



COMMISSION
AGENDA MEMORANDUM

Item No. 6d

ACTION ITEM

Date of Meeting June 12, 2018

DATE: April 24, 2018
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: \$250,000
Total estimated project cost: \$10,492,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to design and prepare construction bid documents for the Stormwater Pond Bird Deterrent Improvements project at the Seattle-Tacoma International Airport in an amount not to exceed \$250,000 with a total estimated project cost of \$10,492,000.

EXECUTIVE SUMMARY

This is a safety improvement project that will reduce the risk of aircraft strikes with birds. This project will upgrade or replace the existing pond netting systems to prevent future failures from snow and ice loads and to comply with the Wildlife Hazard Management Plan (WHMP), a section of the airport's Federal Aviation Administration (FAA) approved Airport Certification Manual.

Ponds attract wildlife, particularly waterfowl. The airport has effectively used pond netting system to prevent access to the ponds by birds. This in turn has reduced the number of bird strikes by aircraft. The pond netting systems on ten storm water ponds and three industrial wastewater system (IWS) ponds at the airport were damaged by snow storms in February 2017. The accumulated snow damaged structural and netting components so they no longer prevent access to ponds by birds. Federal Aviation Regulations (FAR) Part 139.337 require airports to take immediate measures and mitigate wildlife hazards whenever hazards are detected. Temporary measures were taken in 2017 to ensure compliance with federal regulations. This project will develop a viable long-term solution for the bird deterrent infrastructure for stormwater IWS ponds at the airport.

This project is included in the 2018-2022 capital budget and plan of finance; funding sources will be the Airport Development Fund and future revenue bonds.

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JUSTIFICATION

Taking immediate measures to mitigate wildlife hazards support 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 significant to air traffic safety.

This project is planned to be constructed over two construction seasons starting in 2019 and completing in 2020. In 2019, the existing netting system at stormwater pond SDN1, NEPL and SDE4 and IWS pond Lagoon 3 will be upgraded to increase load-bearing capacity and service life. A controlled break fuses system (designed so that only easily replaceable components would fail under high load) will be implemented at IWS Lagoon 1, Lagoon 2 and Pond M. In addition, the netting system at Pond F will be replaced with bird balls that are not ballasted because they are less costly and their performance has been acceptable in ponds with steep side slopes. As recommended in the feasibility study, before implementing the bird balls at other ponds, they will be evaluated one year after the installation at SDS4 and Pond F for maintainability, performance, stability, and the environmental impacts such as water quality. If unballasted bird balls prove successful they will be used at Pond C, D and G in 2020.

The project was presented at the Airline Airport Affairs Committee (AAAC) meeting on May 24, 2018 with no objection received. A majority-in-interest (MII) vote will not occur before the Commission meeting on June 12 for the design authorization of this project. We do not anticipate this project to be controversial and expect MII approval.

A Project Labor Agreement (PLA) was evaluated in collaboration with Port of Seattle Labor Relations and will not be utilized based on the location of the project and the potential impact of a PLA on small business opportunities. This project will include goals for small business.

DETAILS

According to Federal Aviation Administration (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 be in compliance with the WHMP. The best time to perform work in the ponds is during the July to October dry season.

Ballasted bird balls partially filled with potable water to increase their stability were installed at SDS4 pond through a small works contract in 2017. Temporary repair efforts at other ponds occurred in 2017 to ensure compliance with the FAA Advisory Circular. However, those 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-

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term upgrades or replacement of the existing bird deterrent systems were evaluated including the use of upgraded fixed netting, fuse system netting (sacrificial weak link fails first under high load, allowing easy repair), bird balls (floating cover), and exclusionary vegetation. 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.

Scope of Work

The main scope items are listed as follows:

- (1) Upgrade the netting system at Stormwater Pond SDN1, NEPL and SDE4 and IWS Pond Lagoon 3;
- (2) Install controlled break fuses system at IWS Lagoon 1 and Lagoon 2 and Stormwater Pond M;
- (3) Replace the netting system at Pond C, Pond D, Pond F and Pond G with unballasted bird balls.

Schedule

Activity

Design start	2018 Quarter 2
Commission construction authorization	2019 Quarter 1
Construction start	2019 Quarter 3; 2020 Quarter 2
In-use date	2019 Quarter 4; 2020 Quarter 3

Cost Breakdown

	This Request	Total Project
Design	\$250,000	\$1,648,000
Construction	0	\$8,844,000
Total	\$250,000	\$10,492,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Do not upgrade or replace the damaged netting systems for stormwater ponds or IWS ponds at the airport in the dry season of 2019 or 2020.

Cost Implications: \$150,000 annual expense cost

Pros:

- (1) No capital cost in 2019 or 2020, freeing up funds for other airport purposes.

Cons:

- (1) The increased habitual use of ponds on or near the airport by birds is well documented. Doing nothing would result in an increasing potential risk of bird-aircraft strikes.

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- (2) Risks of damage to pond netting system from future storms and not in compliance with the airport WHMP.
- (3) Not in compliance with FAR Part 139 requirements or FAA Advisory Circular 150/5200-33B.
- (4) 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 in 2019 with a recommended alternative according to the feasibility study for all IWS and stormwater ponds at the airport.

Cost Implications: \$9,467,000

Pros:

- (1) Accelerated reduced access of birds to the ponds on or near the airport and their presence 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.

Cons:

- (1) No opportunity to evaluate the bird balls for maintainability, performance, stability, and the environmental impacts at a pilot pond before implementing at other ponds.
- (2) Risks of not completing all the ponds during dry season in 2019 and require work in wet season with higher cost and possible delay to the dry season of 2020.

This is not the recommended alternative.

Alternative 3 – Upgrade/Replace the existing pond netting system with the recommended alternative according to the feasibility study over two construction seasons for IWS and stormwater ponds at the airport.

Cost Implications: \$10,492,000

Pros:

- (1) Reduces the access of birds to the ponds on or near the airport and their presence 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.
- (4) Allows evaluation of bird balls one year after the installation at SDS4 and Pond F for maintainability, performance, stability, and the environmental impacts such as water quality before implementing them at other ponds.

Cons:

- (1) Delays full completion of improvements until 2020.

This is the recommended alternative.

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FINANCIAL IMPLICATIONS

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$11,384,000	\$0	\$11,384,000
Current change	\$(892,000)	0	\$(892,000)
Revised estimate	\$10,492,000	0	\$10,492,000
AUTHORIZATION			
Previous authorizations	\$50,000	0	\$50,000
Current request for authorization	\$250,000	0	\$250,000
Total authorizations, including this request	\$300,000	0	\$300,000
Remaining amount to be authorized	\$10,192,000	\$0	\$10,192,000

Annual Budget Status and Source of Funds

The Stormwater Pond Bird Deterrent Improvements (CIP #C800980) is included in the 2018-2022 capital budget and plan of finance with a budget of \$11,384,000. The reduction in budget was transferred to the Aeronautical Allowance CIP #C800753, which resulted in no net change to the Airport capital budget. 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 was considered to be one of the important criteria and 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 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.