



AGENDA MEMORANDUM

Item No.

8c

ACTION ITEM

Date of Meeting

October 23, 2018

DATE: October 17, 2018~~10/17/2018~~~~October 16, 2018~~

TO: Stephen P. Metruck, Executive Director

FROM: James Schone, Director, Aviation Commercial Management
Wayne Grotheer, Director, Aviation Project Management
Matt Breed, Interim Chief Information Officer, Information & Communications Technology

SUBJECT: Parking Revenue Infrastructure (CIP #C800870)

Amount of this request: \$10,946,171

Total estimated project cost: \$22,898,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to (1) prepare design and construction bid documents for the Parking Revenue Infrastructure project at Seattle-Tacoma International Airport; (2) procure required hardware, software, vendor services, licensing, and maintenance services for an Automated Parking Guidance System (APGS); (3) use port crews and small works contracts for preconstruction activities; and (4) initiate pre-production setup and configuration of the APGS. The amount of this request is \$10,946,171 bringing the total authorization to \$11,244,000. The total estimated project cost is \$22,898,000.

EXECUTIVE SUMMARY

This project will provide for the design and installation of new infrastructure in the Airport parking garage, including the installation of a camera-based automated parking guidance system (APGS) throughout the garage (approx. 12,100 stalls) and electric vehicle supply equipment (EVSE) in the form of 94 Level 2 electric vehicle (eV) charging stations.

This infrastructure will significantly improve the customer experience for those who park in the garage by reducing time required to find a vacant parking stall. It will also reduce the environmental impacts from those vehicles using the garage (reduction of CO² emissions estimated at 17-20 metric tons per year) and provide numerous opportunities to increase non-aeronautical revenues for the Airport by maximizing available garage occupancy, most specifically the APGS's ability to help staff fully leverage the demand-based/variable rate pricing capabilities of the Airport's planned online parking pre-booking/yield management system.

This initial request will provide the necessary funding to support overall design of the APGS and EVSE systems, the procurement of the APGS hardware/software, and the development of construction bid documents for installing both systems in the garage. The project will return to Commission to request the construction phase funding in Q1 of 2020.

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JUSTIFICATION

The parking garage serves as the front door to the Airport for a significant portion of the travelling public, as well as for many people coming to the Airport for meetings with tenants and staff. The rapid growth in enplanements over the past five years, combined with the sheer magnitude of the garage (12,100 stalls spread across eight floors), and a non-traditional V-shaped design, have made it increasingly difficult for parking customers to find an open stall – at times even when these stalls are readily available.

Not only are these searches laborious for our customers, the additional time spent driving around each floor in their search negatively impacts the environment. Often times, the inability to find a stall in a timely manner becomes a lost revenue opportunity for the Airport, as the driver leaves the garage believing that the garage is full or they are just too frustrated to continue searching.

The best opportunity to improve the overall customer experience in the garage, reduce the environmental impact from people looking for parking stalls, and increase non-aeronautical revenue is the installation of an automated parking guidance system (APGS). This is a system of cameras and lighting down each row that denotes whether a parking stall is occupied or vacant. This system will make it much easier for a driver to find a vacant stall as soon as they enter the garage, directing them to vacant stalls on available floors. In addition, the real-time information provided by the system (365/24/7) will help Airport staff to know the exact status of stall availability throughout the garage.

The installation of an APGS also provides an opportunity to increase electrical charging capacity in the garage and expand the number of electrical charging stations to meet public demand. Currently, there are 48 Level 1 public parking charging stations in the garage. These charging stations are consistently occupied due the growth in the number of electrical vehicles driven by the travelling public. This project will nearly double the number of eV charging stations to 94 stalls, as well as provide the capability to double the vehicle charging capacity (120V vs 240V power supply). It also provides the opportunity for further eV stall expansion should future demand require it.

The revenue generated from the Airport's parking garage is forecasted to reach \$76.8 million by year-end 2018. This is the single largest source of non-aeronautical revenue and critical to funding the infrastructure investments needed to ensure that the Airport meets the region's air transportation needs in the coming decades. This investment will help maintain the garage's competitive position in one of the most hotly contested airport parking markets in the U.S. and in so doing, will support the growth of revenues generated by the garage.

The APGS combined with the EV chargers supports the Century Agenda strategic goals and objectives to advance this region as a leading tourism destination and business gateway by meeting the region's air transportation needs at the Airport for the next 25 years, and be the greenest, and most energy efficient port in North America by reducing air pollutants and carbon

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emissions. It also supports the Aviation Division strategies to provide an extraordinary customer experience and maximize non-aeronautical net operating income.

DETAILS

Scope of Work

1. Provide an Automated Parking Guidance System (APGS) throughout all public parking areas of the garage (approx. 12,100 stalls): Parking Garage Floors 0 (sublevel), 1, 2, 3, 4, 5, 6, 7, 8, adjacent over-height parking area, and parking entries.

The APGS includes the procurement and installation of all software and hardware to support the system. The system will likely include networked automated license plate-recognition (ALPR) cameras, ultrasonic sensors, and LED lighting indicators to detect and denote real-time individual stall occupancy/availability and individual vehicle identification; interior and exterior dynamic wayfinding signage, including floor, section and row count displays; and enterprise software for system management, security/surveillance, reporting, etc.

2. Provide Electric Vehicle Supply Equipment (EVSE), on parking garage Floors 4 and 7. This includes a total of 94 Level 2 eV charging stations.
 - a. Floor 4 - Thirty (30) Level 2 eV charging stations for Terminal Direct customers.
 - b. Floor 7 - Sixty-four (64) Level 2 eV charging stations, for General Parking customers (54), and employees (10).
 - c. Install additional infrastructure for fourteen (14) future Level 2 eV charging stations on Floor 4.
3. Provide electrical and communications infrastructure and/or upgrades within the Parking Garage to support the APGS and EVSE installations. This includes two electrical rooms, 480V feeders, transformers, panelboards, 120V branch circuits, and fiber optic communications cables.
4. Decommission and removal of existing floor count system within the parking garage.
5. Remove existing public-facing Level 1 eV charging station receptacles and associated branch circuit back to panelboard. Existing Level 1 eV charging stations include 12 dedicated receptacles on Floor 4 and 36 dedicated receptacles on Floor 5.

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Small Business and Women and Minority-owned Business Enterprise (WMBE) Participation

To maximize small business and WMBE participation, Port staff will be providing additional outreach efforts through the Port of Seattle’s Small Business Generator (PortGen) program. This small business program will not only provide information about the project scope of work; it will also provide training about the Port’s procurement processes.

Working with Economic Development Division’s Small Business Department, the Port will establish small business and WMBE aspirational goals for this project.

Schedule

Design start	2018 Quarter 4
Commission construction authorization	2020 Quarter 1
Construction start	2020 Quarter 2
In-use date	2022 Quarter 2

Cost Breakdown

	This Request	Total Project
Design	\$10,946,171	\$11,244,000
Construction		\$11,654,000
Total	\$10,946,171	\$22,898,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Maintain the Status Quo

Cost Implications: An estimated \$280,000 in costs to date would need to be expensed if this project is not approved.

Pros:

- (1) No capital investment required.

Cons:

- (1) Does not provide opportunities for additional parking revenue.
- (2) Does not address the parking operation’s #1 customer experience shortcoming: ease of finding a parking stall.
- (3) Does not provide any reduction of environmental impacts/CO2 emissions.
- (4) Does not address the public demand and increasing use of electric vehicles by customers and employees.

This is not the recommended alternative.

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Alternative 2 – Install an automated parking guidance system (APGS) in the parking garage only on the Terminal Direct/4th floor (1,700 stalls) and install 94 Level 2 electric vehicle (eV) charging stations for general public and Port employee use.

Cost Implications: \$6,700,000

Pros:

- (1) Reduces capital investment.
- (2) Provides a better customer experience on the Terminal Direct/4th floor of parking garage (reducing time required for preferred customers to find an unoccupied stall).
- (3) Reduces environmental impacts/CO2 emissions for 4th Floor parking.
- (4) APGS Head-end equipment and software development would be complete and ready for future expansion to other floors.
- (5) Supplies additional charging capacity to address the public demand and increasing use of electric vehicles by customers and employees.
- (6) Provides a “charge friendly” location for eV owners which will help reduce vehicle emissions and thereby further the Port Century Agenda objective to “Be the greenest and most energy efficient port in North America.”

Cons:

- (1) Parking revenue generation opportunities limited solely to the 4th Floor. Does not provide opportunities to maximize parking revenue, enhance the promotion of available parking offerings and amenities, or reduce operational staff time on other floors of the garage.
- (2) Would only be able to manage garage occupancy on the 4th Floor in real-time and utilize available stall inventory.

This is not the recommended alternative.

Alternative 3 – Install an automated parking guidance system (APGS) on all floors (12,100 stalls) of the parking garage (Floors 1-8, Sub-Level, and Over height) and the installation of 94 Level 2 electric vehicle (eV) charging stations on Floors 4 and 7 of the garage for general public and Port employee use.

Cost Implications: \$22,898,000

Pros:

- (1) Allows the Airport to effectively maximize revenue throughout all floors/stalls of the parking garage via system integrations with the online parking pre-booking/reservation system (OBS) and the parking revenue control system.
- (2) Addresses the Airport parking operation’s #1 customer experience shortcoming: ease of finding a parking stall. Provides a preferred customer experience throughout all floors/stalls of the parking garage.
- (3) Allows the Airport to better manage occupancy for all floors of the garage in real-time (24/7/365) including available parking inventory (unoccupied stalls) to achieve optimal garage occupancy of 90%.

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- (4) Enhances the promotion of available parking offerings and amenities and reallocates operational staff time spent conducting nightly vehicle-based stall inventory to other customer service functions.
- (5) Reduces environmental impacts/CO2 emissions. Will decrease CO2 emissions from passenger vehicles by an estimated 17 to 20 tons per year when average circulation time is reduced by one minute per driver.
- (6) Supplies additional charging capacity to address the public demand and increasing use of electric vehicles by customers and employees.
- (7) Provides a “charge friendly” location for eV owners which will help remove vehicle emissions and thereby further the Port Century Agenda objective to “Be the greenest and most energy efficient port in North America.”

Cons:

- (1) None

This is the recommended alternative.

FINANCIAL IMPLICATIONS

Cost Estimate/Authorization Summary

	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$14,610,821	\$0	\$14,610,821
Budget Increase	\$8,187,179	\$100,000	\$8,287,179
Revised estimate	\$22,798,000	\$100,000	\$22,898,000
AUTHORIZATION			
Previous authorizations	\$297,829	\$0	\$297,829
Current request for authorization	\$10,946,171	\$0	\$10,946,171
Total authorizations, including this request	\$11,244,000	\$0	\$11,244,000
Remaining amount to be authorized	\$11,554,000	\$100,000	\$11,654,000
Total estimated project cost	\$22,798,000	\$100,000	\$22,898,000

Annual Budget Status and Source of Funds

This project was included in the 2018 – 2022 capital budget and plan of finance as a business plan prospective project with a budget of \$14,610,821. The budget increase has been transferred from the Non-Aeronautical allowance CIP (C800754) resulting in no net change to the Aviation Division capital budget. The funding sources will include the Airport Development Fund and future revenue bonds.

The project budget increased by \$8,287,179 due to additional project definition via design development, as well as increased budgetary estimates from vendors. Original APGS vendor estimates excluded new electrical infrastructure required to power the system from installation locations back to electrical panels located throughout the garage. Two-year escalation of construction labor and materials as well as constructability cost (night work, phasing

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requirements) from original project definition also contributed to the increase in the overall project cost.

Financial Analysis and Summary

Project cost for analysis	\$22,898,000
Business Unit (BU)	Aviation Commercial Management/Landside Operations
Effect on business performance (NOI after depreciation)	<ul style="list-style-type: none"> • Cumulative incremental net operating income of \$21.8 million (based on most likely scenario – 70% occupancy threshold) is anticipated to be directly associated with this project for the first eight years of product useful life (2022-2029). • This project will increase depreciation by approximately \$2 million per year. This depreciation has been factored into the NOI above.
IRR/NPV (if relevant)	Most likely scenario (based 70% occupancy threshold) – 7%/\$2,600,000
CPE Impact	N/A

Lifecycle Cost and Savings

This project replaces existing floor count equipment that is obsolete. The new APGS and EVSE equipment will have a material impact on current Aviation Maintenance Operations and Maintenance (O&M) costs. As the design for these two systems is not yet complete, and the providers have not been identified, estimated O&M costs can vary significantly from provider to provider. A reasonable range of annual O&M costs would be between \$170,000 and \$250,000. A better estimate of ongoing costs can be provided once a service provider and service delivery method have been finalized.

Future Revenues and Expenses (Total cost of ownership)

Through the concerted efforts of Airport staff, parking garage revenue has increased approximately \$4 million or 8% annually for the past five years (through June 2018). A significant portion of this revenue growth, and the corresponding increase in garage occupancy, can be attributed to the implementation of the parking coupon program in 2012. The coupon program is anticipated to generate approximately \$9 million in revenue in 2018.

However, the coupon program is inherently a blunt instrument, with no ability to make price adjustments based on garage occupancy and/or customer demand, or to obtain customer/trip data (including duration of stay) in advance of the coupon transaction. As such, the program will be transitioned to an online parking pre-booking system (OBS) in 2019, which will allow the Airport to utilize yield management principles and variable rate pricing capabilities of the OBS to better leverage available garage occupancy and maximize revenue. Yield management has effectively been used in other travel industries (airlines, hotels, rental cars) for more than 10 years.

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Airport staff have found that a customer's ability to find an open stall starts to degrade when the garage hits a threshold of approximately 70% occupancy at any point in time. This could be due to many factors, including the sheer magnitude of the garage (12,100 stalls spread across eight floors) and the non-traditional V-shaped design of the structure. As our current average peak overnight occupancy in 2018 is approximately 54%, the assumption is that the Airport could use OBS technology to fill the 16% in available garage occupancy before a customer experiences any degradation in their ability to find a stall (70% - 54% = 16%).

Revenue attainable through the OBS hinges on the Airport's ability to fully leverage available garage inventory and sell open stalls at competitive rates to consistently achieve a garage occupancy of 90% at all times of day. This requires the ability to monitor garage occupancy in real-time 24/7/365, accurately forecast future occupancy, and most significantly, minimize/eliminate any degradation to customer experience (ability to find an open stall) when the garage is at or near maximum occupancy.

The value of an APGS is the incremental revenue from the percentage of occupancy between the current 70% occupancy threshold (noted above) vs. the garage's actual maximum occupancy of 90%. (On average, 10% of stalls are traditionally excluded from overall garage occupancy to account for any unanticipated drive-up customers and/or parking program participant requirements). Without the level of precision an APGS provides, the Airport would need to scale back the number of available stalls allocated for sale in the OBS to the 70% maximum occupancy threshold to ensure an adequate level of service (thus reducing the ability to maximize parking revenue).

With OBS/APGS/PRCS systems integration, the Airport is anticipated to generate an average of \$3.7 million - \$6.5 million/year in incremental revenue through the utilization of the 20-25% in available garage occupancy (90% - 70% = 20%). This revenue assumption is based on current revenue generated from the parking coupon program, and assumed occupancy and revenue deltas between 1) the stand-alone implementation of an online parking pre-booking system and 2) the implementation of an online parking pre-booking system integrated with an automated parking guidance system in the garage; it is derived from the utilization of available garage occupancy to achieve a daily 90% occupancy rate.

ADDITIONAL BACKGROUND

Ability to Enhance Airport Environmental Goals

The Airport has well-established environmental programs and is working to reduce the carbon footprint of the Airport, its tenants, airlines, contractors, visitors, and employees. The Port's Century Agenda sets clear goals for improving air quality and reducing greenhouse gas emissions.

An APGS would reduce overall dwell time for customers in the garage, as it would eliminate the need to search multiple rows -- and during peak occupancy periods multiple floors -- to find an unoccupied stall in the garage, thus reducing vehicle emissions. Portland International Airport

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found that when their APGS was installed in 2007, the average driving time in their garage decreased by 50%, from two minutes down to less than one minute.

An environmental benefit analysis indicated that an APGS would reduce passenger vehicle emissions by providing drivers with more efficient access to available parking spots. In terms of greenhouse gas emissions, an APGS would decrease CO² emissions from passenger vehicles by an estimated 17 to 20 tons per year when average circulation time is reduced by one minute per driver. Other emission benefits include reductions of carbon monoxide, nitrogen oxides, and particulate matter within the garage.

The EVSE portion of the project includes the installation of 94 Level 2 electric vehicle (eV) charging stations in the garage. This includes 30 Level 2 eV chargers on 4th floor for premium parking (Terminal Direct), and 64 Level 2 eV chargers on the 7th floor for general passenger and employee use (General Parking). Public demand and increasing use of eVs by customers and employees are driving the need to supply additional electrical charging capacity in the garage.

Drivers using a conventional vehicle powered by an internal combustion engine (ICE) emit over 5 metric tons of CO₂ per year, per vehicle, and the transportation sector represents close to 50% of all CO₂ emissions in Washington State (per Washington State Department of Transportation). Drivers of eVs use electricity that is generated by a variety of sources, emitting 1.06 metric tons of CO₂ per EV each year, a reduction of 79%.

Increasingly, state and federal governments recognize the opportunity to realize environmental benefits through electrified transportation. As stated in House Bill 1853, passed in the 2015 WA legislative session, “The legislature finds that state policy can achieve the greatest return on investment in reducing greenhouse gas emissions and improving air quality by expediting the transition to alternative fuel vehicles, including electric vehicles.”

ATTACHMENTS TO THIS REQUEST

- (1) Presentation slides

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

None