HR0011SB20254XL-01
ALIAS Missionized Autonomy for Emergency Services - SBIR XL
Frequently Asked Questions (FAQs)

1. Does ALIAS anticipate integration with existing wildfire/emergency management platforms, or a stand-alone autonomy solution?
   A: ALIAS is the standalone autonomy solution/platform but will be integrating all novel/new/existing wildfire/emergency response management tools and software. It should be clear that the autonomy solution is for flight and the SDK is the gateway to utilizing/building apps on top of the autonomy platform for bespoke firefighting and teaming behaviors.

2. What level of autonomy is envisioned—limited to tactical execution, or also predictive planning and resource allocation?
   A: Predictive planning is currently being utilized to fly the aircraft. No embedded algorithms/AI or otherwise will not be allowed to be embedded in the autonomy stack. Software containers will be used to house the applications to drive the autonomy, the core autonomy stack will remain the same. This does not mean we can't utilize AI/ML to operate on top of the autonomy stack to drive specific novel behaviors.

3. Are evaluation metrics focused primarily on operational performance (e.g., navigation, response time), or also on resilience and resource optimization?
   A: All of the above. We are using autonomy to optimize both physical parameters within the aircraft and to optimize emergency response, think of the metrics as looking to evaluate whether certain applications or behaviors are a force multiplier.

4. Are firms able to access the ALIAS/MATRIX autonomy stack/systems before submission to ensure integration capabilities and alignment in their proposal?
   A: To access the ALIAS/MATRIX Software Development Kit (SDK), a company would need to have a contract and/or NDA with DARPA and/or Sikorsky. Thus, it is highly unlikely companies will be able to access the SDK prior to submission.

5. What are your expectations regarding the user interface for proposed plugins?
   A: Interface designs expectations are that they are to be designed to be usable in a high stress environment by non-technical personnel.

6. Are vendors expected to develop AFSIM models, or will these be provided for autonomy algorithm testing?
   a. If model development is required, will EO/IR, ELINT, and RF system specifications be provided to ensure accuracy?

   A: No, performers will not be expected to develop AFSIM models, models relevant to the developed application will be integrated with the SIL for HIL testing. EO/IR, ELINT, and RF system spec will be provided.

7. Will environmental and situational awareness data be provided to the autonomy application, or should it be derived by the application itself?
   A: In terms of A/C control Environmental and SA data will be provided by the vehicle management system and data messages will be available from the various sensors on board the aircraft. The applications can choose to interpret the data and use it as desired or infer relevant system states.

8. Could you clarify the term "contested" for this project?
   A: Area/Airspace control is not guaranteed.

9. Should the autonomy applications account for terrain in low-altitude flight planning?
   A: No, this is feature of the autonomy system. The applications will not be developing this feature, but you should be able to use that mode of flight for development needs and use cases.

10. In future multi-aircraft scenarios, will the system operate alongside fixed-wing or non-rotary assets?
    A: Yes.

11. Will the autonomy applications receive real-time wind data, or will this be estimated locally by each platform?
    A: Each platform will be receiving real time wind data locally and passing it to our proposed C2 architecture.

12. Is the development of a human machine interface (HMI) for the autonomy applications a component of this proposal? If an HMI does already exist in the ecosystem,
    a. Will the autonomy applications be expected to interface with it directly?
    A: An HMI is/isn't a component of the proposal depending on the proposed app functionality. An HMI to interface with the A/C does already exist and the app will be expected to pass data on the back end. However, front-facing HMI apps have been developed utilizing the SDK with the ability to pass information on a tablet. The implementation is up to the proposer if their app would function better with a standalone HMI.

    b. Is this application a TAK plug-in?
    A: We have plan to integrate with TAK, but it is not a requirement currently.

13. Is there access to a specification of the MATRIX SDK so that we can determine whether our technology is at the right level of abstraction?
    A: Unfortunately, proposers cannot access the MATRIX SDK, if selected technology, integration will be supported at no cost to the proposer. The SDK is fully MOSA compliant and can be readily integrated.

14. The scenario examples cover a broad range of abstraction, from relatively low-level control of a payload in challenging conditions to relatively high-level planning for

multiple vehicles. Should solutions cover the whole range of abstraction or are solutions that focus on one area of abstraction of interest?
A: Solutions that cover multiple areas and solutions that focus on a single area are of interest.

15. Should solutions consider how humans interact with the autonomy?
A: Solutions should consider how humans react to the autonomy in a high stress environment if it is of relevance to the proposers solution.

16. The effort requires live flight tests with the ALIAS platform, which can only be provided by Sikorsky. Is it expected that the SBIR funding will be used to support the ALIAS platform for these live flight tests, or should we treat the ALIAS platform as an available resource at no additional cost. Do these live flight tests need to fit a specific cadence, or do they need to occur at specific locations to accommodate the ALIAS platform availability?
A: The ALIAS platform will be treated as an available resource at no cost to the proposer. The proposer will be aware of the live flight test cadence of the ALIAS platform/s. The proposer will be able to test the functionality of their "app" through SDK/SIL prior to live demo. The proposer will need to accommodate travel given platform location, SBIR funding will support travel.