2018 Forest Service - Aviation Safety and Modernization

Tactical Fire Remote Sensing Advisory Committee

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GTAC Mapping Our Future Together

Aviation Funding

The 2018 Omnibus Bill provides funding for "improvements within the Agency's aviation program such as infrastructure upgrades, enhanced aviator and fire fighter safety, mobility, effectiveness and efficiency."

The Forest Service identified a governing board to prioritize projects and ensure appropriate funds management and timely reporting to Congress.

The governing board members will select the projects and will work closely with the Forest Service WO Fire and Aviation Management, W0 Engineering, W0 Budget. W0 Acquisitions Management, and regional counterparts to identify Agency priorities.

Aviation Funding

Projects will be categorized in to eight groups to improve aviation safety and modernization, optimize and leverage funding, and support the Forest Service mission. Submitted proposals will align with these categories.

Project funding amounts and locations are subject to implementation feasibility, operational priorities, and timing.

Project proposals were due by close of business, May 1, 2018.

Proposal Categories

1. **Aviation Infrastructure** - Upgrade airtanker bases and helicopter pads to support modern aviation assets, etc.

2. **Airport Equipment** - Increase airport retardant operations

3. **Portable Retardant Bases** - Portable retardant bases for airports which do not have a formal airtanker base, etc.

4. **Aviation Sensors** - Aviation sensors to gather information for fire managers to make informed decisions, assess fire activity and enhance pilot visibility through smoke, etc.

5. **Unmanned Aircraft Systems(UAS)** - UAS to support incident commanders and improve the safety of firefighters and the public.

6. **Radio Modernization** - Replacement of outdated aviation radio infrastructure, etc.

7. **Research and Development** - Smart retardant delivery systems to improve the effectiveness and accuracy of retardant drops, etc.

8. **Emergency Medical Evacuation Systems** - Short haul/hoist and related equipment to our capability for using aviation assets for emergency evacuation of firefighters, etc.

Sensors and UAS

Proposals for Augmenting Existing Remote Sensing Support to Wildland Fire (Active)*

1. **Add Sensor-equipped Aircraft -** For Wide Area Detection & Tactical Fire Mapping

2. **Thermal Sensor Options** – Four options suggested to add thermal mapping sensors to the current Forest Service capabilities

3. **Unmanned Airborne Systems** – For Day-Time Monitoring of Large Fires / Tactical Support

4. **Expanded Use of National Imagery Systems** – For Wide Area Detection / Tactical Support

5. **Outside the Box Ideas** -

* Provided to Director Shawna Legarza at her request - April 12, 2019

Add Aircraft

The two existing FS aircraft are heavily leveraged during fire season, and downtime occurs each year due to planned and unplanned maintenance and crew rest requirements.

- Provide a "surge" aircraft when the number and/or geographic distribution of infrared support requests by incidents exceed the capacity of N144Z and N149Z, or when one or both those aircraft are down for maintenance or repair.
- Address the emerging requirements for daytime optical and thermal imagery to support fire intelligence needs on selected large wildfire incidents.

Thermal Sensors

There are several options for adding thermal mapping sensors to the current Forest Service capabilities:

1. Use existing system (AMS)
2. Build Phoenix-like system
3. Purchase Phoenix-like system
4. Purchase small IR system

Pros/Cons:

- Installing a large thermal sensor (Phoenix-like) onboard a new or existing aircraft (with pod/canoe) is the most expedient way to augment existing FS fire mapping capability withinthe existing NIROPS program.

Unmanned Airborne Systems

UAS have been extensively evaluated and demonstrated for support to wildland active fire (beginning in 2005). Though the airspace over active fire is complex, especially during daytime hours, the use of UAS are useful in support of immediate tactical information requirements. In recent years, UAS have been used in occasional (but growing) situations on a number of fires in the Western United States.

Pros/Cons:

- Using UAS on wildland fire provides benefits to tactical awareness at the IMT. The downside is that the controlled airspace above and surrounding fires is complicated, and there are concerns with introducing unpiloted aircraft into that space. UAS are also best used locally and are not suitable for flying multiple fires on a nightly basis (ala NIROPS).

Expanded Use of National Imagery Systems

National Imagery Systems are currently used for the Hawkeye and Firehawk support systems. Hawkeye is a program which uses airborne and space borne remote sensing assets to rapidly detect and report new fire starts within the continental United States. Firehawk provides large scale mapping to support incident command operations.

There is an ongoing effort to expand the use of Hawkeye to provide more frequent updates (multiple times per hour) of specific wildland fires to show rates of spread and speed of fire in areas where populations and/or critical infrastructure are being threatened.

Pros/Cons:

- Working through the development of derived, unclassified products and getting policy approval is a laborious process.

Other Ideas

1. Contract for service –
2. Use of civil space-bourne assets

Questions?

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