

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA

Item No. 6h

ACTION ITEM

Date of Meeting September 11, 2012

DATE: September 5, 2012

TO: Tay Yoshitani, Chief Executive Officer

FROM: Elizabeth Leavitt, Director, Aviation Planning & Environmental
Dave Tomber, Aviation Planning Program Manager

SUBJECT: Airport Sustainability Master Plan

Amount of This Request: \$6.0 million

Source of Funds: Airport Development Fund

ACTION REQUESTED:

Request Commission authorization for the Chief Executive Officer to: (1) approve the scope and \$6 million budget for the creation of an airport sustainability master plan (SMP) at Seattle-Tacoma International Airport (Airport); and (2) advertise and execute a contract for consulting services for the Airport SMP, with a total estimated value of \$6.0 million. Authorization to complete the environmental review of the master plan will be requested in 2015 once the scope of the master plan projects is defined and the level of environmental review required under federal state law is determined.

SYNOPSIS:

The Airport's existing master plan is outdated and must be replaced to meet federal advisories to be eligible for federal grants and to obtain federal environmental permits for necessary future projects. The current master plan is 15 years old and will be nearly 20 years old by the time it is replaced. The existing master plan has served the Airport well, but has become outdated because the number of passengers per year has increased by nearly 50% since the last study was completed, the number of travelers transiting at peak hour is considerably higher and average aircraft size and load factors are also higher. This significant growth causes pressures on roadways, terminal and support buildings, aircraft gates, and taxiways which drives the need for future projects to support further growth. It can take three to four years to deliver major projects to meet the demands of expected growth. Therefore, thorough planning is recommended now to prepare the airport for future growth demands.

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

September 5, 2012

Page 2 of 9

The Airport SMP covers strategic planning needs related to coordinating long-term development of the Airport, and meeting the Commission's Century Agenda goals. The Airport is due to update its Master Plan; and with the increasing emphasis now being placed on sustainability, this update will be done as a sustainability master plan, which additionally looks at providing capacity for growth in a sustainable manner within the limited footprint of the Airport. The master plan will be developed between 2012 and 2015, followed by environmental review of the plan to be completed in 2016. This memorandum requests authorization to proceed with the Airport SMP and advertise and execute a contract with an airport master plan consultant.

The FAA (Federal Aviation Administration) Advisory Circular on airport master plans strongly recommends that airports prepare master plans. While FAA recommends airport master plan updates every 5 years, it is important to note that airports are only authorized to build facilities that are identified on the airport layout plan (ALP), which is an important end product of a master plan. FAA grants that the Port now receives also contain grant assurances that the ALP be kept current.

Airport master plans typically take several years to complete, and are highly technical, involving many areas of specialized expertise unique to airports. Airport master plans vary in cost, depending on the size of the airport and complexity of the planning challenges. Costs can range from \$1 million to as much as \$24 million.

The FAA Advisory Circular for Master Plans includes elements such as:

- **Airport Layout Plan (ALP)**—FAA grant assurances require that the ALP be kept current. The FAA approves the ALP, which is part of the airport master plan. The Port can only construct those projects which are shown on an FAA-approved ALP. This is also necessary to be eligible for Airport Improvement Program (AIP) funding.
- **Aviation Forecast**—The FAA also approves the forecast component of the master plan to ensure consistency with the FAA's Terminal Area Forecast (TAF). The FAA wants to ensure that the underlying assumptions and methodologies are appropriate.
- **Environmental**—A master plan is a best practice that enables projects identified on the ALP component of the master plan requiring environmental review to be examined holistically and provides Airport stakeholders with a comprehensive long-range vision for the Airport.
- **Transparency**—Master plans have a public element for agencies, users, and communities.

A key component of the Airport's Master Plan is to integrate sustainability. A sustainability master plan is a blueprint for long-term Airport development that reduces environmental impacts, achieves economic benefits, and increases passenger experience and integration with local communities. Traditional master planning looks at accommodating an airport's forecasted demand and the associated impacts. A sustainability master plan looks at sustainability issues (environmental, economic and social) as core objectives rather than secondary considerations. Examples include identifying ways to reduce building area, energy consumption, environmental impacts, and carbon footprint. Grant funding may be available from the Federal Aviation Administration (FAA) for pilot studies that integrate sustainability into master plans, and staff has pursued this potential opportunity.

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

September 5, 2012

Page 3 of 9

The Airport SMP will require follow-on environmental review to meet federal and state laws, with a total estimated cost in the \$1-\$4 million range. The cost of the environmental review will be determined after the scope of the master plan projects is defined, and the level and complexity of environmental review can be determined. A full understanding of the level and complexity of the environmental review is necessary before the scope and cost of the environmental review can be estimated. This will be part of a separate request staff anticipates bringing to the Commission for approval in 2014 or 2015.

BACKGROUND:

Airports can be described as a three-legged stool, balancing capacity between airside, terminal and landside areas of the airport. Overall airport system capacity is limited by the pinch point of the area with the least capacity. Airport growth of nearly 50% over the last 15 years creates pinch points (like congestion on roadways and taxiways) and demonstrates the need to prepare a new master plan.

The last formal master plan for the Airport was done in the mid-1990s, and it was focused primarily on the new third runway. At that time, the Airport handled 22 million annual passengers (MAP). The Airport is now handling far more passengers, almost 33 MAP in 2011, which is a 50% increase in passenger traffic since the last master plan. Anticipated growth will approach 40 MAP over the next decade, and planning studies since the last master plan have indicated that the airfield has the potential capability of providing capacity up to 55-60 MAP. This growth is the result of airlines flying larger aircraft with more seats and a higher load factor (percentage of seats filled with passengers).

At the time of the last master plan, Sea-Tac had an annual average of 59 passengers per aircraft operation, and in 2011 this number had grown to an annual average of 104 passengers per aircraft operation. Peak activity drives the need for most facilities at the Airport. At the time of the last master plan, Sea-Tac processed 3,800 peak hour departing passengers during a busy day in August, and in 2011 this number had grown to 5,500 peak hour departing passengers. Sea-Tac will need to plan for an activity level of 8,300 peak hour departing passengers during a busy day in August when the Airport reaches 55-60 MAP, projected to occur in the next 20 to 30 years.

The goal of the SMP is to creatively re-imagine the terminal and landside in a way that balances capacity with the airside, while optimizing capacity of a small footprint in a high-density operating environment. This will require addressing new challenges and issues that have emerged in the dynamic airport/airline industry, such as: airline mergers, new entrant airlines for international service, rapidly evolving technology, increased security, renewal of aging facilities, increased non-airline revenue, and improved environmental performance.

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

September 5, 2012

Page 4 of 9

The SMP will analyze many potential facility options to aid Commission and Port staff in decision-making on the need for, and timing of, potential development, such as:

- Possible long-term federal inspection services (FIS) facility upgrades for arriving international passengers
- Transformation of check-in lobby
- Higher capacity baggage systems
- Facility renewal/replacement
- Improvements that reduce energy/water/carbon and other operating costs
- Modifications to roadways and curbsides that increase capacity
- Increased vertical circulation
- Optimization of existing security checkpoint lanes and planning for increased capacity
- Preparation of facilities for flexibility and change
- Possible addition of an Airport hotel
- Technology and process improvements

The Airport SMP will define the future vision for the Airport with solutions grounded in a balance of strategic goals for capacity, sustainability, customer service, technology evolution, passenger needs, and minimized cost of development through “inspiration.” The Airport SMP will help envision and address the following preliminary Century Agenda goals established by the Commission:

- Triple annual cargo volume to 750,000 metric tons
- Make Sea-Tac Airport the West Coast “Gateway of Choice” for international travel
- Double the number of international flights and destinations
- Double the economic value of cruise traffic to Washington State
- Meet future energy needs through conservation and renewable sources
- Meet or exceed agency requirements for storm water leaving port owned or operated facilities
- Reduce air pollutant emissions by 50 percent
- Reduce carbon emissions from all Port operations by 50 percent compared to 2005 levels, and reduce aircraft-related carbon emissions at Sea-Tac by 25 percent

PROJECT JUSTIFICATION:

The purpose of this request is to ensure coordinated development of the many complex functions across the Airport through a comprehensive approach. A piecemeal approach typically results in poor decisions, lost opportunities and ultimately higher development costs.

The Airport SMP will define the vision for future Airport development. It will identify the issues, solutions, priority, sequence, relative cost, and possible financing options. Without this master planning effort, the Airport is at risk of moving forward with individual projects that might be in the wrong place, at the wrong time, at too high a development cost.

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

September 5, 2012

Page 5 of 9

For example, individual decisions about airfield or cargo projects might optimize a particular need, but could suboptimize terminal or roadway areas without having the broader planning in place that a master plan provides.

The immediate drivers for this project include:

- Need for coordinated development of multiple complex functions to avoid conflicts
- Need to understand ideas and vision for the Airport, such as alignment with the Commission's Century Agenda goals
- Need to forecast where we want the Airport to be in the future and backcast how to get there
- Need to understand where all the pieces of development fit (issues, priority, sequence, cost, and financing)
- Need to develop balanced facility requirements to avoid over investment in any single area of the Airport

PROJECT SCOPE OF WORK AND SCHEDULE:

The overall goal of the SMP will be to undertake appropriate technical analyses to prepare a preferred Airport development plan with development "trigger points" to guide the development of the Airport over 10-year and 25-year planning horizons. The SMP will qualitatively, revalidate, adjust and refine the ultimate (full build-out) development concept for the Airport. This work will be accomplished with the determination of facility needs balanced by considerations of financial impacts to users; flexibility to accommodate various changes, and consistency with the Airport's goals and objectives. An overarching goal and key part of the Airport SMP will be to integrate sustainability, addressing environmental, economic and social concerns throughout the entire master planning process.

The Airport SMP will represent the approved actions to be accomplished for phased development of the Airport over the next 20 years. The scope of work of the Airport SMP will address the airfield, terminal, landside access improvements, modernization and expansion of facilities, and establish the strategic vision for development. It is a significant planning process that will involve subject matter experts in over 35 different disciplines.

Scope of Work

The primary steps for the Airport SMP planning process and scope are:

- **Strategic Objectives**—Confirming study goals and focus areas.
 - Identify broad goals, issues of concern, objectives, and requirements for future Airport activities and development that will guide and focus the SMP planning process.
- **Sustainability**—Determine, understand, and fully integrate environmental, social, and economic responsibilities.
 - Categorize broad concerns, goals, objectives, and requirements into three broad areas of sustainability (economic/operational, environmental, and social). Place emphasis on addressing sustainability goals throughout each step of the master planning process.
 - Integrate Airport Environmental Strategy Plan goals.
 - Integrate Commission Century Agenda Goals.

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

September 5, 2012

Page 6 of 9

- **Forecast**—Determining future activity levels for passengers, cargo, flights, and key sustainability metrics.
 - 10-year and 25-year forecasts of aviation activity for enplanements, aircraft operations and cargo using regression and time series analyses.
 - Planning design-day schedules for 10-year and 25-year planning horizons.
 - Alternative scenarios for forecast and planning design-day schedules and risk analyses.
 - Forecast of Airport employment over 10-year and 25-year planning horizons.
 - Forecast of key sustainability metrics for energy, water, materials and resources, storm water, ecosystem and habitat quality, aviation and ground transportation emissions, noise (using recent studies, such as Part 150, Greener Skies, and NextGEN), buildings and infrastructure, and social and economic benefits.
 - Obtain FAA approval of aviation activity forecasts.
- **Inventory**—Gathering and preparing background data and drawings for analyses.
 - Collect sufficient data and background information to support the quantitative and qualitative analyses conducted in the SMP study (historical aviation activity, mapping, FAA Capacity Enhancement Plan, drawings and space allocation, airfield/airspace data, land use data, landside access data, terminal/concourse data, cargo data, passenger/employee/tenant surveys, existing studies, financial data, regulatory framework, environmental sustainability data).
- **Requirements**—Developing basis for sizing facilities to provide adequate capacity to meet future activity levels using spreadsheet and dynamic simulation methods to analyze the 10-year and 25-year design-day schedules.
 - Airside requirements
 - Aircraft gate requirements
 - Terminal and concourse requirements
 - Information technology system requirements
 - Airport access and parking requirements
 - Support facility requirements
 - Utility requirements
 - Environmental sustainability requirements
- **Options**—Testing potential layout options and identifying a preferred option.
 - Define range of potential concepts for development of various functional areas of the Airport based on the individual facility requirements and operational management strategies of each functional area (environmental sustainability, terminal, concourse, airside support, landside roadway and ground access, and land use).
 - Define criteria for screening potential concepts for future development.
 - Using defined screening criteria, the number of concepts in each component area will be reduced for each activity scenario, in addition to a “no-build” alternative.
 - Combine screened concepts into integrated concepts.
 - Refine and evaluate preferred integrated concept.

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

September 5, 2012

Page 7 of 9

- Develop decision trees that consider the triggers for both the anticipated development track and triggers that result in the implementation of program elements to accommodate alternative growth scenarios.
- **Financial**—Analyzing financial capacity to support decision-making for capital improvements.
 - Financial analyses to ensure that the preferred development concept and recommended plans for accommodating growth over the 25-year planning horizon are financially feasible with an acceptable impact on rates and charges.
- **Implementation Plan**—Preparing a capital improvement program based on the preferred option.
 - Divide the preferred development plan into discrete projects for which estimates of probable construction cost are prepared and which will be phased over the development horizon. The projects will become the basis of consideration by Airport management and Commission for inclusion in the Airport’s capital improvement plan.
 - Define and present discrete projects in project definition booklets that summarize the project scope, triggering event, detailed concept plans, phasing, and costs.
 - Define an airport development schedule to reflect the improvements needed to satisfy demand at the various planning activity levels under the baseline demand scenario.
 - Develop recommendations for establishing and managing progressive maintenance programs for Airport facilities and systems based on current Airport facilities and experiences at other airports.
- **Airport Layout Plan (ALP)**—Updating the current ALP for approval by the FAA.
 - ALP drawing set and development narrative.
 - Coordination with FAA on requirements for airport geospatial information systems.
 - Obtain FAA approval of ALP.
- **Public Involvement**—Communicating master plan progress and conclusions to the public and other stakeholders.
 - Public workshops to brief the public and interested stakeholders about the project and receive input.
 - Briefings of public officials and agencies on various aspects of the initial studies, analyses, and recommended actions/plans. These briefings will also provide an avenue for public official and agency input into the planning process.
 - Coordination meetings to address various technical, strategic or financial issues in the SMP study.

The proposed contract for the Airport SMP will provide consulting services for strategic planning needs related to coordinating long-term development of the Airport, meeting Century Agenda goals and providing capacity for growth in a sustainable manner within the limited footprint of the Airport.

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

September 5, 2012

Page 8 of 9

Schedule

The timeline, if approved, for the Airport SMP is as follows:

- **2012 (Q3)**—Commission approval of SMP budget
- **2012 (Q4)**—Begin master planning to include strategic objectives, integration of Century Agenda goals, 10 and 25 year activity forecasts, inventory of existing facilities and capacity, future facility requirements analysis, and analysis of potential options to meet future facility needs.
- **2014-2015** —Commission approval of environmental review scope and budget
- **2014-2015** —Begin environmental review
- **2015 (Q4)**—Complete planning
- **2016 (Q4)**—Complete environmental review
- **2016 (Q4)**—Airport SMP Complete

FINANCIAL IMPLICATIONS:

<i>Budget/Authorization Summary:</i>	Capital	Expense	Total Project
Original Budget	\$0	\$10,000,000	\$10,000,000
Previous Authorizations	\$0	\$0	\$0
Current request for authorization	\$0	\$6,000,000	\$6,000,000
Total Authorizations, including this request	\$0	\$6,000,000	\$6,000,000
Future budget to be authorized for Environmental Review (range)	\$0	\$1,000,000 to \$4,000,000	\$1,000,000 to \$4,000,000
Total Estimated Project Cost	\$0	\$7,000,000 to \$10,000,000	\$7,000,000 to \$10,000,000

<i>Project Cost Breakdown:</i>	This Request	Total Project
Consulting Services	\$5,990,500	\$ 9,984,200
Taxes	\$9,500	\$15,800
Total	\$6,000,000	\$10,000,000

Budget Status and Source of Funds:

The source of funds for this contract for the remainder of 2012 will be \$200,000 included in the 2012 operating budget for Aviation Planning, which is adequate to cover anticipated work this year. Future costs will be included in the annual operating budgets for 2013, 2014 and 2015.

The requested contract maximum is based on projected work and historical data for this type of project. No work is guaranteed to the consultants, and the Port is not obliged to pay consultants until a service directive is executed and work performed.

Grant funding may be available from the FAA for pilot studies that integrate sustainability into master plans, and staff has pursued this potential opportunity.

A separate authorization will be submitted in 2015 for the procurement of a consultant to conduct environmental review of the Sustainability Master Plan.

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

September 5, 2012

Page 9 of 9

ALTERNATIVES CONSIDERED AND THEIR IMPLICATIONS:

Alternative 1) Do not create an Airport SMP. Many projects are anticipated to meet future growth of the Airport, and this alternative does not allow for coordinated development of multiple complex functions. The airport's ability to construct new projects not identified on the ALP would be restricted, along with compliance with current grant assurances. This is not the recommended alternative.

Alternative 2) Create an Airport SMP using only in-house resources without hiring a consultant. This alternative is not recommended because staff does not have expertise in all the various specialized areas needed to complete an SMP. This is not the recommended alternative.

Alternative 3) Create an Airport SMP using in-house resources and a consulting firm with expertise in airport master planning. Many projects are anticipated to meet future growth of the Airport, and this alternative allows for coordinated development of multiple complex functions. This alternative will enable the Port to develop a vision for future Airport development at the least cost. **This is the recommended alternative.**

OTHER DOCUMENTS ASSOCIATED WITH THIS REQUEST:

- Airport Layout Plan – Existing Conditions
- Airport Layout Plan – Future Conditions
- LRT Extension and South Access Roadway – Original Airport Concept

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS:

- June 26, 2012 - Commission Briefing: Terminal Development Challenges.
- August 14, 2012 – The Commission deferred consideration of this request.