COMMISSION
AGENDA MEMORANDUM **Item No.** 6f

ACTION ITEM **Date of Meeting** February 26, 2019

DATE: February 15, 2019

TO: Stephen P. Metruck, Executive Director

FROM: Jeffrey Brown, Director, Aviation Facility and Capital Program
Michael Ehl, Director, Airport Operations
Wayne Grotheer, Director, Aviation Project Management Group

SUBJECT: Stormwater Pond Bird Deterrent Improvements (CIP #C800980)

Amount of this request: $10,192,000
Total estimated project cost: $10,492,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to advertise and execute a construction contract for the Stormwater Pond Bird Deterrent Improvements project at the Seattle-Tacoma International Airport. This request is for $10,192,000 of a total estimated project cost of $10,492,000.

EXECUTIVE SUMMARY

This is a safety improvement project that will reduce the risk of aircraft-bird strikes by making the ponds less attractive to wildlife, particularly waterfowl. This project will upgrade or replace the existing pond netting systems to reduce the likelihood of major failures from snow and ice loads in the future and to comply with the intent of Federal Aviation Regulations (FAR) 139.337 and the airport's Wildlife Hazard Management Plan (WHMP).

The airport has effectively used pond netting systems to prevent bird access to the ponds. This in turn has reduced the number of bird strikes by aircraft. The pond netting systems on ten stormwater ponds and three industrial wastewater system (IWS) ponds at the airport were damaged by snow storms in February 2017. These ponds account for approximately 1.6 million square feet of area in need of upgraded or replaced bird deterrent system. The accumulated snow damaged structural and netting components to the extent that they no longer prevent access to ponds by hazardous birds. Temporary measures were taken in 2017 and 2018 to ensure compliance with federal regulations. This project will develop a viable long-term solution for the bird deterrent infrastructure at airport stormwater and IWS ponds.

This project is included in the 2019-2023 capital budget and plan of finance with a budget of $10,492,000; funding sources will be the Airport Development Fund and future revenue bonds.

JUSTIFICATION

Taking immediate measures to mitigate wildlife hazards complies with FAR 139.337 and supports the long-term strategy of the Port's Century Agenda objective to "Meet the region's air transportation needs at Seattle-Tacoma International Airport for the next 25 years." Maintaining the bird deterrent systems for ponds on or near the airport is a substantial part of the WHMP, which starts with managing the habitat to reduce the attractiveness of the airport environment to hazardous bird species.

The project was presented at the Airline Airport Affairs Committee (AAAC) meeting on May 24, 2018, and obtained a favorable majority in interest (MII) vote in Quarter 4 of 2018.

Diversity in Contracting

This project will include a 3 percent aspirational goal for women and minority business enterprises (WMBE) consistent with the Port Commission's Diversity in Contracting Policy Directive.

DETAILS

According to FAA Advisory Circular 150/5200-33B, the FAA requires that areas on or near airports having open water after 48 hours following a storm event be mitigated using techniques that prevent access to these areas by wildlife defined as hazardous. Airport Operations has indicated the ponds must be repaired quickly to comply with the WHMP. This project will be constructed during the dry season between July and October 2019.

Following damage by the 2017 snowstorms, temporary repair efforts at the ponds occurred in 2017 and 2018 to ensure compliance with the FAA Advisory Circular. With the exception of the 2017 bird ball installation at Pond SDS4, these efforts were not intended to address the failing structural components that affect long-term compliance and the durability of the bird netting infrastructure.

A feasibility study was conducted to develop a viable long-term bird deterrent solution that was tailored to the specific characteristics of each stormwater and IWS pond. Alternatives for long-term upgrades or replacement of the existing bird deterrent systems were evaluated including the use of upgraded fixed netting, fuse system netting (in which a sacrificial weak link fails first under high load, allowing for easier repairs), bird balls (floating cover), and dense vegetation to help physically exclude large hazardous birds from accessing the ponds. The evaluation considered effectiveness, maintainability of the system, water quality, short-term costs, long-term costs, and the maintainability of the pond facility. Recommendations were made for each pond based on a scored evaluation of 10 different alternatives for the 13 ponds.

Based on the feasibility study, netting system upgrades and controlled break fuse systems (designed so that only easily replaceable components fail under high load) were chosen as cost effective for most of the ponds while the bird ball alternative was selected as being cost

effective for three of the westside stormwater ponds due to the larger surface area of those ponds and the long service life of the bird balls. The bird balls were evaluated for maintainability, performance, service life and water quality impacts at both the SDS4 and the Terminal Radar Approach Control (TRACON) Ponds, where bird balls are currently installed.

The testing data indicated that no significant impact to water quality was detected from the bird balls. Based on the environmental testing, the decision was made to proceed with replacing the existing netting system at certain ponds with bird ball deterrent. In addition, the project scope was reviewed with the near term Sustainable Airport Master Plan (SAMP) projects and Pond F was identified to be ultimately impacted by SAMP. Therefore, the less costly and shorter-lived option of replacing the netting system over Pond F will be used to meet project objectives and the SAMP schedule.

Scope of Work

The main scope items are listed as follows:

(1) Upgrade the existing netting system at Stormwater Ponds SDN1, NEPL and SDE4 and IWS Lagoon 3;
(2) Install controlled break fuses system at IWS Lagoon 1 and Lagoon 2 and Stormwater Ponds M, SDN1 and SDE4;
(3) Replace the existing netting system at Stormwater Pond F with a shorter service life netting system;
(4) Remove the existing netting system at Ponds C, D and G and replace with floating bird balls.

Schedule

Activity	
Construction start	2019 Quarter 3
In-use date	2019 Quarter 4

Cost Breakdown	This Request	Total Project
Design	$0	$300,000
Construction	$10,192,000	$10,192,000
Total	$10,192,000	$10,492,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 –Continue temporary repairs as needed to comply with the WHMP and FAR Part 139 requirements.

Cost Implications: $150,000 annual expense cost

Pros:

(1) No capital cost in 2019, freeing up funds for other airport purposes.

Cons:

(1) Continued interim repairs to the netting system will be required to keep us in compliance but will fail to fix underlying structural deficiencies and leave netting systems at risk to all future storms. This increases the potential of bird-aircraft strikes.
(2) The increased habitual use of ponds on or near the airport by birds is well documented. The interim repairs are vulnerable to intrusion by birds and require additional vigilance by Airfield Operations and Maintenance to ensure the ponds are not becoming wildlife attractants.
(3) Ongoing annual expense for temporary repairs of the existing netting system.

This is not the recommended alternative.

Alternative 2 – Upgrade/Replace the existing pond netting system for airport IWS and stormwater ponds in the dry season of 2019.

Cost Implications: $10,192,000

Pros:

(1) Reduce the access of birds to the ponds on or near the airport and the presence of the waterfowl in the area to maintain air traffic safety.
(2) Complies with FAR Part 139 requirements, FAA Advisory Circular 150/5200-33B, and the airport WHMP.
(3) Uses the dry season between July and October for the best access to perform work in the ponds.

Cons:

(1) Capital spending in 2019

This is the recommended alternative.

FINANCIAL IMPLICATIONS

Cost Estimate/Authorization Summary	Capital	Expense	Total
COST ESTIMATE			
Original estimate	$11,384,000	$0	$11,384,000
Previous changes – net	$(892,000)	0	$(892,000)
Revised estimate	$10,492,000	0	$10,492,000
AUTHORIZATION			
Previous authorizations	$300,000	0	$300,000
Current request for authorization	$10,192,000	0	$10,192,000
Total authorizations, including this request	$10,492,000	0	$10,492,000
Remaining amount to be authorized	$0	$0	$0

Annual Budget Status and Source of Funds

The Stormwater Pond Bird Deterrent Improvements (CIP #C800980) is included in the 2019-2023 capital budget and plan of finance with a budget of $10,492,000. The funding sources will be the Airport Development Fund and future revenue bonds.

Financial Analysis and Summary

Project cost for analysis	$10,492,000
Business Unit (BU)	Airfield Movement Area
Effect on business performance (NOI after depreciation)	NOI after depreciation will increase
IRR/NPV (if relevant)	N/A
CPE Impact	$0.04 in 2021

Future Revenues and Expenses (Total cost of ownership)

A feasibility study was conducted to evaluate replacement/upgrade alternatives for each pond. Long-term cost is one of the criteria and is used to determine the recommended alternatives. With approximately 20 years' service life, bird balls will require minimal maintenance and have low annual repair/replacement cost. Upgrading the existing netting system will increase the service life of the overall system and reduce the annual repair cost. The installation of fuses will control the damage to an area that is readily repairable to improve maintainability and reduce the maintenance cost.

ATTACHMENTS TO THIS REQUEST

(1) Presentation slides

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- June 12, 2018 – The Commission authorized $250,000 to design and prepare construction bid documents for the Stormwater Pond Bird Deterrent Improvements project at the Seattle-Tacoma International Airport.
- June 27, 2017 – The Commission authorized $455,000 to use Port Construction Services to repair damaged stormwater pond nets at Seattle-Tacoma International Airport in 2017.