



**COMMISSION  
AGENDA MEMORANDUM**

**Item No.** 6e

**ACTION ITEM**

**Date of Meeting** March 10, 2020

**DATE:** January 29, 2020

**TO:** Stephen P. Metruck, Executive Director

**FROM:** Skip Himes, Director, Marine Maintenance  
Tin Nguyen, Sr. Manager, Marine Maintenance  
Robert Hoyman, Project Manager, Marine Maintenance

**SUBJECT:** SBM Electric Vehicle Charging Stations and Electrical Service Upgrade (WP# 105789)

**Amount of this request:** \$440,000  
**Estimated project cost increase:** \$140,000

**ACTION REQUESTED**

Request Commission ratification of action already taken to use port crews to purchase and install new electric vehicle charging stations at Shilshole Bay Marina and perform related electrical infrastructure upgrades in an amount not to exceed \$440,000.

**EXECUTIVE SUMMARY**

In July 2018, an original budget of \$250,000 was approved and later amended in October 2019 to \$300,000 for the purchase and installation of the Electric Vehicle Charging Stations (EVCS) at Shilshole Bay Marina (SBM). During design development, it was determined that the existing Substations No. 5 & 8 breakers were sufficient to support the initial installations, but additional upgrades to the substations were required to support future growth of up to twenty EVCS at each location. As such, improvements and expansion to the electrical service at Substation No. 5 & 8 were added to the original project scope. At the time, our project team believed project contingencies would accommodate the increased scope of work and additional associated costs. This was not the case. The total cost of the projects is \$440,000, or \$140,000 more than estimated. Because the original estimate did not exceed \$300,000, commission authorization was not previously requested.

**BACKGROUND**

In early October 2019, nearing completion of construction, it was realized by our project team that the costs associated with the Electrical Service Upgrades would exceed the approved budget. Keeping with our EX-2 Delegation of Authority, Marine Maintenance subsequently requested approval for an additional \$50,000 to bring the total project value to \$300,000. By the end of October 2019, it became evident that the additional funding was insufficient, and our project team reached out to Accounting & Financial Reporting (AFR) for their assistance in running detailed cost queries reflecting both actual cost to date and remaining expected commitment

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cost from our financial system, PeopleSoft. The ability to work between numerous systems to obtain actual cost to date, remaining commitments (expected future invoices), and planned future cost to project an estimated at completion (EAC) cost is especially difficult for small works construction projects which have an aggressive schedule and restrictive project budgets, but are faced with the same systematic lag times in having actual cost data. As internal labor costs, department allocated overhead, vendor invoices, and P-Card transactions were being reconciled throughout November and December, it was realized that costs had further exceeded \$300,000 and were approaching \$440,000.

A thorough review of lessons learned, and final scope analysis revealed that multiple mistakes had been made on the project:

1. Marine Maintenance should have created two separate projects to appropriately capture both the upgrades to the existing electrical service (Substation No. 5 & 8) and the development of new Electric Vehicle Charging Stations. Although these two work projects are related, they are distinctly two separate assets which would justify two separate work projects and authorizations – the two systems have differing useful lives and the substation infrastructure supports broader electrical needs at SBM. The best approach from the onset should have been a recognition of one major works CIP of \$440,000 going for Commission authorization in July of 2018. Within this CIP, the two work projects would capture costs of the two separate assets with differing depreciation schedules.
2. During construction Port crafts were called upon on more than one occasion to respond to unexpected utility failures. Also, equipment failures during construction halted operations on two occasions. Marine Maintenance did not have staffing capacity or available equipment to maintain continuity on this project. This resulted in delays and added overhead costs. In hindsight, this work may have been better suited for contracted services.
3. In planning for this work in early 2018, our team underestimated the cost of the increased project scope. This is evident in our new proposed Commission ask of \$440,000 versus an approved budget of \$300,000. We are now in a difficult position of asking for authorization on money already spent.

The above lessons learned were documented on an internal memorandum dated November 25<sup>th</sup>, 2019 to Maritime Managing Director Stephanie Jones-Stebbins along with recommendations for process improvements for our team to implement in developing further transparency and avoiding similar issues with our project delivery process moving forward.

The cost overruns noted above prevented Marine Maintenance from paying numerous outstanding invoices to our valued equipment vendors and material suppliers. To ensure timely payment, a retroactive work project SBM Electrical Service Upgrade (WP 106074) was created to capture and transfer costs associated with the electrical infrastructure improvements to the substations. A temporary amendment was also created to increase the original budget on project SBM Electric Vehicle Charging Stations (WP 105789) to accommodate the additional costs.

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## **JUSTIFICATION**

Since opening in 1962, Shilshole Bay Marina (SBM) has undergone many changes, including a major renovation in 2006, and is now one of the most modern marinas on the West Coast. The Marina design consists of 1,411 slips and is at 95% of full occupancy. SBM is home to approximately six-hundred live aboard residents who occupy 350 slips. Marina management embraces continuous improvement and is always evolving business and operations to meet changing needs of users and residents. To help the Port of Seattle become the greenest Port in North America, SBM staff proposes a scalable investment in electric vehicle charging stations to meet existing and future demand for clean transportation.

Installation of EVCS at SBM addresses tenant demand, supports the Port's Century Agenda and GHG reduction goals, and provides an improved amenity for marina residents, visitors, and the public. The existing EV charging at SBM was unmetered, unregulated, and potentially unsafe: tenants connected extension cords to available outlets in SBM's parking lot. Installation of modern level 2 charging stations provides the following benefits:

1. Safe, reliable, convenient access to EV charging
2. Support for current and future tenant, public and Port EV use while advancing Port goals to improve air quality and reduce emissions
3. The ability to track electricity and recover costs associated with power distribution

Abundant, affordable and convenient access to EV charging infrastructure is a critical part of the transition to zero-emission transportation. A recent SBM-wide survey indicated that of the four hundred forty-seven respondents, eight live aboard residents own EVs, seventeen moorage users own EVs, and sixty-three respondents will consider purchasing an EV in the near future. Approximately one third of Shilshole customers responded to this survey.

### ***Diversity in Contracting***

There are no opportunities to include WMBE aspirational goals and inclusion plans in this request as construction has been completed using Port Crews.

## **DETAILS**

The project purchased and installed new Electric Vehicle Charging Stations at Shilshole Bay Marina and upgraded electrical infrastructure to support future growth.

### ***Scope of Work***

The scope of work included thirty-day energy analysis of the two substations identified to feed the proposed SBM EVCS. This analysis was used to confirm power availability during peak operational periods. Following this study Port Engineering developed a complete design which was to include improvements to the power distribution equipment and inclusion of a marine

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grade step-down transformer to provide 208V power distribution. Other criteria for the design included branch circuitry for future expansion including: spare raceways from the vaults to handhold locations, oversized vaults to capture all the spare raceways from the substations and space for future expansion, oversized marine grade panels providing room for up to twenty charging stations at each location and four extra spare circuits. Equipment purchased included the upgrades to the electrical service, coupled with for (4) Dual Charging pedestals with charging stations for a total of eight (8) charging stations, branch cabling, handholds and the necessary 208V 30A GFIC Breakers.

Marine Maintenance Crafts performed the installations including all trenching and installations of reinforced duct bank, grounding, curb installations, paving, sidewalk and pad installations, electrical work, signage and striping.

**Schedule**

Design for the EVCS and Electrical Service Upgrades was completed and permitted for in April of 2019. Equipment was procured, and construction began June of 2019. Underground utility work commenced in July and was completed October of 2019. Both the installation of the SBM EVCS and Electrical Service Upgrades were completed in November 2019.

*Activity*

Commission design authorization	N/A
Design start	2018 Quarter 3
Commission construction authorization	N/A
Construction start	2019 Quarter 3
In-use date	2019 Quarter 4

**Cost Breakdown**

	This Request	Total Project
Design	\$25,000	\$25,000
Construction	\$415,000	\$415,000
Total	\$440,000	\$440,000

**FINANCIAL IMPLICATIONS**

**Cost Estimate/Authorization Summary**

	Capital	Expense	Total
<b>COST ESTIMATE</b>			
Original estimate	\$250,000	\$0	\$250,000
Previous changes – net	\$50,000	0	\$50,000
Current change	\$140,000	0	\$140,000
Revised estimate	\$440,000	0	\$440,000
<b>AUTHORIZATION</b>			
Previous authorizations	\$0	0	0

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Current request for authorization	\$440,000	0	\$440,000
Total authorizations, including this request	\$440,000	0	\$440,000
Remaining amount to be authorized	\$0	\$0	\$0

**Annual Budget Status and Source of Funds**

Additional funding needed for this project was offset by lower than expected spending on other small capital and fleet projects.

This project is funded by the General Fund.

**Financial Analysis and Summary**

Project cost for analysis	\$440,000
Business Unit (BU)	Recreation Boating
Effect on business performance (NOI after depreciation)	The project is estimated to increase annual depreciation expense by approximately \$20K.
IRR/NPV (if relevant)	N/A
CPE Impact	N/A

**ATTACHMENTS TO THIS REQUEST**

- (1) Presentation slides

**PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

None