

Exhibit 10

**Anchor Point, Berlaimont Estates
Access Review, Oct. 22, 2020**



Berlaimont Estates Access Review

Date: 10/22/2020

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INTRODUCTION

This report evaluates the proposed alternate access routes of Alternative 2 and Alternative 3 identified in Figure 1 based on differences in quantifiable fire behavior.

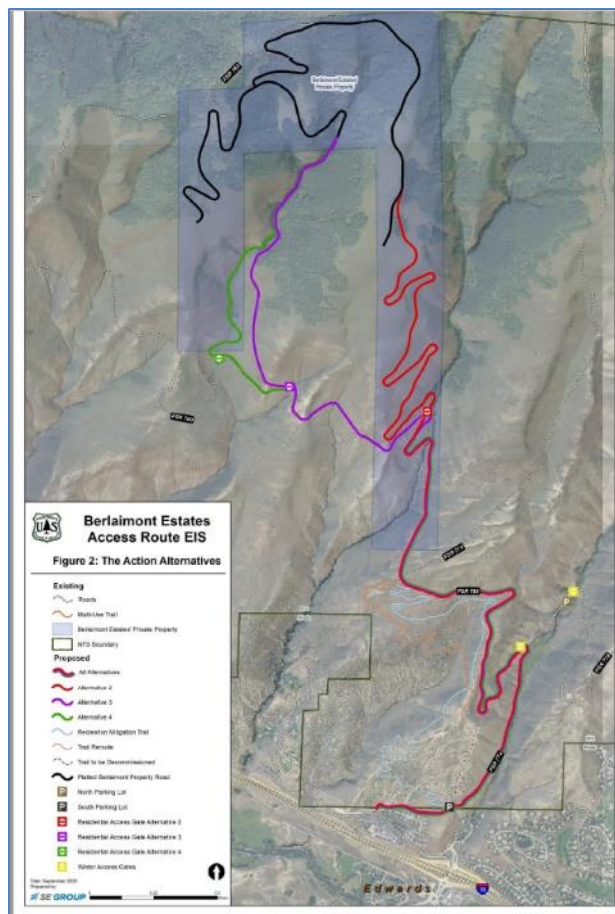


Figure 1 Access Alternatives

SUMMARY

- Simple observation of the two alternatives shows Alternative 3 a much shorter and less complex road system than Alternative 2 and hence preferable from a fire response and citizen evacuation perspective.
- Narrow roads, steep grades, soft shoulders, and hairpin turns which are more prevalent in Alternative 2 than Alternative 3 can all contribute to reduced response times and the potential increase to fire apparatus accidents.
- Alternative 2 adds approximately 8 additional minutes' drive time to or from the furthest developed lot and approximately 6 minutes to the emergency staging area.
- From the perspective of fire science, complying with the spirit and intent of codes and standards and in consideration of the extensive, collaborative work conducted to design Alternative 3, it should be the preferred access and egress route for the development.

BACKGROUND

The Berlaimont Estates subdivision is located in an area north of Edwards in Eagle County. It is located on the north side of Interstate 70, is surrounded by USDA Forest Service land, and is currently accessed by Forest Roads, the improvement and augmentation of which are part of the Approvals by Eagle County and approvals being sought by the USFS. This comparative analysis will evaluate the proposed access routes shown as Alternative 3 (purple) and Alternative 2 (red).

In 2017 the Berlaimont Estates wildfire mitigation plan was developed and submitted with the proposed access variance applications approved by Eagle County. A major focus of the plan was to design an access/ egress system that would mitigate any deficiencies, to the greatest extent possible, of a single access development. This plan was developed in consultation with and supported by the Eagle River Fire Protection District and the Eagle County Wildfire Mitigation Specialist.

The proposed alternative 3, follows along existing forest service roads to access the property. Once the road arrives at the Berlaimont Estates property, there are new roads and driveways planned.

These roads are 20ft wide, within a 50' wide easement in accordance with county requirements and are proposed to have 3ft of noncombustible shoulder on either side to provide a permanent fuel break. The design of Alternative 3 includes emergency turnouts and turnarounds placed along the road at locations where they are viable. Integrating similar mitigation within the design of Alternative 2 may be difficult to impractical. The applicant was approved for a variance from county roadway improvement standards to place turnouts at logical points along the road, rather than at given intervals as per county standards. The county requires an emergency turnout every one-thousand feet. The terrain for the road has limited the number of turnouts to 14 over a distance of 5.3 miles. The primary areas of concern from a wildfire safety perspective for the road are where the road abuts pockets of pinyon/juniper fuels. In this one area a fuels reduction project of 100 ft below the road is recommended. This area is on USFS property and the thinning project will need to be coordinated with the Forest Service possibly as part of maintenance of the road easement. Finally, within the property roadways are proposed to be improved to a maintained fire road which connects between the sections of paved road, as well as being maintained to the edge of the property. This would give emergency responders a second option of travel through the development. In the wildfire mitigation plan a system of strategies were designed in conjunction with the access plan to provide the safest development possible, from the perspective of residents as well as first responders. These strategies included structure hardening requirements, driveway design, defensible space and fuels reduction requirements as well as a shelter in place plan with education for future homeowners.

This report will attempt to quantify the differences associated with Alternative 2 and Alternative 3 from a quantifiable fire behavior perspective. Calculated fire behavior and the impact to both designs will be addressed, in addition to considering the common sense, real-world observations of both alternatives.

OBSERVATIONS

The road system is a fundamental life safety element and must be given the highest priority in the development review process. From a fire response and citizen evacuation perspective, shorter, faster, and least complex is always preferable. Simple observation of the two alternatives shows Alternative 3 a much shorter and less complex road system than Alternative 2 and hence preferable from a fire response and citizen evacuation perspective. Most ambulances will be able to travel anywhere which is accessible by a 2-wheel drive car. Fire apparatus, however, require additional consideration. Large fire trucks such as water tenders which carry water to the scene, are more than 8 feet wide, 11 feet tall, 35 feet long, and weigh over 50,000 pounds when loaded. Even when operated by highly trained drivers, quality access is essential.

Narrow roads, steep grades, soft shoulders, and hairpin turns, which are more prevalent in Alternative 2 than Alternative 3, can all contribute to reduced response times and the potential increase to citizen vehicle and fire apparatus accidents. From a fire department access/egress perspective, Alternative 3 is the preferred route due to the extensive system of switchbacks, slower speeds and safety concerns of Alternative 2.

Alternative 3 was designed within the larger context of a Fire Adapted or FireWise Community concepts. These communities are designed to be more wildfire-resilient with informed and prepared residents. Design criteria was developed through intensive collaboration with both local fire and county officials. Changes to this design will impact the entire infrastructure plan that was ultimately approved by the AHJ and would likely result in a less safe development for both homeowners and responding personnel. From the perspective of fire science, complying with the spirit and intent of codes and standards and in consideration of the extensive, collaborative work conducted to design Alternative 3, it should be the preferred access and egress route for the development.

TIME UNTIL FIRE ARRIVAL

(TUFA) modeling was developed to evaluate the evacuation needs of proposed developments. It is the only fire modeling available that calculates how long it will take a fire to reach a community or road, which is essential for evaluating evacuation. Traditional fire behavior moves away from a point of ignition. TUFA modeling starts at the road system and calculates how long the fire will take to reach the road from any ignition point. TUFA in conjunction with traditional fire behavior modeling was utilized to produce the Alternative 3 design, see figure 2. There are relatively homogeneous fuels throughout the southern portions of the proposed access alternatives. This dramatically changes on the upper section of Alternative 3 and includes the area at the top of the egress road where resident vehicles would likely congregate when preparing for evacuation. What the TUFA analysis reveals is that Alternative 3, on the upper third of the route, has increased time before fire impact as compared to Alternative 2. This primarily comes from the road being located adjacent to a large Aspen stand, reducing overall exposure.

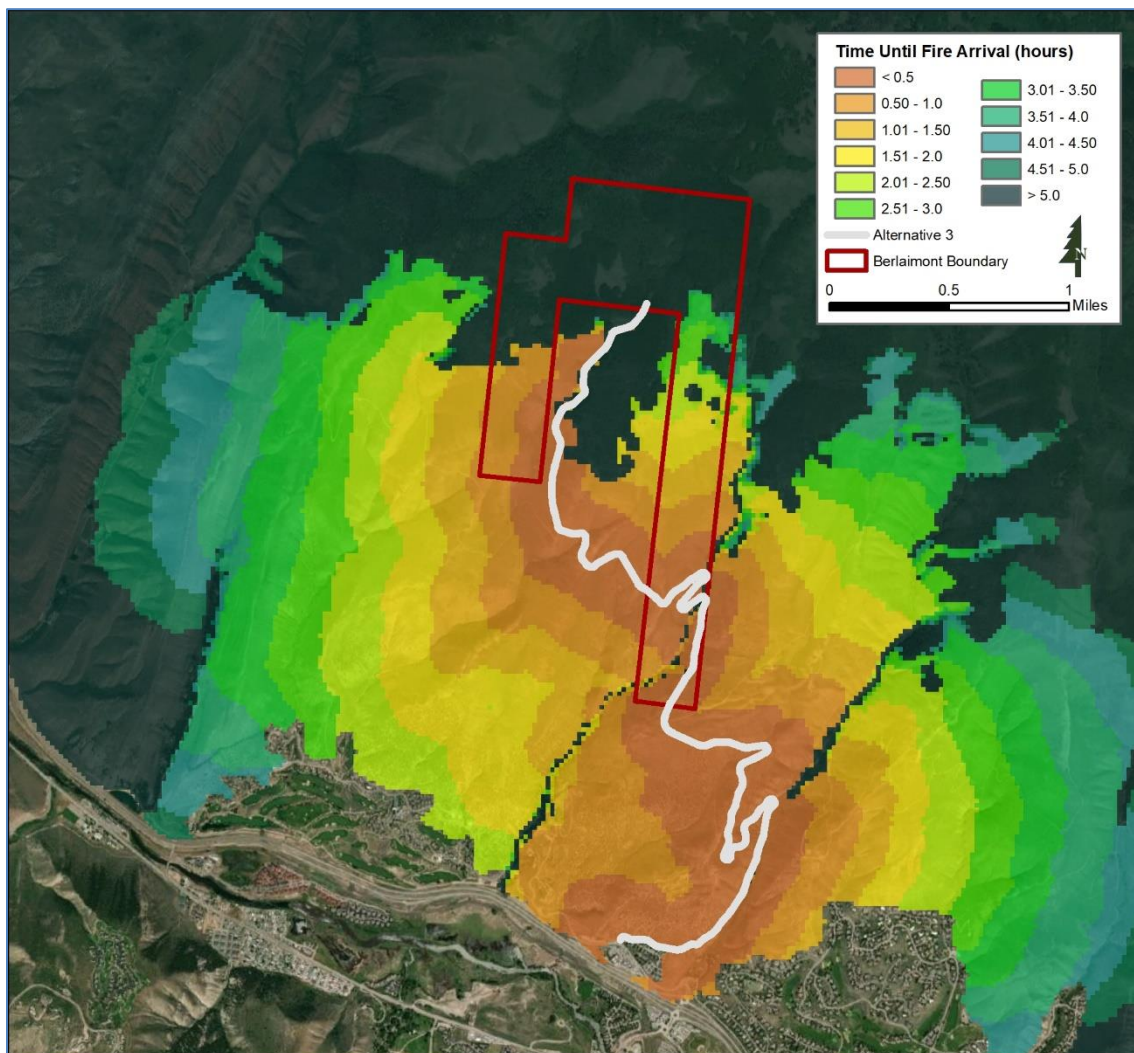


Figure 2 Time Until Fire Arrival - Alternative 3

TUFA was also run for Alternative 2 as seen in figure 3. Alternative 2 places the access / egress road in the fuel profile representing more severe fire behavior and more rapid rates of spread for the entire length of the road. Alternative 2 gains no benefit from the Aspen stands at the top of the Alternative 3 route. The combination of more severe fire behavior, increased rates of spread and increased drive time (see Drive Time section below) associated with Alternative 2 increased the overall exposure of vehicles along Alternative 2 as compared to Alternative 3.

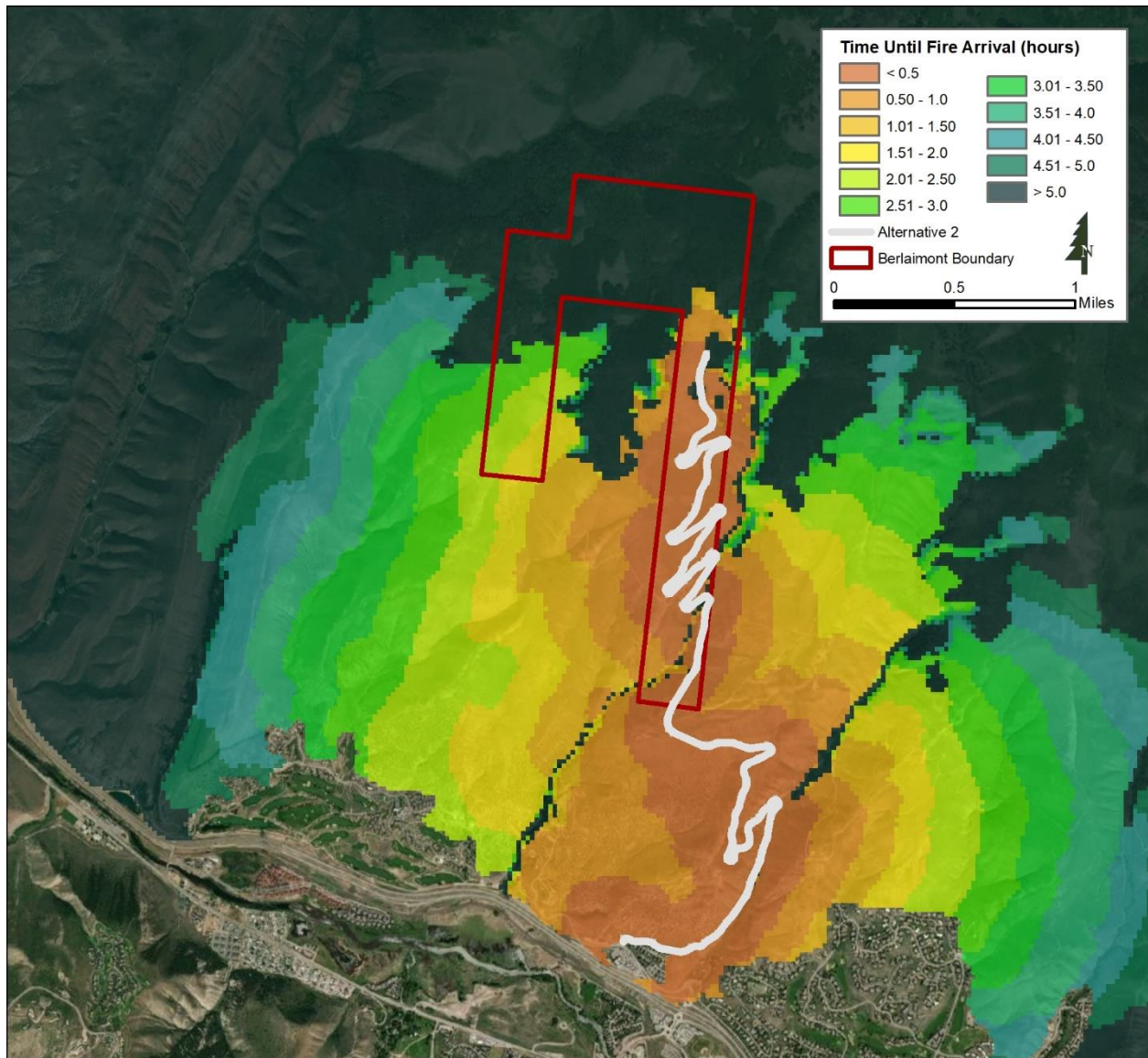


Figure 3 TUFA analysis Alternative 2

FIRE BEHAVIOR

The fuel is the study area, from where the road enters the private property is binary. The area in yellow on the map below in Figure 4 exhibits 101-500 BTU/ft.sec with 5-8 foot flame lengths. This can be contrasted to the green areas on the map which exhibit fire behavior with 0-100 BTU/ft.sec and 0-4 foot flame length. This is due to the transition from a grass/shrub model (yellow) to primarily a deciduous tree, Aspen, model (green). This reduction in exposure incorporates approximately 3,356 feet or 30% of the road distance from the approximate location at which the alternatives designs diverge. The reduction in fire exposure to Alternative 3 is significant when compared to Alternative 2.

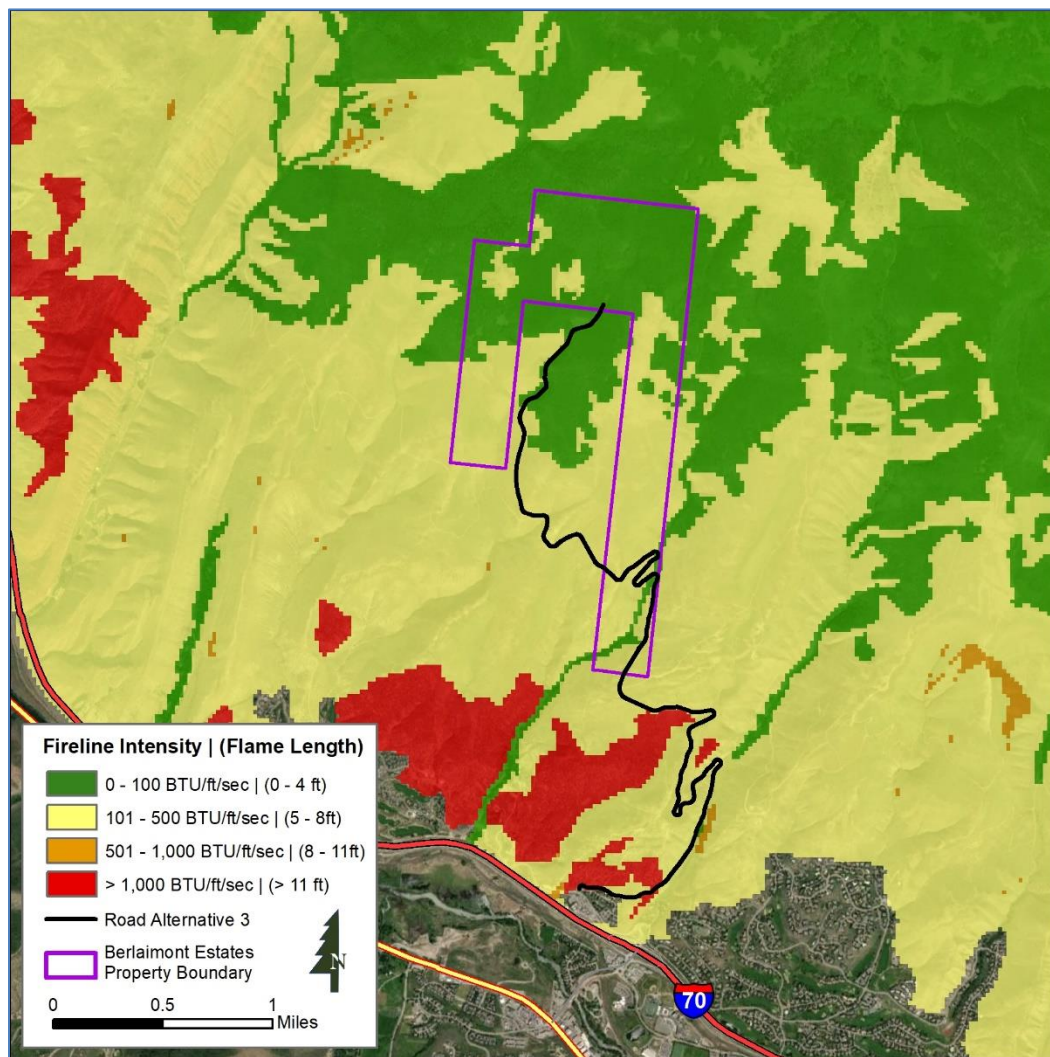


Figure 4 Alternative 3 and Flame Length

In figure 5 the Alternative 2 location puts the road almost entirely within the more extreme fuel profile and resultant fire behavior zones. Additionally, there are severe slopes immediately to the east of the Alternative 2 road alignment that will increase both the flame length and rate of spread in this area if the wind is in alignment with this slope, adding to the fire exposure along this route. The Alternative 2 route does not take advantage of the area of decreased fire behavior as seen along the northern portion of Alternative 3.

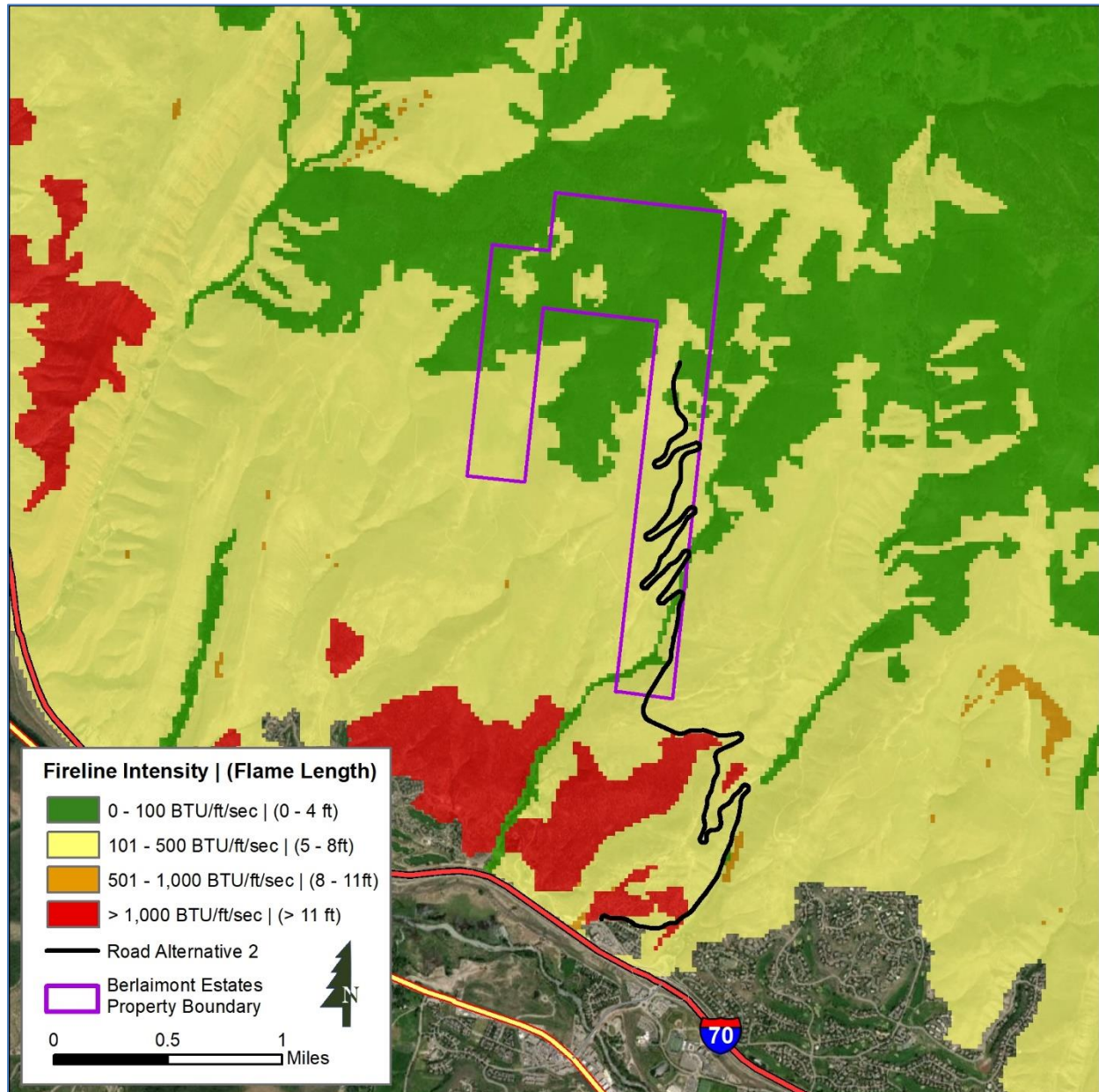


Figure 5 Alternative 2 and Flame Length

DRIVE TIMES

The drive time needed for citizens to evacuate and responding agencies to access provides a metric by which we can evaluate exposure to those vehicles from the calculated fire behavior. These drive times are based upon the lengths of each alternative and the design speed resulting from horizontal geometrics discussed below. Travel time for each alternative is calculated from the approximate location at which the alternatives diverge, the turnout south of the Beard Creek crossing. For each alternative two destinations were identified, the emergency staging area, and the furthest developed lot.

- Alternative 2 provides an approximate travel time of 24 minutes to the furthest developed lot, and 19 minutes 15 seconds to the emergency staging area.
- Alternative 3 provides an approximate travel time of 16 mins 15 seconds to the furthest developed lot, and 10 minutes 30 seconds to the emergency staging area.

From these calculations we see that Alternative 2 adds approximately 8 additional minutes' drive time to or from the furthest developed lot and approximately 6 minutes to the emergency staging area. Fire managers would consider the additional travel time of Alternative 2 to be a significant addition to either egress or access drive times. More critical, perhaps is evaluating this increase in time, in reference to Medical / EMS emergencies.

CONCLUSION

From a fire response and citizen evacuation perspective, shorter, faster, and least complex is always preferable. Simple observation of the two alternatives shows Alternative 3 a much shorter and less complex road system than Alternative 2. Multiple codes and standards (National Fire Protection Association, International Code Council) publications and guides (NFPA Firewise, USDA Rural Emergency Response, U.S. Fire Administration, FEMA) all emphasize the importance of quality access and egress for rural communities. The TUFA analysis reveals that on the upper third of the road system, Alternative 3 has increased time before fire impact which is a beneficial when compared to Alternative 2.

Approximately 30% of the Alternative 3 road distance is located in an area that has more time before a fire impinges on the road and vehicles as compared to Alternative 2. Fire Behavior analysis shows a decrease in exposure to more significant fire behavior for Alternative 3 (approximately 3,356 feet or 30% of the road distance) as compared to Alternative 2. Alternative 3 decreases drives times 6 to 8 minutes depending on the calculated road terminus.

ATTACHMENT 1



ANCHORPOINTGROUP.COM (303) 665-3473

ANCHORPOINT

WILDLAND FIRE SOLUTIONS



About Us

Founded in Boulder, Colorado in 1999, Anchor Point develops and supports risk-based wildland fire solutions for community planning through No-HARM, our National risk assessment.

Our core focus is wildland fire risk assessment and protection of home, community, and resource values. We use cutting-edge fire science and fire modeling techniques to provide quality assessments, which yield the highest quality fire management solutions available today. We are active fire managers, subject-matter experts, and advisors on wildland-urban interface issues throughout the nation and worldwide.

The principals and staff of Anchor Point have an extensive history in wildland fire management. Our expertise has been utilized to participate in and provide development assistance to:

- *Fire Leader's Guide to the Community Wildfire Protection Plan* - IAFC
- *Technical Committee Members* - NFPA 1144 & 1141
- International Code Council (ICC) development of the *Wildland Urban Interface Code*, the nation's first building code for construction in the urban/wildland interface.
- Initial development team for *NFPA FireWise*.
- NWCG Development Committee for the *National Hazard and Risk Assessment Methodology*
- FireWise update to the *Hazard and Risk Assessment Methodology*
- NWCG Project Team to define qualifications for the structure protection specialist.
- *Firefighter Safety in the Wildland Urban Interface* Video Series
- *National Cohesive Wildland Fire Management Strategy* – National geospatial data on communities-at-risk.

RECENT PROJECTS

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No-HARM with CWPP

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Mateo, CA

FEMA
Development of Wildfire Loss
Avoidance Methodology

Post-Fire Flood Mitigation
Strategies

Gatlinburg / Pigeon Forge Fire
Investigation

USFS
Cleveland National Forest /
Angeles National Forest, Wildland
Urban Interface Analysis

BUREAU OF INDIAN AFFAIRS
San Manuel Indian Reservation,
CA- Comprehensive Wildfire
Planning

CA FIRE SAFE COUNCIL
Inland Empire Fire Safe Council /
San Bernardino NF,
Wildfire Planning

DEPARTMENT OF DEFENSE
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