

FINAL WORKING DRAFT

Washington State Department of Transportation Aviation System Plan Update Scope of Work

I. PROJECT HISTORY AND BACKGROUND

WSDOT Aviation Division has been conducting statewide aviation system planning studies for many years. During that time, aspects of the studies, such as state and local emerging issues, have changed, but the studies have consistently followed the FAA advisory circular format.

WSDOT recognizes the value of building on previous work, and system plans often benefit from other work accomplished by the agency and other organizations. During the scope development for this study, our planners were mindful of the rapidly evolving nature of aviation and aerospace. Looking across the aviation and aerospace industries there are often daily announcements of new technologies and new developments that span various facets of aviation.

In addition, there are some elements of aviation in our state that have been known for years, such as looming capacity constraints on commercial aviation, especially in the Puget Sound region. Further, environmental concerns, and understanding aviation impacts on the environment, are becoming an increasingly important part of our work. Sustainability and environmental stewardship are vital to this study.

Electric and alternate propulsion aviation, once distant visions, are slowly becoming a reality, and an opportunity that should receive serious consideration. Meeting commercial demand need not be more of the same; there is the potential to support commercial aviation in innovative ways.

In light of all these dynamic factors, the core components of an aviation system plan are tried and true, and will continue to be the foundation of this work.

II. STUDY OBJECTIVES

This study will conduct in-depth, technical analysis and provide detailed data, strategies, considerations and recommendations for:

- Understanding the current situation of Washington's system of public use airports; developing forecasts and projections for systems needs; and developing recommendations for addressing those needs
- Examining, analyzing, and projecting the potential of existing airports to meet anticipated commercial and general aviation demand, and providing detailed recommendations on strategies, timelines, projects, costs, and funding sources to expand those airports
- Examining, analyzing, and projecting the potential for new airport sites to meet

anticipated commercial and general aviation demand, and providing detailed recommendations on strategies, timelines, projects, costs, and funding sources to develop a new airport

- Examining, analyzing, and projecting the potential for employing a new, statewide approach for distributed commercial air passenger service to meet anticipated demand, and providing detailed recommendations on strategies, timelines, projects, costs, and funding sources to put this program into action
- Examining, analyzing, and projecting the potential for customers and service providers to use possible airport solutions; 1) expanding existing airports, 2) establishing a new airport, 3) employing distributed air passenger service
- Developing a statewide airport sustainability framework of definitions, goals, and best practices
- Developing policy, project and funding considerations and recommendations for all the above

I. PROJECT REQUIREMENTS

A. Project Schedule

- The consultant is encouraged to use a software program that will allow sharing of the project schedule in easily readable format.
- The project schedule shall be updated not less than monthly, and more frequently if required to address critical activities in the schedule.

B. Correspondence

1. Project Coordination Meetings

- Coordination meetings shall occur bi-weekly at a time to be established by the WSDOT and consultant project managers.
- Additional coordination meetings with a wider group of participants may be necessary on an occasional basis and will be agreed upon by WSDOT and consultant project managers.

2. Monthly Progress Reports

- Invoicing. Invoicing of the Prime and sub consultants is to occur not less than monthly. If the consultant is unable to obtain sub consultant invoices in a timely manner, the prime shall obtain estimates from the sub for inclusion in budget management narrative and earned value report.
- Earned Value. The consultant shall provide an initial and monthly earned value statement as part of the monthly progress report. Earned value shall be addressed in both narrative and chart form.
- Progress Reports. Progress reports shall be not less than monthly and at a minimum will include:
 - Accomplishments since the last report
 - Current status of schedule, budget, earned value to include narrative

that explains any variations from the last report.

- Planned work activities during the next reporting period

C. Project Documentation

- Provide a comprehensive system plan report, in printed, electronic file and HTML formats, for WSDOT reproduction and distribution. The report shall include annexes, appendices, and other forms of attachment necessary to provide stakeholders with sufficient documentation and reference.
- Provide an Executive Summary to be published as a separate, standalone document.
- Provide content input to aid WSDOT development of a system plan folio.
- Provide a PowerPoint presentation that documents the study process, goals and objectives, study findings, noteworthy trends, recommended system level development strategies, and recommended policy additions/revisions/deletions.
- Provide reports for Title VI, tribes consultation and similar community engagement activities that require mandatory reporting.
- Provide electronic study documents, data, graphics and similar materials not included the system plan report but germane to documenting analysis and decisions that may be helpful as future reference.
- Provide 2-3 presentations on the system plan progress to the CACC in coordination with WSDOT.

D. Risk Management

The highly complex nature of this project, fraught with uncertainty, requires particular focus on risk. WSDOT Aviation Division has conducted an initial risk assessment and developed a preliminary set of risks for the project. WSDOT would like to review these risks with the consultant, and gain consultant input on potential risks, strategies, and methods for monitoring emergent risks.

E. Performance Management – Key Performance Indicators

For this project, performance is linked to focused data collection, multi-faceted data analysis, creative solution development, analytical solution analysis and screening, and fully developed and feasible options. These performance indicators are outlined in greater detail below.

1. Focused data collection and analysis

In a standard system plan, there are predictable data points to be collected. However, this study may require additional factors to be considered. Since one of the important deliverables for this study is to provide recommendations for how to meet anticipated air passenger service, air cargo and general aviation demand, data collection will need to support these outcomes. Various elements of the study align with predictable outcomes. This study will require greater analysis. As airport sites, and aviation innovation and evolving trends are considered, the consultant will need to look

2. **Creative solution development, analysis, and screening**

As previously stated, this study seeks innovative solutions. Environmental impacts are increasing public scrutiny on aviation operations, population density, and demographic and customer preference shifts are requiring new ways to provide transportation, and emerging technologies are shaping a completely new way to transport people and goods. Solutions need to address these; they are in many ways an essential component of this study. To provide comprehensive and actionable solutions, this study will need to analyze and dissect solutions using a broad set of factors and tools. While visionary options are anticipated given the nature of emerging aviation technologies, analysis should provide solutions that are highly credible and will solve the demand challenges.

3. **Fully developed and feasible options**

The solutions or options proposed in this study will need to address multiple disciplines. Airport capacity is tied to airside and landside considerations, road and transit, utility infrastructure, environmental factors, and several other attributes. Solutions need to address all these factors.

4. **On-Time Completion Percentage**

The system plan and the CACC are on a tight timeline. Completion of tasks in the specified time allotted is very important. This will monitor **actual project element completion dates vs. planned dates**.

5. **Earned Value**

Allows the project manager to measure the amount of work actually performed on a project beyond the basic review of cost and schedule reports.

F. **Interdependencies**

The handing off work back and forth between WSDOT and the consultant can be an overlooked and underappreciated operational risk. The WSDOT and consultant project team will establish a process of understanding downstream and upstream dependencies to identify opportunities to mitigate interdependency operational risks.

G. **Performance Scorecard**

A performance scorecard will be the method used for both WSDOT and the consultant to measure the overall performance of a contract. The Scorecard tracks Key Performance Indicators.

H. **Acceptance**

Acceptance, conditional acceptance and approval will be jointly discussed and mutually agreed upon protocols established to differentiate completion of work/deliverables.

I. **Transition**

This project will benefit from a jointly developed transition schedule and transition methodology. This should include AIS database revisions, multimodal analysis, and other

project deliverables that require Department of Transportation work/tasks. The schedule may include elements identified in the mutually agreed upon project schedule.

J. Deliverables

- Bi-weekly coordination project meetings
- Monthly progress reports
- Project documentation
- Risk matrix and risk management plan
- Performance management scorecard, reviewed quarterly
- Interdependencies methodology
- Transition plans for selected deliverables
- Monthly earned value report

III. MILESTONES

This study includes work elements for a traditional aviation system plan study, a statewide aviation sustainability study, and an airport site feasibility study. This study also includes a unique component that directly impacts the sequence of work; some aspects of this study will provide important information for the Commercial Aviation Coordinating Commission (CACC). Hence, deliverables from the commission to the Washington state legislature must be an integral part of the milestones and deliverables. The CACC deliverables are:

- Recommending a final short list of no more than six locations by February 15, 2022
- Identifying the top two locations from the final six locations by October 15, 2022
- Identifying a single preferred location for a new primary commercial aviation facility by February 15, 2023

These milestones are further influenced by FAA grant funds timing. This study will benefit from three grants: one in each year 2021, 2022, and 2023. The work of this study will be phased to accomplish substantial work as required within each grant period for the purpose of the grant, and at the same time meeting the needs of the CACC and its deliverables. A preliminary, high-level schedule has been developed to provide the consultant and others on a general concept/approach and to inform the consultant development of a much greater detailed schedule. The schedule below is merely a conceptual guide.

state. This inventory will also identify the current role of airports, and the current aviation activities at each airport.

- The study will recommend future roles of airports and future aviation activities at each airport.
- The study will update population and aviation demand projections.
- The study will examine and update state classifications, as well as system goals, objectives, and performance measures, and airport metrics.
- The study will examine, develop scenarios/costs/timelines, and provide recommendations for existing airports and greenfield/grayfield/brownfield sites that have the potential to support increased capacity to meet air passenger service, air cargo, and general aviation projected demand. This will include addressing aviation industry and passenger/shipper/aircraft owner likely support and participation. This will further include intermodal access considerations, and governance and sponsor recommendations.
- The study will examine and make recommendations on statewide aviation sustainability criteria. These should address environmental resilience factors, and opportunities to increase electrical capacity and leverage electrical air and ground vehicles, storage systems, and onsite electricity generation.
- The study will examine, analyze, and make recommendations for emerging aeronautics industry segments including, but not limited to unmanned (unpiloted) and autonomous aircraft systems; electric, hybrid-electric, and alternate propulsion fixed-wing aircraft; and electric, hybrid-electric, and alternate propulsion VTOL aircraft. This will include policy recommendations and considerations related to each, and their potential roles in addressing capacity constraints. The study will include recommendations to address infrastructure needs necessary to set the conditions for emerging aeronautics aircraft. The study will examine and make recommendations for the adoption of eVTOL for on and off airport locations.
- The study will examine the role of sustainable aviation fuels as a bridging strategy and make recommendations for methods to increase SAF (both Bio-jet and unleaded AVGAS) availability and competitive pricing in Washington state, and federal implications for SAF utilization onboard out-of-state arriving aircraft.
- The study will examine Washington state airport land-use policy and provide best practice recommendations
- The report resulting from this study should examine and communicate the results of this study in detail. The study report that should include easily understood narrative, charts, tables, graphs, pictures, and related communications methods and be ADA complaint. The report should be equally compatible with print, HTML, and electronic material formats. The consultant is highly encouraged to maximize the visual appeal and readability of the report by using call-out boxes and similar tools.

II. STUDY COMMITTEES

A. Overview

This study will require the establishment of a technical advisory committee (TAC). The committee will be a component of the study community engagement plan but will require additional time and effort on the part of the WSDOT and consultant project team. The consultant should expect four to six technical advisory committee meetings over the two-year duration of this study. WSDOT will appoint members of the TAC, with input from the consultant.

The study may also require specialized functional committees of various sorts, that may convene and disband as supports the study work.

B. Technical Advisory Committee Meetings

WSDOT is committed to providing equal access to all committee members, regardless of their geographical location. For this reason, committee meetings may occur at various WSDOT facilities across the state, may be virtual, or a blend of the two. The consultant should plan on leveraging technology to enable those unable to attend meetings in person to be able to participate virtually.

Technical advisory committee meetings will need to occur at the beginning of the project to gain input on the intended course of the project, during the project at various key points to gain further committee input and support, and at the end of the project to share conclusions and solicit committee concurrence. Consultant should plan for five to six meetings throughout the duration of the study.

The consultant will have the primary responsibility for development of all committee materials and virtual meeting technology. WSDOT will assist with telecommunications, A/V and IT support as able at various sites.

C. Deliverables

- TAC meetings. Prepare for and administer periodic TAC meetings, with both in-person and virtual participation options
- Provide summary narrative in study report

III. NATIONAL, STATE, REGIONAL AND LOCAL EMERGING ISSUES

This section includes preparing a list of major aviation issues, problems, questions, and opportunities is a vital part in developing the plan. Because of the uniqueness of the system planning process, the report may include issues of a national nature, as well as concerns specific to an individual state, metropolitan region, a local community, or even a multi-state area. The items in this list should be ranked in order of importance and strategies to address each should be presented.ⁱ

The consultant will examine, analyze and develop recommendations for the following issues.

A. Emerging Aviation Technology Integration:

The consultant will analyze emerging factors and identify their impact on the Washington state aviation system related to:

- Electric and hybrid electric propulsion and supporting infrastructure
 - Alternate propulsion
 - Unmanned/non-crewed aircraft systems
 - Electric airplanes
 - Electric VTOL and STOL aircraft
 - Micro-grids and electric vehicles
 - Low-level (400' AGL and below) airspace management factors [primarily UAS]
 - Specialty launch and recovery sites and air corridors as applicable such as eVTOL on and off airports, and routing considerations
 - Multimodal transportation hubs
 - Supersonic commercial aviation
 - Spacecraft launch and recovery
- Describe the current state of each industry segment; the known and anticipated barriers to scaled commercial operation; anticipated dates operations begin and drivers that influence those dates; industry participants and their role in the industry segment; potential benefits to and impacts on Washington state
 - Develop and recommend actions the state may need to undertake, including individual sites as well as region or system-wide improvements, policy considerations, and incentives; electrical grid expansion estimates; estimated infrastructure costs to support electric aircraft charging (hybrid, fast charge, slow charge); variations in electricity rates across the state and at different times of day; options for storing electricity on site; options for generating electricity on site (investment cost, likely yield of electricity, life cycle costs, maintenance costs, compatibility with aviation, grant opportunities)
 - Identify the anticipated high-density UAS airports and why, their associated aircraft storage needs, and other infrastructure improvements potentially needed
 - Examine and explain off-airport UAS launch and recovery activities occurring in the U.S., at what magnitude, emerging developments in certain types of areas, or for certain activities, where UAS activity is expected to be more pronounced, why, and to what magnitude.
 - Compile examples of UAS legislation in other states that have proven beneficial to the state, the UAS industry, and aviation.
 - Provide recommendations on whether there is a need in Washington State to develop policy to address emerging aeronautics issues. Compile policies or rules that are being considered across the nation and provide recommendations on preferred practices, and why.

B. Sustainable Aviation Fuel:

The consultant shall analyze and document the current state of bio-jet fuel and unleaded AVGAS, in consultation with the Washington State University (WSU), Office of Clean Technology, the William D. Ruckelshaus Center on behalf of the Sustainable Aviation Biofuels Work Group, the FAA Piston Aviation Fuels Initiative (PAFI), and others.

- Research and summarize the current state of Bio-Jet and unleaded AVGAS in Washington state, and nationally; current suppliers and refiners; availability of biomass for refining; status and

- availability of unleaded fuels; costs compared to conventional fossil fuels; challenges regarding cost, refining, distribution, storage, compatibility with aircraft powerplants, and consumption
- Identify the roadblocks to promulgating wider availability and lower cost of bio-jet fuel and unleaded AVGAS, and exploring various blends and the feed stocks and other sources of the fuels. Examine and document the aerospace manufacturing trajectory to developing powerplants to accommodate 100% bio-fuel and unleaded AVGAS, and project the possible impact to reduction of harmful emissions that could be realized, both with increases in blended fuel use and with 100% bio-fuel/unleaded AVGAS use. Develop or reiterate existing recommendations for WA State to produce, store and distribute SAF giving consideration to existing or suggested federal incentives.

C. Deliverables

- Conduct detailed analysis on emerging aeronautics. Examine, analyze, describe the current state, barriers and drivers, and develop recommendations (as listed above) for, at a minimum, electric and hybrid electric propulsion and supporting infrastructure; alternate propulsion; unmanned/unpiloted aircraft systems; electric airplanes; electric VTOL and STOL aircraft; low-level (400' AGL and below) airspace management factors [primarily UAS]; specialty launch and recovery sites and air corridors as applicable such as eVTOL on and off airports, and routing considerations; multimobility transportation hubs; supersonic commercial aviation; spacecraft launch and recovery;
- Conduct detailed analysis on sustainable aviation fuels. Analyze and document the current state of bio-jet fuel and unleaded AVGAS nationally and in Washington state; identify the roadblocks to promulgating wider availability and competitive cost with conventional fuels, examine and document aerospace industry trajectory to developing compatible powerplants; provide recommendations, including incentives, to produce, store and distribute SAF
- Provide detailed narrative in study report

IV. INVENTORY OF SYSTEM CONDITION AND PERFORMANCE

The inventory of system conditions and performance contains a number of items listed below:

- Airport physical characteristics
- Airport activity levels
- Environmental and land use considerations and applicable laws
- Navigational aids
- Local socioeconomic data
- Airport financial data
- Historical weather data
- Surface transportation characteristics
- Terminal, airspace, and airfield capacityⁱ

The consultant will also examine, analyze and develop recommendations for the following issues.

A. Technical Inventory:

Conduct a verifiable technical inventory of existing public-use airport and heliport features for inclusion in the WSDOT Airport Information System (AIS) database and system plan report; runway length, width, and strength; design aircraft; airport distance from population centers; aircraft approach procedures; compliance with current airport/heliport design standards and documented or pending modifications to standards; ground access; airport/heliport ownership; airport state and federal classification; aviation sectors that utilize the airport; apron capacity; cargo sorting facilities; business tenants and activities; hangar and tie-down parking; based aircraft; enplanements; operational activity including air freight, mail and express package; airport services; known obstructions, environmental and land use issues; and master plan, ALP, and Exhibit A Property Map status.

The inventory must address:

- Facilities: Existing airport facilities, both commercial and general aviation, including air side, land side, and airport service facilities.
- Capacity: Existing air and airport/heliport capacity, including the number of annual passengers, air cargo operations, general aviation hangar and tie-down parking, private vehicle parking, and surface road capacity.
- Services: Existing airport services, including fixed based operator services, fuel services, ground services, and transit options.
- Airspace: Review existing approaches for obstructions using the FAA's 20:1 tool in AGIS; terminal airspace congestion
- Safety: Airport/heliport design per FAA criteria.
- Aviation activities and level of activity
- Based aircraft: aircraft; based and transient volumes; aircraft storage
- Estimates of flight operations: commercial and GA operations
- Estimates of drive times: primary and non-primary airports
- Secondary socioeconomic data: population; demographics, earning levels, etc.

B. Land-use

Compare Washington state airport land-use policy to other states and provide recommendations of best practices used elsewhere in the country that have proven effective in diminishing land-use and encroachment challenges at airports. Provide policy recommendations to strengthen WSDOT ability to influence incompatible landuse.

C. Airport Information System (AIS) Database Inventory

Ensure all new data collected is applied to the WSDOT AIS database, where appropriate, as agreed upon by WSDOT and the consultant.

- Establish initial, and maintain ongoing communication with WSDOT IT
- Conduct periodic reviews of data collected, and plan to integrate data into AIS.
- Compare AIS and inventory data.
- Identify database inconsistencies and missing/incomplete data strings.
- Validate/update AIS database to capture inventory results.

- Establish a new baseline data set.
- Provide data set to WSDOT IT in a format agreed upon between the consultant and WSDOT
- Assist with data integration into AIS as needed

D. Inventory of Aviation Activities:

Using the WSDOT 2017 WASP and 2020 Aviation Economic Impact Study (AEIS) results, and updates from inventory, document on-airport/heliport aviation activities.

Aerial photography

Aerial sightseeing

Agriculture

Air cargo

Aircraft manufacturing

Blood, tissue, and organ transportation

Commercial service

Emergency preparedness and disaster response

Firefighting

General aviation business and corporate travel

General aviation personal transportation

Medical air transport

National security

Pilot training

Scientific research

Search and rescue

Skydiving

E. Deliverables

- Conduct a verifiable technical inventory of existing public-use airports/heliports and planned vertiports; update on-airport/heliport aviation activities
- Provide land use recommendations. Compare Washington state airport land-use policy to other states and provide recommendations on policy and best practices;
- Update population and aviation demand projections including socioeconomic data; population shifts; demographics, earning levels, etc.
- Updated Aviation Activity Analysis.
- Update the AIS database
- Provide detailed narrative in study report

V. GOALS, OBJECTIVES, PERFORMANCE MEASURES, AND METRICS

Broad system goals and performance measures are established at the outset of the planning process, resulting in products that can be effectively used by the region, state, and the FAA in determining annual airport development needs. The system plan sponsor should use these measures as a control to ensure the implementation of a successful aviation system that meets user and community needs.ⁱ

The consultant will review and recommend revision of 2017 WASP and 2020 AEIS system goals, objectives, and performance indicators and measures, and airport recommended or minimum standards that will:

- Provide a system of airports that is safe and efficient.
- Preserve and improve the existing capability of the state aviation system.
- Assess airport performance and capacity contributions to the aviation system based on WSDOT's seventeen aviation activities.
- Develop/Refine WSDOT Aviation Infrastructure Construction and Design Standards where necessary to address airport design, safety and funding considerations.
- Enhance performance attainability. Review existing system plan performance measures for attainability constraints and applicability to appropriate performance activities.

A. Airport Performance Metrics:

Examine, analyze, and recommend updates to airport performance metrics to focus more on regional and statewide demand and aviation activities. Airport performance metrics should be tied to airport classification and role, and current and emerging aviation activities. Review and refine, where applicable, current attributes to better measure airport contribution to system performance. Provide recommendations for aviation system revision and policy development/revision that result in scenarios for implementation of revised airport metrics. The metrics should serve to be informative and help drive decisions.

B. Airport Infrastructure Standards

Examine current WSDOT draft airport infrastructure guidelines and provide recommendations for infrastructure standards. Infrastructure standards should be tied to state airport classification, aviation activities, and airport reference code. NPIAS airports must comply with FAA standards. Non-NPIAS airport standards should be appropriate for aircraft design group and approach category, airport predominant aviation activities, airport operational activity levels, and established industry and trade ASTM and ISO performance specifications. Provide input on, and validate with recommended revisions, WSDOT draft airport infrastructure standards.

C. Aviation System Performance Objectives:

Validate and/or recommend revisions to current system performance goals, measures, and objectives. System performance should be compatible with state airport classifications from a system-wide perspective.

D. Aviation System Performance Standards:

Examine and analyze existing aviation system performance recommended minimums for possible conversion to minimum standards, and minimum standards for possible conversion to recommended minimums to refine the impact on airports and contribution to the aviation system; develop recommendations and considerations for new system performance standards, if needed. Provide recommendations for aviation system revision and policy

development/revision that result in scenarios for implementation of performance standards.

E. Deliverables

- Update Performance Measurement. Review and recommend revision of system goals, objectives, and performance indicators and measures, and airport recommended and minimum standard metrics
- Provide detailed narrative in study report

VI. ACTIVITY FORECASTS

Airport system plans provide forecasts to define an airport's role within the system and prioritize airport development. The system plan forecast should be prepared for 5-, 10-, and 20-year periods and should specify the existing and future design aircraft. Forecasts are developed for aircraft operations, enplanements, air cargo tonnage, peak hour operations, design aircraft, fleet mix, aircraft size, military activity, and general aviation operations.¹

The consultant will conduct a statewide aviation system capacity and facilities analysis, including airfield, terminal area airspace, and surface access analysis. The analysis shall include a statewide needs analysis of airport facilities; general aviation, passenger and air cargo transportation capacity, and demand and future market needs over the next twenty-five years, with an updated statewide analysis and trends, and detailed analysis of the Puget Sound region to provide the Commercial Aviation Coordinating Commission with in-depth technical recommendations. The analysis must address the forecasted needs of both commercial aviation and general aviation and shall at a minimum address the following issues:

A. Facility Needs:

Develop a forecast of future airport facility needs based on general aviation, air passenger service and air cargo operations and demand, airline planning, and a determination of aviation trends, demographics, geographic factors, and market factors that may affect future air transportation demand. Determine capacity to support current and future passenger service and air cargo. Determine capacity to accommodate current and future GA storage demand. Demand forecast to be developed by consultant using existing and ongoing studies, to include 1992 Flight plan, 2009 LATS, 2017 WASP, 2018 JTC Air Cargo Movement Study, 2020 Electric Aircraft Feasibility Study, 2021 PSRC Baseline Study, and ongoing Commercial Aviation Coordinating Commission work, and other studies deemed appropriate by the project team, to include relevant work from other parts of the United States. Identify airports that could be a good fit for expansion of commercial passenger service, air cargo and/or GA aircraft operations and storage. This includes metropolitan areas across the state, and all GA airports with known or anticipated aircraft storage concerns. The consultant will also address emerging electric, hybrid-electric and alternate propulsion fixed-wing, STOL and VTOL market segments, to include airports, heliports, and recommendations for vertiports. The analysis shall also address seaplane requirements, particularly in the Puget sound region. The consultant will identify facility needs, estimated timelines to be fully operational which should be tied to demand increases and procurement time considerations, and rough order magnitude costs.

B. Commercial Air Passenger Service:

Determine when the state's commercial service airports will reach capacity. Examine existing airport sites identified by the CACC, and recommend additional sites based on their potential ability to expand and contribute to meeting demand. Analyze capabilities of existing sites, as well as the potential to purchase land to expand sites, and examine and compile data on airside and landside suitability for commercial airport and GA functions. Examine greenfield, brownfield and grayfield sites to identify locations in the Puget sound region that could feasibly accommodate the construction of a new airport. The minimum threshold for these sites will be to accommodate at least one runway of 9,000' length, and associated supporting infrastructure for commercial air passenger service, air cargo and general aviation. Identify the indicators for demographic, economic, technological, marketplace and other factors that may affect commercial passenger growth; determine the future needs for Washington State and the influence of PDX on SW Washington; identify residual economic challenges from the pandemic, and possible population migration away from metropolitan areas in comparison with general population growth anticipated, impacting the future market; identify industry changes and corresponding changes in commercial air carrier service to Washington state's aviation system; determine the potential and feasibility of a distributed air passenger service program, and identify implementation recommendations; identify airports in the Puget Sound that could support distributed air service and the scale of passenger volume that is achievable and likely. Please address the following specific areas:

- Demonstrate how to accommodate anticipated demand in the Puget Sound Region
- Document, compare, and contrast three distinct options, plus blended options, for meeting demand: 1) expanding existing airports, 2) constructing a new airport, 3) employing distributed air passenger service. This effort should include, at a minimum, time, and rough order magnitude (ROM) costs to procure land; time and ROM costs to conduct environmental analysis and mitigation; anticipated improvements required (including supporting infrastructure and access); construction improvement time and ROM cost, and anticipated date to begin operations. Provide detailed analysis on likelihood of passenger air carriers to provide service at these sites and the likely regional, domestic and international markets served; likelihood passengers will use the site; factors that could enhance or degrade utilization; application of electric or alternate propulsion and the potential impacts on passenger utilization (such as cost/benefit, public acceptance, constraints of electric aviation that could impact reliability [e.g. charging times, impacts of weather, availability of charging locations/connections/capacity] etc.); adverse impacts to general aviation and possible resultant strategies to accommodate general aviation; adverse impacts to airspace and summarized potential solutions; major environmental and land acquisition hurdles and possible outcomes; anticipated volume of passengers and the populations likely served; impacts on relieving or worsening road congestion; opportunities to employ onsite sustainable power generation and onsite electricity storage
- Recommend how to improve statewide access to air passenger service and destinations
- Recommend how to reduce adverse environmental impacts from air passenger service
- Identify solutions to use existing statewide airport infrastructure
- Identify solutions supported by constructing a new airport

- Develop rough order of magnitude (ROM) project(s) scope and cost
- Identify airports with invisible demand (not currently or adequately served by a carrier). Recommend strategies to meet the demand.
- Identify opportunities and recommend strategies to increase primary small and non-hub airport access to additional airline hub airports. Identify specific airports with the potential to add a second or third hub connection; indicate an anticipated timeline; recommend one or more potential hub connections and explain why; describe steps to take to add the connection.
- Estimate passenger demand by region, city, or other geographical area
- Analyze, document influencing factors, and recommend strategies for expansion or improvements of one or more existing airports, as well as potential new site(s), to accommodate anticipated demand, such as:
 - Land, number of acres, size, and shape
 - Land topography and soils
 - Known or expected wetlands, contaminants, protected habitat or other environmental concerns (including environmental justice factors)
 - Airspace implications for terminal and transition from enroute environments
 - Utility infrastructure considerations
 - Multimodal access considerations
- Identify and describe airside, landside, utility/infrastructure, and road/mode access projects for selected sites. Develop rough order magnitude costs. Recommend timelines for project inception/completion to meet anticipated demand.
- Identify opportunities and strategies for expanding Spokane international Airport to accommodate more city pairs to major markets and function as an airline hub
- Analyze statewide existing airports for opportunities to implement increased conventional and electric-propulsion intra-state air passenger service
- Develop concepts and implementation strategies for distributed air passenger service, for either combustion and/or electric/hybrid-electric or alternate propulsion aircraft, with particular emphasis on the Puget Sound region related to the anticipated passenger demand and ability to accommodate that demand from GA airports that evolve to support distributed air passenger service. Review Electric Aircraft Feasibility Study beta test airport program and provide recommendations for next steps
- Outline possible options for governance for a new airport, and possible airport sponsors
- For new airport construction, at a minimum address:
 - Operational Capability – the site should provide the operational capability necessary to serve the defined role of the airport and the needs of its users
 - Capacity potential – If the new airport is needed to provide additional capacity, the capability of the site in providing long-term capacity growth is important.
 - Ground access – an important factor is the ability of the users to get to and from the airport easily and in a timely manner.
 - Development Costs – Simple cost estimates are useful in determining the financial feasibility of building a new airport.
 - Environmental Consequences – The potential environmental impacts associated with a new site may be critical to gaining approval.

- Develop and recommend noise mitigation methods, with consideration of FAA protocols for such programs
- Develop new airport site concepts with supporting research of sites. This should be a refinement of the preliminary investigation developed by the CACC, plus any additional sites identified by the consultant.
- Develop timelines out to 2040 and beyond for expanding existing airports, constructing a new airport, and/or employing distributed air passenger service.
- Employ a charette or similar approach to draw from experts in interrelated fields, to develop an ‘airport of the future’ concept. Results from the charette should provide future airport graphics to place the site selection options in context, to include visualizations, 3D renderings, and other similar graphics that reflect a concept of the airport site, including supporting commercial and industrial activities.
- Given environmental concerns stemming from combustion engine emissions and noise, discuss how increased air travel may impact the environment, discuss mitigating strategies or methods to reduce carbon emissions as air travel grows.

C. Commercial Air Cargo:

Using the 2018 Joint Transportation Committee (JTC) Air Cargo Movement Study and other study resources as available, assess when air cargo airports will reach their capacity and any planned or considered solutions. Please address the following specific areas:

- Demonstrate how to accommodate anticipated demand in the Puget Sound region
- Identify solutions to use existing statewide airport infrastructure
- Identify solutions supported by constructing a new airport
- Identify air cargo capacity shortfalls (airside, landside, access – build upon and/or summarize key points from JTC study)
- Identify and describe airside, landside, utility/infrastructure, and road/mode access projects for selected sites. Develop rough order magnitude costs. Recommend timelines for project inception/completion to meet anticipated demand.
- Analyze alternatives (considered by CACC – expanding existing airports, new sites, and operations in other regions including conventional combustion, electric airplane and eVTOL)
- Document, compare, and contrast two distinct options, plus blended options, for meeting demand 1) expanding existing airports, 2) constructing a new airport. This effort should include, at a minimum, time, and ROM costs to procure land; time and ROM costs to conduct environmental analysis and mitigation; anticipated infrastructure improvements required (including supporting infrastructure and access); construction improvement time and ROM cost, and anticipated date to begin operations. Provide detailed analysis on likelihood that freight air carriers will provide service at these sites and the likely regional, domestic and international markets served; likelihood shippers will use the site; factors that could enhance or degrade utilization; opportunities from electric or alternate propulsion impacting shipper utilization (such as cost/benefit, industry acceptance, constraints of electric aviation that could impact reliability [e.g. charging times, impacts of weather, availability of charging locations/connections/capacity] etc.) and adverse impacts to general aviation and possible resultant strategies to accommodate general aviation; adverse impacts to airspace and

summarized potential solutions; major environmental and land acquisition hurdles and possible outcomes; anticipated volume of freight and the communities likely served; impacts on relieving or worsening road congestion; opportunities to employ onsite sustainable power generation and onsite electricity storage.

- For new airport construction, at a minimum address:
 - Operational Capability – the site should provide the operational capability necessary to serve the defined role of the airport and the needs of its users
 - Capacity potential – If the new airport is needed to provide additional capacity, the capability of the site in providing long-term capacity growth is important.
 - Ground access – an important factor is the ability of the users to get to and from the airport easily and in a timely manner.
 - Development Costs – Simple cost estimates are useful in determining the financial feasibility of building a new airport.
 - Environmental Consequences – The potential environmental impacts associated with a new site may be critical to gaining approval.
- Identify and describe airside, landside, utility/infrastructure, and road/mode access projects for selected sites. Develop rough order magnitude costs. Recommend timelines for project inception/completion to meet anticipated demand.
- Analyze, document influencing factors, and recommend strategies for expansion or improvements of one or more existing airports, as well as potential new site(s), to accommodate anticipated demand, such as:
 - Land, number of acres, size, and shape
 - Land topography and soils
 - Known or expected wetlands, contaminants, protected habitat or other environmental concerns (including environmental justice factors)
 - Airspace implications for terminal and transition from enroute environments
 - Utility infrastructure considerations
 - Multimodal access considerations
- Examine and document the emergence of electric aviation air cargo, including fixed wing, eVTOL and UAS.
- Outline possible options for governance for a new airport, and possible airport sponsors
- Identify and document influencing factors at airports and sites with the potential to provide air cargo capacity
- Summarize the air cargo forecast for Washington state:
 - Customers—types and areas
 - Cargo—what and where
 - Modal factors that impact operations.
- Estimate freight demand by region, city, or other geographical boundaries
- Develop and recommend strategies to increase air cargo utilization of airports at other sites across the state
- Recommend improvements for non-entitled (FAA air cargo entitlement) airports reporting air cargo data
- Forecast UAS air cargo volume in WA state

- Develop and recommend noise mitigation approaches, with consideration of FAA protocols for such programs
- Analyze and document recent trends, marketplace innovation, industry practices and their effects on airports for air mail, air freight, belly cargo, and express package

D. General Aviation:

Provide an overview of the changes in general aviation that have occurred since 2017 WASP, and examine impacts to general aviation capacity utilizing WSDOT's seventeen aviation activities; Identify, provide analysis and summarize trends in General Aviation activity. The consultant shall identify and compile the aviation activities occurring at GA airports across the state to analyze and document duplication and redundancy, as well as gaps, and to understand the roles airports are currently fulfilling, compared with the highest, best use GA roles at airports across the state, to better define airport roles to address communities' general aviation activity needs. Provide recommendations for infrastructure projects, aviation system revision and policy development/revision to meet known and anticipated General Aviation requirements. Develop and recommend strategies for increasing general aviation storage capacity across the state. Recommend solutions to other general aviation needs

- Identify airports that currently have, or may in the study time frame future have a shortage of general aviation storage
- Identify airports that could accommodate additional general aviation storage
- For airports that have the potential to repurpose existing airside utilization, and have the potential to displace general aviation aircraft, develop and provide recommendations for accommodating those aircraft.
- Develop and recommend strategies/projects at selected airports to expand general aviation storage capacity
- Recommend roles for GA aircraft (such as business aviation, recreational aviation, etc.) at specific airports, to support aircraft storage recommendations
- Develop cost estimates for projects at selected airports to expand GA storage capacity
- Recommend strategies to fund GA storage projects
- Explore the possibility and develop and recommend strategies for private-use airports to accommodate additional GA aircraft storage
- Examine seaplane bases for known or anticipated conflicts that could adversely impact seaplane operations.
- Forecast general aviation growth/contraction and the associated impacts on airports
- Summarize innovative programs that support GA growth
- Explain the current status of GA aircraft in Washington state as relates to an aging fleet and the forecast for average aircraft age over the next 20 years
- Identify opportunities to increase pilot access to more flying options, through expansion of LSA/LPA/experimental aircraft, and medical reform in GA aviation. Develop the forecast for LSA/LPA/experimental aircraft in Washington state over the next 20 years; identify whether these aircraft have any unique requirements or limitations that could impact airport facilities
- Identify and recommend new innovations in general aviation that may demonstrate

substantial growth over the next 20 years; how these aircraft will impact the aviation system; describe the costs of operating LSA/experimental aircraft compared to traditional aircraft

E. Airspace:

The consultant shall conduct an analysis of airspace capacity, with particular emphasis on the Puget Sound region, to identify known, emerging, or anticipated airspace capacity concerns or constraints in both enroute transition to terminal airspace, and terminal airspace; examine conflicts with military training routes; address wind turbine impacts; consider and provide recommendations and strategies for future low-level airspace conflicts from UAS and AAM platforms. Analysis should support airport system development. Provide recommendations to address constraints and concerns, including airport expansion and/or new airport development recommendations to Commercial Aviation Coordinating Commission.

F. Deliverables

- Analyze Capacity. Analyze statewide aviation system capacity and facilities; capture, analyze and forecast general aviation, passenger and air cargo transportation capacity, and demand and future market needs over the next twenty-five years; determine capacity needed to support current and future passenger service, air cargo and GA demand; provide updated statewide analysis and trends, and detailed analysis of the Puget Sound region
- Determine expansion possibilities. Analyze capabilities of selected existing sites to accommodate expansion; examine and compile data on airside and landside suitability for commercial and GA functions; examine, document and recommend greenfield, brownfield and/or grayfield sites in the Puget Sound region that could feasibly accommodate the construction of a new airport; develop new and existing airport site concepts including airside, landside, utility/infrastructure, and planning level road/mode access project concepts for selected sites; employ a charette or similar approach to draw from experts in interrelated fields, to develop an 'airport of the future' concept; identify the indicators for demographic, economic, technological, marketplace and other factors that may affect commercial passenger growth; recommend timelines for project inception/completion to meet anticipated demand
- Develop expansion strategies. Document, compare, and contrast three distinct options, plus blended options, for meeting commercial aviation demand: 1) expanding existing airports, 2) constructing a new airport, 3) employing distributed air passenger service; determine the potential and feasibility of a distributed air passenger service program, and identify implementation recommendations; identify airports in the Puget Sound that could support distributed air service and the scale of passenger volume that is achievable and likely; develop timelines out to 2040 and beyond for expanding existing airports, constructing a new airport, and/or employing distributed air passenger service
- Identify opportunities to connect to other markets. Identify opportunities and recommend strategies to increase primary small and non-hub airport access to

- additional airline hub airports
- Identify Air Cargo solutions. Demonstrate how to accommodate anticipated air cargo demand in the Puget Sound region; forecast UAS air cargo volume in WA state
- Develop GA storage capacity solutions. Identify airports that currently have, or may in the study time frame future have a shortage of general aviation storage, and airports that could accommodate additional general aviation storage; recommend roles for GA airports to support aircraft storage recommendations
- Examine seaplane base capacity. Identify known or anticipated conflicts that could adversely impact seaplane operations; provide recommendations and potential solutions to meet seaplane capacity issues
- Provide airspace recommendations. Conduct analysis of airspace capacity, with particular emphasis on the Puget Sound region; identify known, emerging, or anticipated airspace capacity concerns or constraints; examine conflicts with military training routes and wind turbines; provide recommendations to address constraints and concerns, including airport expansion and/or new airport development
- Develop and recommend commercial airport noise mitigation methods
- Provide detailed narrative in study report

VII. SYSTEM REQUIREMENTS

In order to maintain and develop the Washington state aviation system, the consultant shall integrate the results of the preceding tasks to determine the sufficiency of the existing system and identify where and how expansion, contraction or revision could aid in providing a system sufficient for Washington state needs. For larger volume airports the consultant shall analyze airfield, terminal, aircraft parking, and commercial/air cargo throughput capacity; for all public-use airports with GA based aircraft, analyze available aircraft storage, wait lists, average wait time, and planned hangar/tie-down construction. Update project data and costs from the Airport Investment Study to inform this system plan on projects that support future capacity and maintenance needs; the consultant shall consider airport roles as previously discussed, recommending specific roles, in consultation with airports, to develop an updated project list for airports with estimated costs, and outline important needs to develop the Washington State aviation system.

A. Deliverables

- Determine the sufficiency of the existing system. Analyze airfield, passenger terminals, aircraft parking, and commercial/air cargo throughput capacity; analyze available GA aircraft storage, wait lists, average wait time, and planned hangar/tie-down construction
- Update project data and costs from the Airport Investment Study
- Provide detailed narrative in study report

VIII. SUSTAINABILITY PLAN

Based on an FAA memorandum dated May 27, 2010, from the Office of Airport Planning and programming, this portion of the study will include:

- Establish Sustainability Policy or Mission Statement
- Define sustainability categories at airports
- Conduct a baseline inventory or assessment of each defined sustainability category
- Establish measurable goals for each sustainability category
- Identify and describe a range of specific sustainability initiatives

It is the goal of Washington state to promote sustainable practices to reduce greenhouse gas emissions, protect natural habitat and water quality, and preserve/improve quality of life for Washington residents.

The consultant shall develop a recommended sustainability policy and provide a description of how it is to be communicated to aviation system stakeholders, government leaders and airport communities; develop a framework and guidelines for sustainability categories; coordinate engagement with airport sponsors and MPOs/RTPOs on aspects of the categories and refine goals and objectives based on engagement; develop draft goals and objectives for each sustainability category to minimize the impact or consumption, to reduce the aviation system overall environmental footprint, and to promote financial and operational viability and vitality; develop and recommend a range of specific sustainability initiatives, at the system and airport level, to help the aviation system achieve each set goal and objective; document environmental challenges likely to occur as part of future aviation system preservation and improvement, and provide recommendations and considerations for aviation system revision and policy development/revision to meet known and anticipated aviation system environmental requirements. At a minimum, develop the following sustainability topics, and provide recommendations on additional topics as needed:

- Economic Vitality
 - Revenue Generation
 - Expense Reduction
 - Economic Contribution/Development
- Social Responsibility
 - Environmental Justice
 - Social Equity
 - Public Benefit
- Energy
 - Consumption Efficiency/Reduction
 - Renewable Energy
 - Micro-grids
 - Electric vehicles
- Operational Efficiency
 - Operations & Maintenance
 - Asset Management
- Environmental Responsibility
 - Air and Water Quality

- Noise and Light
- Habitat and Wetlands
- Natural Resources Conservation
 - Energy
 - Water
 - Climate

In addition to a sustainability plan, in light of increased uses for electrical air and ground vehicles, provide recommendations for limiting emissions from aviation operations, including current emissions levels, and targets for reduction in emissions over time through more efficient aircraft, use of SAF, employment of hybrid and all electric aircraft, on-site power generation, electrification of GSE...etc.

A. Deliverables

- Sustainability policy. Develop a recommended sustainability policy
- Sustainability framework. Develop a framework and guidelines for sustainability categories; develop draft goals and objectives for each sustainability category
- Sustainability initiatives. Develop and recommend sustainability initiatives
- Environmental challenges. Document environmental challenges likely to occur as part of future aviation system preservation and improvement
- Aviation system recommendations. Provide recommendations and considerations for aviation system revision
- Provide detailed narrative in study report

IX. ALTERNATIVES ANALYSIS

Alternative plans should be developed once the extent of the projected system demand and the timing and nature of aviation system development are determined. If the assessment of airport system capacity shows that expansion of facilities is necessary to accommodate projected demand, an investigation of alternatives should be conducted. Critical objectives during this analysis are to make the best use of existing airport facilities and to support any expansion based on aeronautical, financial, and environmental factors. Alternatives may focus on financing (constrained vs. unconstrained), the airport system (expanded vs. reduced), airport roles (private vs. public), and environmental impacts (mitigation vs. no build). Alternatives analysis should include a “do nothing” option, the transfer of some or all of the operations to another facility, or the construction of a new airport to replace or supplement an existing one. Having regional airports replace more than one airport may also be an option to consider. ⁱ

Consultant will analyze statewide, regional and local aviation system needs, and airport capabilities and develop forecasts for future activities and demands for five, ten and twenty year horizons. Current system redundancies and gaps will be identified to address both current and forecast aviation system demands.

Consultant will include emerging aviation innovations (such as Unmanned Aircraft Systems, Personal Air Vehicles, electric and hybrid-electric airplanes and VTOL aircraft, and others) and the changes/challenges those new technologies might bring to the aviation system; determine

whether new categories of airports or aviation system elements will be needed to meet different technology requirements and opportunities; identify strategies to prepare for and adopt emerging aviation technologies; identify new operator and maintenance training requirements for new aircraft vehicles

Consultant will develop alternative approaches to address current and forecast activities/demands/challenges and analyze the positive benefits and negative results to the overall aviation system that might result from each alternative. Approaches should consider maintaining the status quo, expansion, contraction, or combinations thereof. Alternative approaches may include current or revised airport management structures on a statewide, regional or metropolitan basis. Consultant is encouraged to explore innovative alternatives proposed and/or adopted in other states or countries. Analysis may include one or more alternative airport systems, including feasibility, and the evaluation of safety, efficiency, environmental impacts, energy considerations, and cost.

A. Deliverables

- Develop forecasts for future activities and demands for five, ten and twenty year horizons
- Document emerging aviation technology and identify changes/challenges to the aviation system; determine whether new categories of airports or aviation system elements will be needed; identify strategies to prepare for and adopt emerging aviation technologies
- Develop alternative approaches to address current and forecast activities/demands/challenges; analyze benefits and negative results
- Provide detailed narrative in study report

X. IDENTIFICATION OF SYSTEM OF AIRPORTS

The final system of airports, including existing and new airports, can be identified following the determination of system requirements, the investigation of alternatives, and the application of evaluation criteria. The existing role of each airport also should be identified. The role of the airport influences the type of aircraft that it can accommodate, or in the case of commercial service, the routes and markets they can serve. The role assignment assumes that appropriate facility requirements will be met. If the state is using role definitions for an airport that are different from those defined in the NPIAS or ASSET, then the current NPIAS/ASSET role should also be provided in the inventory and implementation elements of the plan.ⁱ

Using the aforementioned studies and references, along with other sources as determined by the consultant, examine the ability of current system of public-use airports to meet anticipated demand for commercial air passenger service, air cargo, and general aviation. Review and validate/recommend revisions to the current state classification system:

- Gaps and redundancies: Identify aviation system gaps and redundancies comparing existing airport classifications and capabilities to local/regional aviation needs.
- Participation parameters: Consider concepts developed by WSDOT Aviation Division

and define state airport classification participation parameters and protocols for changes in airport classification over time as relates to changing operations and capacity levels.

- Greater definition of airport roles: WSDOT seventeen aviation activities need an improved alignment with airport classifications to eliminate misdirection of an airport to support activities that are not needed or are not a good fit, and to recognize and support activities that are needed.

A. State classification:

Examine state classification system for opportunities to be refined; to address nuances of WSDOT's seventeen Aviation Activities; to explore the feasibility and potential beneficial and detrimental outcomes of developing an unclassified category. Examine airport roles, and add clarity for GA airports, as a means to align highest and best use aviation activities to meet aviation and community needs, and to align with state standards.

B. Aviation System Participation Parameters:

Define and evaluate parameters for inclusion/exclusion (voluntary/involuntary); examine methods for new additions to the system based on a demonstrated ability to function long-term including identification of a public or private sponsor willingness to undertake responsibility for long-term development. Consider WSDOT draft approach and provide concurrence and/or recommendations for improvement.

C. Deliverables

- State classification system. Validate/recommend revisions to the current state classification system; address gaps and redundancies and participation parameters;
- Airport roles. Provide greater definition of airport roles
- Provide detailed narrative in study report

XI. INTERMODAL INTEGRATION AND AIRPORT ACCESS

An evaluation of aviation needs within the context of multi-modal planning should be undertaken. Plans should be developed in coordination with other transportation planning efforts, including comprehensive long-range plans. Consideration should be given to the area's social, economic, and environmental conditions, and to overall transportation system performance issues. Airport access and land use impacts should be treated explicitly in appropriate state plans. Surface transportation plans should consider the issues of highway access to airports, highway congestion, parking supply and fees, public transit access by city bus or passenger rail, access for taxicabs and other private surface transportation providers, and rail or truck access for air cargo.ⁱ

The consultant will examine modal integration to ensure that all airports in the system can be readily accessed by the population and businesses that they serve; that surface access to larger primary airports is efficient, convenient, and cost effective; that users have a wide range of access choices; that users' special needs are met; and that additional surface traffic related to air cargo operations is separated from passenger traffic at larger volume cargo airports. The consultant should also provide recommendations for the role of emerging aviation technologies, such as eVTOL aircraft, as additional modes, and outline the composition, types and roles of multimodal transportation hubs.

The consultant will work with the WSDOT multimodal division and other WSDOT partners (such as rail/freight/port division, regions, etc.) as needed to coordinate the efforts of this system plan with other modal plans and activities. The consultant will examine other transportation plans for consistency with aviation system plan objectives, and identify gaps, redundancies, and specific intermodal needs at selected airports. Intermodal integration will be consistent with other planning

- State transportation policy plan (WTP).
- Other modal plans.
- Regional planning (MPOs and RTPOs).
- High-capacity (Amtrak-Cascades) modes.
- Local comprehensive plans.
- Include analysis of intermodal connections/choices: Public transit, freight, highways, etc.

The study will support future planning efforts by collecting information about:

- Multimodal access, which includes:
 - Infrastructure and services to each airport
 - Public roads available for passenger vehicles
 - Public roads suitable for freight trucks
 - Sidewalks
 - Bike lanes
 - Taxi service
 - Shared use services
 - Infrastructure and services within ¼ mile of each airport
 - Bus service
 - Light rail service
 - Connections from passenger rail station
- Future passenger, freight and general aviation demand
 - Consultant will work with the Puget Sound Regional Council to access data from their travel demand model for considered airports in this region
 - Consultant will work with the Thurston Regional Planning Council to access data from their travel demand model for considered airports in this region
 - Shelton and Toledo are located outside a Metropolitan Planning Organization and there is no existing travel demand model for these airports. Consultant will need to provide

demand information sufficient to capture the likely demand for access to these facilities.

- Planning level costs estimates
 - Assumptions for each access route from the interstate to the airport:
 - Needed improvements
 - Minimum size of 4 lanes divided
 - Controlled intersections
 - If there is no suitable road to expand, there may be a need to construct a new state route
- Planning level cost estimates process will be consistent with WSDOT's existing processes which includes using modeling with the following inputs:
 - Population forecasts
 - Trip generator information – the expanded airport would be one of the trip generators and will require an estimate of traffic to and from the airport
 - Routes taken
 - Infrastructure
- Modeling outputs must be compatible with further studies such as a network analysis
- Check-ins with WSDOT at these milestones:
 - Selection of routes taken
 - Selection of trip generators
 - Preliminary planning level cost estimates proposed
 - Draft study

A. Deliverables

- Airport access. Ensure that all airports in the system can be readily accessed by the population and businesses that they serve; surface access is efficient, convenient, and cost effective; users have a wide range of access choices; that users' special needs are met
- Emerging Aeronautics. Provide recommendations for emerging aviation technologies as additional transportation modes; provide recommendations on employing multimodal transportation hubs
- Modal needs. Identify specific intermodal needs at selected airports
- Improvements. Collect/develop future passenger, freight, and general aviation travel demand; identify needed improvements and provide planning level costs
- Provide detailed narrative in study report

XII. COMMUNITY ENGAGEMENT

Public consultation should provide an opportunity for public participation, the extent of which should be commensurate with the scope of work. Appropriate coordination of study drafts with the aviation public, community organizations, airport sponsors and users, and other interested parties is critical to the successful adoption and implementation of the final planning report. It is important that the process is open to all affected, or potentially affected parties, that the opportunity for participation exists, and that the study is designed to consider input from all of them. The degree of participation by various groups will differ. Some groups will want to provide direct input to the planning process. Others will be satisfied with the opportunity to review and

comment on interim products, and some will be content to be kept informed during the process and to comment on the final product. ⁱ

The system plan project team will rely on the CACC communications consultant for all community engagement. However, the system plan team will be responsible for providing summary information to the CACC consultant, for sharing with the public, at various important milestones during the study. The consultant will work with the WSDOT and CACC project management teams to identify important information topics and strategies for time and method of sharing information with the public.

Title VI of the Civil Rights Act of 1964 requires the Washington State Department of Transportation to be sure that everyone in the affected project areas has a chance to be heard and to respond to transportation programs and activities that may affect their community. The project team will work through the CACC communications consultant team to ensure participants in any community engagement activities are afforded the opportunity to provide information about race, ethnicity, and gender.

A. Community Engagement and Outreach.

Early in the project, the team will identify topics likely of interest to the public. The team will develop an initial project message that will include project goals, objectives, key decisions, the planning process, purpose and need for the project, vision statement, and WSDOT priorities.

The engagement approach will funnel through the CACC communications consultant to groups such as local governments, minority populations, MPOs/RTPOs, people with disabilities, airport sponsors/managers, pilot groups, aerospace related industries, groups/individuals likely to use airports for business/commercial travel, tourism organizations, industry groups that depend on air transportation, etc.

The engagement plan will address multi-modal connectivity, environmental stewardship and initiatives, quality of life issues/initiatives, regional economic prosperity and Results WSDOT.

B. Deliverables

- Communication planning. Identify topics likely of interest to the public
- Information sharing. Provide key findings to the CACC to the CACC consultant for public outreach, including at a minimum, existing or new airport capabilities to support expanded activity, likelihood of air carriers and passengers/shippers to utilize airport sites, modal access to sites, airspace capabilities to support operations, existing or available airport infrastructure to expand, potential for environmental sustainability given emerging aviation technology, and potential shifts to distributed air service; also address Results WSDOT
- Provide summary narrative in study report

XIII. DEVELOPMENT PRIORITIES AND JUSTIFICATION

This phase of the report involves the translation of the justified development needs into costs and schedules, based on priorities and likely financial sources. The state aviation agency's role in identifying priorities for future airport development is crucial, because it is in a position to sort out the priorities among competing airports. The state's responsibility in assigning project priorities is essential to the successful development of the NPIAS and to the facilitation of FAA's grant funds through the ACIP. A cost-effective plan of action should be prepared for 5-, 10-, and 20-year planning horizons. Phasing of individual project elements should be logical. ⁱ

Development priorities will focus on aviation system-wide needs and targeted, specific airports of regional importance in commercial passenger, general aviation and air cargo, and similar significant activities or emergent discoveries. The consultant will also consider information obtained through the WSDOT 2012 Economic Impact Study, WSDOT 2013 Airport Pavement Study, and WSDOT 2014 Airport Investment and Solutions study to inform the System Plan Update and incorporate findings and recommendations where appropriate.

- Provide a report that summarizes the findings from throughout the study that lead to development initiatives. The report shall highlight the specific findings and associated analysis and explain the resulting development needs. Justification shall at a minimum address the relevance and impact on the performance and/or capacity of the aviation system, but also discuss regional and local unique elements that further support the justifications. Development priorities and justification will also document how they support Washington State Priorities of Government and the Governor's "Results Washington" initiatives.
- Provide recommendations for aviation system revision, planning and/or infrastructure projects and policy development/revision to meet known and anticipated aviation system development requirements.

A. Deliverables

- Findings. Highlight the specific findings, analysis, and development needs
- State Policies. Document how recommendations support Washington State Priorities of Government and the Governor's "Results Washington"
- Recommendations. Provide recommendations for aviation system revision, projects, and policy
- Provide detailed narrative in study report

XIV. POLICY, PROJECT, AND FUNDING INVESTIGATION RECOMMENDATIONS

The airport system plan report may contain recommendations on state, regional, or local policy changes to address the needs of aviation, including new funding mechanisms, land use and zoning guidance, or regulatory changes. The airport system plan should also recommend additional studies, when appropriate. ⁱ

A. Policy

The consultant will identify policy considerations and recommendations throughout the study. Policy considerations should include any topic or action that has the potential to add value or otherwise contribute to the performance, safety, and/or sustainability of airports, aviation, or the aviation system, within the scope of this study. While not all policy considerations are appropriate, feasible or actionable in the near-term, the consultant will identify those considerations that are, and provide specific policy recommendations.

B. Projects

From policy considerations and recommendations, where appropriate, the consultant will recommend projects that have the potential to implement and deliver results from considerations or recommendations, either partially or fully. These projects should include planning level scope, cost, and timeframe the project will be needed to accomplish the identified objective.

C. Funding

From the projects recommended, the consultant will identify potential funding mechanisms to support development. The consultant shall review, validate, or revise as needed, and reintroduce Airport Investment Study Solutions, along with any additional solutions that are feasible and have the potential to provide funding to support projects.

Further, in considering the WSDOT Airport Investment Study, the consultant shall examine airport projects, review, and update projects to obtain a similar outcome, and review, and develop funding strategies such as those outlined in the Airport Investment Solutions study. Some outcomes from this work should include:

- Identifying the forecasted shortfall in federal and state funds and how it will likely impact airports and the aviation system as a whole
- From a system performance perspective, determining the impact of a shortage in local funding to match federal and/or state grant funds on the ability of the system to continue to perform as a system; determine how the lack of local funds to match federal and/or state grants may result in the curtailment of delivered preservation and improvement projects
- Determining if there is a critical point where infrastructure decay due to lack of funding will force airports to cease operations or close aircraft movement areas, and how will this affect the aviation system in terms of availability of airports
- Identifying feasible local airport financial self-sufficiency opportunities (aeronautical/non-aeronautical airport revenue, on-airport innovation, partnering, etc.)
- Identify any potential FAA airport revenue diversion issues and any outstanding revenue issues yet to be resolved

D. Deliverables

- Policy. Identify policy considerations and recommendations on topics that support performance, safety, and/or sustainability of airports, aviation, or the aviation system.
- Projects. From policy considerations and recommendations, recommend projects to deliver results.

- Funding. From the projects recommended, identify funding mechanisms to support projects.
- Provide detailed narrative in study report

XV. Review NPIAS qualification:

Recommending the addition or deletion of an airport in the NPIAS is a significant action that must be carefully evaluated. After completion of a system planning effort, a state aviation agency can recommend inclusion of a new, or removal of an existing, airport to the FAA. ⁱ

The consultant shall consider and recommend potential Non-NPIAS candidates for inclusion in the NPIAS.

ⁱ AC 150/5070-7 Change 1, 1/15/2015, Chapter 5