



**COMMISSION
AGENDA MEMORANDUM**

Item No. 6g

ACTION ITEM

Date of Meeting January 8, 2019

DATE: December 27, 2018

TO: Stephen P. Metruck, Executive Director

FROM: Michael Ehl, Director Aviation Operations
Mark Coates, Senior Manager Airport Operations

SUBJECT: Authorization to Contract Accipiter Radar Incorporated (ARTI) to Provide Avian Radar Services for Up to 7 Years.

Amount of this request: \$1,410,000

Total estimated project cost: \$1,410,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to execute a contract for avian radar services for up to seven years for an estimated total value of \$1,410,000.

EXECUTIVE SUMMARY

The purpose of this authorization request is to contract ARTI to provide the Port with bird hazard data and informational products to improve wildlife hazard awareness and aviation safety on and near the Airport. ARTI provides a turnkey avian radar service contract. All radar hardware and software are owned by ARTI. All maintenance and support costs associated with the requested radar service are included in the requested amount.

JUSTIFICATION

Federal Aviation Regulation (FAR) 139.337 mandates that immediate actions be taken to mitigate wildlife hazards whenever they are detected. Recent airline data show the average cost to an airline for every strike (damaging and non-damaging combined) is \$62,320 (personal communication, Phillip Shaw, Avisure Pty Ltd). A double-digit reduction in the reported strike rate (strikes/100,000 operations) is suggested since the benefits of avian radar have been realized and implemented by the Port.

The Port of Seattle needs to maintain continuity of operations with respect to the use of avian radar. ARTI provides a proprietary system, and applications that the Port has requested are already operationalized. The quality and consistency of the data provided by an avian radar system over time are the most important factors needed for trending and turning data into actionable information. For example, the Port saved in excess of \$6,000,000 by using avian radar data which showed the practice of using bottom liners and netting to keep hazardous

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waterfowl away from airport stormwater ponds was extremely effective. Therefore, the Port did not need to construct the more maintenance-intensive and costly pond covers that the FAA initially requested.

DETAILS

In 2007 the Port of Seattle was the first to operationalize avian radar at a commercial airport as a cooperative effort between the University of Illinois at Campaign Urbana (U of I), Federal Aviation Administration (FAA) and the Port of Seattle. ARTI was the vendor selected to provide the avian radar services.

This Phase 1 cooperative research effort was initially funded entirely by the FAA and DOD, government entities who had no contractual relationship with the Port. The Port's contribution was limited to in-kind support through December 31, 2015. In late 2015 The Port was informed that FAA funding would decrease.

In 2016, the Phase 2 research program involved funding from U of I, ARTI, and the Port of Seattle. Each party funded approximately one-third of the total ARTI contract cost of \$22,500/month (\$7,500/month before taxes). The Port approved a CPO-5 policy waiver on January 22, 2016 to negotiate directly with ARTI for a contract that went through December 31, 2017.

In August 2017 Steve Osmek presented an Avian Radar Budget Request to Senior Aviation Management for \$15,000/month to offset the U of I's one-third in the event that FAA funding continued to wane. The full annual cost of \$15,000/month before taxes was approved with the 2018 Aviation Budget. A purchase order was issued for 2018 for approximately \$180,000. In June 2018 it was learned that the FAA would shift funds from avian radar to advancing drone detection and alerting technologies. Consequently, CPO and Aviation Operations staff agreed to cancel the existing purchase order with ARTI and pursue a policy waiver or a new procurement to secure avian radar capabilities over an extended period.

Scope of Work

The total cost of this requirement is \$15,000/month plus state and local taxes. The vendor owns the equipment and provides the Port with a turn-key radar system which includes equipment maintenance and application development support. ARTI will continue to develop new system capabilities for improved bird-hazard alerting, strike incident investigations, and information on bird movements and hazard rankings in relation to aircraft approach and departure airspace. The latter may include leveraging existing cameras that are a part of the Port's runway Foreign Object Debris (FOD) system to visualize bird targets after being detected by the avian radar. If the joint-venture cost-shared project between ARTI and XSIGHT, the maker of the FOD cameras, is to the satisfaction of Airport Operations, the Port's annual cost for years four through seven could be as much as 3% higher. ARTI will also work collaboratively with the Port

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in an attempt to secure additional FAA funding for determining the best method of communicating need-to-know bird hazard alerts to Air Traffic Control Tower (ATCT) personnel.

Schedule

All three avian radars are installed and ready to be put in use upon execution of a contract with ARTI.

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Discontinue use of avian radar and remove the system from the Airport.

Cost Implications: Potential savings of \$1,410,000 from 2019 through 2025.

Pros:

- (1) Potential cost savings.

Cons:

- (1) The Port would lose its advanced bird-hazard detection capabilities on and near the airport. Strike rates could increase if mitigation response by Aviation Operations decreased as a result of the loss of this early warning hazard detection capability.
- (2) If avian radar was removed in 2019, the costs of installing and operationalizing this technology again at the Airport are expected to be expensive and time consuming. The FAA studies that preceded the installation and operationalizing the radar a decade ago saved the Port from incurring this expense and the burn in time to make the system as useful as it has become today.

This is not the recommended alternative.

Alternative 2 – Compete the avian radar contract opportunity to all available vendors.

Cost Implications: \$0. No cost savings are expected.

Pros:

- (1) None

Cons:

- (1) No other vendors have a ThreatViewer-like application for use by Aviation Operations. The Port was involved with the development of the existing applications now used by Aviation Operations.
- (2) Even if another vendor could provide similar detection benefits to the Port, it would take a measurable amount of time to install, validate and train Aviation Operations personnel to effectively use the new radar system. This would result in an extended break in continuity of airport operations and data comparability over the years.

This is not the recommended alternative.

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Alternative 3 – Execute a contract with a base period of 3 years with four additional 1-year options.

Cost Implications: \$1,410,000

Pros:

- (1) Improved awareness and response to avian hazards on and near the Airport would be regained immediately after a new contract with ARTI was executed and the ThreatViewer was turned back on.
- (2) The Port could work with the FAA Tech Center on Phase 3 studies which involve ATCT integration and development of communication standards for messaging pilots of bird threats so they can make better decisions on how to safely operate company aircraft in airport airspace.

Cons:

- (1) Annual costs might be considered high by some people. However, potential cost savings to airlines by reducing frequency and severity of bird strikes is great if system advancements developed at the Airport become industry-wide standards.

This is the recommended alternative.

Annual Budget Status and Source of Funds

Avian radar service is included in the Airport Operations 2019 budget for \$198,000. The annual contract will be included in the annual operating budget. The expenses are recovered through airlines Rates and Charges. The funding source would be the Airport Development Fund.

Future Revenues and Expenses (Total cost of ownership)

The annual cost of ownership is expected to be offset by the airlines that should see a reduced number and severity of bird strikes commensurate with continued use and advancements in avian radar technologies.

ADDITIONAL BACKGROUND

The results of the Phase 1 and Phase 2 cooperative research efforts between the cooperators were published in a variety of papers including FAA Advisory Circular 150/5220-25 Airport Avian Radar Systems. The most notable benefit to the Port includes the proprietary ThreatViewer application co-developed by ARTI and the Port. Operationalized in January 2013, eleven regions of the airfield are sampled for hazardous bird activity simultaneously. An alert is sent to the Airport Communications Center (ACC) if one or more of these areas are experiencing persistent bird activity. When alerted they contact an Airport Operations Specialist (AOS) over the radio to investigate and mitigate the bird-related hazard.

ATTACHMENTS TO THIS REQUEST

Presentation slides

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PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

None