

Chapter 6: Airport Planning Guidelines

Chapter Overview

As sponsor of the state-managed airports, WSDOT Aviation has a key role in advocating for the preservation and long-term development of aviation facilities, safe air transportation, airport capacity to meet demand, and mitigation of environmental impacts. WSDOT Aviation provides the technical resources and uses a cooperative approach to working with airports, communities, and planning organizations to set the policy direction for the aviation system. The system needs to be maintained as a viable and adequate mode of transportation for the state and its citizens. The Chapter discusses specific planning standards and processes that should be carried out by WSDOT Aviation to ensure that the system is reaching its full potential.

It should also be noted that the WSDOT Aviation Airport Manager (referred to herein as the “Airport Manager”) has the ultimate responsibility for ensuring that the sections within this chapter are utilized, maintained and updated.

This chapter includes the following elements:

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6.1 Airport Planning Studies

WSDOT Aviation recognizes that it is critical that appropriate airport planning practices be established and maintained for the state-managed airport system in order to sustain its relevance and long-term viability. Airport planning can include a wide variety of studies and efforts, including airport facility planning, air capacity and system planning, obstruction analyses, financial planning, traffic and markets, economic, environmental studies, etc. It is generally recognized that there are three primary levels at which airport planning can be performed:

- *Strategic level planning* examines long-term structures and determines how well various structures fit with identified goals and objectives. A strategic plan sets out procedures to follow which will lead to an optimal long-term structure. The primary examples of this level of airport planning are that of an aviation system plan.
- *Tactical-level planning* determines short- and medium-term courses of action that best fit into overall strategic plans and goals. Additionally, tactical plans identify the best manner of carrying out these courses of actions. The primary example of this level of airport planning is that of an airport master plan.
- *Project-level planning* is the identification of a defined aspect of a tactical plan and the determination of the optimum manner of executing this aspect in project form. An example of this level of airport planning is that of a vegetation management plan.

It should be noted that airport planning can be an extremely complex process since an airport encompasses a wide range of activities that often have inherently different and conflicting requirements. Additionally, there are multiple industry, federal and international regulations and best management practices that are commonly employed, many of which are currently utilized within the State of Washington. As such, while this section contains current WSDOT Aviation general guidelines with respect to Airport Planning, additional industry resources should be considered as required by WSDOT Aviation.

With respect to this section, please note the following key dates:

Section 6.1 is considered to be current as of **August 1, 2009**

Section 6.1 is to be reviewed and updated (as required) on **June 1, 2011**

6.1.1 WSDOT Standard Procedures

A. System Planning

An airport system plan is a representation of the aviation facilities required to meet the immediate and future needs of a metropolitan area, region, state or country. Generally, the overall purpose of system plan is to determine the extent, type, nature, location and timing of airport development needed to establish a viable, balanced and integrated system of airports that also provides the basis for

definitive and detailed airport planning such as that contained in an airport master plan.

Specifically, system planning identifies the aviation role of existing and future airports and facilities, as well as presenting recommendations for the general location and characteristics of new airports and the nature of expansion for existing ones to meet forecasts of aggregate demand. A system plan includes the timing and estimated costs of development, and it relates the planning effort to the policy and objectives of the state, region or relevant jurisdiction. The principle objectives of an airport system plan include the following:

1. The orderly and timely development of a system of airports adequate to meet present and future aviation needs and to promote the desired pattern of regional growth relative to industrial, employment, social, environmental, and recreational goals.
2. The development of aviation to meet its role in a balanced and multimodal transportation system and to foster the overall goals of the area as reflected in the transportation system plan and comprehensive development plan.
3. The protection and enhancement of the environment through the location and expansion of aviation facilities in a manner which avoids ecological and environmental impairment.
4. The provision of the framework within which specific airport programs may be developed consistent with the short- and long-range airport system requirements.
5. The implementation of land-use and airspace plans which optimize these resources in an often constrained environment.
6. The development of long-range fiscal plans and the establishment of priorities for airport financing within the government budgeting process.
7. The establishment of the mechanism for the implementation of the system plan through the normal political framework, including the necessary coordination between governmental agencies, involvement of both public and private aviation and non-aviation interests, and compatibility with the content, standards, and criteria of existing legislation.

WSDOT Aviation has the benefit of having recently completed the Long-term Air Transportation study (LATS) and WSDOT-Managed Airports System Evaluation and Strategic Plan.

Washington State Long-term Air Transportation Study (LATS)

The most recent update of the Washington Aviation System Plan (WASP) was completed in 2009 as part of the Washington State Long-term Air Transportation Study (LATS), which represented the first comprehensive aviation system planning effort in Washington State in over 20 years. Initiated in 2005 through Engrossed Senate Substitute Bill (ESSB) 5121 the legislation authorized WSDOT

Aviation to conduct a long-term air transportation planning study of general aviation and commercial aviation airports. The purpose of LATS was to understand what capacity currently exists for commercial and general aviation facilities and what would be needed to meet future demand for air transportation. In addition to the standard elements of an airport system plan, this study focused on four special emphasis regions identified in the legislation: Tri-cities, Spokane, Puget Sound and Southwest Washington.

The completed LATS effort includes an analysis of existing capacity, aviation trends, system performance, market demand and system needs within the Washington State public airport system. The study also includes an assessment of air cargo and a review and evaluation of high speed passenger rail transportation.

LATS study recommendations and findings will be integrated into the Washington Transportation Plan (WTP), the Federal Aviation Administration (FAA) National Plan of Integrated Airport Systems (NPIAS), and regional and local transportation plans. The study will also assist in aligning federal, state, and regional priorities and help to clarify airport sponsor objectives. Ultimately, recommendations from the study will assist the State in managing the Washington public airports as an integrated system, in order to strategically invest the public resources necessary to preserve aviation capacity and provide facilities that effectively accommodate future demand.

A complete copy of LATS can be found in the WSDOT Aviation administrative offices or online on the WSDOT Aviation public website <http://www.wsdot.wa.gov/aviation/lats/default.htm>.

WSDOT-Managed Airports: System Evaluation and Strategic Plan

During the LATS effort, it became apparent that there was a need for more detail regarding the purpose and role of the 17 state-managed airports within Washington State. Specifically, due to growing uncertainty in traditional airport funding sources, it has become necessary for WSDOT Aviation, who manages these airports, to examine why it maintains them and what role these airports serve 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 17 state-managed airports. Completed in 2008, the WSDOT-Managed Airports: System Evaluation and Strategic Plan was integrated into LATS and final recommendations of the Washington Aviation System Plan and Aviation Planning Council recommendations.

A complete copy of the WSDOT-Managed Airports: System Evaluation and Strategic Plan can be found in the WSDOT Aviation administrative offices or online on the WSDOT Aviation public website.

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A. Airport Master Planning

An airport master plan is a conceptual plan that reflects the ultimate development goal of a specific airport over a given period of time (typically 20 years). The FAA states that the goal of an airport master plan is to provide guidelines for future airport development which will satisfy aviation demand in a financially feasible manner, while at the same time resolving the aviation, environmental, and socioeconomic issues existing in the community. Specifically, an airport master plan can be utilized for the following purposes, among others:

1. Developing or modifying physical facilities on an airport to meet existing and projected demand.
2. Developing or modifying land on and/or adjacent to an airport, including establishing land use/zoning controls on lands adjacent to an airport.
3. Determining the environmental effects of airport development and operations.
4. Supporting the plan technically and procedurally through a thorough investigation of concepts and options of a technical, economic, or environmental nature.
5. Establishing airport access requirements.
6. Establishing a realistic schedule for the implementation of the development plan proposed in the plan, particularly for the short-term capital improvement program (CIP).
7. Proposing an achievable financial plan to support the implementation schedule.
8. Establishing a mechanism for formal communications with key airport stakeholders.
9. Presenting for public consideration, in a convincing and candid manner, a plan that adequately addresses the issues and satisfies local, state, and federal regulations.
10. Documenting policies and future aeronautical demand for reference in municipal deliberations on spending, debt incurrence, and land use controls.
11. Providing an effective graphic presentation of the future development of the airport and future land uses in the vicinity of the airport.
12. Establishing a continuing planning process that will monitor conditions and adjust plan recommendations as circumstances warrant.

The content of an airport master plan varies in both level of detail and specific requirements, depending upon the type of planning effort undertaken. However, the master plan should include at least the following elements:

1. An inventory of existing airport facilities, current conditions, and issues related to the airport, and an identification of other planning studies which may impact the airport plan.
2. The demand forecast including aircraft operations, number of passengers, volume of cargo and mail, and vehicular traffic. The forecast should be made not only on an annual basis but also for the busiest hours of the day. Typically, the forecast is for a period of 20 years.

3. An analysis of the interaction between the various demand parameters and the capacity of the relevant airport facilities, including those which affect airfield, terminal, and ground access system operations.
4. The development of alternative concepts and solutions to reasonably satisfy forecasted demand by taking into account such factors as the functional role of the airport under study and the impact on the environment, safety, economy, and fiscal resources of the area. An examination of alternative sites, including land-use and ground access plans and development concepts, is essential for the proper consideration and identification of viable alternatives.
5. The determination of the cost-effectiveness of alternative concepts and recommended solutions, including both tangible and intangible benefits and costs. Many important benefits are significant in the decision-making process but which are also difficult to quantify.
6. A financial feasibility analysis which differs from economic feasibility, for there is no guarantee that if a proposed development is economically feasible, it is also feasible to finance that development. Investment priorities must be established among the various individual airport improvements. Frequently airport planning is separated from financial and management planning. The latter may be undertaken only after a physical plan is adopted. Because of financial constraints, financial planning should be undertaken concurrently with planning of the physical facilities.
7. The environmental impact of alternative concepts and recommended solutions must be considered and incorporated into the cost-effectiveness analysis. Although aircraft noise is the principal environmental problem faced by airport authorities, other factors must be considered.
8. The preparation of implementation schedules and costs and sources of revenue for the various phases of proposed development.
9. The preparation of an associated airport layout plan (ALP) that graphically represents the key existing and proposed elements of the airport in terms of facilities, properties, land use/zoning, airspace, etc.

For the state-managed airport system, WSDOT Aviation will establish formal airport master plans that comply with all related FAA regulations for all airports listed within NPIAS. These master plans should be updated every five years, or as required depending on change. The specific regulations that should be reviewed and considered include the following:

- FAA AC 150/5070-6, *Airport Master Plans*
- FAA AC 150/5300-13, *Airport Design*.
- FAA Order 5100.38, *Airport Improvement Program Handbook*

For those state-managed airports not included within the NPIAS, WSDOT Aviation will establish an abbreviated airport master plans that utilize aviation industry standards for the type and role of the airport. Related FAA guidance will be utilized as reasonable to meet the management objectives set forth in Chapter I of this document. During the development of the master planning documents

WSDOT Aviation will develop a public outreach and communication plan to ensure that all stakeholders and the public can participate in the planning effort.

C. Airport Layout Plan (ALP)

An Airport Layout Plan (ALP) drawing set depicts existing airport facilities and proposed developments as determined from the planners' review of the aviation activity forecasts, facility requirements, and alternatives analysis. It is typically prepared as part of a complete airport master plan effort; however, it can also be prepared as part of a stand-alone planning effort that will typically include a supporting narrative.

Airport Layout Plans are prepared either as first time ALPs, formal revisions based on changes to the airport, or informal revisions based on minor improvements to the airport. Informal revisions, often referred to as pen-and-ink revisions, can be made to individual sheets of the ALP drawing set, although the responsibility for review and approval must still be coordinated with the state and if a NPIAS Airport, the FAA. These and other requirements are discussed in FAA Order 5100.38, Airport Improvement Program Handbook and WSDOT Airport Aid Grant Procedures Manual.

The preparer of the ALP must work closely with the WSDOT Airport Manager, airport owner, and if appropriate, the responsible FAA office, to define the requirements, standards, and criteria to be employed. To ensure that the ALP is comprehensive, all parties must agree to its content and standards.

The five primary functions of the ALP include the following:

1. An ALP depicts existing airside and landside facilities, traffic pattern and future facility needs and improvements. The plan is used as a tool for financial planning and assistance.
2. An ALP creates a blueprint for airport development by depicting proposed facility improvements. The ALP provides a guideline by which the airport sponsor can and is consistent with the state aviation system plan, airport master plan and community plans.
3. The ALP is a public document that serves as a record of aeronautical requirements, both present and future, and as a reference for community deliberations on transportation and land use proposals as well as budget resource planning.
4. The approved ALP enables the airport sponsor, the state and the FAA to plan for facility improvements at the airport. It also allows local, state and the FAA to anticipate budgetary and procedural needs. The approved ALP will also allow the FAA to protect the airspace required for facility or approach procedure improvements.
5. The ALP can be a working tool for the airport sponsor, including its development and maintenance staff.

Note that the ALP drawing set is a set of planning drawings and is not intended to provide design engineering accuracy. Individual items such as runway coordinates, obstruction survey data, and application of airport design standards must comply with Federal survey standards.

The minimum elements of the ALP drawing set for NPIAS airports are defined in Appendix F, *Airport Layout Plan*, of FAA AC 150/5070-6B, *Airport Master Plans*. For nonNPIAS Airports refer to Appendix A, *WSDOT Airport Aid Grant Procedures Manual*.

For each of the state-managed airports, WSDOT Aviation has some flexibility on what specific sheets shall be required to comprise an ALP set. This is discussed below. However, regardless of the actual sheets included, WSDOT Aviation shall establish and maintain current ALP sets whose individual sheets meet the current FAA standards. (See FAA AC 150/5070-6B, *Airport Master Plans*, Appendix F)

With respect to the plan sheets that shall be utilized for each ALP set, see the following guidance:

- For those state-managed airport included in the NPIAS, WSDOT Aviation shall establish and maintain an ALP plan set in full compliance with FAA and WSDOT requirements. Drawings that should be included in the ALP drawing set are described below:
 1. Cover Sheet - (as required) A separate cover sheet, with approval signature blocks, airport location maps, and other pertinent information as required by the local FAA Airports office.
 2. Airport Layout Plan - (Required) A drawing depicting the existing and future airport facilities. The drawing should include required facility identifications, description labels, imaginary surfaces, Runway Protection Zones, Runway Safety Areas and basic airport and runway data tables. It may be necessary to include the data tables on a separate sheet.
 3. Terminal Area Plan - (when applicable) This plan consists of one or more drawings that present a large-scale depiction of areas with significant terminal facility development.
 4. Airport Airspace Drawing - (Required) 14 CFR Part 77, Objects Affecting Navigable Airspace, defines this as a drawing depicting obstacle identification surfaces for the full extent of all airport development. It should also depict airspace obstructions for the portions of the surfaces excluded from the Inner Portion of the Approach Surface Drawing.
 5. Inner Portion of the Approach Surface Drawing - (Required) Drawings containing the plan and profile view of the inner portion of the approach surface to the runway and a tabular listing of all surface penetrations. The drawing will depict the obstacle identification approach surfaces contained in 14 CFR Part 77, Objects Affecting Navigable Airspace. The drawing may also depict other approach surfaces, including the threshold-siting surface, those surfaces associated with United States Standards for

Instrument Procedures (TERPS), or those required by the local FAA office or state agency. The extent of the approach surface and the number of airspace obstructions shown may restrict each sheet to only one runway end or approach.

6. Airport Land Use Drawing - (Required) A drawing depicting land uses and zoning in the area on and around the airport. Where applicable include the urban growth boundary, any land encumbrances such as lands held in trust, open space, and aviation easements.

7. Airport Property Map - (as required) A drawing depicting the airport property boundary, the various tracts of land that were acquired to develop the airport, and the method of acquisition.

8. Executive Summary (Narrative Report)

Airport Facility and Operations Description - Provide a brief summary of airport facilities, operations and planned improvements for use in local land use and transportation planning. Include the following elements:

- Location
- Elevation
- Runway: length, width, surface
- Based aircraft: number, type
- Lighting
- Approach
- Navigation systems
- Annual operations – existing and future
- On-site facilities
- ARC
- Summary of ALP Recommendations

9. Executive Summary (Narrative Report) - The ALP inventory should include a summary review of the comprehensive plans and development regulations for each affected community within the airport influence areas under the airport traffic pattern/approach. In many cases this will include neighboring communities with no direct jurisdiction over the airport itself. Include a land use matrix with applicable development regulations and comprehensive plan policies.

C. Other Planning Efforts

There are a wide variety of other potential airport planning efforts that could potentially be undertaken by WSDOT Aviation with respect to the state-managed airports. For those studies not addressed within this handbook, it will be incumbent upon the WSDOT Aviation Airport Manager to coordinate with the WSDOT Aviation Planning and Engineering staff to ensure that appropriate guidelines and requirements are followed.

6.1.2 Supporting References

The following table includes references for additional and/or supporting information with respect to this element. This has been provided with the intent of providing the reader with a current listing of appropriate sources for additional information and research.

References
Federal Aviation Administration. FAA AC 150/5070-7, The Airport System Planning Process. <i>FAA</i> . 10 November 2004. www.faa.gov
Federal Aviation Administration. FAA AC 150/5300-13 CHG 14, Airport Design. <i>FAA</i> . 1 November 2008. www.faa.gov
Federal Aviation Administration. FAA AC 150/5070-6B CHG 1 Airport Master Plans. <i>FAA</i> . 1 May 2007. www.faa.gov
Federal Aviation Administration. FAA Order 5100.38C. Airport Improvement Program Handbook. <i>FAA</i> . 28 June 2005. www.faa.gov

6.1.3 Supporting Documents and Resources

The following section includes supporting WSDOT Aviation-specific documents and resources to support the implementation of this element. The following table provides a listing of these documents and resources.

Documents and Resources	Location
FAA Airport Layout Plan Drawing Set Checklist	<i>Following Section 6.1</i>

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6.2 Airport Design Standards

Section 103 of the Federal Aviation Act of 1958 states in part, "In the exercise and performance of his power and duties under this Act, the Secretary of Transportation shall consider the following, among other things, as being in the public interest: (a) The regulation of air commerce in such manner as to best promote its development and safety and fulfill the requirements of defense; (b) The promotion, encouragement, and development of civil aeronautics . . . "

This public charge, in effect, requires the development and maintenance of a system of safe, delay-free, and cost-effective airports. In order to ensure that airports are developed appropriately, systems of standards and recommendations for the design of airports has been developed by a variety of regulatory agencies so as to support this public charge, including the FAA, state aeronautical agencies, and other local agencies.

This section generally identifies those airport design standards that shall be utilized with respect to the state-managed airports.

With respect to this section, please note the following key dates:

Section 6.2 is considered to be current as of **August 1, 2009**

Section 6.2 is to be reviewed and updated (as required) on **June 1, 2011**

6.2.1 WSDOT Standard Procedures

As referenced previously, the application of FAA standards for the state-managed airports versus that of state standards is often a function of whether the particular airport has been included in the FAA NPIAS. In terms of airport design standards, these distinctions are discussed in the following sections.

A. State-Managed Airports within the NPIAS

The state-managed airports that are included in the FAA NPIAS make them eligible for federal funding assistance. In accepting such financial assistance in the form of federal grants, WSDOT Aviation must abide by the specific grant assurances established by the FAA. In such cases, WSDOT Aviation shall comply with all federal aviation design standards established by the FAA. A partial listing of the most common design standards includes the following:

- FAA AC 150/5300-13, *Airport Design*.
- FAA AC 150/5070-6, *Airport Master Plans*
- FAA Order 5100.38, *Airport Improvement Program Handbook*
- FAR Part 77- *Objects Affecting Navigable Airspace*
- FAA Order 5050.4B, *Environmental Handbook*
- FAA Order 5050.4B, *Environmental Handbook*
- FAA Order 8260.3B, *United States Standard for Terminal Instrument Procedures (TERPS)*
- FAA AC 150/5390-2, *Helicopter Design*

B. State-Managed Airports not within the NPIAS

State-managed airports that are not included in the FAA NPIAS and are not bound by federal grant assurances should be managed in a safe, cost-effective manner consistent industry best management practices.

Based on the above factors, WSDOT Aviation has elected to utilize airport design standards that are similar to those other states in that it will utilize the same framework of standards defined by the FAA, but has modified those standards to reflect the smaller nature of its airports. Again note that these standards are only applicable for those state-managed airports that are not identified within the NPIAS and are only available for Visual Flight Rules (VFR) operations. The following table reflects these standards. (Note that for a greater definition of the meaning of each design feature, refer to FAA AC 150/5300-13, Airport Design.)

WSDOT Aviation VFR Airport Design Standard Dimensions

Design Features	FAA Criteria	WSDOT Criteria
General Airport Dimensions		
Runway (RW) Length [2,000' + 1/3 Elev.]		←
Runway Width - paved or prepared hard surface		50'
Runway Width - turf or gravel surface		100'
Runway shoulder width		10'
Runway Safety Area (RSA) width		100'
Runway Safety Area length beyond RW end		200'
Runway Object Free Area (ROFA) width		200'
Runway Object Free Area length beyond RW end		200'
Runway Protection Zone (RPZ) – width of inner surface		200'
Runway Protection Zone – width of outer surface		300'
Runway Protection Zone – length from inner to outer surface		1,000'
Taxiway (TW) width		20'
Taxiway shoulder width		10'
Taxiway Safety Area (TWSA) width		40'
Taxiway Object Free Area (TWOFA) width		76'
Taxiway turn radius		65'
Taxiway fillet radius		50'
RW end to property line		200'
Runway Centerline (RW C/L) to hold line		100'
RW C/L to Parallel Taxiway (PTW) C/L		125'
RW C/L to edge of tie-down area		125'
RW C/L to property or building line		200'
RW C/L to helipad		300' to 500'
TW C/L to Building Restriction or Property Line		75'
TW C/L to tie-down area or object		38'
Longitudinal runway grade (effective runway gradient)		0 to 2%
Longitudinal runway grade change		2% maximum
Length of vertical curves for RW each 1% grade change		300' (#1)

#1 Vertical curve not required for less than 0.4% change in grade.		
Distance between points of intersection for runway vertical curves (250' x Sum of adjacent changes of grade in %.)		←
Transverse runway grade - paved		1 % to 2 %
Transverse runway grade - gravel		3 %
Minimum site distance (#2) Runway Length ÷2 or 2,000' (whichever is less)		←
Distance between points of intersection for runway vertical curves (250' x Sum of adjacent changes of grade in %.)		←
Transverse runway grade - paved		1 % to 2 %
Transverse runway grade - gravel		3 %
Minimum site distance (#2) Runway Length ÷2 or 2,000' (whichever is less)		←
#2 Unobstructed line of site from any point five feet above the runway.		
Longitudinal taxiway grade		0-2%
Transverse taxiway grade		1½ % to 3 %
General Heliport Dimensions		
Touchdown and Lift-off area (TLOF) - Minimum Length and Width:		1.0 Rotor Dimension of design helicopter
Final Approach and Takeoff area (FATO) - Minimum Length and Width:		1.5 Rotor Dimension of design helicopter

WSDOT Aviation VFR Airport Airspace Standard Dimensions

Regardless of their size and operational levels, all airports have airspace surfaces established around them through a variety of regulatory means. The primary purpose of these airspace surfaces at a given airport is to ensure the safety of aircraft operating at or around that airport. This is particularly applicable for aircraft transitioning from air to ground and/or ground to air, when aircraft are typically most vulnerable to conflicts with ground-based objects. While the processes and requirements associated with these surfaces can be extremely complex, the critical consideration associated with all of them is that it is generally best for aircraft safety that these surfaces are kept clear of all man-made and natural obstructions.

With respect to the state-managed airports, identifying relevant airspace surfaces for analysis allows for greater flexibility than most, since those state-managed airports not currently identified within the NPIAS and not obligated under federal grant assurances are not technically required to meet all of the FAA requirements. Regardless, it cannot be understated that those airspace requirement established by the FAA are regarded as the industry standard for airports and therefore should be considered appropriately. As such, WSDOT Aviation has utilized the framework of those standards while modifying them somewhat to appropriately reflect the needs of the state-managed airports.

Given the size, location, and operational patterns experienced at the state-managed airports, two primary sources of airspace surfaces were utilized: FAR Part 77, *Objects Affecting Navigable Airspace*, and FAA Advisory Circular 150/5300-13, *Airport Design*. Additionally, it was noted that the primary considerations for the Airport were the runway environment and its associated approach areas. Therefore, it was determined that FAA standard Threshold Siting Criteria, as detailed in Table A2-1 of FAA AC 150/5300-13, be utilized as the basis for the Airport's airspace surfaces.

Note that while highest priority is rightly placed on obstructions located directly on the approach/departure paths on either end of the runway, it is still very important that secondary consideration be given to obstructions located in areas along the sides of the runway. As such, a design methodology was employed for establishing a non-standard runway primary surface and non-standard transitional surfaces that was generally based on FAR Part 77. Specifically, the following assumptions were made in establishing these non-standard surfaces:

- The non-standard runway primary surface width is based on the inner width of the Threshold Siting Criteria surface (120') and not the standard widths based on approach surfaces defined in FAR Part 77.
- The non-standard transitional surfaces start at the runway primary surface and climb at a rate of 7:1 (similar to FAR Part 77) – however, these surfaces only climb to 45' AGL, limiting their lateral width to 315'.
- The non-standard transitional surfaces intersect the Threshold Siting Criteria surfaces at appropriate elevations (i.e. the 45' AGL contour of the transitional surface meets the 45' AGL contour of the Threshold Siting Criteria surface.).

The following table provides a summary of the surfaces utilized and/or created as well as a graphical representation (Stehekin State Airport is shown in the example).

WSDOT Aviation VFR Airport Airspace Standard Dimensions

<p>Threshold Siting Criteria</p>	<p>Reference: FAA AC 150/5300-13, Table A2-1 Runway Type: 1 Surface Start Location: directly at RW end/threshold Surface Start Elevation: respective RW end elevation Inner Surface Width: 120' Outer Surface Width: 300' Inner Trapezoid Length: 500' Overall surface Length: 3,000' Surface Slope: 15:1 (horizontal: vertical)</p>
<p>Runway Primary Surface</p>	<p>Surface Start: at Threshold Siting Criteria surface Surface Width: same as Threshold Siting Criteria inner surface width (120') Surface Length: 2,651' Surface Elevation: RW centerline elevation at any given point</p>
<p>Runway Transitional Surface</p>	<p>Surface Start: at Threshold Siting Criteria surface and Runway Primary Surface Surface Width: 315' Surface Slope: 7:1 Surface Elevation: starts at runway primary surface elevation and climbs to 45' above that level</p>

WSDOT Aviation VFR Airport Airspace Standard Dimensions Exhibit



It should be noted that while these are the standards established by WSDOT Aviation, each airport should be reviewed individually to determine if these standards are appropriate for that airport. In such cases where it may not be appropriate, WSDOT Aviation shall modify these standards to fit the requirements of that particular airport.

6.2.2 Supporting References

The following table includes references for additional and/or supporting information with respect to this element. This has been provided with the intent of providing the reader with a current listing of appropriate sources for additional information and research.

References
Federal Aviation Administration. FAA AC 150/5300-13 CHG 14, Airport Design. <i>FAA</i> . 1 November 2008. www.faa.gov
Federal Aviation Administration. FAA AC 150/5070-6B CHG 1 Airport Master Plans. <i>FAA</i> . 1 May 2007. www.faa.gov
Federal Aviation Administration. FAA Order 5100.38C. Airport Improvement Program Handbook. <i>FAA</i> . 28 June 2005. www.faa.gov
Federal Aviation Administration. FAR Part 77 - Objects Affecting Navigable Airspace. <i>FAA</i> . www.faa.gov
Federal Aviation Administration. FAA Order 5050.4B. Environmental Handbook. <i>FAA</i> . 28 April 2006. www.faa.gov
Federal Aviation Administration. FAA Order 8260.3B. United States Standard for Terminal Instrument Procedures (TERPS). <i>FAA</i> . 15 May 2005. www.faa.gov
Federal Aviation Administration. FAA AC 150/5390-2B. Heliport Design. <i>FAA</i> . 30 September 2004. www.faa.gov

6.2.3 Supporting Documents and Resources

The following section includes supporting WSDOT Aviation-specific documents and resources to support the implementation of this element. The following table provides a listing of these documents and resources.

Documents and Resources	Location

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6.3 Environmental Planning

As directed by its Environmental Policy Statement, all WSDOT employees shall follow sound environmental protection practices in the planning, design, construction, operation, and maintenance of WSDOT's transportation systems and facilities. This includes, but is not limited to, pollution prevention, energy conservation, environmental impact avoidance and mitigation, and compliance with environmental laws.

WSDOT is a positive force in support of the state's efforts to protect and preserve the quality of our environment, support healthy communities and sustainable economic growth, conserve natural resources, and respond to climate change by meeting the greenhouse gas emissions reduction and clean energy economy goals for Washington State.

Responsibilities of WSDOT personnel with respect to its Environmental Policy Statement are summarized in the following:

Executive Responsibilities

- Executives must ensure that environmental compliance plans are current and compliance commitments tracked.
- Executives are encouraged to look for opportunities to align the public's need for a healthy environment and a safe and reliable transportation system.

Employee Responsibilities

- Each employee must ensure that he or she is familiar with the environmental protection policies and procedures associated with his or her work.
- Each employee will be proactive in communicating environmental compliance concerns to his or her supervisor and, as appropriate, consulting the region or modal environmental compliance plans.
- Safety first: Each employee must be familiar with the safety plans for their workplace, site visits, and other safety measures necessary to execute this order.

Similarly, in compliance with the Environmental Policy Statement, WSDOT Aviation recognizes the importance of and appropriately addressing environmental considerations associated with respect to planning, design, engineering, maintenance and construction activities at the state-managed airports. This section provides general guidance for environmental considerations related to the state-managed airports.

With respect to this section, please note the following key dates:

Section 6.3 is considered to be current as of **August 1, 2009**

Section 6.3 is to be reviewed and updated (as required) on **June 1, 2011**

6.3.1 WSDOT Standard Procedures

Environmental considerations are often very complicated and can encompass a wide variety of federal, state and local regulatory requirements. As such, while this section cannot address all of those possibilities, it does present general guidelines for how the WSDOT Aviation Airport Manager shall approach environmental planning issues at the state-managed airports as they arise. Note that the Airport Manager should consult with appropriate WSDOT Aviation and/or WSDOT staff, as required.

A. WSDOT Aviation Environmental Planning Process Overview

Planning Projects

Planning projects do not require an environmental clearance to proceed. Planning projects usually include environmental planning and review.

Land Acquisition

As a general rule, land acquisition projects will require the same environmental processing and clearances as an airport development project and all land acquisition must be included in the overall airport environmental documentation process. Only in rare instances when the project environmental documents are incomplete and clearances have not been approved can a Categorical Exclusion be granted for either a hardship purchase or a protective purchase. Hardship purchases are limited to those properties that are identified in the planning documents as properties that are going to be acquired for future airport development; and, the fact that they are to be acquired places an undo hardship on the property owner. Protective purchase may be authorized if the airport must acquire individual properties that have short term development planned by current owners that is incompatible with airport development plans or would increase the cost of future acquisition. In either case no development can be undertaken on properties acquired as hardship or protective purchases until all airport development environmental clearances have been approved.

Development Projects (Construction)

All WSDOT Aviation airport development projects require environmental review and clearance before development can be allowed to begin.

B. WSDOT Aviation Environmental Review Process Overview

The following provides an abbreviated overview of the process the Airport Manager shall undertake in addressing environmental considerations at the state-managed airports.

1. Once a maintenance activity, construction project, and/or environmentally-related planning project is proposed at one of the state-managed airports, that project is fully defined and its specific location identified.

2. In order to establish environmental agency jurisdiction and their potential permit requirements, ownership of the state-managed airport where the activity is proposed is identified.
 - a. If the state-managed airport is not included in the FAA NPIAS and is owned by the state (i.e. WSDOT Aviation or State Parks Department), it is subject to WSDOT Environmental Procedures in association with the Washington State Environmental Policy Act (SEPA). (Note that the WSDOT Environmental Procedures Manual (EPM) defines the procedures WSDOT will use to ensure compliance with all applicable environmental laws and regulations throughout the WSDOT Transportation Decision-Making Process, which includes Transportation Planning, Project Scoping and Programming, Design and Environmental Review, Environmental Permitting and PS&E (Plans, Specifications, and Estimates), Construction, Maintenance and Operations, and Property Management.)
 - b. If the state-managed airport is included in the FAA NPIAS and is owned by the state (i.e. WSDOT Aviation), it is subject to the National Environmental Policy Act (NEPA) through FAA regulations (FAA Order 5050.4B *Environmental Handbook*) due to grant assurance obligations.
 - c. If the state-managed airport is owned by a federal agency (i.e. National Forest Service, Corp of Engineers, etc.), it is subject to the National Environmental Policy Act (NEPA) due to its presence on federal lands.
3. Once airport ownership has been established and relevant applicable environmental regulations identified, an internal WSDOT Aviation review of the project shall be undertaken. The WSDOT Airport Manager will lead this internal review that will involve the WSDOT Aviation Director, , Airport Planner, WSDOT Environmental Services and others (as required). As part of this review, WSDOT Aviation shall prepare a Project Summary that includes Project Definition, Design form, and an Environmental Review Summary.

Note that the Environmental Review Summary is used to identify the potential environmental issues and impacts, any proposed mitigation, and any NEPA/SEPA documents and environmental permits that are likely to be required for the project.

4. Following the WSDOT Aviation internal review of the project, the WSDOT Airport Manager shall contact the WSDOT Environmental Services representative within the region where the project is proposed to be conducted. This representative may direct the Coordinator to other resources within WSDOT including specialist in Administrative & Operations; Air, Acoustics (Noise), & Energy; Cultural Resources; Ecological Mitigation; Environmental GIS; Fish & Wildlife; Hazardous

Materials; Hydrology; Liaisons; Management; Multi-Agency Permit Team; NEPA/SEPA Compliance; Permits; Stormwater & Watershed; Stream Restoration; and Wetland Assessment.

5. For those projects that fall under FAA and/or NEPA regulatory jurisdiction WSDOT Aviation shall coordinate with appropriate representatives of those federal agencies to establish regulatory and permit requirements with respect to the proposed project. These requirements can often result in a Categorical Exclusion (CE), or environmental planning efforts that include an Environmental Assessment (EA) or an Environmental Impact Statement (EIS).
6. Similarly, for those projects that fall under WSDOT/SEPA jurisdiction, WSDOT Aviation shall continue coordination with the WSDOT Environmental Services to establish the state regulatory and permit requirements with respect to the proposed project. These efforts will include additional coordination with appropriate state and local stakeholders, including local towns, counties, regions, etc.
7. For both federal and state environmental coordination efforts, WSDOT Aviation shall follow and abide by the regulatory, permit and potential mitigation requirements.

As noted previously, environmental compliance requirements can oftentimes require a very complicated and involved effort. The information above only provides a general overview of the overall process that WSDOT Aviation may have to undertake in association with a maintenance activity, a construction project, or an environmental planning effort. Specific detailed requirements for individual projects are best achieved through specific research of regulations and/or coordination with appropriate authorities.

C. SEPA Compliance Considerations

WSDOT Compliance Manuals

The WSDOT Environmental Procedures Manual (EPM) defines the procedures WSDOT will use to ensure compliance with all applicable environmental laws and regulations throughout the WSDOT Transportation Decision-Making Process. Note that this manual is generally updated on an annual basis.

Additionally, WSDOT has developed an Environmental Compliance Assurance Procedure (ECAP) for construction projects, and the procedure has since been incorporated into the WSDOT *Construction Manual*. It is designed to enable WSDOT to recognize and eliminate environmental violations during the construction phase on WSDOT construction sites, and to ensure prompt notification to WSDOT management and agencies. Likewise, WSDOT has also developed an Environmental Compliance Assurance Procedure for maintenance projects. It may be found in Chapter 790 of the WSDOT *Environmental Procedures Manual*. The procedure is also incorporated into several Regional Environmental Compliance Plans applicable to maintenance.

WSDOT Project Scoping Guidance

WSDOT recognizes that environmental compliance must be weighed as early as project scoping. As such, during project scoping, it is important to conduct the following actions:

- Define the purpose and need for a project;
- Identify alternative design solutions and evaluate them from an engineering and environmental standpoint; and
- Prepare a Project Summary to document the results and define the overall “scope” and cost of the proposed solution.

The Environmental Review Summary form is used to identify the potential environmental issues and impacts, any proposed mitigation, and any NEPA/SEPA documents and environmental permits that are likely to be required for the project. If a NEPA Documented Categorical Exclusion (DCE) is required for the project, the Environmental Review Summary (ERS) will later get changed to an Environmental Classification Summary (ECS) for approval by the lead federal agency to document completion of the Environmental Review Process.

D. NEPA Environmental Reviews

NEPA guidance is provided in the latest version of FAA Order 5050.4B to determine project environmental requirements for each proposed airport development project. The order provides detailed guidelines for determining a project's environmental requirements and for proper and complete environmental documents preparation.

1. Categorical Exclusion

A Categorical Exclusion (CE) is the type of environmental clearance required for those standalone airport development projects that do not require an Environmental Assessment (EA) or an Environmental Impact Statement (EIS).

- These projects generally involve the repair or improvement of existing airport features such as runway, taxiway, and apron rehabilitation, constructing a heliport on an existing airport, pavement strengthening, reconstruction, runway extensions, and other airport development projects that will not significantly change the operation or function of the airport will usually qualify for a CE. Runway and taxiway lighting, pavement marking, installation of beacons, and visual approach aids, if they are not a part of a larger airport development plan that requires an Environmental Assessment or Environmental Impact Statement, would also qualify for a CE.
- Grading or removal of obstructions on existing airport property that does not have off-airport environmental impacts can be classified as a CE. Land acquisition associated with projects such as those stated above will also fall within the limits of a CE.

CE's are not to be used as a means of circumventing the need for either an EA or EIS. Proper planning should provide sufficient information in the early planning stages to determine the environmental requirements for all of the proposed airport development. A Categorical Exclusion Checklist (see example following section) should be completed and reviewed to determine if the proposed project can be classed as a CE or if further environmental work will be required before the proposed development can be approved.

2. Environmental Assessment

All proposed airport development projects that do not qualify for a Categorical Exclusion will require, as a minimum, an Environmental Assessment (EA). The ultimate purpose of an EA is to either support a Finding of No Significant Impact (FONSI) or to show the need for an Environmental Impact Statement (EIS). Any airport development that significantly changes the airport operations or the airport aircraft approach category will require an EA. The EA must satisfactorily address all of the areas of potential impact as noted in the current version of FAA Order 5050.4B. Of particular concern is early public involvement in the planning and environmental process for any proposed airport development that will require an EA. Preparation of an EA requires that the sponsor advertise for the opportunity for a public hearing after a Draft EA is approved. The Draft EA must be made available for public review a minimum of thirty (30) days in advance of a public hearing in places that are readily accessible to the public during reasonable hours.

The Draft EA becomes an official environmental document when it is approved for public review. The scope, format, and depth of review of the individual effected environments are of particular importance in the preparation of an EA. The sponsor should have a clear idea of the ultimate development that is expected to occur on their airport and should select a consultant with sufficient expertise and experience to be able to successfully prepare all planning documents to support the EA and to prepare the EA in a manner that meets all of the guidelines in the current version of FAA Order 5050.4.

The EA is the sponsor's document and a very important part of the sponsor's planning documentation. It is their official statement that they have met all of the requirements of the environmental laws that pertain to the use of federal funds in the development of their airport. Until all environmental requirements are cleared none of the proposed development can take place. The FAA is responsible for reviewing the draft documents and for providing comments to the sponsor and their consultant as to the adequacy of the document. It also must approve the Draft EA and the advertisement and timing for a formal public hearing and to ensure that the public hearing is conducted in a satisfactory manner. Ultimately, it is FAA's responsibility to either approve a FONSI or determine the need for an Environmental Impact Statement after all review comments and EA requirements have been met.

As stated above, careful consultant selection and early public involvement in the planning and environmental process can greatly enhance the successful outcome of these efforts. Public information meetings with businesses, citizens, and other governmental units that are likely to be impacted by the proposed development should be conducted throughout the planning period. Public planning and information meetings do not satisfy the need for the public's opportunity to request an official public hearing after the Draft EA is approved.

Environmental Impact Statements

Development on general aviation airports usually will not require the preparation of an Environmental Impact Statement (EIS). In most instances the need for an EIS will result from the findings during the preparation of an Environmental Assessment; therefore, an EA would normally be prepared prior to the development of an EIS. Prior to proceeding with an EIS the sponsor should review all previous planning and environmental work to determine if modifications to the proposed development plans can be made that will eliminate the need for an EIS. The FAA is responsible for meeting all federal agency notifications, federal circulation requirements, scoping, review, administration and final federal approval of an EIS.

D. 6.3.2 Supporting References

The following table includes references for additional and/or supporting information with respect to this element. This has been provided with the intent of providing the reader with a current listing of appropriate sources for additional information and research.

References
WSDOT Manual M 31-11, <i>Environmental Procedures Manual</i> . http://www.wsdot.wa.gov/Publications/Manuals/M31-11.htm
State of Washington Department of Ecology. <i>State Environmental Policy Act (SEPA) Handbook</i> . October 2008. http://www.ecy.wa.gov/programs/sea/sepa/handbk/hbtoc.html
Federal Aviation Administration. FAA Order 5050.4B. <i>Environmental Handbook</i> . FAA. 28 April 2006. www.faa.gov
WSDOT. National Environmental Policy Act (NEPA)/ State Environmental Policy Act (SEPA) Guidance. http://www.wsdot.wa.gov/Environment/Compliance/NEPA_SEPA.htm
WSDOT. Department of Transportation Act, Section 4(f) Guidance http://www.wsdot.wa.gov/Environment/Compliance/Section4Fguidance.htm
WSDOT. Land and Water Conservation Fund Act, Section 6(f) Guidance http://www.wsdot.wa.gov/Environment/Compliance/Section6Fguidance.htm
WSDOT. Environmental Justice Guidance. http://www.wsdot.wa.gov/Environment/EJ/EnviroJustice.htm

6.3.3 Supporting Documents and Resources

The following section includes supporting WSDOT Aviation-specific documents and resources to support the implementation of this element. The following table provides a listing of these documents and resources.

Documents and Resources	Location
WSDOT Environmental Policy Statement, April 7, 2009	<i>Following Section 6.3</i>
WSDOT Project Definition form	<i>Following Section 6.3</i>
WSDOT Design Decisions form	<i>Following Section 6.3</i>
WSDOT Environmental Review Summary Form	<i>Following Section 6.3</i>
FAA Categorical Exclusion Checklist	<i>Following Section 6.3</i>
Environmental Permits and Approvals, WSDOT Manual M 31-11.03, <i>Environmental Procedures Manual</i>	<i>Following Section 6.3</i>

6.4 Vegetation Management Procedures

Vegetation management involves caring for and/or controlling plants on or near transportation facilities, such as airports. If managed properly, vegetation on and near such facilities can become self-sustaining over time, ultimately requiring less maintenance. This would help reduce costs, improve control results and minimize environmental impacts, including by that of herbicide use.

As described previously, safety is of the highest priority for WSDOT Aviation. Vegetation that includes plants as small as weeds and as large as trees will grow out of control if left alone. This would ultimately block visibility (signs, etc.) and create airspace obstructions, or attract wildlife, endangering aircraft and pilots that operate at the state-managed airports. As such, a plan needs to be established for how to manage that vegetation in a responsible manner that promotes safe operational conditions, while minimizing environmental impacts.

A vegetation management plan (VMP) is a "how to" guide for the best way to manage vegetation around airports in any given area. Washington State has diverse climates and the state-managed airports have many neighbors, so the plans vary depending on location. Currently, each region within WSDOT has developed an VMP for their region. The plans formally establish the right tool(s), schedules, techniques that are appropriate for use at a range of transportation facilities. WSDOT Aviation is in the process of working with WSDOT Maintenance to add an airport addendum to each of the regions plans to address state-managed airports. The approach would also include coordination with the applicable local, state or federal resource agencies, the land owner and other stakeholders to identify noxious weeds, vegetation management practices and other tools to establish formal VMP practices. Vegetation management tools can include the following:

- Mowing and trimming
- Tree removal
- Selectively using herbicides
- Release of weed-eating insects
- Improving soils
- Planting native plants

WSDOT Aviation intends to have formal airport VMPs established for state managed airports for each region. The airport VMP will be established during development or update of an airport master plan and ALP. This section generally defines what should be considered and included in the addendum for each region as they are developed. Once established the State-Managed Airport Handbook will be amended accordingly.

6.4.1 Procedures for Developing Airport VMP

The purpose of a VMP is to define long-term, sustainable vegetative management and maintenance practices that would allow WSDOT Aviation to prevent future vegetative penetrations to safety-critical airport areas and airspace surfaces, while being protective of the environment. Ultimately, vegetation management plans for the state-managed airports will be utilized by the Airport Manager and maintenance crews to define the most appropriate tools, techniques and timing, for accomplishing prioritized airport maintenance activities. These plans, once developed, become the basis of an ongoing process of refinement and crew training, using annually documented experience of each airport's proven success and lessons learned. Ideally, the formal establishment and acceptance of a VMP will result in the relevant environmental agencies issuing an on-going permit for vegetation maintenance operations as long as the VMP is followed

Currently, each WSDOT Region has an adopted VMP. The VMP includes geographic inventories of routine maintenance activities, weed infestations, sensitive areas, and other relevant information. They also include a record-keeping system and database to document, evaluate and reference site-specific treatments, various situations and types of vegetation.

In general, the airport addendum to the VMP should be based on the following methodology:

1. Identify the key stakeholders and interested regulatory agencies to participate in the VMP process. It should be noted that ultimately, a VMP is as much about the process of establishing it than about the document itself. The coordination, education, understanding and participation required for creating a VMP is a key element for ensuring its success.
2. Coordinate with the WSDOT Maintenance and applicable WSDOT Region to assess vegetation management issues within the Region and assess probable vegetation and environmental characteristic, applicable resource agencies and other factors needed to develop successful solutions for addressing a VMP within the airport operating environment.
3. Identify those airport design safety and object free areas, as well as airspace surfaces that are most critical to ensuring the standard level of safety at each airport. These airspace surfaces could include any or all of the following:
 - FAR Part 77 Surfaces
 - FAA TERPS Surfaces, if applicable
 - FAA AC 150/5300-13 Airport Design areas
 - NAVAID clearance areas
 - Customized WSDOT safety/object free areas
 - Customized WSDOT airspace surfaces
4. Analyze the identified surfaces with respect to the existing ground contours around each airport to identify height/clearance requirements at and around each airport.

5. Establish Vegetative Management Zones based on those clearance requirements. These zones would effectively merge those clearance requirements with generalized vegetation height classifications to create a system whereby only certain types of vegetation having specific maximum heights would be permitted in a particular zone.
6. Compare existing vegetation types with existing soils to estimate maximum expected vegetation (tree) heights. This information would be used to delineate which areas in a particular Vegetative Management Zone would likely require removal of vegetation to preclude existing or future penetrations into airspace surfaces. Note that the ultimate goal for these Vegetative Management Zones is for them to be in effect "self-regulating in that the vegetation that they contain could not grow to a height that would ultimately cause obstruction or penetration of airspace surfaces. Note that existing or planned control measures should also be considered to help minimize the extent of these zones.
7. For those areas where existing vegetation and soil types indicated the potential for future or existing airspace conflicts, identify best management practices based on the difference between the maximum expected vegetation height and the maximum allowable height of the respective Vegetative Management Zone. Areas should be identified that would require complete vegetation removal (clear cut) based on potential penetrations into airspace surfaces. Maintenance and inspection practices and procedures for areas should be developed that do not necessitate complete vegetation removal to ensure the integrity of those airspace surfaces. Recommendations on annual updates should also be provided to document the vegetation management practices and establish a projected schedule of maintenance and inspections.
8. Coordinate with project stakeholder groups to ensure that completed VMP is integrated into WSDOT vegetation management program.

Additionally, a VMP should contain the following elements:

1. Regulatory Objectives
 - Part 77 Surfaces
 - TERPs Surfaces
 - NAVAID and other Customized Surfaces
 - Control Measures to Conform with Regulated Surfaces
 - Airport Assumptions
 - Environmental Regulations
2. Routine Maintenance Activities
 - Route Mowing/Trimming (Guidelines/Methods/Locations)
 - Hazard Tree Removal (Guidelines/Methods/Locations)
3. Integrated Vegetation Management Activities
 - Integrated Vegetation Management Planning and Tracking Database

- Noxious Weed Control (Guidelines/Methods/Locations)
 - Nuisance Weed Control (Guidelines/Methods)
 - Tree and Brush Control (Guidelines/Methods)
4. Special/Sensitive Maintenance Areas
 - Wetlands
 - Flood Zones
 - Archeological Sites
 - Rare and Endangered Species List
 - Recommended Procedures
 - Coordination with Regulatory Agencies
 5. Appendices
 - Integrated Vegetation Management Prescriptions
 - Herbicide Use Guidelines
 - Zone Map
 - Routine Mowing Map/Limited Access Mowing Map
 - Weed Identification Photos/Location Maps
 - Special Maintenance Areas
 - Forms and Records
 - Stakeholder List

Once the VMPs have been formally completed, WSDOT Aviation shall utilize and updated them as stipulated within the plans.

6.4.2 Supporting References

The following table includes references for additional and/or supporting information with respect to this element. This has been provided with the intent of providing the reader with a current listing of appropriate sources for additional information and research.

References
WSDOT Integrated Vegetation Management. http://www.wsdot.wa.gov/maintenance/vegetation/default.htm

6.4.3 Supporting Documents and Resources

The following section includes supporting WSDOT Aviation-specific documents and resources to support the implementation of this element. The following table provides a listing of these documents and resources.

Documents and Resources	Location

6.5 Land Use Planning

Aviation is a critical link to the local, state and national transportation system; providing for the efficient movement of people, goods and services across municipal, state and international boundaries. However, one of the main challenges facing aviation today is the encroachment of incompatible land use development near and around airports. To meet this challenge, the State of Washington has instituted legislation that requires local jurisdictions to discourage the encroachment of incompatible development adjacent to public use airports. Technical assistance is provided by the Washington State Department of Transportation (WSDOT) Aviation Division through the Airport Land Use Compatibility Program.

But the development of land uses that are not compatible with airports and aircraft noise is not just a primary concern within the State of Washington, it is also an issue throughout the country. In addition to aircraft noise, concerns such as safety and other environmental impacts to land uses around airports must be considered when addressing the overall issue of land use compatibility around airports. Although several federal programs include noise standards or guidelines as part of their funding-eligibility and performance criteria, the primary responsibility for integrating airport considerations into the local land use planning process rests with airport sponsors and the local governments. The objectives of compatible land use planning are to encourage land uses that are generally considered to be incompatible with airports (such as residential, schools, and churches) to locate away from airports and to encourage land uses that are more compatible (such as industrial and commercial uses) to locate around airports.

Through the development of its Airport Land Use Compatibility Program, WSDOT Aviation is at the forefront of assisting local jurisdictions, airports, and other interests to protect public use airports from incompatible development by providing technical assistance and resources to support local decision-making. This section provides guidelines for the application of this program with respect to the state-managed airports.

With respect to this section, please note the following key dates:

Section 6.5 is considered to be current as of **August 1, 2009**

Section 6.5 is to be reviewed and updated (as required) on **June 1, 2011**

6.5.1 WSDOT Standard Procedures

As sponsor of the Airport Land Use Compatibility Program, WSDOT Aviation shall utilize and implement (as required) the recommendations and tools included in that program for each of the state managed airports. It is understood that many of these airports are located on leased properties and WSDOT Aviation may not be able to institute all aspects of the program recommendations. Regardless, WSDOT Aviation shall address each airport on an individual basis and document an

analysis of the applicability of the airport to comply with program recommendations.

The following provides a general overview of the current program.

Airport Land Use Compatibility Program Objective

In 1996, Washington State passed land use legislation (RCW 36.70A.510, RCW 36.70.547). Under this provision of the Growth Management Act (GMA), all towns, cities and counties are required to discourage encroachment of incompatible development adjacent to public use airports through adoption of comprehensive plan policies and development regulations. GMA also identifies airports as essential public facilities. WSDOT Aviation provides a technical assistance program to help communities meet the requirements of the law. The objectives of the program are to:

- Ensure the functions and values of airports are protected and enhanced statewide.
- Assist towns, cities and counties in meeting update deadlines for comprehensive plans and development regulations.
- Provide education, workshops and training on best practices to protect airports from adjacent incompatible development and enhance airport operations to meet transportation demand.
- Showcase the good work of local governments in implementing GMA requirements.

Airport Land Use Compatibility Program Supporting Legislation

The four primary sources of supporting legislation for the WSDOT Aviation Airport Land Use Compatibility Program are as follows:

- RCW 14.07 and 14.08 Municipal Airports Act - The act adopted in 1941 and 1945 provides for the acquisition and sponsorship of airports by Washington cities, towns, counties, port districts, and airport districts.
- RCW 14.12 Airport Zoning - This section was adopted in 1945 and establishes definitions, criteria, and allows local jurisdictions to adopt zoning controls to protect critical airspace from buildings, structures or other airspace obstructions. The law provides direction and guidance to cities and counties on airport hazards.
- RCW 36.70A Growth Management Act - The Growth Management Act was originally adopted in 1990, and identifies requirements and processes under which counties and cities are required to act. Within the Act there are several important sections related to airports.
 - RCW 36.70A.070 outlines mandatory elements within a comprehensive plan, which includes maps, descriptive text covering objectives, principles, and standards, and that the comprehensive plan must also be internally consistent with all elements. This section also requires that an inventory of

air, water and ground transportation facilities and services be included. As well, new or amended elements of the Act must be adopted concurrent with scheduled update provided in RCW 36.70A.130.

- RCW 36.70A.130 requires that each comprehensive plan and development regulations shall be subject to continuing review and evaluation by the county or city that adopted them. A county or city shall take legislative action to review and, if needed, revise its comprehensive plan and regulations to comply with this section. Legislative action means the adoption of a resolution or ordinance following notice and a public hearing indicating at a minimum, a finding that a review and evaluation has occurred and identifying the revisions made, or that a revision was not needed and the reasons thereof. Additionally, any amendment of or revision to development regulations shall be consistent with the comprehensive plan.
- Airports are also recognized under RCW 36.70A.200 by the state as essential public facilities (EPF). All counties and cities planning under GMA RCW 36.70A.040 are required to protect public use airports as essential public facilities. Jurisdictions are required to develop a siting process for locating EPF and should not prohibit the siting, expansion, or continuation of EPF within their comprehensive plan or development regulations. Nor can jurisdictions develop strategies or develop provisions within their comprehensive plan or development regulation that would render the siting of an EPF impossible, impractical, or incapable of being accomplished, however, it is not inappropriate for a jurisdiction to require applicable conditions or mitigation measures.
- RCW 36.70.547, 36.70A.510, 35A.63.270, and 35.60.250 General Aviation Airports - These sections were adopted in 1996 and requires all cities and counties (also applies to city or counties not planning under GMA) to protect public use airports from the siting of incompatible development, whether publicly owned or privately owned public use airports through its comprehensive plan and development regulations. The plans may only be adopted following formal consultation with airport owners and manager, private airport operators, general aviation pilots, ports, and the WSDOT Aviation Division. The law requires that comprehensive plans and regulations be filed with WSDOT Aviation and that each jurisdiction may obtain technical assistance from the WSDOT to develop plans consistent with State Law.

Airport Land Use Compatibility Program Resource Materials

Some of these resources available through the WSDOT Aviation Airport Land Use Compatibility Program include the following:

- Resource Documents and other sources:
 - The Growth Management Act 101
 - WSDOT Aviation Airports and Compatible Use Guidelines

- Land Use Compatibility and Airports, A Guide for Effective Land Use Planning, FAA Airports Division Southern Region
- Height Hazards
- Aircraft Noise
- Land Use Planning Tools
 - Example Scope of Work
 - Example Comprehensive Plan Goals and Policies
 - Example Disclosure Notice
 - Frequently Asked Questions
 - Reference Materials from the FAA, Defense Department, other states, universities, etc..
 - Index of Airport Master Plans (City/County, Airport Name, Subject, Year)
 - List of Airports by County and MPO/RTPO Regions

6.5.2 Supporting References

The following table includes references for additional and/or supporting information with respect to this element. This has been provided with the intent of providing the reader with a current listing of appropriate sources for additional information and research.

References
WSDOT Aviation Airport Land Use Compatibility Program http://www.wsdot.wa.gov/aviation/LandUseCompatibilityOverview.htm
RCW 14.07 and 14.08 Municipal Airports Act http://apps.leg.wa.gov/rcw/default.aspx
RCW 14.12 Airport Zoning http://apps.leg.wa.gov/rcw/default.aspx
RCW 36.70A Growth Management Act http://apps.leg.wa.gov/rcw/default.aspx
RCW 36.70.547, 36.70A.510, 35A.63.270, and 35.60.250 General Aviation Airports. http://apps.leg.wa.gov/rcw/default.aspx
Federal Aviation Administration. Airport Noise Compatibility Planning Toolkit. FAA. 12 December 2006. http://www.faa.gov/about/office_org/headquarters_offices/aep/planning_toolkit
Federal Aviation Administration. FAA AC 150/5020-1, Noise Control and Compatibility Planning for Airports. FAA. 5 August, 1983. www.faa.gov
Federal Aviation Administration. FAA AC 150/5020-1, Noise Control and Compatibility Planning for Airports. FAA. 5 August, 1983. www.faa.gov

6.5.3 Supporting Documents and Resources

The following section includes supporting WSDOT Aviation-specific documents and resources to support the implementation of this element. The following table provides a listing of these documents and resources.

Documents and Resources	Location

6.6 Public Communication Planning

A primary responsibility of an airport manager is the initiation and maintenance of a proactive and open public awareness, outreach and education program. Many times, airports only undertake public involvement efforts in order to secure a short-term goal, such as to win approval for major facility enhancements. However, a truly successful relationship between the airport and the community requires the ongoing attention of the airport to ensure that it is being a good neighbor.

The following section provides guideline for public communications with respect to the state-managed airports. These guidelines take the form of both the current WSDOT Communication Program, and several best management practices utilized within the airport industry.

With respect to this section, please note the following key dates:

Section 6.6 is considered to be current as of **August 1, 2009**

Section 6.6 is to be reviewed and updated (as required) on **June 1, 2011**

6.6.1 WSDOT Standard Procedures

A. Current WSDOT Communication Program

WSDOT currently has a communications program already formally established for use during specific planning efforts. While not specifically designed for airport activities and audiences, this program encompasses many of the elements discussed above.

Work together to reach common goals

Bring together all managers and employees who own the content, work with customers and maintain the site. Adopting an inclusive process at the outset helps ensure the final product meets the needs of everyone involved, especially customers. With many people planning a Web site you may find that each person could have different goals, expectations and direction for the site.

Using the WSDOT Creative Brief and Communication Planning directions below will help get everyone involved working toward the same goal. Use these tools to ensure your Web site is developed right the first time.

- *Creative Brief* - use the brief to get all the issues on the table, get everyone on the same page, define your target audiences, develop your key messages, and develop a timeline.
- *Communication Planning* -use this format to develop a formal Communication Plan when you need to accomplish the above and in addition to creating a new Web site, you also need to reach customers in more ways than the Web such as via open houses, media, posters, brochures, e-mail campaigns, list serves, and any other mediums. This ensures all communications support each other and enhances the effectiveness of the entire communication campaign.

Creative Brief

Answer the questions below as a group and write the answers on a flip chart so everyone can follow the process.

- What is the assignment? Example: Develop a Web site for x subject.
- What do you want this plan to accomplish? Example: Reach customers and let them know what services and tools are available to help them.
- Who is your target audience? Example: Describe them in as much detail as possible. Adults 25-45; \$25-50,000 household income; live in ___ county). [note: the public is not a target audience.]
- What does your target audience think now? Example: This can be in the form of a quote, "I have no idea why WSDOT doesn't solve the congestion problems. We obviously shouldn't give them any more money until they fix what they have."
- What do you want them to think? Example: What do you want to happen or have the target feel when your communication plan is done? You can use a quote for this answer as well. "WSDOT has proven they spend money wisely by providing detailed information showing projects are on time and on budget."
- What are the main messages you plan to communicate? Select three or fewer key messages. They should be short and succinct.
- Why should the target audience believe this? Example: What type of supporting material do you have - incentives and/or cutting edge information.
- Is there anything else that is important? This is the bare your soul time. Identify the elephants lurking in the room.
- Decision/Input Timeline
- Date Due

Communication Planning

Communication planning yields success. The Plan is what keeps you from trying to do everything and helps prioritize which elements will get you the most bang so you can minimize risk and maximize results. Great communication plans have established parts. You must define each of the following parts. (See also WSDOT Communication Plan Template at the end of this section.)

- Goal - This is the thing you want to do. In business, a goal might be to sell more widgets. For the agency, your goal might be to increase awareness.
- Objectives - There are broad ideas of how you will achieve your goal and how you will measure success - objectives need to be quantifiable. These are written as sentences. Use beginning words like: develop, position, build, determine, help, assist, etc.
- Target Audiences - Be as descriptive as you can. You may need to break your audiences into primary and secondary audiences if you have several target audiences. For example, if elected officials are a primary audience, the media may be a secondary audience. The public is not a target audience but defined segments of the public can be.

- Key Messages - Be concise. No more than three. Messages must be short, easily repeatable and readily understandable.
- Strategies - Strategies are more specific than objectives. Use words such as: utilize, produce and concentrate. "Utilize integrated communication to achieve goal (public relations, government/community relations, program sponsorship etc.) Strategies are how you achieve your objectives.
- Tactics - Be very specific. These are the actual actions that will be taken to achieve your goal. These are assignable tasks. They are deliverables.
- Budget - Be realistic.
- Timeline - Start at the end of your planning cycle and plan backward. Be realistic about how much time things take to accomplish - review and adjust as needed.

B. Public Communication and Relations for Airports - Best Practices

As defined, community or public relations is “a set of management, supervisory, and technical functions that foster an organization's ability to strategically listen to, appreciate, and respond to those persons whose mutually beneficial relationships with the organization are necessary if it is to achieve its missions and values.”

At its core, effective airport-community relations depend on trust. It is difficult for community members to have trust in airports if they feel their concerns and ideas are consistently being discounted and/or rejected. If trust is to be built with regard to airport activities, it is fundamental that airport management be responsive to criticisms and make real efforts to see things from the “other side.” Similarly, it is critical that the community fully appreciate the requirements and constraints experienced by airports. As such, it is incumbent upon airport representatives to offer the community insight as to the practical realities of airport operational requirements, so as to enhance their perspective of the “airport side.”

The goal of airport community relations is the establishment and preservation of relationships and trust through effective communications.

Some Common Misconceptions

- *A low profile will avoid difficulties* - There is no such thing as a “low profile” for an airport. The mere fact that the airport exists means people will have opinions about it.
- *Public Relations is just about publicity* - Public relations involves everything the airport is and does that addresses or affects the public interest. The best time to start a planned, positive public relations program is before you need it.
- *Everybody knows how important airports are* - Many airport-related problems arise from a lack of understanding by the community and its leaders of the airport's value. Most opponents believe an airport is just for hobbyists and therefore frivolous, expensive and expendable. It is up to the airport to promote the value of the airport to the local community.

- *We only need Public Relations for specific projects* - A public relations program should include community involvement, political action, and media relations. Ideally, it should be launched before any negative public opinion builds into action and continued even when no crisis threatens.

Developing an Airport Public Relations Plan

The ultimate purpose of public relations is to influence public opinion through persuasion. In essence, it is convincing people that a viewpoint offered serves their best interests, or that they should subordinate their personal self-interest in favor of a greater public interest. With respect to airports, persuasion will typically require an effective public relations effort comprised of the following steps:

1. Define and write down your objectives for your public relations plan. In order for your public or community relations plan to be successful, it is first most important to determine and define your objective.
2. Define your goals in achieving this objective. It is important that your goals be specific, measurable, results-oriented and time-bound. These goals must be in-line with your overall airport operations, development and business objectives.
3. Determine who comprises your target audience and what issues are important to them. Who is it that you want to reach with this campaign? What do you want your key message to be?
4. Develop a schedule for your public relation campaigns. Create synergy by coordinating your public relations plan with other promotional efforts.
5. Develop your plan of attack. Determine which media your audience uses and trusts the most, and identify those communication vehicles you will use to get your message to the public. Examples include the following:
 - Advisory committees, public hearing testimony
 - Press releases, articles, letters to the editor, newsletters
 - Press conferences, interviews, or media tours
 - Radio, television, or press Interviews
 - Seminars or speaking engagements
 - Event sponsorships
6. Establish measures to track the results of your public relations plan. At specific times, review the plan and ask questions. For example, did you achieve the defined objectives and goals of this campaign? Should you consider modifying your original plan?

Foundations for an Effective Airport Communications Plan

An airport manager must understand in detail how the goals of the airport compare with those of the surrounding community. It is essential that these goals not only align to the greatest degree possible, but also that this is communicated to the community, particularly when they are complementary.

Examples:

- If the community wants growth, point out how an airport attracts business.
- If it wants safety, point to the role airports play in law enforcement or in movement of emergency supplies after a natural disaster such as a hurricane or earthquake.

In order to effectively establish the airport's position with respect to these goals, the airport manager should collect and track relevant airport operational data (both hard and anecdotal), such as the following:

- Details of the significant role the airport plays in the community (law enforcement, disaster relief, and handling dignitaries or business visitors).
- Aircraft traffic counts, both local and itinerant.
- Economic implications – document the number of businesses at the airport, their jobs and payroll; the businesses connected with or dependent on the airport and the jobs they provide; outside businesses that fly to your airport; tourism, etc.
- Social implications - document how the airport is currently used.
- Emergency services (medical, firefighting, access/evacuation, etc.)
- Emergency landing
- Education, vocational training, flight training
- Law enforcement, military or National Guard
- Air cargo (mail, overnight express parcel, high-priority freight handling for just-in-time manufacturing operations delivery, etc.)
- Pipe or power-line patrol
- Agriculture
- Personal air transportation (which results in gas sales, tiedown fees, and maintenance services)

In order to anticipate community reactions and to effectively respond to their concerns, it is important that the airport manager have a clear understanding of who comprises the community and what their attitudes toward the airport may be. For example, typical questions that oftentimes remain unanswered for an airport manager include: Is opposition to the airport common throughout the community, or just among a vocal few? Is there positive opinion out there that needs to be strengthened and made public? Is there negative opinion that can easily be erased with a few clarifying facts? While this type of attitude research is commonly done by advertising firms, it can be costly. However, an airport manager might interest an advertising class at a local school or university in examining attitudes about the airport at no cost. Local business leaders or civic organizations might also sponsor such research.

What is important for an airport manager to recognize is that it is best to collect as much information regarding the airport and the host community as possible, and that even a little data can help.

Airport Public Outreach Conduits

A progressive and enthusiastic public outreach program will endeavor to communicate the many ways that airports provide positive benefits to the communities in which they serve. It will also be the responsibility of the airport manager or administrator to be vigilant against forces that may act to discredit these positive impacts.

There are a wide variety of methods and means to communicate to the public with respect to the airport. Note that use of multiple mediums for the dissemination of information is recommended to ensure that a diverse range of interests are communicated with, and the facts surrounding the project are distributed in a straightforward manner. The following show several examples.

- *Technical Advisory Committee (TAC)* - Ongoing public relations can be effectively facilitated by a special airport committee such as a TAC, which are typically formed to oversee the development of an airport master plan. Members of such committees typically hold some influence within the community and usually include local elected officials or their representatives, local and regional planners/engineers, stakeholder agencies, airport businesses/airlines, pilots, and neighborhood groups. A significant benefit to utilizing this group of individuals is that they likely have at least a basic working understanding of airport operational considerations, which can be leveraged to enhance communication with the general community.
- *Community outreach* - Effective community outreach begins with communicating and educating local civic organizations. This aspect is critical since people who care enough to hold and defend an opinion on community issues are almost always involved with a civic organization. Generate a listing of these organizations and establish a program of regular briefings/educational efforts on behalf of the airport. Create a standardized audiovisual slideshow presentation for these briefings that educates the audience on the airport, and promotes its benefits to the community. Note that schools can be a valuable resource in that there are numerous ways to nurture aviation interest among students, ranging from flights for interested teachers to simply collecting aviation magazines and donating them to school libraries. AOPA has information on a variety of promotional programs, including "Fly-A-Teacher," "Fly A Reporter," "Fly A Leader," and AOPA's "APPLE" (America's Pilots Participating in Local Education) program.
- *Special events* - Airport-sponsored special events are among the best ways to promote aviation in the community. These events can include airport anniversary celebrations, military reserve days, air races, static displays, fly-in breakfasts, dedication of new buildings, youth group activities, career days, student art showings, antique shows, and warbird displays. Most of these events can be conducted with minimal expenditures of time and money through use of existing airport facilities and volunteers. However, it must be noted that many such events fail due to lack of proper planning. Basic requirements for a special event include a planning committee, a sponsor, and a small reserve of operating funds. It is generally sound practice to appoint

one person to coordinate all planning and information. It is also good practice to leverage community involvement through participation of local parent-teacher associations, Civil Air Patrol, the Boy Scouts, etc.

- *Media outreach* - Given the evolution and recent expansion of media outlets, it is critical that airport management develop a program to integrate appropriate media coordination into its overall communications efforts. It must be recognized that existing media resources are the best and most cost-effective means for the airport to reach the community. However, it must also be understood that utilizing this resource in an effective manner requires not only establishing relationships with media elements, but also maintaining those relationships over the long term. While there are significant benefits available to airport management when these relationships are managed appropriately, mismanagement or neglect of these relationships can result in negative impacts for the airport that are just as dramatic. Some of the methods that media outlets can be leveraged include the following:
 - Press Liaison – Become a news and contacts source for media outlets.
 - Press Releases - Issue timely announcements of newsworthy events, actions, or statements. News releases must be concise, to the point and, above all, contain genuine news.
 - News Events – Beyond a press release, directly providing media outlets with news is an excellent way to generate publicity. Note that determining what is “news” is open for interpretation. For example, simply having an opinion doesn't constitute news unless a public statement contributes meaningfully to a current, high-profile public debate. While releasing an economic study of the airport can be news, sending a copy to a local official is still bigger news, since the reporter could then work that official into the story. Additionally, the reporter would likely call the official for comment, effectively facilitating the process of "public dialogue." In some cases, the public official could perhaps provide the airport with support by publicly agreeing with the information that was developed.
 - Media Events - A media event is an occasion or happening that attracts coverage by mass media organizations. For example, an aviation day for the local news media, held at the airport, has proven to be an effective media relations opportunity. Note that these media events can coincide with the Special Events discussed above.
 - Letters to the Editor – A “letter to the editor” of the local newspaper, or a posting on its website, can often be an effective means of responding to a news story, particularly if it is believed that the reporter is not conveying the position of the airport appropriately.
 - Political Action - Political action and public relations tie closely together in any campaign to gain support for a local airport. While a successful public relations campaign focuses primarily on the objective of influencing "public opinion" concerning an airport, political action focuses on influencing those elected officials who make decisions on important airport issues.

- Personal Contact – Personal contact is probably the most effective means of communication. However, due to its inherent limitation with respect as to how many people can be directly contacted, its use should be employed judiciously.
- Public Meetings –Effective public meetings are oftentimes the best means of creating synergy between the public outreach efforts described above. Through disseminating information about the airport, a public meeting can be a media/news event that oftentimes involves public officials and typically results in facilitating personal contacts following the meeting.
- Electronic Promotions – New electronic mediums continue to evolve that afford an airport manager additional avenues of communication. These can include website notifications, email “blasts,” and mass “texting” that reflect the migration of communications from mass to personal media.

6.6.2 Supporting References

The following table includes references for additional and/or supporting information with respect to this element. This has been provided with the intent of providing the reader with a current listing of appropriate sources for additional information and research.

References
Aircraft Owners and Pilots Association (AOPA). Guide to Obtaining Community Support for Your Local Airport. AOPA. 15 April 2008. http://www.aopa.org/asn/airportpr/
Lake, Laura. Six Steps to Developing Your Public Relations and Media Plan. About. 15 April 2008. http://marketing.about.com/cs/publicrelations/a/prplan6steps.htm
National Air Transportation Association (NATA). Community Relations Toolkit. NATA.

6.6.3 Supporting Documents and Resources

The following section includes supporting WSDOT Aviation-specific documents and resources to support the implementation of this element. The following table provides a listing of these documents and resources.

Documents and Resources	Location
WSDOT Communications Plan Template	<i>Following Section 6.6</i>