

**PORT OF SEATTLE**  
**MEMORANDUM**

**DATE:** October 31, 2019

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

**FROM:** Wayne Grotheer, Director, Aviation Project Management  
Jeffrey Brown, Director, Aviation Facilities & Capital Programs

**SUBJECT:** Interim West Side Fire Station – Lessons Learned and After-Action Report

**EXECUTIVE SUMMARY**

This is in response to the Commission’s approval of the budget increase for the interim West Side Fire Station project on October 8, 2019, requiring a Lessons Learned and After-Action Report by October 31, 2019. The project delivery problems associated with this project raise systemic issues regarding: (1) project definition, (2) cost estimate, schedule and risk communication to the Commission, (3) communications to management of project team concerns, and (4) lessons learned performance and communications. As detailed below, improvements are underway to address these issues. We recognize that additional steps are needed to address other issues with project delivery and will continue to make further improvements. We have focused in this memo on those relevant to the West Side Fire Station project.

**PROJECT DEFINITION**

For projects with urgent needs for completion, project teams face constant time pressure. If not appropriately managed, this can result in project needs and risks not being fully understood before the project starts. This can lead to problems not being solved in the project definition stage of projects, when it is easiest and least expensive to do so, and instead being pushed to later project stages when it is more difficult, costly and slows down the project. Significant changes in project scope, project delivery method, or project constraints require a pause to fully evaluate the impacts. In this project, this occurred in multiple ways:

- The change prior to initial Commission authorization from remodel of current firefighter living quarters in the Paccar hangar to a project to build a separate living quarters was not adequately defined to accurately establish project cost or schedule.
- The idea of a modular building to save time and money and allow reuse later was not fully evaluated by the project team prior to implementing of this idea. A modular building was ultimately rejected due to numerous constraints, including inability to get such a building to the site without runway closures.
- The project team did not successfully involve end user front line staff in project definition.
- The project team did not involve key technical expertise, particularly project and construction management staff with airfield experience, early in the project.
- The switch of project delivery method from design-bid-build to design-build was, in part, a creative approach to combine the two separate projects for a more efficient and faster

design and construction process. The design-build approach did provide an innovative solution at a competitive marketplace cost.

- Discretionary changes in project scope following project definition did not go through a consistent process of change management.

We will review these lessons with our staff and with the Airport senior management team. Given the airport's continued rapid growth and need for capital improvements, the time pressures will continue; our challenge is to continue to work with the project sponsors to identify the subset of projects which are truly time critical, to resist our own and customer time pressure to allow sufficient time for all projects to complete project definition, and to have the discipline to reevaluate when project conditions and constraints change significantly. Aviation Project Management and Aviation Capital Programs are working to adopt a formal project change management process, which will cover changes during project design in addition to updating the process for changes during construction, by the end of 2019. We will stress the importance of full end user and stakeholder involvement in concept development of projects, including the future permanent fire station location under the Sustainable Airport Master Plan, to our staff.

### **COST ESTIMATE, SCHEDULE AND RISK COMMUNICATION**

One-time Commission approval of project design and construction is allowed by Resolutions 3734, 3628 and 3605 (the Resolutions) but is rarely sought. Prior to project design, when the Resolutions require Commission authorization of a project, the industry standard for construction cost estimate accuracy (AACE International Recommended Practice No. 56R-08, Cost Estimate Classification System – As Applied for the Building and General Construction Industries) gives a broad range of possible costs depending on the level of project definition. Early project definition estimates can vary greatly – from -20% to -30% on the low end and +30% to +50% on the high end. The estimate accuracy range margins become smaller as the project is further defined and then designed. The typical Engineer's estimate range used for construction bids is -3% to -5% on the low end and +3% to +10% on the high end.

In this project, the project team sought one-time Commission approval of project design and construction to expedite the project. However, the team had not taken sufficient time to fully define the scope/requirements and communicate uncertainty or project risks to budget and schedule as a result. The tradeoffs between project cost, schedule, and scope were ultimately resolved in a way that will meet end user and stakeholder scope requirements but at a cost and schedule that does not meet the expectations we had originally set with the Commission.

As most recently seen in the October 22 Commission action request for early authorization of the Checkpoint 1 relocation, when requested to move ahead without full project definition, we were trying to ensure that non-standard approaches to project authorization include clear communications of uncertainties and risks. We are also increasing communication of project risks in relevant Commission project authorization requests.

### **COMMUNICATIONS TO MANAGEMENT OF PROJECT TEAM CONCERNS**

Successful project delivery involves integration of expertise from multiple airport and corporate departments. Project managers must work with the project team to evaluate and resolve conflicting input and project objectives. Where project team members believe their concerns are

not being adequately addressed, all departments involved in projects must encourage communication of those concerns to management. In this Fire Station project, concerns about use of modular buildings were not raised to management when they first arose. Aviation Project Management is reiterating the need to encourage project team members to elevate significant concerns with our staff and with senior management of Aviation departments and Engineering.

### **LESSONS LEARNED PERFORMANCE AND COMMUNICATIONS**

Documentation and dissemination of project lessons is critical to continuous improvement of project delivery performance. Aviation Project Management has long-established policies requiring project managers to review relevant lessons learned from other projects during project definition, after any significant project change, and prior to contracting for construction. Aviation Project Management has taken the following steps to increase the frequency and visibility of project lessons:

- Our management team now reviews key lessons learned monthly in our staff meetings and with the Aviation Oversight committee. This will have a positive impact on project delivery culture where learning can be shared frequently with customers and where staff are encouraged to share challenges for improved understanding and performance of all.
- We are training all project managers in how to facilitate lessons learned reviews, so that we can effectively continue our current practice of facilitating and documenting these discussions using someone who is not involved in the project being evaluated.
- We are now including relevant lessons learned (for the project as well as how lessons from other projects are being incorporated) in individual project presentations to the Aviation Oversight committee.
- When we seek authorization from the Commission for project budget increases or notify the Commission of potential future increases, we have begun including relevant lessons learned in our Commission memos and presentations.

### **PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

October 8, 2019 – The Commission authorized funding increase for the Interim Westside Fire Station Design-Build Contract by \$3,679,000 for a new total project cost of \$9,179,000, with a lessons learned and after-action report due to the Commission by October 31, 2019.

May 28, 2019 – The Commission authorized use of a design-build contract for this project. No additional funding was requested.

February 27, 2018 – The Commission authorized design and construction of this project for a total project cost of \$5,500,000.