



City of Ketchum
City Hall

October 5, 2020

Mayor Bradshaw and City Councilors
City of Ketchum
Ketchum, ID 83340

Mayor Bradshaw and City Councilors:

**Recommendation to approve Contract 20530
For Fire Station Traffic Notification Design**

Recommendation and Summary

Staff is recommending the council approve Contract 20530 with AECOM for design of alerting and notifying signalization by adopting the following motion:

"I move to approve Contract 20530 for an annual amount not to exceed \$6,400 with AECOM and authorize the Mayor to sign the Contract."

The reasons for the recommendation are as follows:

- The City of Ketchum is constructing a fire station on Saddle Road that was approved by voters.
- An earlier traffic review identified possibilities for alerting mechanisms on Saddle Road approaching the fire station entrance.

Introduction and History

The City of Ketchum is constructing a fire station on Saddle Road as approved by voters on November 5, 2019. Earlier in the year, AECOM identified measures to enhance alerting of local traffic during active responses. Staff is recommending the City hire AECOM to design the identified mitigations.

Analysis

AECOM is currently under contract with the City to review the traffic analysis and impacts associated other projects. To perform additional analysis for the fire station, their contract must be amended (Attachment A). The attached amended contract modifies their scope of work and extends the length of the contract.

Sustainability Impact

There is no sustainability impact from this action.

Financial Impact

The contract will be funded from the fire station bond proceeds that were approved by voters.

Attachments

- Attachment A: Contract 20530
- Attachment B: AECOM Traffic Memo (May 2020)



AECOM
756 East Winchester Street
Suite 400
Salt Lake City, UT 84107
aecom.com

Project name: Traffic Engineering Assistance – **Modification 3**

Project ref: City of Ketchum

From: Kordel Braley, PE, PTOE,
Lori Labrum, PE, PTOE

Date:
September 16, 2020

To: Grant Gager, City of Ketchum

CC: Daniel Helms, PE, PTOE, RSP₂₁

Memo

Thank you for inviting AECOM to submit this scope of work and cost estimate to perform Contract Modification #3 of the traffic engineering support contract with the City of Ketchum. This is the third contract modification to the original contract executed June 24, 2019. The purpose of this contract modification is to assist the City in reviewing potential safety devices to alert persons travel along and adjacent to Saddle Road to traffic from / to the proposed fire station, approximately 400 feet north of Warm Springs Road.

1.0 Tasks

AECOM will conduct the following tasks:

- Conduct a high-level state of practice review. AECOM will review applications of the preferred technologies, i.e., solar powered beacons on warning signs that operate when activated through an Opticom system when emergency equipment egresses the new fire station. AECOM will attempt to locate existing applications of this technology.
- AECOM will coordinate with equipment vendors to identify the range of options available to the City of Ketchum for the proposed application.
- AECOM will prepare a technical memorandum outlining the different options of safety devices that can be procured by the City of Ketchum or its contractor to install along Saddle Road, in the vicinity of the new fire station.
- AECOM will participate in one meeting via teleconference with city staff/development team to discuss the results of the memo.

2.0 Optional Tasks

AECOM can provide the following tasks at the request of the city. However, these tasks are not included in the proposed fee or schedule.

- In-person attendance at meetings and/or public hearings.
- Coordination between the City of Ketchum and equipment vendor(s) to discuss proposed equipment.

3.0 Project Staff


Lori L. Labrum, P.E., PTOE will serve as Principal-in-Charge for the project. She will provide overall guidance and review and should be contacted with any questions or concerns about quality and progress of the work. Kordel Braley, P.E., PTOE will serve as Project Manager, directing the technical work on the project. He will be your contact on details related to technical matters and, together with other AECOM staff, will complete the technical work on this project.

4.0 Budget

The base cost for Modification 3 is \$6,400.

If, during the work of this contract modification, it becomes apparent to us that the project will require more time than initially budgeted, we will notify you in writing before incurring additional costs.

Sincerely,



Kordel Braley, PE, PTOE
Senior Traffic Engineer
AECOM Technical Services, Inc.



Lori L. Labrum, PE, PTOE
Associate Vice President
AECOM Technical Services, Inc.

Memo



AECOM
756 East Winchester Street
Suite 400
Salt Lake City, UT 84107
aecom.com

**Project name: Ketchum Fire Station
Traffic Study**

Project ref: 60610668

**From: Kordel Braley, PE, PTOE;
Daniel Helms, PE, PTOE, RSP₂₁**

Date:
May 21, 2020

**To: Suzanne Frick, City Administrator, City
of Ketchum**

Memo

On behalf of the City of Ketchum, AECOM has reviewed plans for a proposed fire station to be located on the east side of Saddle Road approximately 400 feet north of Warm Springs Road. AECOM's review focused primarily on the transportation and safety impacts of the proposed fire station at surrounding intersections and pedestrian/trail crossings.

The purpose of this memo is to evaluate existing conditions, potential risks, and mitigation measures. This analysis does not provide final design. No new data were collected as part of this analysis. AECOM has relied on data provided by the City and its partners.

Existing Conditions

- Two transit stops near the Fire Station (Warm Springs YMCA and Warm Springs at Parkside) generate, on average, 37 and 32 boardings per day, respectively, based on daily spot counts. Assuming these are doubled to account for alighting, the average number of pedestrians per hour generated from these stops is only 4 and 3, respectively, assuming uniform arrivals and departures throughout the day.
- While no pedestrian crossing data were provided, the area surrounding the proposed fire station includes several pedestrian generators including YMCA, Rotary Park, the Guy Coles Skate Park, Big Wood School, Ernest Hemingway School, and multiple trails.
- The intersection of Warm Spring Road and Highway 75 currently has Opticom.
- Traffic counts collected in May 2018 for the intersection of Warm Springs Road and 10th Street were provided by the City and show a significant number of trips on Warm Springs Road (nearly 1,000 vehicles per hour during peak periods). Counts for Saddle Road were not available. Qualitatively, both of these streets would appear to be important routes to the transportation network for this part of Ketchum.

Fire Station Operations

- According to data from the City, the fire department responded to 1,019 calls in 2019, which averages to approximately 20 calls per week.
- Based on discussions with the fire department, it is estimated that the egress distribution from the fire station would likely be 1 to 2 calls per week west on Warm Springs Road, 10 to 11 calls per week east on Warm Springs Road, and 7 to 8 calls per week north on Saddle Road.

Traffic Assessment

Assuming the new fire station on Saddle Road will receive 20 calls, on average, during the week, it can be assumed, for practical purposes, 3 round trips from the new station to the site of the emergency will be generated during a given day. From the data received from the City and using general guidance that 10 percent of daily traffic arrives in the peak hour, it is assumed that Warm Springs Road has an AADT of approximately 10,000 vehicles per day near 10th Street. The addition of 3 trips from the fire station would increase the AADT to 10,006 vehicles per day (each trip involves an outbound and inbound movement). Typically, this would be rounded to the nearest 100 vehicles, but, for illustrative purposes and the forthcoming calculation, the 6 additional vehicles are retained.

The American Association of State Highway and Transportation Officials' (AASHTO) publication, the Highway Safety Manual (HSM) provides equations to predict the safety performance of roads, known as Safety Performance Functions (SPFs). The SPF for an urban/suburban arterial segment is generally in the form of:

$$N_{predicted} = e^{(a+b \cdot \ln(AADT) + \ln(L))}$$

where, $N_{predicted}$ = predicted number of crashes per year

AADT = average annual daily traffic (vehicles per day)

L = the segment length (in miles)

a, b = coefficients that related to the road type

Warm Springs Road most closely operates as a 3-lane urban/suburban arterial with a center turn lane. Using the associated coefficients and assuming a road segment of 1-mile in the existing and build condition, the change in predicted crashes, before and after the opening of the fire station, is **0.002 crashes per year**. Additionally, there was no increase in the number of predicted pedestrian and bicycle crashes in the before or after condition. This current research that developed this SPF does not utilize only fire trucks in the vehicle fleet. As such, an increase in fire truck traffic would likely decrease the expected number of crashes, and present less of a safety hazard to the road user (both motorized and non-motorized), because of the size of the fire truck and the noise emitted from a fire truck beyond what the lights and sirens produce.

It should be noted the existing fire station, at City Hall, is at a location where there is foot traffic, going to and from shops, museums, parks, and residential parcels in the downtown area. While the YMCA, the Wood River Trail and transit stops are foot traffic generators near the new fire station, these sites may not produce the number of foot traffic trips a downtown area may generate. Therefore, the exposure of non-motorized transportation to fire truck operations may be less at the new location. Additional study is warranted to solidify this assumption.

The analysis assumes that there are no underlying issues at the intersection of Warm Springs Road and Saddle Road or along Warm Springs Road. If the city believes there are underlying issues with either the intersection or the segment, an in-depth traffic study is necessary. The scope of this additional study would include data collection efforts, i.e., traffic counts, non-motorized vehicle counts, transit counts, crash records. Additional study may result in the need for the recommendation of additional countermeasures – traffic calming, roundabouts, signalization, etc.

Based on the data presently available, it is recommended the city explore the following mitigative measures.

Mitigation Measures

The recommended mitigation measure is the installation of standard warning signs (such as W11-8) at locations near the fire station. This conclusion is based on the random nature of emergency vehicle deployment, as well as the fact that emergency responders are trained professional drivers (as opposed to average drivers).

Operational mitigation measures could also be considered including:

- By policy, the fire department could mandate all, or nearly all, emergency vehicles travel north on Saddle Road to SH-75, instead of travelling east on Warm Springs Road. This would remove nearly all conflicts with emergency vehicles at the sensitive intersection locations along Warm Springs Road. According to data from the fire department, using this alternative route would add approximately 0.4 miles to a response south of Warm Springs Road/Main Street but only add about 30 seconds. It is outside of our expertise to weigh in on the merits and costs of this type of operational change. If the fire department did make this change, it would significantly reduce conflicts on Warm Springs Road.

- The fire department should maintain a strict policy against volunteers responding to the fire station in an unsafe manner.

Future Optional Considerations

If traffic or safety conditions deteriorate in the area, an Intelligent Transportation System (ITS) solution could be considered as a mitigation strategy to address concerns to lessen the opportunity of vulnerable road user and emergency vehicle interaction. Additional infrastructure improvements may be warranted based on typical traffic conditions, but this would require additional data collection efforts.

- A system can be installed that includes Fire Station Warning signs (W11-8) with flashing boards and/or flashing beacons to be activated when an emergency vehicle is leaving the fire station (see Figures 1 and 2). The signs would be deployed in strategic locations (such as trail crossings, locations near the Big Wood School or the YMCA, near transit stops, and on Saddle Road and Warm Springs Road, see Figure 3) that would alert pedestrians and bicyclists to the presence of an emergency vehicle.¹ Smaller signs are recommended for pedestrian/bicyclist applications.

Other infrastructure considerations include the following:

- Solar Power – Most devices can be energized using solar power. However, site specific evaluations will need to be performed at each location to ensure appropriate levels of sun are available to consistently operate the devices. Hard-wired power will be required for locations where sun light cannot be readily captured.
- Opticom – In order to make the system work automatically, Opticom is recommended. A receiver could be located directly across the street from the fire station garage door so the system can be activated when the doors open and the emergency vehicle's system is first activated. A back-up activation system could also be placed within the fire station, at the dispatch center, and/or in each emergency vehicle (see Figure 2).

¹ A variety of vendors and systems are available. AECOM does not advocate for specific manufactures. Manufacture specifications should be considered in the design of any implemented system.

Exhibits²



Figure 1. Fire station warning signs with border flashers or beacons.³



Figure 2. Sample manual activation systems.⁴

² A variety of vendors and systems are available. AECOM does not advocate for specific manufactures. Manufacture specifications should be considered in the design of any implemented system.

³ <https://www.tapconet.com/product/emergency-vehicle-warning-system#overview>

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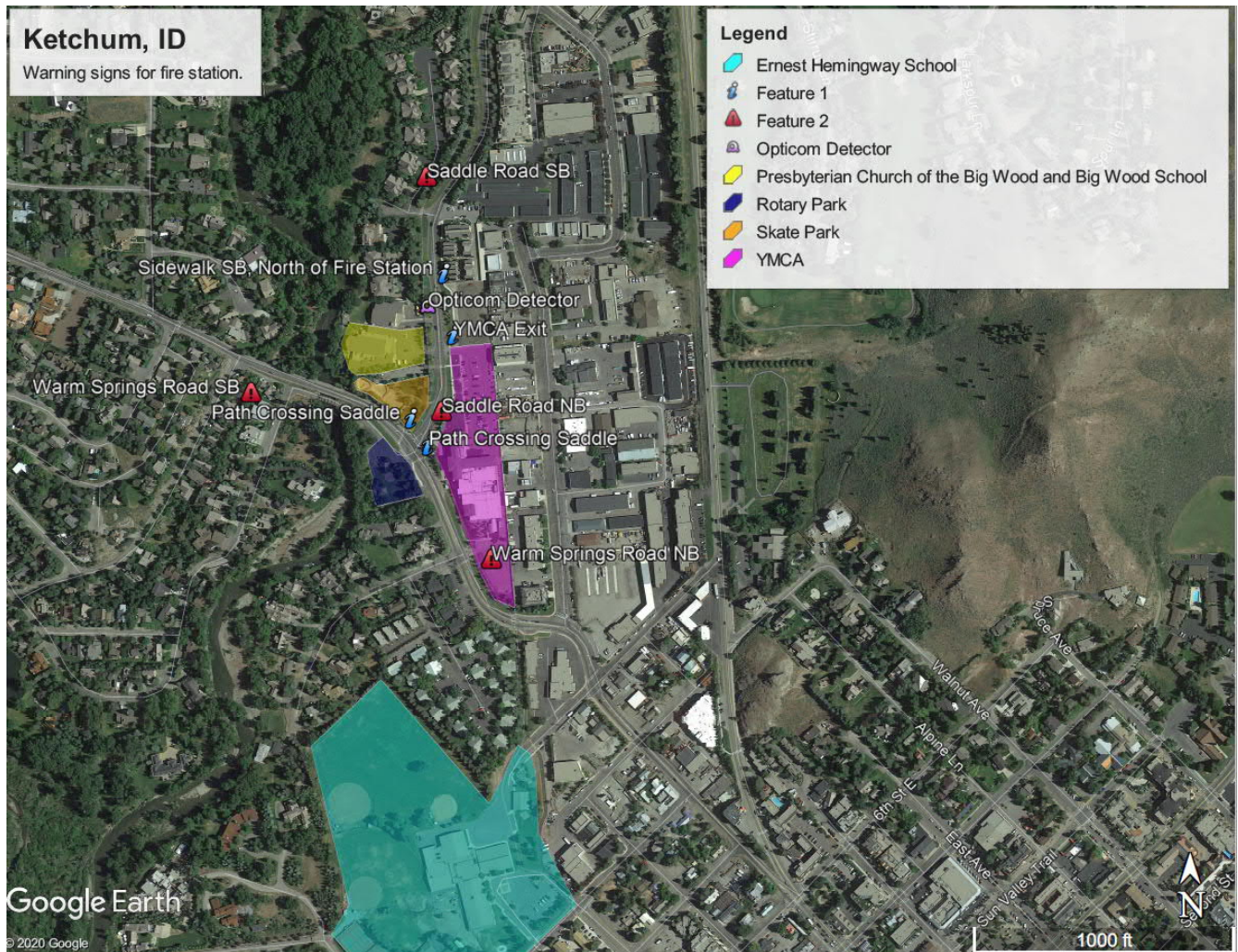


Figure 3. Conceptual layout of warning sign locations that warn drivers and pedestrians/bicyclists.