insurance on their property.

Oct 19, 2026

This Fire Protection Plan prepared by;

Robert C. Harvey

Robert C. Harvey
NFPA #1190244-CWMS
CO-Executive Fire Administrator
CO-Fire Officer III
NFPA FO-II
OR-Fire Marshal (retired)

NFPA 1142 Water Supply

Calculation Sheet | Lions Den Subdivision | EPC File SF2525

Building Foot Print **Length =** 60 **Width =** 100 **Sq. Ft. =** 6,000

Total Sq. Ft. = 6,000

*Add height for each floor

Ceiling Height = 8.5 **Cu. Ft. =** 51,000

*Note: take 1/2 of pitched roof height

Attic Height = 5 **Cu. Ft. =** 30,000

Additional space: (porch, etc.)

Length	Width	Height	
0	0	0	**Cu. Ft. =** -

Total Cu. Ft. = 81,000

Total Cu. Ft. = 81,000 **OHC =** 7 **Gallons =** 11,571

Note Occupancy Hazard Classification number is 7 for dwellings, small office complexes and similar constructed facilities. Refer to NFPA 1142 for other types of structures.

Gallons = 11,571 **CCN =** 1 **Gallons =** 11,571

Note Type II Construction .75. Ex: Cinderblock, approved non-combustible material.
Type III Construction 1.0. Ex: Brick vaneer, approved non-combustible material etc.
Type V Construction 1.5. **Dwellings max 1.0 CCN per NFPA 1142**

Gallons = 11,571 **Exp =** 1.5 **Gallons =** 17,357.14

Note Any structure within 50' of burn structure is considered an exposure and requires total gallons to be multiplied by 1.5. DO NOT add .5 for each additional exposures.

Total Gallons Required	GPM
Up to 2,499 Gallons	250 GPM
2,500 to 9,999 Gallons	500 GPM
10,000 to 19,999 Gallons	750 GPM
20,000 or more	1000 GPM

Total GPM for NFPA 1142 750

In accordance with NFPA 1403, an additional water supply in the amount of 50% of total required fire flow must be available to handle unforseen situations.

Gallons = 17,357 **at** 750 **GPM** **for about** 23 **Minutes**

17,357 **Gallons** x 1.5 = 26,036 NFPA 1403 requirement

PROPOSED LOCATION AND ORIENTATION MAY CHANGE BASED ON FIELD CONDITIONS INCLUDING TOPOGRAPHY AND VEGETATION

EXISTIN GRAVEL SURFACE

CASEY LANE 50' ROW (Public)

PROPOSED DRY-HYDRANT PER FIRE DISTRICT SPECIFICATIONS PROTECT WITH BOLLARDS

PROP 30,000 GAL CISTERN (EST SIZE 10' DIA X 52' LENGTH)

PROP 30' X 80' GRAVEL ACCESS / TURN AROUND

PROPOSED GRAVEL ACCESS CONNECTION TO CASEY LANE WILL REQUIRE AN ACCESS PERMIT FROM EL PASO COUNTY

REFER TO BLACK FOREST FIRE & RESUCE PROTECTION DISTRIC CISTERN AND DRY-HYDRANR SPECIFICATIONS

PROP 60' X 70' CISTERN & ACCESS EASEMENT

LOT 1

LOT 2

LOT BOUNDARY

PRELIMINARY
NOT FOR CONSTRUCTION

WHITEHEAD ENGINEERING, LLC
CONSULTING CIVIL ENGINEERS

18 PACIFICA CIRCLE
HOT SPRINGS VILLAGE, AR 71909
PHONE (719) 237-4411

COPYRIGHT
WHITEHEAD ENGINEERING, LLC

DESIGN AND DRAWINGS NOT TO BE REUSED WITHOUT WRITTEN PERMISSION OF ENGINEER

SHEET TITLE: CISTERN PLAN

PROJECT NAME: LIONS DEN SUBDIVISION
EL PASO COUNTY, COLORADO

BENCHMARK:

REVISIONS:

SCALE:	1" = 20'
DATE:	01/14/2026
DRAWN BY:	DW
CHECKED BY:	DW

SHEET NO: 1 OF 1

DRAWING NAME: LIONS DEN
VIEW: CISTERN
PROJECT NO: 24016