PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA
STAFF BRIEFING

Item No. 7b

Date of Meeting July 22, 2014

DATE: July 14, 2014

TO: Tay Yoshitani, Chief Executive Officer

FROM: Michael Ehl, Director Airport Operations
Elizabeth Leavitt, Director Aviation Planning & Environmental
Wayne Grotheer, Director Aviation Project Management

SUBJECT: North Satellite Expansion
NorthSTAR Program – Seattle-Tacoma International Airport

SYNOPSIS

The NorthSTAR program is an outcome of Alaska Air Group's (AAG's) goal to concentrate and consolidate the operations of Alaska Airlines and Horizon Airlines at the north end terminal facilities of the Airport. AAG and its consultants developed the overall scope of the NorthSTAR program in the fall of 2011 that includes five renovation projects. During the 15% conceptual design phase, both the Port and AAG staff collaboratively concluded that the North Satellite requires renovation, infrastructure upgrades, and expansion to improve customer service and balancing the needs for holdrooms, concessions, and circulation space to meet the overall program vision. Port and AAG's leadership approved staff's recommendation in October 2013 to expand the North Satellite by approximately 181,000 square feet and to provide a total of 20 gates. On January 14, 2014, the Commission was briefed on staff's recommendation to expand the North Satellite and add additional gates. Early in July, the airlines voted favorably on the MII for expansion of the North Satellite.

This briefing is an update focused on:

- The recommendation to expand the North Satellite to accommodate 20 aircraft contact gate positions.
- The final North Satellite architectural concept, building massing, floor plans, added vertical circulation and the potential baggage system.
- The Level of Service (LOS) for holdrooms, concessions, circulation and restrooms in the expanded North Satellite.
- The recommendation to use General Contractor/Construction Manager (GCCM) procurement methodology for construction.

On July 29, 2014, staff intends to seek Commission authorization for design of the North Satellite expansion, the associated additional budget, procurement of outside services, use of GC/CM contracting methodology and preconstruction services for the GC/CM. The

program, which is a collaborative effort of the Port and Alaska Air Group, is now scheduled for completion in 2020.

BACKGROUND

Expand the North Satellite to accommodate 20 aircraft contact gate positions:

Since April 5, 2012, when the Letter of Understanding (LOU) between the Port and AAG was signed, the North Satellite scope as originally defined by the conceptual study prepared by AAG and its consultant has been steadily refined by validating North Satellite scope elements through a planning and design process to assure the project will meet Port and AAG long-term facility enhancement and capacity needs. These efforts included an Airport-wide analysis of near and long-term gate capacity and demand coupled with the North Satellite design facility program requirements.

The 15% conceptual design of the North Satellite project began in January 2013 and resulted in the development of 16 concepts for the North Satellite renovation that included three additional gates per the original plan. These concepts were evaluated based on an assessment of how well each option met the functional and operational requirements for the aforementioned facility program. Options that did not adequately respond to these requirements were eliminated, and the team modified four options to expand the North Satellite to accommodate holdrooms, concessions, and amenities that would not fit within the existing building envelope or on the concourse floor level. In October 2013, these four options were independently evaluated by Port and AAG staff resulting in consensus that two of these options were viable. These two options were presented to the Port and AAG Steering Committees who also independently concurred with the project team recommendations. These options included: 1) A concept within the original building footprint, and 2) A concept that expanded the existing building envelope and footprint.

Concurrent to the development of these two recommended design concepts for the North Satellite project, Port staff recognized a need to update the Airport-wide gate demand analysis as part of the Sustainable Airport Master Plan currently in progress. This was based in part on changes in domestic and international gate demand and in part by a request by AAG in May 2013 for an additional five gates on Concourse D and three gates at the North Satellite. This analysis was needed to objectively assure that a prudent approach be taken to justify the need for terminal development based on an Airport-wide assessment of near-term and long-term need, and not just the growth of a single airline.

The study evaluated whether a facility expansion to support additional aircraft gates is warranted, or in lieu of expanded facilities, whether a potential gate shortage could be managed operationally. The study determined additional gates were needed and how the gates could be best accommodated. The study incorporated not only anticipated growth in airport activity (domestic and intercontinental), but also the operational impacts on gate availability due to:

- AAG's sole tenancy of the North Satellite and its request for an additional five mainline gate positions beyond those originally planned as part of NorthSTAR.
- Additional gates needed to accommodate American Airlines/US Airways, Southwest/Air Tran, and United/Continental
- Large scale concurrent construction projects of the NorthSTAR and International Arrivals Facility (IAF) Programs that will temporarily close gates on Concourse A, the South Satellite, and the North Satellite in years 2015 through 2020.

On October 3, 2013, Port staff presented the Airport-wide Gating Analysis to AAG and Aviation Division leadership. The analysis found that:

- There are significant challenges posed by near-term dynamic gate demand and construction impacts over the next five to seven years.
- Sufficient additional capacity could not be created through operational measures.
- An additional five contact gates beyond the three contact gates included in the NorthSTAR program are needed to satisfy both the near-term constraints on gate availability and anticipated gate demand.
- The North Satellite is the most viable location to add terminal area for additional gates without impacting other Airport facilities.
- A North Satellite expansion not only meets AAG operational needs with a total of 20 North Satellite gates, but also provides a capacity buffer between the NorthSTAR Program and the contemplated future North Satellite expansion for up to a total of 30 or more gates.
- A larger facility more directly contributes to AAG's vision of a "frictionless" passenger experience and better meets its vision of an improved "curb-to-seat" level of service.

On October 17, 2013, AAG executive leadership provided written concurrence to renovate and expand the North Satellite to accommodate 20 contact gate positions, based on the findings of the Airport-wide Gating Analysis and the recommended options for renovating the North Satellite.

On January 14, 2014, staff briefed the Commission on the Airport-Wide Gate Analysis and provided an overview of the recommendation to expand the North Satellite. Subsequently, staff has conducted additional briefings of the Commission regarding the airport-wide gate demand and capacity limitations that have reinforced the recommendation to expand the North Satellite and add the additional five gates. In July 2014, the Port received Airline Majority-In-Interest ballot approval for the expansion of the North Satellite as described in the synopsis above.

<u>Final North Satellite architectural concept, building massing, floor plans, added vertical circulation and potential baggage system:</u>

The North Satellite project team collaboratively determined the best approach to the terminal's interior functional arrangement, scale, and massing in relationship to the

Airport's built environment. The team focused on developing an intuitive layout that maximizes the efficiency of the available floor area, responds to AAG technology enhancements in gate operations, and incorporates airport design trends that integrate concessions and holdrooms to enhance customer experience and increase non-airline revenue. The proposed design enables future expansion beyond the current recommended 20 gate positions. These objectives are reflected in the North Satellite's following design elements:

- A unifying single circulation path passing through a series of concession and holdroom areas that can be easily extended into a future expansion and that can be expressed in the terminal's outward appearance.
- A building envelope that expresses this arrangement in a compelling and iconic fashion seen by passengers arriving by aircraft, light rail, or vehicles.
- Integrated technology to "untether" passengers from the gate area, to reduce anxiety or fear of missing a flight or announcement, and to encourage terminal exploration.
- Features throughout the facility to foster passenger engagement in productive, informative and revenue generating opportunities.
- Interior and exterior architecture that evokes images of movement and travel while expressing the progressive cultural environment of the Pacific Northwest through building forms, lighting, and functional interests that are cost effective, environmentally friendly, and within budget.
- Provide adequate bagwell level space and circulation for baggage equipment and vehicles within the expansion area that accommodates the potential expansion of the pier-sort baggage handling system to be determined at a later date.

Scope Additions:

The 30% design of the North Satellite project began in late February with two weeks of design charrettes. Progress continues on the 30% design with a goal to obtain AAG concurrence on the 30% design by October 2014, as required within the LOU. Since the start of 30% design a number of potential scope additions have been either been identified and requested by AAG or collaboratively decided by Port and AAG staff to be evaluated. As a result, beyond the recommended North Satellite expansion, the North Satellite renovation also includes recent scope additions, some of which have been evaluated and jointly agreed upon by the Port and AAG based on the positive impact on passenger experience, operational benefit to the Port and AAG or to better accommodate maintaining operations during construction, and some which have yet to be fully evaluated and may be added at a later date. These include:

1. The potential to expand the baggage pier sort system within the expanded satellite to support the 20 contact gate capacity and to better accommodate operations during construction.
2. The jointly agreed-to addition of vertical circulation and apron-level vestibules to accommodate passenger loading and unloading from the rear (i.e. aft) doors of gated aircraft.

While there is the potential for North Satellite baggage handling system to be expanded at a later date, a final recommendation to do so has not been vetted by the Port and AAG. If jointly agreed to, staff will return to the Commission to seek authorization for the additional scope.

Vertical circulation addition and apron level hold rooms for aft door passenger loading have been added to the project based on the analysis that it will create an additional aircraft parking position (a 21st non-contact "gate") without the added cost of a passenger loading bridge, as well as facilitate aircraft operations for both regional and mainline aircraft at the north end of the satellite. This will have a net positive impact on airport-wide gate use efficiency and capacity. In addition, these apron level hold rooms would also serve as hold rooms for busing operations to the main terminal should train service to the satellite be disrupted due to a long duration failure.

Level of Service (LOS) for holdrooms, concessions, circulation and restrooms in the expanded satellite:

LOS modeling was performed on the various design alternatives to assure that functional areas of an expanded North Satellite were appropriately sized for projected passenger loads. The approach used International Air Transport Association modeling industry standards to quantitatively evaluate North Satellite holdrooms, restrooms, amenities, circulation, and concession areas. The model used forecasted opening day (2020) gated flight schedules through 2025 for passenger loads on a typical peak passenger design-day. LOS modeling results are expressed as "A through F," with "A" representing an excellent level of comfort, little or no congestion, and best concession revenue per passenger ratio, and "F" being severely congested and an unacceptable level of comfort. It is appropriate for a new terminal facility to meet at least an LOS "B" at opening day, given that flight schedules and passenger loads will increase over time.

Without expansion, the North Satellite would achieve LOS "D" through "F" on opening day, with substantial congestion occurring in holdrooms, undersized concessions, and wait times in restrooms. With expansion in the recommended modular configuration, where holdrooms are consolidated between service and concession nodes, the LOS achieved will be between LOS "A" and "B" on opening day. This is acceptable given the fact that the expansion is intended to support not only an opening day passenger load, but also future passenger load demands beyond 2025.

Recommendation to use General Contractor / Construction Manager (GCCM) alternative contracting methodology:

As a certified public body per RCW 39.10.340, the Port of Seattle is authorized to utilize the General Contractor/Construction Manager procedure for public works projects where at least one of the following is met:

1. Implementation of the project involves complex scheduling, phasing, or coordination.

    - The North Satellite is a 24-hour, 7-day-per-week complex operating terminal located within and surrounded by a restricted and secured airport operating area. The renovation and expansion of this facility will require multiple construction phases, airline and tenant coordination and technical control requirements.

2. The project involves construction at an occupied facility that must continue to operate during construction.

    - The North Satellite will remain occupied during construction, with construction activities occurring in and around terminal operations and occupied areas. As such, detailed construction planning will be required to assure safe and unobstructed airport operations as the facility is expanded and systems installed and upgraded.

3. The involvement of the general contractor/construction manager during the design stage is critical to the success of the project.

    - The GCCM involvement during the design stage is critical in developing an appropriate design approach to construction and assist in the development of early construction packages before the design is fully complete. Design stage engagement will allow for GC and subcontractor collaboration on constructability, value engineering identification, construction phasing and early work and provide recommendations on scope decisions to keep costs in line with approved budgets. Early review of drawings and specifications will also identify more cost efficient design detailing prior to bidding and performing work, and reduce the potential for change orders.

4. The project encompasses a complex or technical work environment.

    - The North Satellite is a 40-year-old facility that requires substantial updating, installation, and coordination of sustainable, complex building systems. Construction activities will be undertaken within a highly congested and technically challenging operating environment. Advance involvement with the contractor in identifying and applying the appropriate means and methods of construction within this environment is critical to the success of this project.

GC/CM Mechanical and Electrical Subcontractor Selection:

The Port intends to include alternative mechanical and electrical subcontractor procurement as part of the GC/CM alternative contracting procedure. These key subcontractors are selected based on qualifications and hired early to participate in the preconstruction phase. The benefit of selecting mechanical and electrical contractors in this alternative methodology lies in the same level of advance participation and involvement these trades gain by participating in the design and advance packaging development as afforded the GC/CM. This will allow the Port to leverage the expertise of the mechanical and electrical contractors to streamline the utility coordination and reduce the design conflicts and associated risks.

It is anticipated that the GC/CM delivery methodology will provide more opportunities for cost savings due to construction schedule improvements that reduce cost escalation as compared to the traditional Design-Bid-Build procurement approach.

FINANCIAL IMPLICATIONS

The cost to expand the North Satellite that adds 8 additional gates will increase the North Satellite Renovation Project estimated budget by $191,323,143. The original budget of $199,300,000 included adding three new gates. The original budget was later increased by approved transfers from other approved capital construction projects in the amount of $14,909,801 for the addition of biometric access control doors, two elevator and eight escalators, a new freight elevator and grease interceptor for a revised total estimated cost of $214,209,801 inclusive of an estimated $5,800,000 in expense costs for Regulated Material Management (RMM). This results in a new total estimated project cost for North Satellite of $405,532,944. These estimates are compared and detailed in the following table:

	Previous Budget	**This Request**	**Total Project**
Construction Phase	$157,753,600	$158,253,000	$316,006,600
RMM/ERL	$5,800,000	$0	$5,800,000
Design Phase	$37,573,601	$18,322,143	$55,895,744
State & Local Taxes	$13,082,600	$14,748,000	$27,830,600
Total	**$214,209,801**	**$191,323,143**	**$405,532,944**

Budget/Authorization Summary	**Capital**	**Expense**	**Total Project**
Original Budget	$194,300,000	$5,000,000	$199,300,000
Prior Adjustments to Budget	$14,109,801	$800,000	$ 14,909,801
Current Budget	$208,409,801	$5,800,000	$214,209,801
Proposed Budget Increase/Decrease	$191,323,143	$0	$191,323,143
Revised Project Budget	$399,732,944	$5,800,000	$405,532,944
Previous Authorizations	$32,997,000	$200,000	$33,197,000
Current Request for Authorizations	$20,717,800	$0	$20,717,800

Total Authorizations - Incl. this Request	$53,714,800	$200,000	$53,914,800
Remaining Budget to be Authorized	**$346,018,144**	**$5,600,000**	**$351,618,144**

On July 29, 2014, Port staff intends to seek Commission approval and authorization for the increased scope and budget to expand the North Satellite expansion, authorized additional design funds, solicit outside services to support the expansion and construction and to use the alternative construction contracting methodology GC/CM.

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Proceed with Original Scope: Even though the North Satellite would be renovated per the original project scope, not expanding would result in increased operational costs and potential delays due to limited peak-time gate availability. AAG would not be able to consolidate its operations within Concourses C, D, and the North Satellite and other airlines would be required to operate in non-contiguous terminal areas. This option would not help meet the need for gates airport-wide to accommodate growth and would result in a deteriorated level of service. This is not the recommended alternative.

Expand Elsewhere: Provide additional gate capacity at Concourses A, B, C, D or at the South Satellite. Expansion of the South Satellite or Concourse A would require costly and lengthy relocations of existing cargo and aircraft maintenance facilities. Concourses B, C, and D cannot be expanded due to site and operational constraints and costly impacts to adjacent facilities and roadways. This is not the recommended alternative.

North Satellite Expansion (Recommended Option): Increase the size of the North Satellite by adding nine additional 26-foot wide structural bays to the northwest end of the existing building (approximately 181,000 Sq. Ft. added building space) to accommodate eight additional contact gates (beyond the current 12) that would provide Alaska Airlines capacity to meet long-term demand and remain operationally consolidated beyond 2025. This expansion also gains one remote gate position and is within the Airport's current master plan and can be done without significant impacts to adjacent concourse operations. This expansion will also accommodate a future expansion of the North Satellite to up to a total of 30 or more additional gates. **This is the recommended alternative.**

ATTACHMENTS TO THIS BRIEFING

- Attachment A: Renovation and Expansion PowerPoint

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- April 16, 2014 – Seattle-Tacoma International Airport Capital Program - Briefing
- January 14, 2014 – NorthSTAR Program status update and initial North Satellite expansion briefing. September 24, 2013 – NorthSTAR Program status update.
- September 24, 2013 – The Commission authorized staff to: (1) advertise, award, and execute a major public works contract for the construction of the North Satellite Refurbish Baggage System Project; and (2) authorize the use of Port crews.
- June 25, 2013 –NorthSTAR Program status update.
- April 9, 2013 – The Commission authorized the Chief Executive Officer to enter into a project labor agreement covering the NorthSTAR program's five major construction projects.
- March 26, 2013 –NorthSTAR Program status update.
- December 11, 2012 – The Commission was briefed on the Vertical Conveyance Modernization Project Aero Phases 1 and 2 and the possibility of adding the specified elevators and escalators to the NorthSTAR program.
- July 24, 2012 - Commission authorized $32,000,000 for the design of the NorthSTAR North Satellite Renovation and NSTS Lobbies project.
- June 26, 2012 – The Commission received a briefing on the status of the Airline Realignment Program and budget restructuring in association with the NorthSTAR Program.
- April 10, 2012 – Authorizations for the North Sea-Tac Airport Renovations program for: 1) preliminary project funding; 2) execution of consulting contracts for design/construction support services and project management services; and 3) use of Port crews and consultants to conduct regulated materials management surveys and field support services for preliminary project planning tasks.