Chapter 1: Aviation System Overview and Context

Chapter Overview

This manual is published by the Washington State Department of Transportation (WSDOT) Aviation Division to establish a State Airport Management Handbook for the purpose of documenting policies, performance measures, and guidelines for the maintenance and operation of state-managed airports. The manual recognizes established standards and describes accepted aviation and engineering practices. The instruction provided by this manual is intended to identify desired results, establish standardized requirements, and provide statewide uniformity in the administration and construction of airports managed by the state.

The primary audience for this handbook is WSDOT Aviation staff, WSDOT maintenance staff, private contractors, airport volunteers, users and other interests. Other local, state and federal agencies and organizations that use the airport facilities will want to be familiar with the guidance and instructions included in this manual. The guidance presented in this manual is intended to complement airport design, construction, and maintenance techniques to promote uniformity of results among all WSDOT regions.

This handbook is divided into two primary sections. This first is comprised of an overview of WSDOT Aviation; its recent planning efforts, including the state-managed airport system plan; and a review of the state-managed airports themselves. The second section will comprise the actual Airport Operating Handbook, a “hands on” manual that outlines the guidelines for typical airport operations within the WSDOT-managed airport system. This handbook is divided into five sections detailing the following:

- Airport Safety Guidelines
- Airport Maintenance Guidelines
- Airport Construction Guidelines
- Airport Planning Guidelines
- Airport Management Guidelines

Note that it is important to recognize that this operations handbook is a continuation of WSDOT Aviation’s overall planning effort that began with the Long-Term Air Transportation Study (LATS) at the state aviation level, progressed to the state-managed airports level with the State-Managed Airport Study, and has continued on to the state-managed airport operations level. All efforts are part of the overall WSDOT Aviation planning continuum and all are designed to interface and complement each other.

Suggestions for corrections, additions, or improvements to this manual are welcomed and encouraged. Any means of communication with the Aviation Division will be accepted and reviewed promptly.

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1.1 Handbook Context

It is important to appreciate the context within which this handbook is being established. The following sections provide information on WSDOT Aviation and its goals, an overview of recent aviation planning initiatives, and a review of the State-Managed Airport Study, the basis of this handbook.

1.2 WSDOT Aviation Overview

The Washington State Department of Transportation's (WSDOT) Aviation Division is charged with helping to maintain and enhance the State of Washington's airport system of 138 public use airports. The state's airports range in size from small, general aviation facilities to large hub commercial service airports. WSDOT Aviation is directly responsible for the management of 17 of the total airports within the system. WSDOT Aviation is specifically charged with general supervision and aeronautics within the state as detailed in the General Powers element of the State of Washington's RCW 47.68.070:

> *The department has general supervision over aeronautics within this state. It is empowered and directed to encourage, foster, and assist in the development of aeronautics in this state and to encourage the establishment of airports and air navigation facilities. It shall cooperate with and assist the federal government, the municipalities of this state, and other persons in the development of aeronautics, and shall seek to coordinate the aeronautical activities of these bodies and persons.*

WSDOT Aviation provides vital financial assistance to public-use airports across the State of Washington in the form of airport development and maintenance grants. The agency is also responsible for the management of air search and rescue operations, as well as for providing education and training in relation to the value and protection of public use airports. This also includes the promotion of the aviation industry within the state. As such, WSDOT Aviation plays a key role in the operation and development of the state's system of airports.

In 2007, the Washington State Legislature established policy goals for the planning, operation, performance of, and investment in, the state's transportation system. The policy goals were adopted to ensure that the transportation system performance at local, regional, and state government levels progressed toward the attainment of an integrated and coordinated transportation system. All state transportation agencies (including WSDOT Aviation) must perform in a manner consistent with these policy goals, which are intended to be the basis for establishing detailed and measurable objectives and related performance measures. These policy goals also provide overall guidance to the agency when working in partnership with federal and state agencies, local jurisdictions, the state's various airport sponsors, and regional transportation planning agencies. Specifically,

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public investments in transportation should support achievement of the following policy goals:

- Preservation - To maintain, preserve, and extend the life and utility of prior investments in transportation systems and services;
- Safety - To provide for and improve the safety and security of transportation customers and the transportation system;
- Mobility - To improve the predictable movement of goods and people throughout Washington State;
- Environment - To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment; and
- Stewardship - To continuously improve the quality, effectiveness and efficiency of the transportation system.

In conformance with its mandate detailed in the General Powers, as well as the transportation policy goals, WSDOT Aviation has undertaken several recent aviation planning initiatives. Two of the most prominent efforts are described in the following sections.

1.3 State Aviation Planning Efforts

In 2005, the State of Washington authorized a long-term air transportation planning study for all general aviation and commercial airports in the state. Known as the Washington State Long-Term Air Transportation Study (LATS), the purpose of this study was to evaluate the current capacity of the state's aviation system to determine what facilities would be needed to meet the future demand for air transportation. Responsible for protecting and preserving Washington State's 138 public-use airports, WSDOT Aviation had been charged with shepherding this initiative to a successful conclusion, scheduled for July 2009.

As part of that overall planning effort, it had become apparent that there was a need for more detail regarding the purpose and role of Washington's 17 state-managed airports. Specifically, due to growing uncertainty in traditional airport funding sources, it had become necessary for WSDOT Aviation, who manages these 17 airports, to examine specifically why it maintains them and to establish exactly what role these airports play in the statewide aviation system. As such, WSDOT Aviation requested that an additional planning study be conducted to evaluate, analyze and develop a strategic plan for those state-managed airports. That planning effort, the State-Managed Airport Study for WSDOT Aviation, was completed in November 2007.

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1.4 State-Managed Airport Study Overview

As alluded to previously, the primary purpose of the State-Managed Airport Study was to answer the following questions:

- Why does WSDOT Aviation continue to operate the state-managed airports?
- What role do the state-managed airports currently play for the state?
- Are the state-managed airports adequately developed and supported to continue in providing support to the transportation system?

Additionally, the study provided evaluations, analysis and recommendations on the long-term management of state owned and managed assets as well as some criteria and policy structure to serve as the bases for making decisions regarding air transportation improvements to meet future needs. Ultimately, the results of this study are to be directly integrated into the on-going LATS effort to add more detail and help define the comparative benefits of the state-managed airports in relation to other airports within the State of Washington.

To reference the specifics of the study, an assessment of the state-managed airport system was conducted to determine how well each state-managed airport fulfilled various transportation needs based on the State Transportation goals. These needs or purposes included the following:

- Support emergency management function and forest firefighting activities
- Provide transportation access to remote communities
- Provide access for emergency medical operations
- Provide access to recreational areas
- Enhance the overall level of safety for the State aviation system

That assessment of each of the 17 state-managed airports established the relative "value" each airport has for the state in terms of its ability to serve and benefit the transportation system, including its pilots, airport users, surrounding communities, and the State of Washington. As part of this effort, it was recognized that each of the state-managed airports has a relatively high facility value in terms of replacement costs, and relatively low annual operations and maintenance costs. Should any of these airports be closed or abandoned, it would likely be cost prohibitive to reopen that facility.

After establishing its overall value, an evaluation was conducted to determine how the state-managed airport system as a whole was currently performing and where that system needed to improve. This was accomplished primarily through utilization of performance measures and objectives that were based on both traditional factors (i.e. FAA airport design criteria, facility criteria, operational

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goals, and specific sponsor targets) and on factors that were unique to this particular system (i.e. specific airport activities that contribute to meeting state goals). Through this process, long-term individual development objectives were established for each airport to help ensure that each airport maximize its contribution to meeting the goals of the State Aviation Policy. These individual development objects are detailed in the following section.

The final principle component of the State-Managed Airport Study was the identification of generalized policy recommendations for WSDOT Aviation. While the State Aviation Policy is appropriate and effective for providing high-level guidance in relation to the overall state aviation system, it is necessarily broad in its context in order to encapsulate the diversity of the entire state aviation system. As such, the State-Managed Airport Study provided some additional guidance on applying the State Aviation Policy to the state-managed system. This guidance has evolved into an overall management philosophy for WSDOT Aviation as to how to maintain and operate the state-managed airport system. While this philosophy will be discussed in greater detail in a subsequent chapter, it is summarized in the following goals:

- *Safe, clean operating environment* – The state-managed airport system should be maintained and developed to promote access in a safe, efficient and effective operational environment.
- *Limit risk to WSDOT* – The state-managed airport system should be maintained and developed in such a fashion as to enhance its benefit to the State of Washington to a reasonable and responsible degree, recognizing physical and contractual limitation of each airport.
- *Environmentally responsible* - The state-managed airport system should be maintained and developed in conformance with all applicable environmental requirements to minimize its environmental footprint and promote sustainable activities.
- *Encourage opportunities for multimodal use* - The state-managed airport system's potential with respect to multimodal and intermodal transportation should be promoted and developed through interagency coordination efforts.
- *Utilize the support of the aviation community* – The State of Washington's aviation community enthusiastically supports the state-managed airport system and values it as an important state resource.
- *Provide timely up-to-date information* – As stewards of the state aviation system, WSDOT Aviation must promote effective and transparent communications with respect to the status, condition, and development of the aviation system and its airports.

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- *Provide cost efficient infrastructure investment* - The state-managed airport system should be developed in a fiscally responsible manner that maximizes the return on investment to the State of Washington.

1.5 State-Managed Airport Policy

While the State-Managed Airport management principles are appropriate and effective for providing high-level guidance in relation to the overall state aviation system, it is necessarily broad in its context in order to encapsulate the diversity of the entire state aviation system. As such, it does not provide significant detail for the operation and maintenance of specific components of the state-managed airports.

For the state-managed airport component, additional policy structures have been established in order to provide a tool to serve as the basis for decision. Therefore, the following four policies have been established for use by WSDOT Aviation in relation to the state-managed airport system.

Policy 1 - *The primary function of the WSDOT Aviation-Managed Airport System is to fulfill the stated purposes of the State Aviation Policy.*

This policy acknowledges that the state-managed airport system exists to benefit the State of Washington through meeting the stated purposes of the State Aviation Policy of preservation, safety, capacity, and environmental protection. Manners for achieving these benefits for the State of Washington include, among others, the following:

- Support forest fighting activities
- Provide transportation access to remote communities
- Provide access for emergency medical operations
- Provide access to recreational areas
- Enhance the overall level of safety for the state aviation system

Policy 2 - *WSDOT Aviation will operate and maintain the airports within the state-managed system only to the level to sustain the fundamental benefits for the State of Washington as prescribed by the State Aviation Policy.*

The majority of the airports within the state-managed system were designed and constructed primarily to provide some fundamental service(s) rooted in public safety for the State of Washington; be it to benefit the flying public by building emergency landing areas, or to benefit communities by providing access to remote areas. The system was not established to compete for aircraft operations with other airports owned by other public or private entities within the state or to function solely as economic generators. Therefore, it should not be the intent of WSDOT Aviation to operate, maintain, or develop the state-

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managed airports beyond that which is required for them to continue to fulfill their basic purposes.

However, while WSDOT Aviation has no mandate to maintain and operate the state-managed airports to meet the demands of commercial and/or general aviation operations, this does not preclude non-WSDOT Aviation public and private entities from developing and operating the airports beyond that which the Aviation Division currently does as required by the State Aviation Policy. For example, a municipality which abuts or hosts a state-managed airport may want that airport to have facilities to accommodate local general aviation activity as a means to generate economic activity. If this type of development exceeds the requirements of the fundamental purposes for which the airport was designed and is maintained, WSDOT Aviation would have no obligation to sponsor such development. Yet, if that municipality is willing to undertake the responsibility for the construction and the long-term maintenance of that development, WSDOT Aviation could consider those proposals.

Such partnerships also have the potential to create additional revenue streams for WSDOT Aviation for the operation and maintenance of the overall state-managed system. Airports designed and operated for the primary purposes of providing essential public safety services commonly generate little, if any, revenue based on those services. As such, it is important for the long-term viability of the system that WSDOT Aviation make efforts to ensure that the system be as financially self-sufficient as possible. It is possible that realizing partnership opportunities at just one or two airports has the potential of sustaining the long-term health of the entire state-managed system.

However, it should be made clear that a principal concern for WSDOT Aviation in considering such proposals should be the long-term maintenance of any development that exceeds that the requirements of that airport's basic purpose. WSDOT Aviation must protect itself from a situation where a development sponsor is not able to meet its long-term obligations and commitments, which ultimately could require WSDOT Aviation to assume responsibility for the development. As such, it is imperative that WSDOT Aviation carefully consider the possible implications of any such proposal, and should limit any development to a level that it deems to be reasonable. For instance, a development proposal that includes any pavement (i.e. runway, taxiway, apron, etc.) beyond what the airport currently requires should be carefully considered since the cost of its long-term maintenance will be significantly higher than that of a non-paved surface. If the development sponsor were to forgo his maintenance responsibilities, WSDOT Aviation would likely have to assume those responsibilities. In this case, it would be reasonable for WSDOT to limit the development proposal to non-paved surfaces from the start.

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In such cases where it is not prohibited by existing leasing and/or ownership restrictions, WSDOT Aviation would consider itself to be open to partnering opportunities with local jurisdictions and agencies and other such entities given the following conditions:

1. WSDOT Aviation would not be required to maintain and operate the airports beyond the level required to sustain the fundamental benefit to the state.
2. WSDOT Aviation would prefer that it partner with local governmental sponsoring entities (i.e. municipalities, counties, etc.) who can commit to the long-term maintenance and support of any such development.
3. In the case of private development, a local governmental sponsoring entity (i.e. municipalities, counties, etc.) must be identified and included in partnership to ensure long-term commitment and support for any development or improvement to the airport.
4. The partnering entities would meet minimum leasing and operating standards as dictated by WSDOT Aviation, and would bear sole responsibility for the operational and maintenance requirements dictated by the enhanced level of operations.

Policy 3 - *WSDOT Aviation will consider the acquisition or disposal of airports only within the context of fulfilling the stated purposes of the State Aviation Policy.*

WSDOT Aviation is occasionally presented with opportunities to acquire ownership or management responsibilities of a public or private airport. Oftentimes, these airports are financially distressed in that maintenance and operational costs outweigh their revenue producing capabilities. In such instances, the state is often viewed as a possible sponsoring entity capable of assuming the responsibilities of operating these airports so as to protect them from being closed.

However, it must be clearly understood that the role of WSDOT Aviation is not to act as an airport sponsor or operator. As stated in RCW 47.68.070 of the General Powers, WSDOT Aviation is empowered to encourage, foster, and assist in the development of aeronautics in the state and to encourage the establishment of airports and air navigation facilities. WSDOT Aviation should not and cannot be held to the standard of assuring that all financially distressed airports within the state remain open; there must be some overriding benefit to the state that will be realized through the acquisition of a given airport.

This “overriding benefit to the state” is reflected in WSDOT Aviation’s sponsorship, maintenance and operation of the state-managed airport system. As evidenced in the previous working paper, these airports provide little, if any, financial income to the state, and in fact, most

operate at a loss. If judged strictly on the basis of profitability, very few could be viewed as being financially viable airports. However, what they do provide the state is the benefit of fulfilling very specific, defined roles that might otherwise not be met if not for state sponsorship. Therefore, the potential acquisition and disposal of airports should be viewed by WSDOT Aviation strictly on the basis of whether a given airport fulfills one or more of those specific roles, thereby contributing to the stated purposes of the State Aviation Policy. Those airports that do not contribute to the goals of the policy should be viewed as being beyond the mandate of WSDOT Aviation.

Below are general guidelines that have been identified which WSDOT Aviation should consider as part of the airport acquisition or disposal decision-making process. It is important to recognize that the Washington State Long-Term Air Transportation Study (LATS) effort must play a critical role in making any determination for acquiring or disposing of airports. As part of its scope, WSDOT Aviation LATS identified redundancies and deficiencies in the overall state aviation system plan over a wide range of facilities and services. Any gaps or overlaps identified by in the Washington Aviation System Plan will be important considerations in the state-managed airport system decision-making process. In general, it should be understood that airport acquisition and disposal decisions related to the state-managed airport system should be based solely on LATS recommendations, unless overriding considerations can be shown otherwise.

Airport Disposal

1. Airports within the state-managed airport system that do not provide any benefit to the state in terms of the value activities described previously herein and within the aviation system plan should be considered for decommissioning and reuse/disposal.
2. Factors that may influence the decision to decommission an airport could include the following:
    - A benefit-cost analysis may quantify the value of an airport (or lack thereof) in relation to the current and projected operational/maintenance costs.
    - Community support and involvement is vital to sustaining an airport. Community indifference or antipathy for an airport could be important indicators of a given airport's value.
    - LATS: The aviation system plan must be examined when considering the long-term future of a state airport, particularly in the case of an airport that increases safety or provides an adequate level of access to communities.

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- Environmental factors, both positive and negative, that could result from the decommissioning of an airport should be carefully considered and quantified.

Airport Acquisition

1. For any airport to be considered for inclusion in the state-managed airport system, it must provide some value to the state that is commensurate to the other existing airports in the system, and/or has been identified by the aviation system plan (LATS) as being an important resource to the State of Washington.
2. Any airport included in the state-managed system should be maintained only to the level appropriate to provide the value activity, regardless of existing general aviation activity. WSDOT Aviation should be open to partnering opportunities with other private/public entities who might wish to operate the airport to a level to meet specific commercial/general aviation demands. However, as stated in Policy 2, WSDOT Aviation should not be obliged to exceed its commitment to beyond that of the basic investment needed to maintain the value activity for the state.
3. Airports could be considered for inclusion in the state-managed system even if they provide no immediate value to the state or are classified as unnecessary/redundant by aviation system plan (LATS). In such cases, WSDOT Aviation would need to view the acquisition of a given airport as the preservation of an aviation resource that it considers to be critical to the current or future state airport system. Given financial and operational limitations, it is possible that such an airport be "land-banked" and be closed in the short term until such time that demand requirements and/or aviation system capacity constraints would require its reopening. It should be noted that in such a circumstance some potentially significant environmental efforts would need to be undertaken to reopen a facility.

Policy 4 - *WSDOT Aviation will not endorse the establishment of independent operators conducting aeronautical activities on land adjacent to, but not a part of, any properties associated with the state-managed airport system.*

Airport owners and operators, including WSDOT Aviation, are often presented with requests by operators independent of the airport to issue permits and/or leases granting access to the airport from abutting sites. This type of arrangement is commonly known as a "through-the-fence" operation, and typically includes businesses or individuals that require access to the airport infrastructure from outside airport property, or which utilize airport property to conduct a business but do not rent business space at the airport. Common types of through-the-fence agreements include aircraft hangars, aircraft maintenance, general aviation fixed base

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operator services (FBO), miscellaneous flight services (i.e. charter, rental, skydiving, etc.), as well as airpark residential housing.

It is important to note that there are no state or federal obligations for an airport to provide such access to adjacent properties. While the Federal Aviation Administration (FAA) strongly discourages this type of activity it does not prohibit through-the-fence operations. However, permitted through the fence activities may affect future funding of the airport.

There are several concerns for an airport owner or operator related to the establishment of through-the-fence operations at an airport. First, the lease of airport property is one of only a few revenue streams that are typically available to an airport for the operation, maintenance and improvement that airport. Individuals and businesses that are granted access to the airport from off-airport property do not typically contribute to the airport fund at a level commensurate to on-airport operators. This could be damaging to the airport not only through the loss of that operational revenue, but also through the potential granting of an unfair competitive advantage to the off-airport operator. Specifically, a through-the-fence operator may not have to bear as high a leasing cost as that of an on-airport operator, effectively reducing the through-the-fence operator's overhead costs. Such a competitive advantage may reduce the ability of on-airport operators to compete for services, thereby hampering their financial viability, and diminishing the economic vitality of the airport.

The second principal concern related to through-the-fence operations is that of access and security. Such operations invariable lead to a greater risk of runway incursions and uncontrolled vehicle access, as well as a general reduction in airport security by introducing additional points of airfield entry. Additionally, allowing access to one through-the-fence operator may invite future or previously denied operators the opportunity for the same privilege.

While it is this policy to discourage any through-the-fence operation at any of the state-managed airports, through-the-fence operations currently exists at several state-managed airports and therefore if nevertheless such an operation were to be introduced, WSDOT Aviation will administer these activities with the following considerations:

1. The development of a through-the-fence operation will require that WSDOT Aviation will manage through the fence access by ensuring that such access has a legal foundation, the activity is consistent with WSDOT management principles, airport rule and regulations and airport minimum standards are met, the activity is properly insured, is safe, is fair and equitable and that such access financially contributes to the maintenance, and operations of the airport. Residential and associated hangar uses will not be permitted.

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2. Financial compensation shall be based on of fair and reasonable practices of the activity or service, and contribution to the operation, maintenance and improvement of the airport at a competitive rate with on-airport activities, similar to rates paid by other business tenants at the airport. A yearly fee, percentage of the gross profits or an access fee may be satisfactory ways of allowing this type of operation. It is important that the state ensure that a through-the-fence operator be subjected to conditions similar to those applicable to the businesses at the airport in order to avoid complications and possible violations of state law and grant assurances.
3. Access leasing arrangements should grant WSDOT Aviation control over the types of development and operations conducted by the through-the-fence operator, including meeting the same minimum standards required of on-airport operators. These conditions may be in the form of a formal "Through-the-Fence Operations" operating plan that should be established and accepted by WSDOT Aviation.
4. All development must be compatible with the airport environment and the current Airport Layout Plan (ALP).

The previous four policies have been specifically adopted by WSDOT Aviation to provide a general framework for decision-making as related to the state-managed airports. Essentially, these policies simply reinforce WSDOT Aviation's mandate to operate and maintain the state-managed airport system for the expressed benefit of the State of Washington through meeting the goals of the State Aviation Policy. However, it should also be noted that the State Aviation Policy is not static and continues to evolve itself. As such, these four policies, as well as their interpretations and applications, are subject to change with that state policy.

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