



City of Palo Alto

City Council Staff Report

(ID # 8747)

Report Type: Informational Report

Meeting Date: 12/11/2017

Summary Title: FAA Unmanned Aircraft Systems Integration Pilot Program

Title: City Participation in FAA Unmanned Aircraft Systems Integration Pilot Program

From: City Manager

Lead Department: Public Works

Recommendation

This is an informational report only and no Council action is required.

Discussion

The City recently learned that the Federal Aviation Administration (FAA) is undertaking a limited number of pilot projects to facilitate the establishment of safe commercial Unmanned Aircraft Systems (UAS, a.k.a. UAV)¹ operations while connecting local and national interests. The program requires a state, local, or tribal government agency serve as lead applicant, in partnership with private sector entities such as UAS operators or manufacturers.

The City has been approached by prospective partners with two operational concepts. The first involves Stanford Blood Center, in partnership with UAS manufacturer Matternet. Stanford and Matternet propose to address potential emergency medical needs by establishing an approved flight path (anticipated west of Junipero Serra Blvd) and operating procedure enabling the delivery of blood samples from the Stanford Blood Center at the Stanford Research Park to Stanford Hospital. Attachment A provides additional background on this concept.

The second concept, from German UAS manufacturer Multirotor, proposes exploration of various potential business use cases associated with various operational flight procedures at Palo Alto Airport. This includes the avoidance of conflicts between UAVs and manned aircraft, as well detection and avoidance of airfield conflicts with wildlife or debris. Additional City uses could also be identified for future evaluation, such as public safety search operations and utility infrastructure safety inspections, but would only be pursued after adequate public outreach

¹ https://www.faa.gov/uas/programs_partnerships/uas_integration_pilot_program/

and City Council approval. Attachment B provides additional background on Multirotor's interest.

While potentially leading to many positive benefits to the community, any prospective UAV operation raises numerous issues that would need to be identified, explored and addressed before approval could be granted. These include, among others:

- Safety: Safe operation of UAVs is paramount. The FAA pilot program establishes reporting requirements and review processes designed to address physical, technological, and operator requirements.
- Environmental: The Palo Alto environment presents numerous natural and sensitive areas, including the Baylands and other habitats, and UAV operations would need to ensure compatibility if proposing operations within these areas.
- Noise: Residential neighborhoods may be sensitive to noise from UAV operations, so noise levels and hours of permitted flights will need to be specified.
- Privacy: UAV navigation systems and other data collection raises the potential for collection of personally identifiable and other sensitive information. Application of privacy protections to UAV operations would need to be developed.
- Community support: In addition to the issues identified above, UAV operations raise the possibility of being perceived as a nuisance or threat from a variety of perspectives and therefore must be taken into consideration.

The FAA Unmanned Aircraft Systems Integration Pilot Program offers the opportunity to address these issues relatively early in the proliferation of UAV technology and applications around the nation.

FAA's national rollout of the pilot program involves a multistep application process with final applications due by January 4, 2018. Upon review of applications, FAA plans to enter into Memoranda of Agreement with at least five applicants to proceed with project development. The City will retain the ability to withdraw from the pilot program at any point it is determined the project is not proceeding in a positive direction.

Contacts with Stanford and other stakeholders confirmed their interest in exploring the implications of the proposals. Based on staff's review of this FAA program, we believe it could provide a worthwhile framework for engaging key stakeholders in a proactive and constructive manner and potentially influence national policy on conditions and requirements necessary for safe and community-sensitive UAS operations.

At this point, staff has filed the required Notice of Intent and met with the companies to assess viability and approach to next steps. Next steps require the development of a complete concept of operations and plan to address technical and operating requirements. Should this proceed to a formal agreement and prior to any operation, staff will formalize community outreach, seek City Council approval and conduct any necessary environmental review.

Background

On November 8, the FAA published a Screening Information Request (SIR # DTFAWA-18-R-00001). The period of performance would be from the date of issuance by the FAA through October 24, 2020. The City submitted a notice of intent (NOI) to the FAA as a Declaration of Lead Applicant on the now-past deadline of November 28. The City's Lead Applicant initial submittal is due on or before December 13 (with other "volumes" in the submittal packet due January 4, 2018).

The City intends to submit on or before the deadline of December 13 an Interested Parties List, to include the UAS private sector partners, other involved governments, Stanford University, and Stanford Health Care (Hospital). If our application is approved, additional parties can register via the FAA.²

There is no cost to the City for this program. The City can also withdraw from the program.

The FAA's objectives for the program are:

- promoting innovation and economic development;
- enhancing transportation safety;
- enhancing workplace safety;
- improving emergency response and search and rescue functions; and
- using radio spectrum efficiently and competitively.³

Resource Impact

The role of City staff is essentially to facilitate the application process and to jointly learn from and participate in the experimental operations conducted by the private sector partners. The City as the lead agency would be providing staff time to facilitate the program, and all other costs and expenses would be funded by the participants. Assistant City Manager and General Manager of Utilities Ed Shikada will be the City's primary point of contact (applicant). Airport Manager Andrew Swanson will be the lead for topics pertaining to the Airport and FAA-related matters. Emergency Services Director Kenneth Dueker will be the subject matter expert regarding public safety.

CEQA

Acceptance into the FAA pilot program does not commit the City to any UAS use. Before approving any particular use, the City would fully explore the use, identify and address potential impacts, and conduct environmental review if required.

Attachments:

- Attachment A: Stanford Blood Center Concept

² <https://faaco.faa.gov/index.cfm/announcement/search>

³ https://www.faa.gov/uas/programs_partnerships/uas_integration_pilot_program/apply/

- Attachment B: Multirotor Letter of Interest

Attachment A

Stanford Blood Center in partnership with the City of Palo Alto and Matternet is currently exploring the possibility of using Unmanned Aerial Vehicles (UAV) to optimize and improve patient care. This nascent collaboration is currently in the exploratory phase, without any financial or contractual commitments, while all partners continue to discuss and ensure that all aspects of the projects are agreeable to every member's constituents.

We aim to use UAVs in very limited clinical settings where timely delivery of blood products or diagnostic specimens is of the utmost importance. Examples include emergent delivery of blood products from Stanford Blood Center when there are patients whose usage outpace the available in-house inventory at the hospital. More importantly, we are extremely aware and sensitive to the concerns of residents; every measure to eliminate intrusiveness and maximize safety will be taken.

As we continue planning, we will submit a full application to the Federal Aviation Administration under the UAS Integration Pilot Program to qualify Palo Alto as an Innovation Zone. If successful, this will allow the federal assent to continue exploring this initiative. It should be emphasized that the application's submission only allows us for continued exploration and does not bind us to the initiative; we will work with all local and community partners to ensure support for this program and will work assiduously to address any concerns. If at any point the concerns are too many and insurmountable, we can always disengage.

It is our hope that Stanford Blood Center and the City of Palo Alto in collaboration with Matternet can define UAV usage in specific clinical settings that improves patient care. We are in the heart of the area synonymous with innovation, and it would only make sense that we pioneer this in the United States for the benefit of all patients.



service-drone.de GmbH, 585 Broadway, Redwood City, CA 94063

Mr Ed Shikada
Assistant City Manager
Palo Alto City Hall
250 Hamilton Avenue
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December 5, 2017

Proposal for a joint UAV test program for the City of Palo Alto

Dear Mr Shikada –

Following our conversations with Mr Andrew Swanson and our insightful meeting yesterday with yourself, Mr Swanson and Mr Dueker at Palo Alto City Hall, we would like to express our strong interest in collaborating with the City of Palo Alto in the field of integrating advanced Unmanned Aerial Systems to the City's public services.

MULTIROTOR is an established German manufacturer of high-grade small unmanned aerial systems ("sUAS"). Our company has delivered already more than 1,000 systems to customers around the world, among them renowned public sector clients such as the Berlin Police Department and the German Army. We have recently set up operations in Redwood City, Calif. to unlock the US market and to win local partners for adapting our technology to the specific requirements of US customers.

In line with the concept of 'Smart Cities', modern UAV technology has the potential to make operations in the public services sector **safer, more efficient and greener:**

- Inspections of assets could be conducted by UAVs avoiding the risk of injury or death that humans working at height are currently exposed to.
- Manned systems such as helicopters or ground vehicles could be replaced by UAVs resulting in considerably lowered noise and emission levels as well as reduced costs.

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- At accident or crime scenes, aerial data could be instantly available after or even during an incident happens, allowing for highly efficient and rapid deployment of ground staff and thus saving lives.

However, large-scale implementation of unmanned technology raises a couple of technical and non-technical questions which cannot be fully answered today:

- a) How does the capability of the latest unmanned technology relate to Palo Alto's actual requirements and use cases?
- b) What would be the actual benefits both short term and long term by implementing sUAS / autonomous technology at Palo Alto's public services and authorities?
- c) What internal and external stakeholders need to be involved in the process (e.g. county government, the public, the FAA)

In order to find the answers to these questions and to test the acceptance and readiness of all stakeholders involved, we suggest to jointly design and conduct confined tests to assess specific use cases. Ideally, these tests would be arranged within the framework of the recently announced **UAS Integration Pilot Program** by the FAA. Being a selected participant of the program would enable the City of Palo Alto and its team members to examine novel UAS operations such as Beyond-visual-line-of-sight flights (BVLOS), night-time operations or flights over human beings, all of which would make a collaboration even more worthwhile for either party.

Given the City's interests and MULTIROTOR's expertise, we think of several applications in the areas of

- Airport operations & maintenance (e.g. runway inspections, wildlife detection or perimeter surveillance)
- Law enforcement (e.g. accident scene reconnaissance or crime scene reconstruction)
- Disaster relief (e.g. aerial damage appraisal, hot spot detection, etc.)

We expect that such tests could significantly advance the process of implementing a permanent UAS program for the City of Palo Alto and we are very much looking forward to collaborating with you to uphold Palo Alto's status as one of America's most advanced cities!

Kind regards,



Marian Meier-Andrae

CEO

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