



**COMMISSION
AGENDA MEMORANDUM**

Item No. 10d

ACTION ITEM

Date of Meeting November 17, 2020

DATE: November 9, 2020

TO: Stephen P. Metruck, Executive Director

FROM: Dawn Hunter, Director, Aviation Commercial Management
Wayne Grotheer, Director, Aviation Project Management
Matt Breed, Chief Information Officer, Information & Communications Technology

SUBJECT: Parking Revenue Infrastructure (CIP #C800870)

Amount of this request: \$11,654,000

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

ACTION REQUESTED

Request Commission authorization for the Executive Director to advertise and award a major works construction contract for the Parking Revenue Infrastructure Project at Seattle-Tacoma International Airport (Airport). The amount of this request is \$11,654,000 for a total estimated project cost of \$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) with automated license plate recognition (ALPR) throughout the garage (approx. 12,300 stalls) and electric vehicle supply equipment (EVSE) in the form of 94 Level 2 electric vehicle (EV) charging stations.

The Parking Revenue Infrastructure CIP (C800870) is included in the 2020-2024 capital budget and plan of finance. This infrastructure project will provide opportunities to increase non-aeronautical revenue for the Airport by maximizing available garage occupancy, most specifically by integrating the APGS' demand-based/variable pricing capabilities with the Airport's new online parking pre-booking/yield management system. The project will significantly improve the customer experience by reducing time required to find a vacant parking stall (time savings estimated at 50%), and will improve the navigation, charging speed, and availability of electric vehicle charging infrastructure from 48 to 96 stalls. In addition to the environmental benefits of increased plug-in electric vehicle amenities, the project will also result in reduced emissions from fossil fueled vehicles searching for available spaces in the garage (reduction of 17-20 metric tons CO₂ per year).

Meeting Date: November 17, 2020

JUSTIFICATION

The parking garage is the single largest source of non-aeronautical revenue for the Airport (\$80m in 2019) and is critical to funding the infrastructure investments needed to ensure that the Airport meets the region’s air transportation needs in the coming decades.

The best opportunity to increase non-aeronautical revenue, improve the overall customer experience, and reduce the environmental impact of vehicles in the parking garage is through the installation of an APGS. This is a system of cameras using ALPR software and LED lighting down each row to denote whether a parking stall is occupied or vacant, making it much easier for a customer to find a vacant stall.

Due to the rapid growth in enplanements over the past five years ending 2019, and the sheer magnitude of the garage (12,300 stalls spread across eight floors), it has become increasingly difficult for parking customers to find an open stall during periods of high occupancy – at times even when these stalls are readily available. Electric charging infrastructure stalls are also regularly full and located in multiple locations throughout the garage, making it more challenging and unpredictable for plug-in electric vehicle customers to meet their needs. 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.

By integrating an APGS with the Airport’s parking revenue control system and online parking pre-booking system, the Airport will be able to implement variable pricing (to better leverage available garage occupancy), and drive incremental revenue opportunities (by dynamically adjusting a customer’s ticket based on the location or type of parking stall selected). Real-time information provided by the system will help Airport staff to know exact stall availability in the garage at all times of day.

The installation of an APGS also provides an opportunity to increase electric vehicle charging capacity in the garage, improve navigation, and expand the number and charging speed of electrical charging stations to meet public demand. Currently, there are 48 Level 1 public parking charging receptacles in the garage that are consistently occupied due to 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. This will improve customer service for plug-in vehicle drivers, while also helping reduce emissions from ground transportation.

While the COVID-19 pandemic has negatively impacted non-aeronautical revenue in the near term, projections show the Airport returning to 2019 enplanement numbers between 2023 - 2024. As parking transactions historically track to O/D enplanements, garage revenue is anticipated to follow these projections. Obtaining Commission approval today ensures that this multi-year construction project will be completed and fully operational across all floors of the garage by 2024 and will reduce the operational impacts from construction activities.

Meeting Date: November 17, 2020

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

Diversity in Contracting

The project staff, in coordination with the Diversity in Contracting department, have set an 8% woman and minority-owned business enterprise (WMBE) aspirational goal for the Parking Revenue Infrastructure construction contract.

DETAILS

Scope of Work

- (1) Provide an APGS throughout all public parking areas of the garage (approx. 12,300 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 include networked ALPR cameras, 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 EVSE, on parking garage Floors 1, 4 and 7. This includes a total of 12 Level 1 EV charging stations, and 94 Level 2 EV charging stations.
- (3) Provide electrical and communications infrastructure and/or upgrades within the Parking Garage to support the APGS and EVSE installations.
- (4) Decommission and remove 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 being removed include 12 dedicated receptacles on Floor 4 and 36 dedicated receptacles on Floor 5.

Meeting Date: November 17, 2020

Schedule

Activity

Construction start	2021 Quarter 2
In-use date	2023 Quarter 1

Cost Breakdown

	This Request	Total Project
Design	\$0	\$11,244,000
Construction	\$11,654,000	\$11,654,000
Total	\$11,654,000	\$22,898,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Maintain the Status Quo, do not install the Automated Parking Guidance System or EV charging.

Cost Implications: An estimated \$1,500,000 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.

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

Cost Implications: \$8,000,000

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.

Meeting Date: November 17, 2020

- (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 APGS on all floors (12,300 stalls) of the parking garage (Floors 1-8, Sub-Level, and Over height) and the installation of 94 Level 2 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%.
- (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, further reducing emissions.
- (7) Provides a “charge friendly” predictable 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.”

Meeting Date: November 17, 2020

Cons:

- (1) Increases capital investment
- (2) Increased operational impacts during construction, if pandemic recovery is quicker than forecasted.
- (3) Reduced benefit, if pandemic recovery does not occur as forecasted.

This is the recommended alternative.

FINANCIAL IMPLICATIONS

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$22,798,000	\$100,000	\$22,898,000
AUTHORIZATION			
Previous authorizations	\$11,244,000	0	\$11,244,000
Current request for authorization	\$11,554,000	\$100,000	\$11,654,000
Total authorizations, including this request	\$22,798,000	\$100,000	\$22,898,000
Remaining amount to be authorized	\$0	\$0	\$0

Annual Budget Status and Source of Funds

This project was included in the 2020-2024 capital budget and plan of finance with a budget of \$22,798,000. The funding sources will include the Airport Development Fund and future revenue bonds.

Financial Analysis and Summary

Project cost for analysis	\$22,898,000
Business Unit (BU)	Public Parking
Effect on business performance (NOI after depreciation)	<ul style="list-style-type: none"> o 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). <p>This project will increase depreciation by approximately \$2 million per year. This depreciation has been factored into the NOI above.</p>
IRR/NPV (if relevant)	Most likely scenario (based 70% occupancy threshold) – 7%/\$2,600,000 based on 2018 information.
CPE Impact	N/A

Meeting Date: November 17, 2020

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)

The Airport implemented an OBS in November 2019, which utilizes yield management principles and variable rate pricing capabilities to better leverage available garage occupancy and maximize revenue. 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.

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 (12,300 stalls spread across eight floors) and the non-traditional V-shaped design of the structure. As 2019 average peak overnight occupancy was 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%).

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 return to 2019 enplanement levels and assumed occupancy and revenue differences 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

Meeting Date: November 17, 2020

garage. The revenue increase 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.

The EVSE portion of the project includes the installation of 94 Level 2 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). Installation also includes 12 Level 1 charging stations on the 1st floor for fleet. Public demand and increasing use of EVs by customers and employees are driving the need to supply additional electrical charging capacity in the garage.

This project will ensure drivers of plug-in electric vehicles have improved amenities and is anticipated to improve confidence of charging availability while reducing range anxiety for electric vehicle drivers traveling longer distances. While the exact emission reductions are difficult to quantify given the range of driving distances and battery sizes, drivers of EVs using electricity provided by the airport reduce their emissions by 79% compared to internal combustion engine vehicles.

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 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.

ATTACHMENTS TO THIS REQUEST

- (1) Presentation slides

Meeting Date: November 17, 2020

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

October 23, 2018 – The Commission authorized \$10,946,171 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.