



**COMMISSION  
AGENDA MEMORANDUM**

**Item No.** 10a

**ACTION ITEM**

**Date of Meeting** July 23, 2024

**DATE:** July 12, 2024

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

**FROM:** Keri Stephens, Director, Aviation Facilities and Capital Programs  
Eileen Francisco, Director, Aviation Project Management

**SUBJECT: Satellite Transit System Renewal & Replacement (CIP #C801377)**

**Amount of this request:** \$ 9,000,000

**Total estimated project cost:** To Be Determined

**ACTION REQUESTED**

Request Commission authorization for the Executive Director to (1) advertise and execute contracts for technical consulting, project definition services, and project management support, (2) prepare pre-design and bridging documents and (3) utilize Port crews, in support of the development of the Project Definition Document for STS Renewal & Replacement project (CIP #801377) at the Seattle-Tacoma International Airport (SEA). The amount of this request is \$9,000,000.

The anticipated project cost range will be determined by the Project Definition Document.

**EXECUTIVE SUMMARY**

The Seattle Tacoma International Airport's Automated People Mover (APM) system known as the Satellite Transit System (STS) is anticipated to reach the end of its useful life between the years 2030 and 2035 and must be replaced to maintain a World Class Airport. As part of the planned STS replacement, the STS tunnels and supporting infrastructure need to be rehabilitated to extend the life of the entire system. To facilitate this renewal and replacement and provide operational redundancy, a new pedestrian connection will be contemplated between N Concourse and D Concourse. To ensure timely replacement, the Port staff plans to move forward with Project Definition work to establish the technical, construction, operational, and delivery requirements for the entire program. The project management and technical consulting services will assist with development of any bridging documents between the project definition and project delivery phases. The project team will return to Commission once the Project Definition Document is completed, and they have a full understanding of the program budget.

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**JUSTIFICATION**

Efficient airport operations depend on a reliable STS to transport passengers within the main terminal and to the satellite gates (N and S Concourses). Consisting of a north and south loop as well as shuttle connector, the STS transports passengers to and from the Main Terminal and N and S Concourses with 2 – 5 minutes travel times. STS streamlines the movement of high-volume passenger traffic, carrying approximately 28 million passengers in 2023. Without the STS, SEA would struggle with operational inefficiencies, negatively impacting the overall passenger experience.

The STS at SEA began operation in 1973 and was one of the first APMs in the United States. It was last modernized in 2003 with 21 new vehicles and control system upgrades. The current STS vehicles is projected to reach the end of their useful life between the years 2030 to 2035 (reaching design mileage of 1 million miles) and will need to be replaced. The manufacturer no longer produces the current STS vehicle, making in-kind replacement of the existing fleet impossible. Additionally, vehicle replacement parts have become obsolete over time risking continuity of operations to the existing STS.

The STS tunnel structural and supporting systems (e.g., power distribution, fire/life safety systems) also require rehabilitation to extend the remaining useful life, provide infrastructure compatible with the new STS vehicles, and ensure systems comply with updated code requirements.

To mitigate the impact of STS replacement construction, the project will evaluate constructing a new pedestrian connector between N Concourse and D concourse. In addition to enabling construction flexibility during the STS project, the pedestrian connector will provide a redundant means of moving passengers between the main terminal and N Concourse during planned maintenance outages and emergency events.

***Diversity in Contracting***

18% WMBE participation is anticipated for the Project Definition Document work. Additional WMBE goals will be established for the delivery phases of the project.

**DETAILS**

Previous engineering and planning assessments have included studies of the STS vehicles, power distribution, and tunnel structural systems. These studies have concluded that renewal and replacement of the existing STS and supporting infrastructure is required. A long-term passenger study was also conducted and included an assessment of various APM replacement alternatives across several different performance factors. These factors included constructability, operational impacts, passenger capacity, cost magnitude, and schedule to implement. As a result of this study, it was determined that the best performing option would be replacement of the STS within the existing tunnel systems with appropriate upgrades to the supporting infrastructure. This

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long-term passenger study also concluded that a pedestrian connector should augment the STS as a redundant means of moving passengers between the main terminal and N Concourse.

The Project Definition Document (PDD) will build upon the engineering and planning assessments to validate existing conditions, define programmatic requirements, perform alternatives analysis, understand operational impacts and risks, develop APM vehicle specifications, develop preliminary design documents, inform delivery method, and refine cost and schedule.

It is anticipated that the delivery phase will require design, project management, construction management, and technical consulting services support contracts with experience in the design, procurement, and construction of APM and Tunnel systems. As such, this Commission authorization includes a request to begin on-boarding, primarily contracts for the technical consulting and project definition services in advance of the delivery phase. The project management and technical consulting services contracts will also be utilized to support any bridging documents between the project definition and final design and construction phases. The project team will return to Commission for authorization to fund the delivery phase, including any required construction procurements.

***Scope of Work***

The Project Definition Document (PDD) will establish the technical, construction, operational, and contractual requirements to support:

- (1) Implementation of the STS APM system replacement
- (2) Structural rehabilitation of the current STS tunnels
- (3) Supporting infrastructure replacement (e.g., power, communication, fire/life safety systems)
- (4) Construction of the new Pedestrian Connector from D Concourse to N Concourse.

The PDD will not cover any expansion of the passenger conveyance system to future north gates identified in the Sustainable Airport Master Plan near term projects.

***Schedule***

The completion of the PDD is targeted for Q2 2026.

*Please note that the schedule and the program cost may change as the project scopes and construction methods/ phasing are more defined in the PDD.*

***Cost Breakdown***

|       | This Request | Total Project    |
|-------|--------------|------------------|
| Total | \$9,000,000  | To Be Determined |

**ALTERNATIVES AND IMPLICATIONS CONSIDERED**

The PDD would be focused on implementing Alternative 1, the preferred alternative described below.

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**Alternative 1** – Complete a Project Definition Document (PDD) to establish technical, construction, operational, and contractual requirements to support implementation of the STS replacement, structural and infrastructure systems rehabilitation of the current STS tunnels, and a new north pedestrian connector.

Cost Implications: \$9,000,000

Pros:

- (1) Builds airline and other stakeholder consensus for a preferred phasing and implementation concept.
- (2) Engages with the APM manufacturers early to review existing system compatibility and future system integration within the existing infrastructure and space constraints.
- (3) Early analysis of technical and constructability aspects will result in a more robust alternatives analysis prior to moving into final design and delivery.
- (4) Information acquired during project definition will directly inform project delivery structure and method(s) to balance cost, schedule expedience, and owner risks.

Cons:

- (1) Delays full design development in favor of higher level of project definition. With this comes a greater risk for not completing of the STS replacement project before the end of its anticipated useful life.

***This is the recommended alternative.***

**Alternative 2** – Skip PDD and proceed straight to design.

Cost Implications (Design Phase Only): \$240,000,000 - \$300,000,000 (*estimated*)

Pros:

- (1) Design could begin immediately.
- (2) Potentially quicker overall path to implementation.

Cons:

- (1) Begins project delivery without early technical and alternatives analysis, airline/stakeholder input, or a firm understanding of cost, scope, schedule, and risks. These aspects will evolve significantly during the design process, resulting in expensive design modifications and schedule delays if scope risks and stakeholder concerns are not captured at the initial stages of design.

- (2) Begins project delivery process prior to determining a best fit project delivery strategy.

This is not the recommended alternative.

**FINANCIAL IMPLICATIONS**

The current estimate range will be determined by the completion of the PDD work. For purposes of estimating the financial implications a project value of \$800M - \$1.0B has been used.

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| <b>Cost Estimate/Authorization Summary</b>   | Capital     | Expense | Total       |
|--|-------------|---------|-------------|
| <b>COST ESTIMATE</b>                         |             |         |             |
| Original estimate                            | TBD         | \$0     | TBD         |
| <b>AUTHORIZATION</b>                         |             |         |             |
| Previous authorizations                      | \$0         | \$0     | \$0         |
| Current request for authorization            | \$9,000,000 | \$0     | \$9,000,000 |
| Total authorizations, including this request | \$9,000,000 | \$0     | \$9,000,000 |
| Remaining amount to be authorized            | \$0         | \$0     | \$0         |

**Annual Budget Status and Source of Funds**

The Satellite Transit System Renewal & Replacement (CIP #C801377) was not included 2024-2028 capital budget and plan of finance. The capital budget of \$9,000,000 for the Project Definition Document (PDD) was transferred from the Aeronautical Allowance CIP C800753 resulting in no net change to the Airport capital budget. An updated project cost estimate would be available after the PDD phase. The funding sources would be Airport Development Fund and future revenue bonds.

**Financial Analysis and Summary**

|   |  |
|---|--|
| Project cost for analysis                               | \$800M - \$1 Billion   |
| Business Unit (BU)                                      | Terminal Building  |
| Effect on business performance (NOI after depreciation) | NOI after depreciation will increase due to inclusion of capital (and operating) costs in airline rate base. |
| IRR/NPV (if relevant)                                   | N/A  |
| CPE Impact  | \$1.95 - \$2.44 in 2037  |

**Future Revenues and Expenses (Total cost of ownership)**

The anticipated Operations and Maintenance cost associated with the replacement APM and tunnel systems will be determined as part of the PDD and prior to Commission authorization to fund the delivery phase.

**ATTACHMENTS TO THIS REQUEST**

- (1) Presentation slides

**PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

None