

From: [Lawson, Mike R.](#)
To: [Turcott, Mike \(UTC\)](#)
Cc: [Young, Betty \(UTC\)](#)
Subject: Re: Grant Application - More Info Needed
Date: Wednesday, January 24, 2024 4:03:31 PM
Attachments: [image001.png](#)

External Email

Mike,

Thanks for reaching out. I will try to answer your questions directly. As you mentioned, the general justification for the second drone is:

- A second drone available as a backup in the event of a failure of the first drone.
- A second drone available when the battery of the first drone gets low.
- A second drone available for very large incident scenes to provide greater coverage.

These are all hypotheticals. Does South King Fire have any data regarding :

- How often drones fail?

During flight training exercises, we have had one incident where the drone lost connectivity and was frozen in place hovering. We were not able to manipulate the drone for several minutes. Once connectivity returned the drone was flown back to the launch site using the "Home" button. The drone was shut down and restarted. The operation took about 10 minutes to complete. If this were to happen at an incident, we could immediately get the second drone in the air and continue operation while the assessing the issue of the failed drone. We have not had a failure since. In general, drones don't fail very often, but as with anything mechanical and involving technology, it can happen. During our monthly inspection and training flights, we ensure that the latest software and firmware version are installed, to reduce the likelihood of a failure.

- How long drones are typically airborne at hazmat incidents?

Most hazmat incidents are long drawn out operations that can last multiple hours or even days as with a train derailment. At a hazmat incident, we would probably make numerous flights and stay in the air as long as the battery will allow and recycle batteries for additional flights. The initial flight for gathering information is the most important, but we want to keep eyes on the incident for the duration of the incident if possible. Just prior to returning the first drone to the launch site to swap batteries, we would be able to launch the second drone and maintain continuous situational awareness at all times. The ability to monitor changes at the incident site provides additional safety for the public. The ability to monitor hazmat technicians that are working the the hazard zone provides additional safety for response crews.

- How often drones run out of battery at such scenes?

We have not used the drone at a live incident as of yet, but during our average training flights, we seem to get about 30-40 minutes per battery. This can vary based on weather and operations being conducted. Flights in strong wind, long distance flights, and extensive use of the cameras can drain the battery by as much as half of the normal flight time.

- How often are hazmat scenes so large as to require two drones to be airborne at the same time?

In preparing for the worst case scenario, a train derailment has the potential to be a very

large incident scene with multiple rail cars involved at different locations. A second drone would provide situational awareness for multiple critical locations. The other likely scenario would be hazardous materials leaks at large warehouse facilities. Some of the warehouses in the Auburn valley near the railroad are extremely large and cover over a million sqft. Being able to fly two drones that can monitor both sides or ends of large facilities would be ideal.

- Is HazMat 361 adequately staffed to provide two qualified drone operators (and any necessary support personnel) at the same time?

We have four different shifts that work on Hazmat 361. At this time, only one of the four shifts has two qualified pilots. However this should change in the coming months. Some of our members are currently working towards their pilot license, and we have some new member to the team that will be completing the training this year. We have also discussed expanding the drone program outside the hazmat team. I foresee additional pilots in the district in the future. At any given hazmat incident, there are usually multiple fire engines or aid cars that are a part of the response. Having more pilots will increase the likelihood of multiple pilots on duty on any given day.

Let me know if you have any questions.

Thanks,

Michael R. Lawson | Captain | South King Fire & Rescue |

Hazmat Team Leader

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From: Turcott, Mike (UTC) <mike.turcott@utc.wa.gov>

Sent: Tuesday, January 16, 2024 8:47 AM

To: Lawson, Mike R. <Mike.Lawson2@SOUTHKINGFIRE.ORG>

Cc: Young, Betty (UTC) <betty.young@utc.wa.gov>

Subject: Grant Application - More Info Needed

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Good morning Captain Lawson,

I have completed a preliminary review of South King Fire's Grade Crossing Protective Fund (GCPF) application submitted on Oct. 26, 2023 in UTC docket TR-230879. There is some important information missing from the application that I believe would strengthen the application when it is formally reviewed for funding recommendation. This is not intended to be nit-picky, but rather to help your department strengthen its application, and to ensure that the UTC is properly administering the limited funds available in the GCPF.

Background:

On Jan. 26, 2023 the UTC granted South King Fire's initial GCPF application, granting funding to purchase one aerial drone for use with its hazardous materials unit. In its Order 01 the commission stated:

*Commission Staff (Staff) evaluated the Application and recommends that the Commission provide funding for one drone at a cost of \$13,866.98. **This would allow South King Fire to establish its drone program and evaluate its effectiveness. South King Fire could then provide the results of its evaluation to the Commission and apply for funding for a second drone in a future GCPF grant cycle.** South King Fire supports Staff's proposal and would be responsible for long-term maintenance and repair of the drone. GCPF funds are currently available for this project.*

The current application is lacking data on the effectiveness of the single-drone program in support of a second drone.

The current application provides some general justification for a second drone in three hypothetical situations:

- A second drone available as a backup in the event of a failure of the first drone.
- A second drone available when the battery of the first drone gets low.
- A second drone available for very large incident scenes to provide greater coverage.

These are all hypotheticals. Does South King Fire have any data regarding :

- How often drones fail?
- How long drones are typically airborne at hazmat incidents?
- How often drones run out of battery at such scenes?
- How often are hazmat scenes so large as to require two drones to be airborne at the same time?
- Is HazMat 361 adequately staffed to provide two qualified drone operators (and any necessary support personnel) at the same time?

In TR-220736, the invoice from the vendor included three batteries and a charging hub capable of charging four batteries at a time. **If three batteries are not enough, a less expensive option would be to purchase additional batteries.** According to the vendor website, three batteries are available for \$319 and an additional 4-station charging hub for \$89.

Please let me know if you are able to share any additional information related to the above. Our review team is meeting **Jan. 30** to formally review the application and make a recommendation to the commission related to funding.

Sincerely,

Mike Turcott

(he/him)

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