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COMMISSION

AGENDA MEMORANDUM Item No. 8c

ACTION ITEM Date of Meeting September 27, 2022

DATE : September 16, 2022

TO: Stephen P. Metruck, Executive Director

FROM: Mike Tasker, Director, Aviation Maintenance

Krista Sadler, Director Technology Delivery

SUBJECT: Radio Microwave Redundancy Loop (CIP #C801263)

Amount of this request: \$2,500,000

Total estimated project cost: \$2,500,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to 1) proceed with the Radio Microwave Redundancy Loop project; 2) execute contract(s) for hardware, software, and services; and 3) execute up to three leases for Port capacity on Microwave Towers for a total project cost not to exceed \$2,500,000 and 5-year lease costs estimated \$840,000.

EXECUTIVE SUMMARY

This project will add up to three Radio Microwave sites to create a loop topology between tower sites to ensure connectivity in the event of an incident that takes a tower out of commission. With the tower loop design, each site will have multiple pathways to get to the prime site at Seattle-Tacoma International Airport (SEA). In addition, the project will activate a backup, virtual prime site to protect against issues with the SEA prime site. Capital costs for the buildout of the three new sites and the activation of the backup site are \$2,500,000. Lease costs for space on new tower sites or additional capacity on current sites is estimated at \$840,000 over five years. The Port of Seattle operates its own mixed-mode radio network that is a vital communication system. It includes over 1900 radios and dispatch consoles for the Port Public Safety departments, Aviation Operations, Aviation and Maritime Maintenance, Aviation and Maritime Security and Emergency Preparedness teams who rely heavily on the radio system for day-to-day operations and incident response. It is also the critical communication link for mutual aid responders within adjacent jurisdictions who will come into the Port's radio coverage area to aid during emergencies.

Our current towers operate serially to send radio communications to the Prime site at SEA. If a single link is lost, at least one site and possibly more, depending on where the break is, will lose

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connectivity. This will reduce our radio coverage area and potentially leave radio users in the field unable to communicate with dispatchers and other radio users until the link is restored.

JUSTIFICATION

With the current serial tower design, if there is a tower taken offline for any reason, all radio communication is down for radios served by that site or sites beyond. While there are work arounds for planned outages, they require significant coordination. A full transition to a backup system, could take several days. In addition, the first mitigation for a north end outage is to utilize the City of Seattle radio network. If they are also experiencing outages from similar threats, the outages could be much longer.

Diversity in Contracting

Project staff will work with the Diversity in Contracting Department to determine if a direct women-and-minority-owned business enterprise (WMBE) aspirational goal should be assigned. It is expected that opportunities will be limited for this proprietary system.

DETAILS

Scope of Work

- (1) Procurement of equipment and services from Motorola, our radio vendor
- (2) Design and installation of new sites
- (3) Testing and activation of the virtual prime site for further redundancy

Schedule

Commission authorization 2022 Quarter 3

Contract Completion 2022 Quarter 4

Design and Site Identification Completion 2023 Quarter 2

In-use date 2024 Quarter 1
Cost Breakdown This Request Total Project
Equipment and Implementation Services \$2,100,000 \$2,100,000
Port Labor \$400,000 \$400,000
Total \$2,500,000 \$2,500,000

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ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Create redundancy through duplicative Wide Area Network Connectivity between towers

Cost Implications: \$300,000 Capital; \$200,000 Five-year Recurring Cost

Pros:

(1) Lower cost alternative

Cons:

(1) This alternative requires a manual failover that could take 1-2 days for activation.

This is not the recommended alternative.

Alternative 2 – Build Radio System redundancy by creating a loop topology with additional tower sites

Cost Implications: \$2,500,000 Capital; \$900,000 Five-year Recurring Cost

Pros:

(1) An entire site can be removed from the loop and the other sites would remain connected to the SEA prime site, resulting in no loss of radio communication capabilities.

(2) If the SEA prime site goes down, we will have full redundancy with our virtual prime site.

Cons:

(1) Higher cost alternative

This is the recommended alternative.

FINANCIAL IMPLICATIONS

Cost Estimate/Authorization Summary Capital Expense Total

COST ESTIMATE

Original estimate \$2,500,000 \$0 \$2,500,000

AUTHORIZATION

Previous authorizations \$0 0 \$0

Current request for authorization \$2,500,000 0 \$2,500,000

Total authorizations, including this request \$2,500,000 0 \$2,500,000

Remaining amount to be authorized \$0 \$0 \$0

Annual Budget Status and Source of Funds

This project was included in the 2022-2026 Corporate capital budget and plan of finance for \$2,500,000 in CIP# C801263. The project will be funded with 82.1% Airport Development Fund and \$17.9% General Fund.

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Financial Analysis and Summary

Project cost for analysis \$2,500,000

Business Unit (BU) Administrative for allocation to Aviation

Effect on business performance NOI after depreciation will increase due to inclusion of

(NOI after depreciation) capital (and operating) costs in airline rate base.

IRR/NPV (if relevant) Less than \$0.01 in 2024

CPE Impact

Future Revenues and Expenses (Total cost of ownership)

The Port will need up to three new site leases for microwave tower space at an estimated cost of \$144,000 annually. In addition, new capacity may be required at existing microwave towers that

could increase annual costs by \$24,000 for a total annual cost of \$168,000 and five-year costs of \$840,000. Annual costs will be included in the Aviation Maintenance Operating Budget.

ATTACHMENTS TO THIS REQUEST

None

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

None

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