COMMISSION
AGENDA MEMORANDUM **Item No.** 8a

ACTION ITEM **Date of Meeting** April 24, 2018

DATE: April 17, 2018

TO: Stephen P. Metruck, Executive Director

FROM: David Soike, Chief Operating Officer
Selena Tonti, Director, Security & Preparedness
Stuart Mathews, Director, Aviation Maintenance

SUBJECT: Radio System Upgrade (CIP #C801012)

Amount of this request: $22,050,000
Total estimated project cost: $22,100,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to (1) proceed with the Radio System Upgrade project; (2) procure required hardware, software, vendor services, and license and maintenance; (3) execute lease agreements for tower sites for the next 10 years; and (4) use Port staff for implementation, for a total capital project cost not to exceed $14,800,000. A ten-year contract for license and maintenance fees is estimated at $5,700,000 and ten-year recurring lease costs are estimated at $1,600,000.

EXECUTIVE SUMMARY

The Port of Seattle operates its own radio network supporting approximately 1800 radios and dispatch consoles used for day-to-day operations. It is also the critical communication link for mutual aid responders within adjacent jurisdictions including King County, City of Seattle, Pierce County, Snohomish County, and Valley Communications Center, who rely on the Port's radio coverage when assisting during emergencies.

Approximately half of the components in the Port's radio system are nearing or are at end-of-life, backup equipment, in some cases, does not exist, and replacement parts are difficult to acquire. This increases the risk of a radio system service interruption. Performance of this system is critical for the safety of emergency responders and efficient operation of Port business. The proposed upgrade is typical for a radio system at end-of-life.

This project will upgrade key components of the Port's Motorola mixed-mode radio network including radio system hardware and software, tower sites, and subscriber equipment to ensure availability of a critical communication system for Port Public Safety (Police, Fire, 9-1-1

Dispatch, and Emergency Preparedness), Airport Operations, Aviation Maintenance (AVM), Marine Maintenance (MM), Security & Preparedness, and mutual aid responders from adjacent jurisdictions.

King County is currently leading a project for a regional wireless communication system, Puget Sound Emergency Radio Network (PSERN), to be used jointly with Eastside Public Safety Communications Agency (EPSCA), City of Seattle, and Valley Communications Center (ValleyComm). This project is not currently scheduled for final completion until 2021, although it may be possible for the Port to move onto the new PSERN system in late 2020. PSERN was evaluated as an alternative for this project but was not the recommended solution at this time due to the risks related to timelines, design, and scope. The risk of a Port system failure while waiting for a viable solution with PSERN is too high to be acceptable. System failure could result in total communication and response failure by first responders. Communication would move to more manual methods —resulting in significant delayed response, as well as status/ situational awareness and efficiency breakdown. Communication failure with this system has direct life and safety impact—whether it's related to the Port's airport or maritime operations, incident response, or major regional disaster response. Communication failure within the Port also impacts its ability to effectively communicate with mutual aid partners.

The recommended solution is to procure Motorola equipment, software, and services with a competition waiver. Another alternative, described in the alternative section below, included the competitive procurement of a new radio system. Because not all radio components are at end-of-life, the cost of a new system is significantly higher than the recommended alternative and until adjacent mutual aid responders have transitioned to a current radio standard, interoperability with non-Motorola system is limited.

Port Public Safety organizations, AVM, MM, and Information and Communication Technology (ICT) resources will collaborate to complete the project. Total capital project costs are estimated to be $14,800,000. This includes temporary lease costs for expanded tower space required for cut-over. Ten-year license, system upgrade and maintenance fees are estimated at $5,700,000. Ten-year lease recurring lease costs are estimated at $1,600,000. Recurring hardware license, maintenance, and lease costs will be budgeted within the AVM department operating budget.

JUSTIFICATION

The Port's current radio system is aging and maintenance repair costs are rising as components increasingly require repair and replacement. The Port is facing parts shortages as well as limited or no operational support. This will adversely impact our ability to provide reliable communications in emergency situations and hamper maintenance and operations. Upgrading the existing systems is the lowest risk alternative that meets the Port's needs and ensures high availability, excellent priority support services and proven public safety communication with high confidence.

DETAILS

Scope of Work

Procure hardware, software, and vendor implementation services to upgrade key components of the Port's Radio System including:

(1) Radio Subscriber Equipment with Global Positioning features for first responders
(2) Core System
(3) Redundant Prime Site
(4) Integration improvements with Pierce County
(5) Scalability improvements through enhanced channel access
(6) Recording System

Schedule

Commission Authorization	2018 Quarter 2
Design Complete	2018 Quarter 3
Equipment Procurement and Staging	2019 Quarter 1
Installation Complete	2019 Quarter 4
Final Completion	2020 Quarter 1

Cost Breakdown	This Request	Total Project
Hardware, Software, and Vendor Services	$13,800,000	$13,800,000
Port Labor	$710,000	$710,000
Temporary Lease Costs	$290,000	$290,000
Total Project Costs	**$14,800,000**	**$14,800,000**
10-Year License and Maintenance Agreements	$5,700,000	$5,700,000
10-Year Recurring Lease Agreements	$1,600,000	$1,600,000
Total 10 Year License, Maintenance, and Lease Agreements	**$7,300,000**	**$7,300,000**

ALTERNATIVES AND IMPLICATIONS CONSIDERED

In 2017, an objective evaluation of alternatives was conducted by Port staff and an independent consultant, Gartner, Inc. This assessment evaluated the current conditions, future state needs, the Port's specific priorities and objectives, and possible sustainment alternatives. During this assessment background documentation was reviewed and various stakeholders interviewed, including PSERN and county personnel, and the Port's current service provider, Motorola, in support of an informed decision.

Alternative 1 – Go to market. Select a new radio system via a competitive process and completely replace *all components.

Cost Implications: Costs would not be known until after procurement and negotiations but the estimate 10-year cost range is between $29,000,000 and $37,000,000.

Pros:

(1) Control: Continued ability to control radio communications systems strategy, evolution, and support practices.
(2) Requirements met: Port managed procurement would ensure feature, coverage, security, and scalability requirements are of the highest priority.
(3) Reduction of ongoing cost (potential): On-going costs could be less than current Motorola proposal. This information would not be known until proposals are received as part of the procurement process

Cons:

(1) Time: A complete replacement would require several years for procurement and implementation. In the interim, the risk of a system failure and recovery to emergency response and operations is higher than acceptable.
(2) Cost: There are several components of the Motorola system that do not require replacement at this time so a complete replacement of the system would cost significantly more than a partial upgrade of the current system.
(3) Proprietary equipment must be maintained: *Due to the necessity to continue interoperability with mutual aid partners, a portion of the existing Motorola proprietary system must remain functional until the Port's regional partners are compatible with current standards. This will limit the ability for vendors other than Motorola to implement successfully.

This is not the recommended alternative.

Alternative 2 – Commit to PSERN and phase out Port system when migration is complete

Cost Implications: The estimated 10-year cost estimate is $10,700,000

Pros:

(1) Interoperability: Maintain ability to connect to other local agencies.
(2) Project LOE reduction: The overall level of effort for the Port to support the radio system upgrade project will be significantly reduced.
(3) Cost: The estimated net present value for this alternative is approximately $11.5M less than the recommended alternative.

Cons:

(1) Aging equipment/ risk of catastrophic failure: More than half of the Port's current critical hardware, firmware and software components are near or at end-of-life and at risk of a catastrophic failure without timely upgrades. The risk of system failure and ability to recover from failure while needing to support emergency response and operations is higher than acceptable. Replacement parts and technician skillset to

make repairs are increasingly difficult to acquire. Failed parts may have to be shipped for repair, taking weeks to be returned and not guaranteed to be repaired in the end.

(2) Uncertainty & risk of not meeting requirements: Design of the PSERN system was completed without Port as a stakeholder. There is significant uncertainty and risk related to whether PSERN will include the Port's feature, coverage, capacity, security, and scalability requirements. Additional capital costs may be required to meet our unique public safety and operational requirements.

(3) Risk of increased costs and schedule slippage: Current PSERN pricing is based on previous estimate and may not reflect their final contract scope and may increase for the overall PSERN system. This may include upgrade agreements and maintenance costs. Pricing could be subject to an increase in user and dispatch fees to address the changes in final design. There is a potential that costs could decrease but continued scope impacts suggests otherwise. Continued discussions of scope expansion and challenges with leases puts the PSERN schedule at risk for further delays.

(4) Reduced control: As part of PSERN, the Port would have reduced control of system strategy, evolution and support practices due to a multi-stakeholder governance model. At the time of the assessment, PSERN would not commit to a voting seat for the Port should we opt for this alternative. Even in the event of a voting seat for the Port, control would be significantly reduced, due to the consensus nature of the PSERN governance model.

(5) Impact to Service Levels & Port Priority: In the event of a significant negative event impacting the availability of the PSERN system, recovery of Port specific functionality may be marginalized due to the overall size of PSERN and the individual stakeholder groups represented. In addition, priority for Public Safety may limit the availability for Port Operations.

This is not the recommended alternative.

Alternative 3 – Complete upgrades with beneficial features now and re-evaluate PSERN opportunity in 2025. Additional beneficial features are not required at this time such as a mobile site and in-building enhancements.

Cost Implications: The estimated 10-year cost is $24,175,000.

Pros:

(1) Timely replacement of aging equipment: Reduce risk of system failure for Port Public Safety and Operations due to radio equipment at end-of-life and the unavailability of replacement parts and skilled technicians.

(2) Additional redundancy for Port and community: Include extra redundancy with a mobile tower site to augment coverage in the event of a catastrophic event. A mobile site can also provide additional community support and interoperability beyond the Port needs.

(3) Control: Continue ability to control radio communications systems strategy, evolution, and support practices.

(4) Requirements met: Port managed procurement would ensure feature, coverage, security, and scalability requirements are of the highest priority.
(5) Interoperability: Maintain ability to connect to other local agencies.
(6) True Benefit & Cost Predictability: Advantages and the cost predictability of joining the local agency PSERN program will become clearer in the next few years as the program design and deployments complete. A thorough assessment and risk evaluation can be completed with reliable information.

Cons:

(1) Timing/ Cost versus value: Capital to purchase redundancy features will not be available for other efforts. The project team believes the benefits of this additional functionality are not worth the $2,075,000 estimated cost at this time. The recommended alternative includes a redundant prime site which will allow the radio system to function in a limited capacity during a catastrophic event. This limitation is sufficient for operations and emergency services until the main prime and master sites have been restored.
(2) Costs: The estimated net present value for this alternative is approximately $13.7M more compared to alternative 2, move to PSERN in 2021.

This is not the recommended alternative.

Alternative 4 – Complete required upgrades now and re-evaluate PSERN opportunity in 2025.

Cost Implications: The estimated 10-year cost is $22,100,000.

Pros:

(1) Shortest implementation schedule to replace aging equipment: This alternative provides the shortest schedule; which will provide the greatest risk reduction of system failure for Port Public Safety and Operations. Current radio equipment is at end-of-life and the unavailability of replacement parts and skilled technicians is of great concern. This project addresses these concerns in the shortest timeframe. As with any project, schedule slippage is a potential risk. This alternative has fewer external influences that may impact project schedule than other alternatives.
(2) Interoperability: Maintain ability to connect to other local agencies, to include PSERN. Also, our connection to PSERN will allow for both, the Port and the PSERN, to benefit from each other's system's connected partners. (i.e. The Port will connect to partners not connected to the PSERN and vise-versa. Our shared interface will expand each other's partner connection)
(3) Control: Continue ability to control radio communications systems strategy, evolution, and support practices. In addition, Port radio stakeholders repeatedly speak of the excellent quality of service they receive from the Port radio support team. It is expected that the level and quality of service will be maintained after the upgrade.
(4) Requirements Met: This alternative has the clearest predictability to meet our priorities, standards and environmentally unique requirements compared to all other alternatives. Port managed procurement would also ensure feature, coverage, security, and scalability requirements are of the highest priority.

(5) True Benefit & Cost Predictability: Advantages and the cost predictability of joining the local agency PSERN program will become clearer in the next few years as the program design and deployments complete. A thorough assessment and risk evaluation can be completed with reliable information.

Cons:

(1) Cost: The estimated net present value for this alternative is approximately $11.5M more compared to alternative 2, move to PSERN in 2021.

(2) No Mobile Tower Site: Additional redundancy from the Mobile Tower Site will not be available to the Port, mutual aid agencies, or community in the event of a catastrophic event. This recommended alternative includes a redundant prime site which will allow the radio system to function in a limited capacity during a catastrophic event. This limitation is sufficient for operations and emergency services until the main prime and master sites have been restored.

This is the recommended alternative.

FINANCIAL IMPLICATIONS

Expense estimates shown are recurring costs. Current year recurring costs have been budgeted in the 2018 Operating budget. Future years will be budgeted during annual budget cycles.

Cost Estimate/Authorization Summary	Capital	Expense	Total
COST ESTIMATE			
Original estimate	$1,800,000	$0	$1,800,000
Current change	$13,000,000	$7,300,000	$20,300,000
Revised estimate	$14,800,000	$7,300,000	$22,100,000
AUTHORIZATION			
Previous authorizations	$50,000	$0	$50,000
Current request for authorization	$14,750,000	$7,300,000	$22,050,000
Total authorizations, including this request	$14,800,000	$7,300,000	$22,100,000
Remaining amount to be authorized	$0	$0	$0

Annual Budget Status and Source of Funds

Of the requested $14,800,000 capital budget, Aviation will fund $12,075,000 and Maritime will fund $2,725,000. This allocation was based on the number of radio subscriber units assigned to associated organizations. This project was included in the 2018-2022 capital budget and plan of finance for $1,800,000 under CIP #C801012, Radio System Upgrade. This original budgeted plan of $1,800,000 was to implement a solution to mitigate the most critical components and allow for more time to consider and implement another alternative, such as PSERN. After further review, it was discovered that the solution originally proposed was a partial solution that would not provide mitigation for the scope and timeframe needed to transition to a new alternative.

Approximately $4,600,000 of the remaining, unbudgeted $13,000,000 capital amount is estimated to be spent in 2018. Of this, approximately $3,750,000 will be transferred from the Aeronautical Allowance CIP (C800753) and $850,000 will be transferred from the Contingency Renewal & Replacement CIP (C800002).

Financial Analysis and Summary

Project cost for analysis	$16,729,671 Aviation
Business Unit (BU)	Airport Admin
Effect on business performance (NOI after depreciation)	NOI after depreciation will increase
IRR/NPV (if relevant)	N/A
CPE Impact	$0.04 CPE in 2021

Future Revenues and Expenses (Total cost of ownership)

Recurring vendor maintenance and license costs for this system are estimated at $570,000. This is up from a current recurring cost of $167,000 but it includes software and hardware upgrades not currently part of the vendor agreement. AVM support and tower site leasing costs, currently at $192,000, are not expected to change over current inflation rate.

ATTACHMENTS TO THIS REQUEST

(1) Public Safety Radio System Upgrade- Presentation slides

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

May 20, 2013 – The Commission authorized a project to upgrade a smaller portion of the Radio System