

Airport Land Use Compatibility Guidebook

January 2003



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OREGON DEPARTMENT OF AVIATION

*Adopted by the Oregon Aviation Board
January 29, 2003*

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1.0 Airport Planning – The Oregon Model

→ *The 19 statewide planning goals can be found on the DLCD web page at www.lcd.state.or.us/goalhtml/goals.html.*

Oregon's planning system is predicated on conformance with the nineteen statewide planning goals. Requirements for meeting these goals are elaborated in applicable state statutes and administrative rules, and must be embodied in local comprehensive plans adopted by each county and city. Each of these local plans must be acknowledged by the state Land Conservation and Development Commission (LCDC) as in fact conforming to the goals, statutes, and rules. For a complete discussion of the federal and state regulations related to airport compatible land use planning, please refer to Chapter 5 of this document.

The following presents the means and requirements for local governments and those interested in Oregon aviation to comply with airport land use compatibility. This document provides a tool to assist local governments, planners, airport administrators, and citizens wishing to update the aviation transportation element of their comprehensive plan. Specifically, the document outlines the steps necessary to (1) review existing documents, issues, and policies related to airport planning, (2) integrate them into local comprehensive plan transportation elements, transportation system plans, airport master plans, and local ordinances and implementing regulations, and (3) provide supporting information regarding the rules, regulations and land use issues. The intention of this guide is to provide the information necessary for local jurisdictions and affected airports to conform to statewide planning goals, statutes, and rules applicable to airport planning.

Chapter 1 provides a "hands-on" approach to the assessment of a community comprehensive plan with regards to airport-related land use issues. The first section of Chapter 1 introduces the issues and requirements associated with airport planning, and presents a brief overview of applicable statewide regulations. The second section of Chapter 1 provides a questionnaire communities can use to review their comprehensive plan for compliance with statewide airport planning regulations. Chapter 1 should be used by land use planners as a checklist when updating their community comprehensive plan to ensure adequate implementation of airport-related land use issues. Chapters 2 - 7 should be used as reference data once a community begins the process of updating their comprehensive plan or as a community faces issues or questions regarding airport compatible land use issues.

1.1 Planning for Airport Land Use Compatibility

→ *Since 1974, Oregon's Land Use Planning Act has required all cities and counties to develop and adopt comprehensive plans.*

Since 1974, Oregon's Land Use Planning Act, embodied in Oregon Revised Statutes (ORS Chapter 197), has required all cities and counties to develop and adopt comprehensive plans. These plans must be updated through a process known as periodic review (ORS 197.682-650) to ensure that the plan continues to meet applicable statutes, administrative rules, and current laws and policies of the state of Oregon.

Periodic review ensures that a municipality's comprehensive plan remains in compliance with state provisions for "needed housing, employment, transportation and public facilities and services." In this way, the state ensures that city and county comprehensive plans are updated in response to changes in local conditions as well as changes in state land use policy. Through the periodic review process, local governments work with the state Department of Land Conservation and Development (DLCD) to update certain comprehensive plan elements (e.g., transportation plans) and/or regulations (e.g., airport compatibility zoning/ordinances). For communities that have not updated their comprehensive plan since implementation of the Airport Planning Rule (APR), this section outlines the steps planners and airport operators should undertake to ensure that policy changes for airports statewide are addressed through the periodic review

process, or otherwise, through updates of local plans and land use regulations. The steps outlined below will also be useful for communities wishing to expand or update the transportation element of their comprehensive plan through the creation of a specific transportation plan, or for communities wishing to create a master plan for an airport within their jurisdictional boundary.

1.2 How do the statewide goals and rules fit together with the local planning process?

The following summaries outline the primary state regulations governing aviation-related land use issues and comprehensive plan reviews. Additional discussion of each of these elements can be found in Chapter 4 and Chapter 5.

1.2a. Statewide Planning Goals

Statewide Planning Goal 12 is the goal directly applicable to airport planning in the context of periodic review. Goal 12 specifically promotes safe, convenient, and economic statewide transportation networks, including passenger and airfreight transportation. In order to comply with Goal 12 and the APR, city and county comprehensive plans must include a transportation element that addresses state requirements for airport planning and compatibility with surrounding land uses. An excerpt of the OAR that implements Goal 12 (OAR Chapter 660, Division 12, Transportation Planning) is found in Appendix C.

→ *Statewide Planning Goal 12 is the goal directly applicable to airport planning in the context of periodic review.*

1.2b. Transportation Planning Rule (TPR)

The Statewide Transportation Planning Rule (TPR) also contains language that is applicable to local airport planning. In short, the TPR contains planning requirements for local governments to develop a Transportation System Plan (TSP) as a refinement to the comprehensive plan (refer to OAR Chapter 660, Division 12). In general, TSPs are required to plan for all modes of transportation needed by a given jurisdiction (multi-modal ground, air, and water transportation system needs). With specific regard to aviation and airport planning, TSPs are required to contain elements intended to preserve local components of the state's public use aviation system. To accomplish this, the TPR requires local jurisdictions to adopt land use regulations for land uses within airport noise corridors and FAR Part 77 imaginary surfaces, and to restrict physical hazards to air navigation. Since publication of the 1994 Oregon Airport Land Use Compatibility Guidebook, changes to the TPR provide (1) additional protection for public airports from incompatible land uses, and (2) streamline approval processes for certain types of airport expansions and modifications on rural lands surrounding airports.

1.2c. Oregon Transportation Plan (OTP)

The Transportation Commission adopted the *Oregon Transportation Plan (OTP)* to guide and coordinate transportation activities and to ensure transportation planning utilizes the potential of all modes of transportation. The OTP is the statewide transportation system plan under Goal 12 and the TPR. The OTP includes a policy element and a system element. (Source: ODOT Development Review Guidelines, Pg. 5)

1.2d. 2000 Oregon Aviation Plan (OAP)

In accordance with OAR Chapter 660, Division 13, Section 030(1), the Oregon Department of Transportation (ODOT) has prepared and adopted the 2000 Oregon Aviation Plan (OAP) as part of the State Transportation System Plan in accordance with ORS 184.618 and the State Agency Coordination Program approved under ORS 197.180. The purpose of the state OAP is to provide state policy guidance and a framework for planning and operation of a convenient and economic system of airports, and for land use planning to reduce risks to aircraft operations and nearby land uses. The OAP encourages and supports the continued operation and vitality of Oregon's airports.

➔ *The Airport Planning Rule (APR) further refines the provisions for local government airport regulation contained in Goal 12 and the Transportation Planning Rule.*

1.2e. Airport Planning Rule (APR)

The Airport Planning Rule (APR) further refines the provisions for local government airport regulation contained in Goal 12 and the Transportation Planning Rule. Specifically, the APR establishes a series of local government requirements and rules pertaining to aviation facility planning. These rules are intended to promote a convenient and economic system of airports in the state and for land use planning to reduce risks to aircraft operations and nearby land uses. The APR serves as the state regulatory basis for ensuring that local government airport planning conforms to the hierarchy of state plans and statutory requirements (i.e., Goal 12, ORS 836.600 et seq., Oregon Transportation Plan, 2000 Oregon Aviation Plan). These rules outline the parameters for local governments to follow as a framework for airport planning.

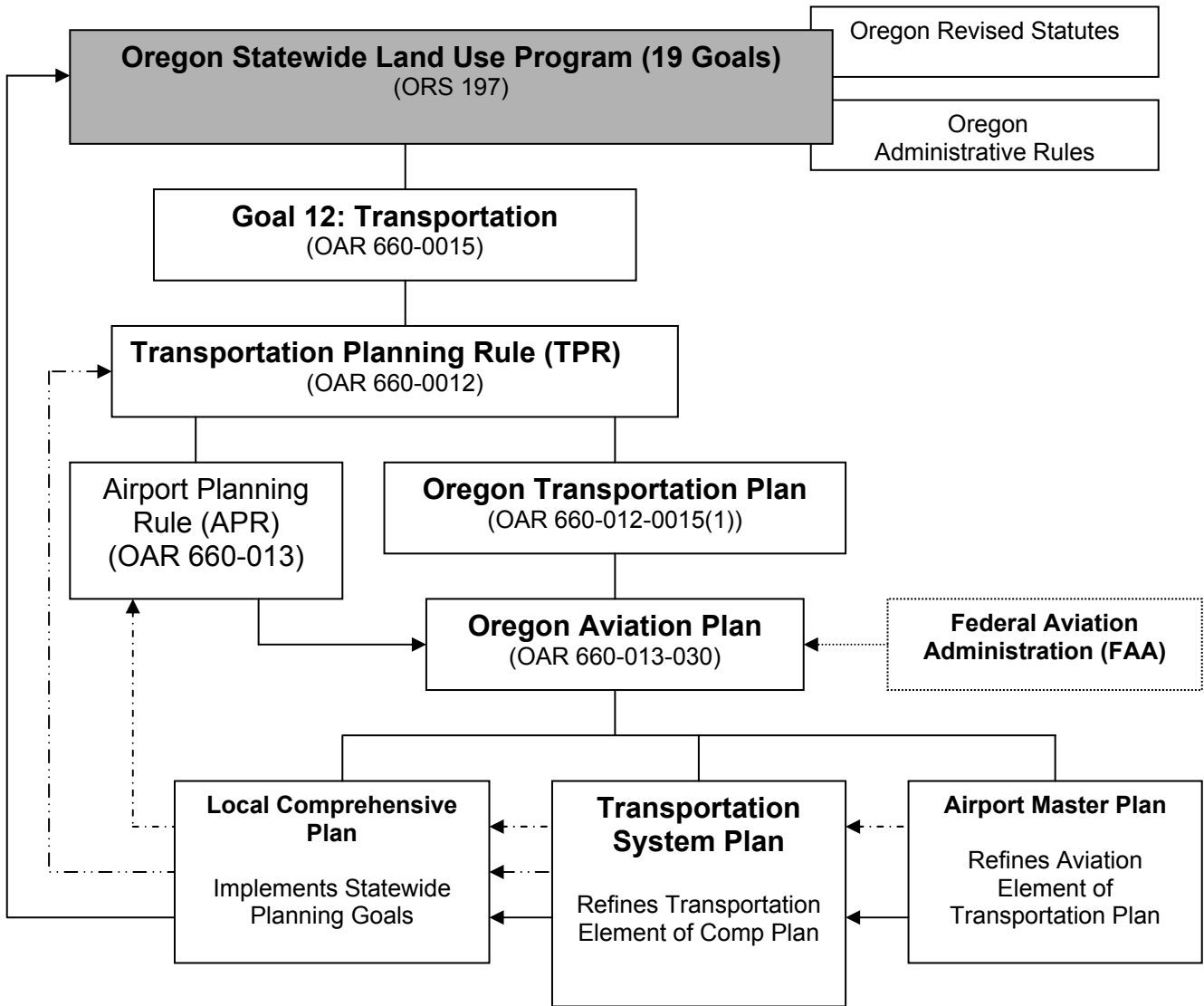
Exhibit 1-1 provides a graphic representation of the relationships between federal and state agencies, as well as rules and regulations related to airport planning and land use compatibility issues.

1.3 How does your community meet the current statewide goals and rules for airport planning?

➔ *Be aware that not all airports in Oregon are subject to the same regulations. The regulatory framework differs depending on the size and use classifications of the airport in question.*

Understanding how your community meets the current statewide goals and rules for airport planning is essential to the development of a successful land use plan. The discussion that follows outlines various questions that can be used as a guide to assist you in your review of community and airport-related planning issues. These questions are not meant to be an exhaustive list of issues to be addressed by every community with an airport. Rather, they should be used as thought-provoking questions, which should lead you in a review of your current community plans. These questions serve as a checklist of the most important issues related to airport facilities in Oregon. This list highlights the primary areas of emphasis based on airport size and type. However, it should be recognized that additional regulations might apply to specific airports based on various conditions. Various regulations are based upon the type of ownership and type of airport use. The number of based aircraft is also a consideration which, when combined with ownership and use, creates a complex set of criteria for regulations. Oregon Department of Aviation should be contacted if you have more site-specific issues that should be discussed.

Exhibit 1-1: Relationship Between the Statewide Land Use Program and Airports



1.3a. Determining Jurisdiction

The first steps in the process are to determine if (1) your jurisdiction is impacted by an airport, (2) what size and use class the airport falls in, and (3) what regulations will apply, or not apply, given the airport classification. The following questions will help you determine those that apply to your jurisdiction. For assistance in answering these questions, please refer to Appendices L, M, N, and O.

→ All jurisdictions should be familiar with the requirements of the APR and how it applies to jurisdictions in Oregon, regardless of whether they are directly impacted by an airport or not.

a.1 Does your jurisdiction include an airport or areas known to be within the safety and/or compatibility zones of an airport? (Note: Some jurisdictions may be affected by more than one airport.)

- If yes, proceed to question a.2.
- If no, you are advised to identify all airports within five miles of your jurisdictional boundary and to coordinate with the parent jurisdiction of any identified airport(s) regarding planning activities subject to regulation under the Airport Planning Rule as outlined in this guide.
- If you are certain that an airport, airport safety zone, or airport compatibility zone does not impact your jurisdiction, then this guide may not be useful to you.
- If you do not know the answer or if you have difficulty determining the answer to this question, please contact the Oregon Department of Aviation for assistance.

a.2 Is the airport in question a publicly-owned facility that was registered, licensed, or otherwise recognized by the Department of Transportation on or before December 31, 1994 and was the base for three or more aircraft in 1994? (Reference Appendix L) (ORS 836.610(1)(a))

- If yes, please note the airport's size (number of aircraft) and location relative to your jurisdiction's boundary and **skip to question b.1**.
- If no, please proceed to question a.3.

→ Airports that meet ORS 836.610(1)(b) include airports that:

(A) Provide important links in air traffic in this state;
(B) Provide essential safety or emergency services; or
(C) Are of economic importance to the county where the airport is located.

a.3 Is the airport a privately-owned public-use airport that meets the requirements of ORS 836.610(1)(b)? (Reference Appendix M) (ORS 836.610(1)(b))

- If yes, please **skip to question b.1** and continue with your review of the checklist.
- If no, please proceed to question a.4.

a.4 Is the airport a privately-owned private-use airport that is not listed under ORS 836.610(3) but was the base for three or more aircraft recognized by the Department of Transportation on or before December 31, 1994? (Reference Appendix N) (ORS 836.608(2); OAR 660-013-0155))

- If yes, ensure that your comprehensive plan complies with the provisions contained in ORS 836.608(2) through (6) and (8), and OAR 660-013-0155(1) through (4) and **stop here**. You are advised to review the remainder of this checklist to determine if there are other site-specific issues that apply directly to your situation.
- If no, please proceed to question a.5.

a.5 Is the airport a publicly owned public-use airport registered, licensed or otherwise recognized by the Department of Transportation on or before December 31, 1994 with less than three based aircraft? (Reference Appendix O) (ORS 836.608; OAR 660-013)

- If yes, ensure that your comprehensive plan complies with the provisions contained in OAR 660-013 regarding local governmental requirements for land use compatibility for public use airports.

- ❑ If you answered no to questions a.2 through a.5, then you do not have an airport subject to regulations in ORS Chapter 836 or OAR 660 Division 13 and you may **stop here**.

1.3b. Comprehensive Plan/Land Use Regulation Review

The second step in the process is to review local comprehensive and transportation plans and land use regulations for conformance with aviation related state statutes and administrative rules. The following questions will help determine whether or not your comprehensive plan complies with the APR. Each of these questions is followed by a citation regarding the specific OAR or ORS that applies to the issue. Due to their length, not all of the rules and statutes cited are contained in the document appendices; rather these citations enable the reader to find the rules governing specific issues, within other sources. At the end of the question is a reference to the various sections within this document where supporting information may be found. It should be noted that the data contained in these chapters can, and should, be supplemented with other available sources when you update your comprehensive plan and when implementing ordinances.

➔ *These questions focus on comprehensive and transportation plans' compliance with the APR.*

- b.1 Does the comprehensive plan outline a process for the development of a coordinated work program for all interested parties and affected jurisdictions within the Comprehensive Plan boundary? Reference Appendix A. (OAR 660-013-0160(1))
 - ❑ If yes, review the process to confirm its effectiveness.
 - ❑ If no, develop a process that meets the requirements of the OAR.
- b.2 Does your comprehensive plan's transportation element include policies related to airport use? Reference Appendices A and C. (OAR 660-013-0030(2); OAR 660-013-0040; OAR 660-012-0045)
 - ❑ If yes, then you should review the transportation element of your comprehensive plan to ensure it complies with the regulations outlined in OAR 660. Refer to Appendix A for further information.
 - ❑ If no, then you need to update the transportation element of your comprehensive plan during your next comprehensive plan update.
 - ❑ If you do not know, then you need to review your comprehensive plan to determine if airports are referenced and then address it accordingly based upon the aforementioned items.
- b.3 When was the transportation element of your Comprehensive Plan last updated? Reference Appendix A. (OAR 660-013-0160)
 - ❑ If the plan was updated prior to 2000, you most likely need to review the transportation element of your comprehensive plan to address the latest regulations regarding airport land use planning.
 - ❑ If the plan was updated since 2000, you should review the transportation element of your comprehensive plan for concurrence with the latest version of this manual.
 - ❑ If you do not know, then you should assume that it was updated prior to 2000 and review it for compliance with the latest version of this manual.
- b.4 Do your comprehensive plan and implementing ordinances include policies, zoning provisions, and implementing measures that address airports and airport expansion? Reference Chapter 6. (OAR 660-013-0080)
 - ❑ If yes, then you should review them for compliance with the latest regulations regarding airport land use planning.
 - ❑ If no, then you need to address these issues and include them in your comprehensive plan and implementing ordinances.
 - ❑ If you do not know, then you need to review the document to assess the content.

- b.5 Is the airport plan consistent with other transportation system plans within the planning boundary?
 - If yes, continue to maintain coordination efforts to maintain this consistency.
 - If no, work with the other jurisdictions to develop a compatible and consistent plan within the planning boundary.

- b.6 Are the current comprehensive plan and implementing ordinances consistent with the requirements for safety and noise related impact areas around the airport? Reference Chapters 2 and 3. (OAR 660-013-0070)
 - Review the list of airport safety and noise related issues found in Table 2.4 on Page 2-7, for a list of airports with basic deficiencies. This list should be used as a starting point for your review.
 - To determine further impacts, the information contained in Chapter 3 should be reviewed.

- b.7 Do your implementing ordinances and comprehensive plan reference the need to comply with the FAA Form 7460-1, Notice of Proposed Construction or Alteration and is there a process established for submission of this form?
 - If yes, ensure the process is being used by staff members when necessary and the form is properly referenced in the comprehensive plan and implementing ordinances.
 - If no, create language and a process to require the submission of the form when necessary.
 - If you do not know, you need to review your current document to determine if a 7460-1 is referenced.

- b.8 In your best assessment, do the transportation elements of your comprehensive plan, the implementing ordinances, and those documents that support the transportation element (transportation system plan, airport master plan, etc., if they exist) adequately address the regulations contained within the APR?
 - If yes, then your document should be complete.
 - If no, then an update to the various documents is necessary to be in compliance with current State Regulations.
 - If you do not know, then you should review the remainder of this guide and consult with staff at the Oregon Department of Aviation to discuss the issues that your community may need to address.

1.3c. Existing Factual Base

The third step in the process is to determine what factual base exists to support the aviation section of the TSP element of the comprehensive plan and implementing ordinances. This section asks a series of questions to help you identify the information and resources needed to support the comprehensive plan. Some of these questions are meant to raise your awareness about various aspects of the aviation section of the TSP element of the comprehensive plan and may not have a “right” or “wrong” answer but are simply meant to provide questions for you to address and consider.

➔ *Identifying the existing information and resources available to you is essential to a comprehensive assessment of your compatible land use program.*

- c.1 Does your jurisdiction have a map that describes the existing airport and planned airport improvements/expansions, the airport’s area of influence (safety, compatibility, and noise boundaries), and the airport’s relationship to your jurisdiction’s urban growth boundaries and city limits? Reference Appendix A for a list of requirements outlined by OAR 660-013-0040, which should be included in these drawings. (OAR 660-13-0040)
 - If yes, then their accuracy and compliance with state regulations need to be addressed.
 - If no, then these drawings need to be developed to provide adequate graphic representation of the airport development and impact areas.

- If you do not know, you need to research these issues to determine the extent of the previous development of airport-related information.

- c.2 Do local planning documents establish an airport boundary, including airport ownership vs. lease areas developed or committed to airport use? Reference Appendix B. (ORS 836.608(2))
 - If yes, are the boundaries current and accurate?
 - If no, update your planning documents based on current information.
 - If you do not know, research needs to be done to establish these boundaries and inventory the limits of the airport.

- c.3 Does your jurisdiction have existing height restrictions for the areas surrounding the airport? Reference Appendix A and Chapters 3 and 6. (OAR 660-013-0070)
 - If yes, are they reflected in your jurisdiction’s plan and ordinance language?
 - If no, these documents should be created based upon the requirements of OAR 660-013-0070.
 - If you do not know, research needs to be done to establish height restrictions for the area surrounding the area.

- c.4 Does your comprehensive plan and/or zoning ordinance provide for land use controls (such as an airport safety overlay district) to prevent development of incompatible uses in the airport’s zone of influence? Reference Appendix A and Chapter 6, Appendices D, E & F. (OAR 660-013-0080)
 - If yes, are these documents current and accurate?
 - If no, these documents should be created.
 - If you do not know, research needs to be done to establish these controls.

- c.5 Are there existing non-conforming uses on or near the airport which should be compliant with applicable airport-related regulations? Reference Appendices A and B, and Chapters 3 and 6. (ORS 836.619; OAR 660-013-0070)
 - If yes, list the types of uses and magnitude of the nonconformity so they can be reviewed for compatibility and proceed to question c.6.
 - If no, **skip to question c.7.**
 - If you do not know, research this issue.

- c.6 Are there existing restrictions, easements, etc., which have created the situation in question c.5?
 - If yes, ensure they are accurate and that they provide adequate protections given existing and future airport plans.
 - If no, review the elements in Chapters 3 and 6 for ways to address the issue to ensure the areas remain clear of development.
 - If you do not know, research this issue.

- c.7 Are there existing structures (buildings, radio, TV, or phone towers, etc.) that are 150 feet or more above the airport’s elevation (the airport’s horizontal surface)? Reference Chapter 3 page 3-6 for a definition of horizontal surface.
 - If yes, proceed to question c.8.
 - If no, ensure that the regulations are in place to restrict development within the horizontal surface area of the airport and **skip to question c.9.**
 - If you do not know, research needs to be done to review the heights of local structures.

➔ Appendices D, E, F, G, and H should be referenced for suggested language for various model ordinances.

- c.8 Were the structures legally established through an approved planning or building permit review process (i.e. are they legal non-conforming uses)?
 - If yes, take steps to ensure that the non-conformity is not increased in the future.
 - If no, consider taking action in accordance with local and state enforcement regulation.
 - If you do not know, research the situation to determine how the structure(s) was established.

- c.9 Are there other obstructions (trees, terrain, etc.) that are 150 feet or more above the airport's elevation (the airport's horizontal surface)? Reference Chapter 3 page 3-6 for a definition of horizontal surface.
 - If yes, determine if the obstruction can be modified or removed.
 - If no, take steps to ensure that no obstructions are allowed to penetrate the horizontal surface in the future.
 - If you do not know, research needs to be done to review the heights of local obstructions.

- c.10 Are there homes or other noise-sensitive land uses that fall within the airport's noise contours, specifically the State recognized level? Reference Appendix A, and Chapters 3 and 6. (OAR 660-013-0080(1)(b))
 - If yes, which noise contours are they located within and are they of concern? Chapter 3.3, page 3-13 addresses compatible noise levels.
 - If no, are there adequate easements or zoning regulations in place to preserve this situation?
 - If yes, then the existing easements should be reviewed for accuracy and compliance.
 - If no, then easements and zoning ordinances should be implemented.
 - If you do not know, research and inventory the land uses and noise contours around the airport.

- c.11 Is the zoning in place to support the aviation authorized uses and activities per ORS 836.616? Reference Appendix B. (ORS 197.175, ORS 836.616)
 - If yes, are these documents current and accurate?
 - If no, these documents need to be created.
 - If you do not know, research needs to be done to inventory land uses and airport environs.

✈ *The provisions of ORS 836.616 do not apply to airports with an existing or approved control tower as of June 5, 1995.*

1.3d. Issue Identification

The comprehensive plan should, based upon the factual information gathered above, describe the issues associated with the airport in your area. Specifically, the comprehensive plan should identify and describe issues associated with compatibility, economic impacts, transportation impacts, and environmental impacts. Reference Chapters 3 and 6 for a discussion of various forms of compatible and incompatible land uses. The following questions will help you identify those issues that are applicable.

- d.1 Does the comprehensive plan describe the relevant airport-related issues and their impact on the community? Reference Chapter 3. (OAR 660-013-0040)
 - If yes, ensure the descriptions themselves are current and that their impacts are relevant to the current community issues.
 - If no, research the issues and their impacts on the community and document them in the comprehensive plan.

- d.2 Does the plan discuss the importance, purpose, and benefits of comprehensive airport planning? (OAR 660-013-0040)
 - If yes, ensure these discussions are consistent with current goals and objectives of the APR and the local community.

- If no, develop text that addresses these issues and include in the next comprehensive plan update.

d.3 What are the primary issues related to airport planning in your area? List the issues of concern for airport planning in your community. **Table 1-1** and Chapters 3 and 6 provide guidance on issues that should be considered.

1.3e. Applicable Policies/Regulations

In order to implement statewide regulations, the comprehensive plan and implementing ordinance must include policies and/or regulations that direct airport development and development of the area surrounding the airport. The questions below will help focus policies and regulations to address Oregon Administrative Rules and Oregon Revised Statutes.

- e.1 Does your plan contain compatibility standards related to residential, commercial, and industrial development (including regulations on lighting, telecommunications, emissions, and other hazards to aviation)? Reference Appendix A and Chapter 3. Refer to model ordinances in Appendices D-H for potential language. (OAR 660-013-0080)
 - If yes, ensure these are consistent with current APR requirements.
 - If no, develop standards that address these issues based upon APR regulations.
- e.2 Does your plan have policies which apply to water impoundments within the airport planning area in accordance with ORS 836.623? Reference Appendix B, and Chapters 3 and 5.
 - If yes, ensure the policies are current and revise if necessary.
 - If no, policies should be adopted to address this issue.
- e.3 Do you have policies or implementing ordinances that apply to wetland mitigation in conjunction with airport planning in accordance with Statewide planning Goal 5? Reference Chapters 3 and 5. (OAR 660-023-0100)
 - If yes, ensure the policies are current and revise if necessary.
 - If no, policies should be adopted to address this issue.
- e.4 Do you have policies or administrative ordinances related to the location and expansion of landfills in accordance with OAR 340-094; CFR Title 40, Part 258, Subpart B; and AC 150/5200-34? Reference Chapters 3 and 5.
 - If yes, ensure the policies are current and revise if necessary.
 - If no, policies should be adopted to address this issue.
- e.5 Does the plan have a policy regarding an amendment process when new information is presented or identified?
 - If yes, ensure the policies are current and revise if necessary.
 - If no, policies should be adopted to address this issue.
- e.6 Has your jurisdiction adopted an Airport Safety Overlay Zone prohibiting structures, trees, etc. from penetrating airport imaginary surfaces based upon FAA standards, and established limited height exceptions and a means of approving variances when supported by the ODA and FAA? Reference Appendix A, Chapter 3, Appendices G and H (OAR 660-013-0070(2))
 - If yes, ensure the regulations are current and revise if necessary.
 - If no, regulations should be adopted to address this issue.

➤ *Items to consider in land use plans include, but are not limited to:*

- residential, commercial, industrial developments
- water impoundments
- wetlands, landfills, wildlife attractants

1.4 Does your community have existing or potential land use issues that should be addressed?

➔ *Table 1-1 provides a brief summary of the potential impacts associated with various land uses.*

Section 1.2c guides the reader through the process of assessing the existing condition of the area around the airport. This includes asking questions regarding existing non-conforming uses, objects which penetrate height restrictions, homes or other noise-sensitive land uses within noise contours, etc. (section 1.3 c.5 – 1.3 c.7). **Table 1-1** can be referenced to provide the reader with a better understanding of why these land uses may be of concern to the airport and its operation. As illustrated in the Table, Chapters 3 and 6 are referenced for support information.

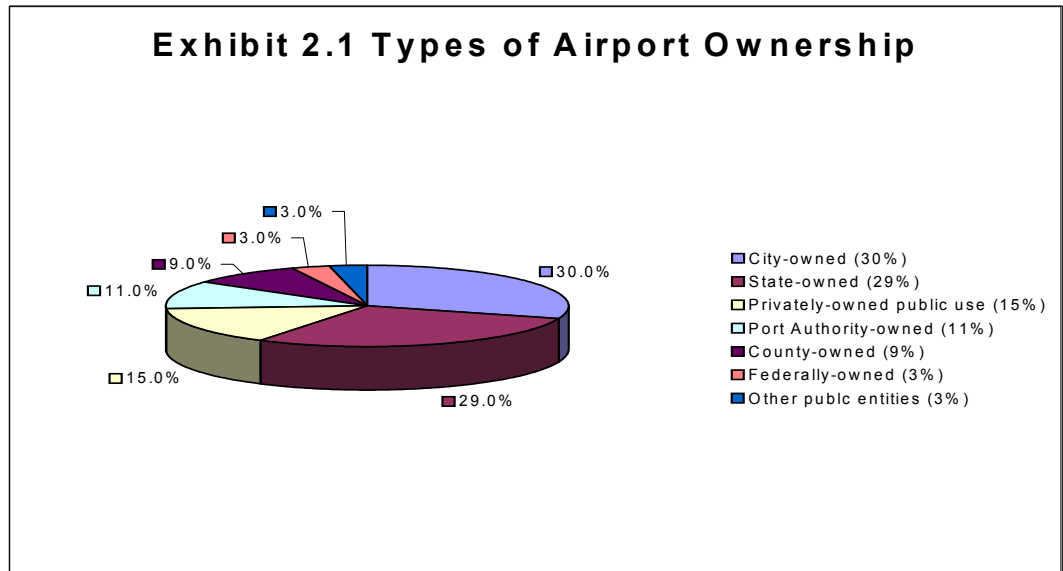
1.5 What do you do with this information?

Participating in the exercise to answer the questions outlined above should provide the reader with an understanding of the compatible aviation land use areas that must be addressed in a comprehensive plan review. Based upon the answers to specific questions, the readers should use the information contained in Chapters 2 through 7, as well as the actual OAR and ORS citations to address these issues. It must be noted that the information contained in this guide is not meant to be all inclusive of the federal, state and local regulations but is a summary of the primary regulations that should be considered. There may be specific issues that must be dealt with on a site-specific basis and the Oregon Department of Aviation and other relevant agencies should be consulted. Chapter 7 contains suggestions for agency contacts in specific areas of interest and templates that illustrate the various airport areas. Additionally, Appendices D through I provide sample documents that can be used for land use compatibility measures such as easements, development agreements, and other issues.

Table 1-1: Land Use Troubleshooting Matrix				
Land Use	Potential Impact	Chapter 3 Reference	Example Actions Available	Chapter 6 Reference
Existing Residential Development	Noise Concern	Page 3-13	Soundproofing Noise Easement	Page 6-10
	Safety Concern	Pages 3-1 & 3-11	Fee Simple Acquisition	Page 6-5
Proposed Residential Development	Noise Concern	Page 3-13	Hold Harmless Agreement/Fair Disclosure Statement	NA
	Safety Concern	Pages 3-1 & 3-11	Comprehensive Plan	Page 6-3
Landfills	Safety Concern	Pages 3-1 & 3-12	Airport Overlay Zoning	Page 6-4
School, Hospital, and Church Development	Noise Concern	Page 3-13 & 3-18	Soundproofing Noise Easement	Page 6-10
	Safety Concern	Pages 3-11	Airport Overlay Zoning	Page 6-4
Radio / Television Tower	Safety Concern	Page 3-12	Avigation & Hazard Easement	Page 6-6
			Height Limitation Zoning	Page 6-4
Factory Smoke	Safety Concern	Page 3-12	Avigation & Hazard Easement	Page 6-6
			Airport Overlay Zoning	Page 6-4
Golf Courses	Safety Concern	Page 3-11 & 3-12	Avigation & Hazard Easement	Page 6-6
			Airport Overlay Zoning	Page 6-4
Auditorium / Outdoor Theaters	Safety Concern	Page 3-11	Airport Overlay Zoning	Page 6-4
Power Lines	Safety Concern	Page 3-12	Avigation & Hazard Easement	Page 6-6
			Height Limitation Ordinance	Page 6-4
Agricultural Activities	Safety Concern	Pages 3-11 & 3-12	Avigation & Hazard Easement	Page 6-6
Water Impoundments	Safety Concern	Pages 3-11 & 3-12	Avigation & Hazard Easement	Page 6-6

2.0 ODA Goals and Policies Related to Land Use Issues

With over 400 airports, the state of Oregon offers significant aeronautics opportunities for transportation and economic activities. As of June 2002, public use airports account for 98 of these facilities and provide the backbone of the aviation system for the state. Ownership of these public use facilities is as diverse as the types of airports themselves. The largest segment, 30 percent, is owned by the Cities, followed closely by the State of Oregon with 29 percent ownership. Private ownership with public access accounts for 15 percent while ownership by a Port Authority is 11 percent. Rounding out the ownership options are 9 percent county-owned facilities, 3 percent federally-owned facilities, and 1 percent owned by other public entities. **Exhibit 2.1** represents these classifications.



The important element to observe with these figures is the high percentage of facilities that are publicly owned. This public ownership should lend itself to a more cooperative planning environment since avenues for communication and coordination regarding land use issues should already be in place. Providing a comprehensive understanding of land use compatibility to the airport management, the local planning agencies and the political subdivisions within the host communities, is essential to the preservation of aviation within the state.

➔ Each public use airport in the state was assigned to one of the five individual categories based on the criteria developed by the Department of Aviation.

2.1 Airport Categories

In an effort to address the roles of the airports within the state, the Department of Aviation, as a part of the 2000 Oregon Aviation Plan, created five categories for the identification of airport facilities. These categories were created to assist in the distribution of funds as well as the identification of development priorities. Each public use airport in the state was assigned to one of the five categories based on the functional and design criteria developed by the Department of Aviation. **Table 2-1** illustrates the major elements of each category as presented in the 2000 Oregon Aviation Plan.

Category¹	Significant Function²	Designation Criteria³
1 Commercial Service	Accommodate scheduled major/national or regional/commuter commercial air carrier service	<ul style="list-style-type: none"> • Scheduled commercial service
2 Business or High Activity General Aviation	Accommodate corporate aviation activity, including business jets, helicopters, and other general aviation activities	<ul style="list-style-type: none"> • 30,000 or more annual operations, of which a minimum of 500 are business related aircraft. Business use heliports
3 Regional General Aviation	Accommodate a wide range of general aviation users for large service areas in outlying parts of Oregon. Many also accommodate seasonal regional fire response activities.	<ul style="list-style-type: none"> • Generally less than 30,000 operations • Geographically significant location with multiple communities in the service area. Nearest Category 1 or 2 Airport is more than 90 minutes average travel time by road.
4 Community General Aviation	Accommodate general aviation users and local business activities	<ul style="list-style-type: none"> • 2,500 or more annual operations or more than ten based aircraft
5 Low Activity General Aviation	Accommodate limited general aviation use in smaller communities and remote areas of Oregon. Provide emergency and recreational use function.	<ul style="list-style-type: none"> • Less than 2,500 annual operations and ten or fewer aircraft

Source: 2000 Oregon Aviation Plan

Notes:

1. *Category 1* airports are divided into two groups based on the level of air service provided and the forecast design aircraft.
2. *Significant Function* identifies the most demanding function associated with each airport. Most airports have multiple functions. It is recognized that in addition to the highest primary function identified, each airport also provides many of the functions identified in the subsequent categories.
3. Activity breakdowns or thresholds listed in the *Criteria* column reflect existing distributions among Oregon airports. Among Oregon's *101 public use airports, only 22 have more than 30,000 annual operations; nearly half of Oregon's 101 public use airports have less than 2,500 annual operations and ten or fewer based aircraft. *EDITOR'S NOTE: As of June 2002, 101 airports have been reduced to 98 public use airports.

As shown in **Table 2-1**, the five categories of airports are predominately dependent on the facility's ability to service a particular segment of the aviation community. For example, Category 1 is reserved for Commercial Service Airports. While this designation does not preclude general aviation aircraft from using the airport, it indicates the development emphasis for the airport would be focused on the growth of the commercial service opportunities. **Table 2-2** illustrates the classifications of the 98 public use airports, as listed in the 2000 Oregon Aviation Plan. Airports may move between categories as facilities change. However, the majority of the airport facilities are not expected to change over the planning period. The important item to note with the current classifications is the high number of airports in categories 4 and 5. These are focused on the smaller community-based and low-activity general aviation airports. This split between the larger air carrier airports and business-use

airports versus the smaller general aviation airports is typical of the national trends in state aviation systems.

2.2 Policies to Protect Airports

As illustrated in **Table 2-2**, a diverse base of aviation facilities make up the Oregon Aviation System. In an effort to protect these airports, the Department of Aviation, as a part of the 2000 Aviation Plan, has outlined various policies that target land use issues. The following excerpt from the Aviation Plan outlines the position of the Department with regards to airports and incompatible land uses.

“Airports can be subject to concerns from airport neighbors over noise and air pollution. The surrounding airspace must be free of obstructions to minimize safety problems for aircraft operations and the people on the ground. Because of these factors, it is becoming increasingly difficult to expand and/or relocate airports in more densely populated areas. Changes in land use and continuing growth also make airport land more valuable, making it attractive for the airport owner to lease or sell the land for non-aviation purposes.

→ Cities and counties are responsible for ensuring compatibility of land uses and establishing appropriate zoning requirements around airports.

Cities and counties are responsible for ensuring compatibility of land uses and establishing appropriate zoning requirements around airports. The incremental and cumulative impact of land use decisions that result in incompatible land uses by allowing citizens to occupy noise impact or high hazard areas can limit an airport’s ability to expand facilities and/or expand operations and, in some cases, threatens an airports future.

Oregon’s Transportation Planning Rule contains strong language requiring local jurisdictions to develop land use regulations and adopt measures to protect public use airports by controlling land uses within airport noise corridors, by limiting physical hazards to air navigation, and by controlling land uses in approach corridors to airports.

Oregon Revised Statutes require that all airports with three or more based aircraft, as of December 31, 1994, be identified and zoned as an airport in local planning documents. As mandated by Oregon Revised Statutes, the Oregon Land Conservation and Development Commission (LCDC) developed Airport Planning Rules addressing safety zones for airports with three or more based aircraft and land use compatibility requirements for public use airports. These rules became effective on February 12, 1999.” Excerpt from the ODA 2000 Aviation Plan.

Table 2-2: Public Use Airports by Category (As of January, 2003)		
Category 1	Category 4	Category 5
Eastern Oregon Regional – Pendleton	Albany Municipal	Alkali Lake State
Eugene Mahlon Sweet Field	Ashland Municipal	Arlington Municipal
Klamath Falls	Bandon State	Beaver Marsh (Private)
North Bend Municipal	Brookings	Boardman
Portland International	Chehalem Airpark (Private)	Burns Junction BLM
Roberts Field – Redmond	Chiloquin State	Cape Blanco State
Rogue Valley International – Medford	Condon State	Cascade Locks State
	Cottage Grove State	Christmas Valley
Category 2	Country Squire Airpark (Private)	Crescent Lake State
Astoria Regional	Creswell Hobby Field	Davis (Private)
Aurora State	Enterprise Municipal	George Felt (Private)
Bend Municipal	Florence Municipal	Lake Billy Chinook (Private)
Corvallis Municipal	Gold Beach Municipal	Lake Woahink SPB (Private)
Hillsboro (Portland)	Grants Pass	Lakeside State
McMinnville Municipal	Hermiston Municipal	Malin
Portland Downtown Heliport	Illinois Valley	McDermitt State
Roseburg Regional	Independence State	McKenzie Bridge State
Salem McNary Field	Joseph State	Memaloose USFS
Scappoose Industrial Airpark	Ken Jernstedt Airfield	Miller Memorial Airpark
Troutdale (Portland)	Lebanon State	Monument Municipal
	Lenhardt Airpark	Nehalem Bay State
Category 3	Lexington	Oakridge State
Baker City Municipal	Madras City – County	Owyhee Reservoir State
Burns Municipal	Mulino (Portland)	Pacific City State
Columbia Gorge Regional/The Dalles Municipal	Myrtle Creek Municipal	Paisley
Grant County Regional/Olgivie Field	Newport Municipal	Pinehurst State
La Grande/Union County	Prineville	Powers
Lake County	Sandy River (Private)	Prospect State
Ontario Municipal	Seaside Municipal	Rome State
	Siletz Bay State	Santiam Junction State
	Sisters Eagle Air (Private)	Silver Lake USFS
	Sportsman Airpark (Private)	Skyport (Private)
	Stark’s Twin Oaks (Private)	Toketee State
	Sunriver (Private)	Toledo State
	Tillamook	Vernonia Airfield
	Valley View (Private)	Wakonda Beach State
		Wasco State

→ *The ODA identified eight action items to address and protect the state's aviation system from incompatible land uses.*

2.3 Actions to Protect Airports

Based on the policy outlined in Section 2.2, the Oregon Department of Aviation (ODA) identified numerous action items to address the incompatible land use issues facing airports today. Although cities and counties are primarily responsible for ensuring compatible land uses around airports within their jurisdiction, specific actions have been developed by the ODA and are intended to protect the state's system of airports from incompatible land uses. These actions include the following:

- Guide local jurisdictions in implementing the land use and zoning requirements regarding airports contained in ORS 836.000 to 836.630 and in OAR Chapter 660 Division 13.
- Revise, adopt and implement the state-level Oregon Airport Land Use Compatibility Guidelines, November 1994, to help local jurisdictions establish zoning and land use regulations that preserve airports and avoid future land use conflicts.
- Guide local jurisdictions to develop appropriate zoning as required by DLCDC rules to keep runway protection zones free of all structures.
- Coordinate with local jurisdictions regarding the state requirement that proposed construction plans for areas surrounding airports be submitted to airport owners in accordance with OAR Chapter 738 Division 100, and also to the Federal Aviation Administration in accordance with Federal Aviation Regulation, Part 77 and Oregon Aeronautics Division OAR 738-70.
- Use the regular inspections carried out by the FAA and Aeronautics Division staff at general aviation airports to identify potential safety hazards.
- Promote the use of federal and state standards to minimize the liability risk for state and local governments and the airport sponsors.
- Promote compatible uses of surrounding areas by working with airport operators, affected communities and aviation users.
- Identify the extent of residential encroachment and monitor change and notify local government of hazards.

2.4 Airport Protection Measures

The actions outlined by ODA have been condensed into six primary measures that provide an overall indicator of the status of the airports with regard to airport protection from incompatible land uses. These indicators include the following:

- Presence of airport overlay zoning
- Airports with a 55 DNL noise contour extending beyond airport property
- Presence of incompatible land uses nearby, including residential uses (as reported by airport operators) and close-in obstructions (within runway primary surface or runway protection zones)
- Presence of water impoundments within the vicinity of the airport
- Presence of open landfills within the vicinity of the airport
- Presence of bird attractants or migratory areas

Each of these measures will be discussed in more detail in the following chapters. In 1998-1999, ODA conducted a survey of the state's public use airports. This survey inventoried the incompatible land uses for each airport. The determination of the incompatibilities was left to the discretion of the airport manager. As **Table 2-3** summarizes, there are many airports reported to have deficiencies in one or more of the categories. This further supports the need for compatible land use initiatives to protect the airports from future land use incompatibilities. Lack of planning or forethought can lead to disastrous results when future development is considered.

Deficiencies listed in Table 2-4 may have been mitigated at specific airports since the 1998-1999 survey. Since a follow-up survey was not conducted, it is assumed that the reported deficiencies continue to be a concern. As urban growth continues, there may even be increases in the areas of deficiencies. **Table 2-4** illustrates the individual airport deficiencies for the public use airports as noted in the 2000 Oregon Aviation Plan.

Table 2-3: Airport Protection Deficiencies		
Protection Item – Major Incompatible Land Uses	Airport Category	Number of Airports Reporting Deficiencies
Overlay Zoning Deficiency	1	3
	2	2
	3	4
	4	25
	5	38
	Total	72
55 DNL Noise Contours	1	9
	2	9
	3	7
	4	32
	5	24
	Total	81
Incompatible Land Uses Near Airport	1	6
	2	9
	3	6
	4	28
	5	20
	Total	69
Water Impoundments Near Airport	1	4
	2	6
	3	4
	4	18
	5	12
	Total	44
Open Landfills Near Airport	1	1
	2	1
	3	1
	4	6
	5	6
	Total	15
Bird Migratory Areas Near Airport	1	6
	2	6
	3	4
	4	28
	5	14
	Total	53

Source: 2000 Oregon Aviation Plan – revised to reflect 2002 airport category changes.




Table 2-4: Land Use Compatibility						
Legend:	Overlay Zoning Deficiency	55 DNL Contour off Airport	Incompatible Land Uses Nearby	Water Impoundments Near Airport	Open Landfills Near Airport	Bird Migratory Areas Near Airport
<p>Legend:</p> <p> Deficiency Reported</p> <p> None Reported</p> <p> Not Applicable</p>						
Category 1						
Portland International						
Eugene Mahlon Sweet Field						
Rogue Valley International – Medford						
Roberts Field – Redmond						
Klamath Falls						
North Bend Municipal						
Eastern Oregon Regional – Pendleton						
Category 2						
Astoria Regional						
Aurora State						
Bend Municipal						
Corvallis Municipal						
Hillsboro (Portland)						
McMinnville Municipal						
Portland Downtown Heliport						
Roseburg Regional						
Salem McNary Field						
Scappoose Industrial Airpark						
Troutdale (Portland)						
Category 3						
Baker City Municipal						
Burns Municipal						
Columbia Gorge Reg./ The Dalles Municipal						
Grant County Regional/ Ogilvie Field						
La Grande/Union County						
Lake County						
Ontario Municipal						
Category 4						
Albany Municipal						
Ashland Municipal						
Bandon State						
Brookings						
Chiloquin State						
Condon State						
Cottage Grove State						
Creswell Hobby Field						
Enterprise Municipal						
Florence Municipal						
Gold Beach Municipal						
Grants Pass						
Hermiston Municipal						
Ken Jernstedt Airfield						







Table 2-4: (continued)						
Legend:	Overlay Zoning Deficiency	55 DNL Contour off Airport	Incompatible Land Uses Nearby	Water Impoundments Near Airport	Open Landfills Near Airport	Bird Migratory Areas Near Airport
 Deficiency Reported						
 None Reported						
 Not Applicable						
Illinois Valley						
Independence State						
Joseph State						
Lebanon State						
Lexington						
Madras City-County						
Myrtle Creek Municipal						
Mulino (Portland)						
Newport Municipal						
Prineville						
Seaside Municipal						
Siletz Bay State						
Tillamook						
Category 5						
Alkali Lake State						
Arlington Municipal						
Boardman						
Burns Junction BLM						
Cape Blanco State						
Cascade Locks State						
Christmas Valley						
Crescent Lake State						
Lakeside State						
Malin						
McDermitt State						
McKenzie Bridge State						
Memaloose USFS						
Miller Memorial Airpark						
Monument Municipal						
Nehalem Bay State						
Oakridge State						
Owyhee Reservoir State						
Pacific City State						
Paisley						
Pinehurst State						
Powers						
Prospect State						
Rome State						

Table 2-4: (continued)						
Legend:	Overlay Zoning Deficiency	55 DNL Contour off Airport	Incompatible Land Uses Nearby	Water Impoundments Near Airport	Open Landfills Near Airport	Bird Migratory Areas Near Airport
 Deficiency Reported						
 None Reported						
 Not Applicable						
Santiam Junction State						
Silver Lake USFS						
Toketee State						
Toledo State						
Vernonia Airfield						
Wakonda Beach State						
Wasco State						
Category 4 (Private Airports)						
Chehalem Airpark (Private)						
Country Squire Airpark (Private)						
Lenhardt Airpark (Private)						
Sandy River (Private)						
Sisters Eagle Air (Private)						
Sportsman Airpark (Private)						
Stark's Twin Oaks (Private)						
Sunriver (Private)						
Category 5 (Private Airports)						
Beaver Marsh (Private)						
Davis (Private)						
George Felt (Private)						
Lake Billy Chinook (Private)						
Lake Woahink SPB (Private)		<input type="checkbox"/>		<input type="checkbox"/>		
Skyport (Private)						
Valley View (Private)						

Source: 2000 Oregon Aviation Plan – revised to reflect 2002 airport category changes.

2.5 Summary

The ODA has made a concerted effort to address land use compatibility issues within the state through their development of the action items outlined in the 2000 Oregon Aviation Plan. Preservation of the aviation facilities of the state is essential to the economy and quality of life of the residents of the state and the tourists who visit. The various strategies and approaches outlined in this document should be implemented by local airports, their owners, and their host communities, in an effort to provide compatible land use planning on and around airports in the state.

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3.0 Importance of Land Use Planning

Aviation is a nearly \$50 billion national industry that provides a vital transportation and economic element to our country. However, this essential service is continually threatened by the perpetual encroachment of incompatible land uses. The increased demand for developable properties is a national issue facing facilities from large international airports in metropolitan areas to small general aviation airports in rural communities.

➔ *Incompatible land uses include a multitude of developments ranging from noise-sensitive residential developments to areas of standing water acting as bird attractants.*

Incompatible land uses include a multitude of developments ranging from noise-sensitive residential developments to areas of standing water acting as bird attractants. The common denominator with all incompatible land uses is their effect on the safety of the airport and safety of the citizens in close proximity to the airport. These various issues are discussed below to further define their importance regarding compatible land use issues.

Issues of compatible land use safety are complex and can be defined in various ways. For example, when asked to describe an airport safety-related issue, many people would reference perimeter fencing or possibly the security checkpoint at an air carrier airport. Seldom does the average citizen recognize that cell towers and residential developments, or even wetlands, pose a hazard to the safety of the airport and those who use it.

There are predominately two issues that must be considered when planning for airport land use compatibility: safety and noise impacts. Each of these issues has their own individual areas of focus yet relate to one another based upon their proximity to the airport environs. These areas are discussed in greater detail below to provide a comprehensive understanding of their role in developing compatible land uses.

3.1 Safety

A primary concern in achieving airport land use compatibility involves safety at and around an airport. It is important to identify those safety risks associated with air transportation in order to minimize the consequences of accident potential. Also, specific areas near airports are exposed to various levels of accident potential. Identifying and protecting these specific areas through effective land use controls is essential for the safe and efficient operation of an airport. It also protects the public from the impacts of a potential aircraft accident. Areas around the airport should be free of development that could pose a hazard to pilots operating aircraft in the airport environs.

➔ *The common denominator with all incompatible land uses is their effect on the safety of the airport and safety of the citizens in close proximity to the airport.*

3.1a. Safety Statistics

Safety issues are a significant consideration for pilots, airports, and land uses surrounding airports. There are several factors that determine from a safety perspective, which areas around an airport need to be protected. These factors include: the phase of operation during which aircraft accidents most often occur, the cause of these accidents, and the location of these accidents relative to the airport. Data from the National Transportation Safety Board (NTSB) regarding these factors are available to determine these areas.

The NTSB maintains extensive data on air carrier and general aviation accidents and their causes. The most current data available are from 1996-97. **Table 3-1** shows the number of commercial and general aviation aircraft accidents that occurred during each portion of flight. From an off-airport land use planning perspective, the characteristics of accidents near airports are of the greatest concern.

Phase of Operation	Commercial (1996)	General Aviation (1997)
Cruise	2	311
Takeoff	3	392
Landing	4	488
Approach	0	233
Maneuvering	0	254
Taxi	0	55
Climb	1	60
Descent	1	42

Source: National Transportation Safety Board, Annual Review of Aircraft Accident Data, 1996/97

The conclusion that most of the risk involved with air transportation is associated with the takeoff and landing portions of flight is supported by these statistics. The critical areas at an airport that need to be secured and protected from a land use compatibility standpoint include the approach paths and departure paths to the runways. To enhance airport safety, it is important to maintain obstruction-free airport airspace and a reasonable amount of vacant land at both ends of each runway. Areas to be maintained and the dimensions of these areas are dependent upon the type of aircraft that operate at the airport. Information on these areas is on page 3-8 and in Chapter 7.

In addition to knowing the phase of operation during which aircraft accidents are most likely to occur, the most frequent causes of aircraft accidents should be identified. Identifying the cause of accidents as it relates to development activities is important to land use compatibility planning. **Tables 3-2** and **3-3** identify the causes of aircraft accidents that occurred in 1996-97.

In some cases, more than one factor contributed to an accident. Data presented in **Table 3-2** indicates that commercial aviation aircraft accidents are most often attributed to pilot error. **Table 3-3** indicates that general aviation aircraft accidents are also related to the terrain and obstructions surrounding an airport. A pilot's preoccupation with the terrain and structures immediately surrounding an airport can contribute to accidents. Structures in the approach path of a runway also contribute to aircraft accidents. Clearly, for the safety of both air travelers and the general public, it is best to maintain obstruction-free airspace as part of compatible land use planning for the area around each airport. One may note that assignment of cause can be to some degree subjective.

➔ *The environment, which includes weather, light conditions, objects (trees, wires, etc.), terrain, and runway conditions was the second leading cause of both commercial service and general aviation accidents.*

Cause/ Factor	Part 121		Part 135		Non-Sch. Part 135		Total Accidents	
	Non-fatal Accidents	Fatal Accidents	Non-fatal Accidents	Fatal Accidents	Non-fatal Accidents	Fatal Accidents	Non-fatal Accidents	Fatal Accidents
	Personnel ¹	24	2	6	1	70	20	100
Environment ²	16	0	3	1	50	12	69	13
Aircraft ³	11	3	4	0	34	10	49	13
Other ⁴	0	0	0	0	0	0	0	0

Source: Tables 13, 33 & 51 of NTSB Report: PB99-156374, NTSB/ACR-99/01

Notes:

- Personnel:¹ Pilot, others (aboard), others (not aboard)
- Environment:² Weather, light conditions, objects (trees, wires, etc.) airport, airways facilities and aids, terrain/runway conditions
- Aircraft:³ Propulsion systems and controls, flight control systems, landing gear, system/equipment/instruments
- Other:⁴ All other factors

Cause/Factor	Non-Fatal Accidents	Fatal Accidents	Total Accidents
Personnel ¹	1,409	283	1,692
Environment ²	790	136	926
Aircraft ³	571	75	646
Other ⁴	192	48	240

Source: Tables 13, 33 & 51 of NTSB Report: PB99-156374, NTSB/ACR-99/01

Notes:

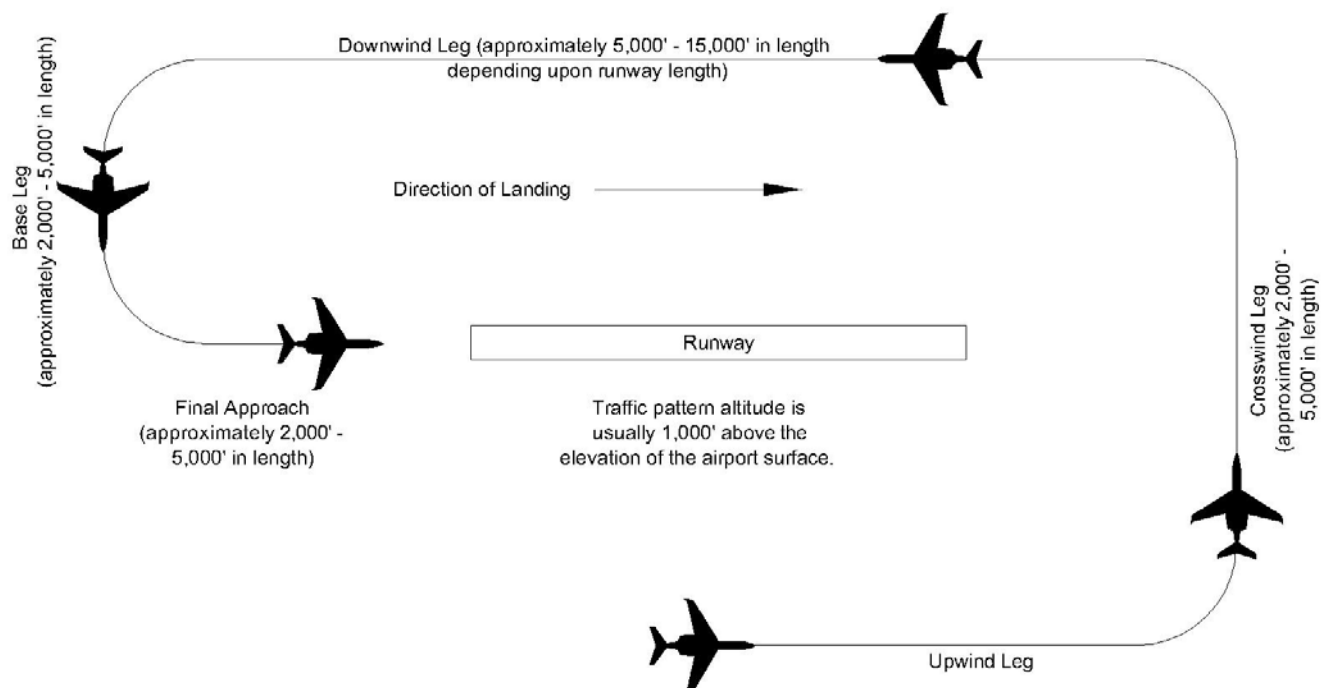
- Personnel:¹ Pilot, others (aboard), others (not aboard)
- Environment:² Weather, light conditions, objects (trees, wires, etc.), airport, airways facilities and aids, terrain/runway conditions
- Aircraft:³ Propulsion systems and controls, flight control systems, landing gear, system/equipment/instruments
- Other:⁴ All other factors

Perhaps the most critical factor in determining which areas around an airport should be protected, is knowing where aircraft accidents occur. Data compiled by the NTSB indicate that the largest number of aircraft accidents occur on airport property. Specific data regarding the location of general aviation aircraft accidents, relative to the airports' location, are also available from the NTSB. With regard to general aviation aircraft accidents, data from the NTSB indicate that roughly 45 percent of all aircraft accidents occurred on airport property, while 15 percent occurred within one mile of the airport, and 40 percent occurred beyond one mile of the airport. Considering the general aviation aircraft accidents that occurred within one mile of the airport, 33 percent of these occurred within one-quarter mile of the airport and 29 percent occurred in the airport traffic pattern. The remaining 38 percent occurred within one mile of the airport. This data suggests that three geographic areas should be considered when addressing incompatible land use: land use under the airport traffic pattern, within one-quarter mile of an airport, and off the approach ends to the runways. The areas within ¼ mile of the runway and the approach ends of the runway will be discussed later in this chapter, while the airport traffic pattern is discussed below.

✈ Data compiled by the NTSB indicate that the largest number of aircraft accidents occur on airport property.

A typical airport traffic pattern, as depicted in Exhibit 3-1, is rectangular in shape. It has a footprint of approximately 230 to 1720 acres of land, depending upon the runway length and type of aircraft using the airport. The base and crosswind legs are flown approximately 1,000 to 2,000 feet perpendicular to the runway and are approximately 2,000 to 5,000 feet in length. The downwind leg parallels the runway at a distance of 2,000 to 5,000 feet and extends approximately 1,000 to 2,000 feet beyond the end length of the runway in each direction to meet either the crosswind or base legs. The typical altitude for the pattern is 1,000 feet above the airport elevation. A typical airport traffic pattern, depicted in **Exhibit 3.1**, can be between 2,000 and 5,000 feet depending on the type of aircraft, number of aircraft in the pattern and a pilot's own individual flying techniques.

Exhibit 3-1: Typical Airport Traffic Pattern



3.1b. FAA Required Surfaces

Specific areas to be considered at and around an airport are defined by two major Federal Aviation Administration criteria: Federal Aviation Regulation (FAR) Part 77 - Objects Affecting Navigable Airspace and FAA Advisory Circular 150/5300-13 Airport Design Standards. These two primary documents provide the foundation for delineating the limits of the environs affected by aircraft near airports.

b.1 FAR Part 77 Surfaces

FAR Part 77 establishes standards for determining which structures pose potential obstructions to air navigation. It does this by establishing standards for defining obstructions to navigable airspace. These airspace areas are referred to as "Imaginary Surfaces." Objects affected include existing or proposed objects of natural growth, terrain, or permanent or temporary construction including equipment that is permanent or temporary in character. The imaginary surfaces outlined in FAR Part 77 include:

- Primary Surface
- Transitional Surface
- Horizontal Surface
- Conical Surface
- Approach Surface

→ *Dimensions of FAR Part 77 surfaces vary depending on the type of runway approach.*

FAR Part 77 surfaces are designed to protect specific airspace areas, while design standards are intended to protect specific ground areas. Accident data presented earlier reveals that most aircraft accidents occur during the landing or takeoff portion of flight. It is, therefore, important to protect the approach and departure ends of each runway. Dimensions of FAR Part 77 surfaces vary depending on the type of runway approach. There are three types of runway approaches: visual, non-precision, and precision.

A visual approach runway is one with no instrument approach capabilities or where the existing or planned instrument approach is a circling, rather than a straight-in approach. A circling approach requires the pilot to have visual contact with the runway while aligning the aircraft with the runway for landing.

A non-precision instrument runway utilizes air navigational facilities with only horizontal guidance to aircraft, aligning them with the runway for straight-in approaches.

A precision instrument runway has approaches that use an Instrument Landing System (ILS), a Precision Approach Radar (PAR), or a Microwave Landing System (MLS). These approach systems provide both vertical and horizontal alignment of aircraft to a particular runway. Airports with scheduled commercial passenger traffic and heavily-used general aviation airports normally have existing or planned precision approaches.

Definitions for the FAR Part 77 surfaces are as follows:

- Primary Surface: The primary surface is longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway. When the runway has no specially prepared hard surface, or planned hard surface, the primary surface terminates at each end of the runway. The width of a primary surface ranges from 250 feet to 1,000 feet depending on the existing or planned approach and runway type (i.e., visual, non-

precision, or precision). **Exhibits 3-2 and 3-3** depict the dimensional requirements of the primary surface.

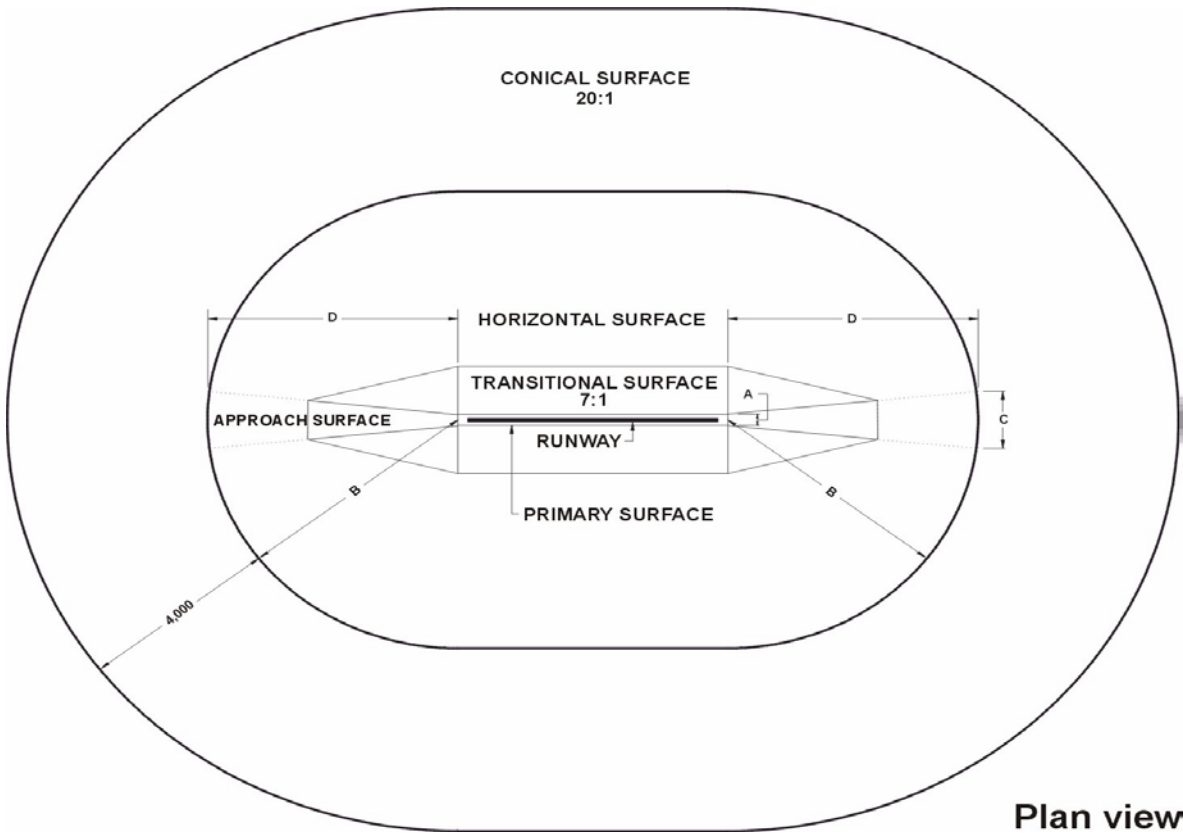
- **Transitional Surface:** Transitional surfaces extend outward and upward at right angles to the runway centerline and are extended at a slope of seven (7) feet horizontally for each foot vertically (7:1) from the sides of the primary and approach surfaces. The transitional surfaces extend to where they intercept the horizontal surface at a height of 150 feet above the runway elevation. For precision approach surfaces, which project through and beyond the limits of the conical surface, the transitional surface also extends a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline. **Exhibits 3-2 and 3-3** depict the dimensional requirements of the transitional surface.
- **Horizontal Surface:** The horizontal surface is a horizontal plane located 150 feet above the established airport elevation, covering an area from the transitional surface to the conical surface. The perimeter is constructed by swinging arcs from the center of each end of the primary surface and connecting the adjacent arcs by lines tangent to those areas. The radius of each arc is 5,000 feet for all runway ends designated as utility or visual, or 10,000 feet for all other runway ends. **Exhibits 3-2 and 3-3** depict the dimensional requirements of the horizontal surface.
- **Conical Surface:** The conical surface is a surface extending upward and outward from the periphery of the horizontal surface at a slope of one foot for every 20 feet (20:1) for a horizontal distance of 4,000 feet.
- **Approach Surface:** Longitudinally centered on the extended runway centerline, the approach surface extends outward and upward from the end of the primary surface. An approach surface is applied to each end of each runway based upon the type of approach. The approach slope of a runway is a ratio of 20:1, 34:1, or 50:1, depending on the sophistication of the approach. The length of the approach surface varies, ranging from 5,000 feet to 50,000 feet. The inner edge of the approach surface is the same width as the primary surface and expands uniformly to a width ranging from 1,250 feet to 16,000 feet depending on the type of runway and approach. **Exhibits 3-2 and 3-3** depict the dimensional requirements of the approach surface.

As previously noted, Exhibits 3-2 and 3-3 illustrate the FAR Part 77 "Imaginary Surfaces" in both plan view and profile view representations. The dimensional requirements for each of the FAR Part 77 surfaces described previously are also presented. A visual approach runway has relatively small imaginary surfaces with approach and horizontal surfaces extending 5,000 feet from the primary surface, at an approach slope of 20:1. For a non-precision approach runway, both the approach and the horizontal surfaces extend either 5,000 or 10,000 feet from the primary surface, depending on the design category of the runway. The imaginary surfaces for precision approach runways are similar to those for non-precision runways except that the approach surface extends 50,000 feet from the primary surface and horizontal surfaces extend 10,000 feet from the primary surface.

Although the FAA can determine which structures are obstructions to air navigation, the FAA is not authorized to regulate tall structures. Under FAR Part 77, an aeronautical study can be undertaken by the FAA to determine whether the structure in question would be a hazard to air navigation. However, there is no specific authorization in any statute that permits the FAA to limit structure heights or determine which structures should be lighted or marked. In fact, in every aeronautical study determination, the FAA acknowledges that state or local authorities have control over the appropriate use of property beneath an airport's airspace.

→ *The FAA is not authorized to regulate the height of structures. This responsibility falls to the state and local authorities.*

Exhibit 3-2: FAR Part 77 Surfaces – Plan View and Dimension Requirements



Plan view

Dim	Item	Dimensional Standards (Feet)					Precision Instrument Runway
		Visual Runway		Non-Precision Instrument Runway			
		A	B	A	B	C	
A	Width of Primary Surface and Approach Surface Width at Inner End	250	500	500	500	1,000	1,000
B	Radius of Horizontal Surface	5,000	5,000	5,000	10,000	10,000	10,000
C	Approach Surface Width at End	1,250	1,500	2,000	3,500	4,000	16,000
D	Approach Surface Length	5,000	5,000	5,000	10,000	10,000	*
E	Approach Slope	20:1	20:1	20:1	34:1	34:1	*

A – Utility Runways

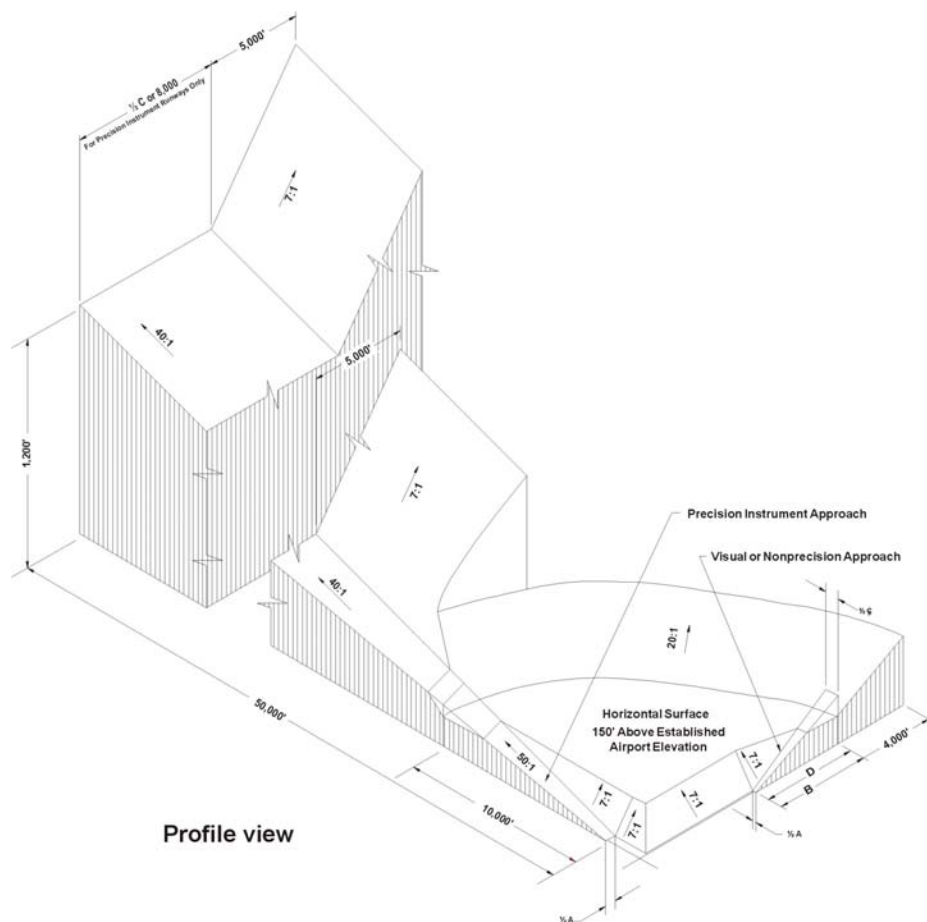
B – Runways Larger than Utility

C – Visibility Minimums Greater than ¼ Mile

D – Visibility Minimums as Low as ¼ Mile

* – Precision Instrument Approach Slope is 50:1 for Inner 10,000 feet and 40:1 for an Additional 40,000 feet

Exhibit 3-3: FAR Part 77 Surfaces - Profile View



Profile view

The State of Oregon exercises its authority to control obstructions to air navigation. Oregon Administrative Rule Chapter 738, Division 70 Physical Hazards to Air Navigation (OAR 738-70) authorizes the ODA to adopt rules defining physical hazards to air navigation within the State of Oregon. These hazards include existing and proposed manmade objects, objects of natural growth, mobile objects, and terrain. OAR 738-70 also determines whether such objects or structures shall be marked and lighted; and determines the responsibility of such marking and lighting. While FAR Part 77 recommends mitigation measures for objects that deviate from Part 77 imaginary surfaces, OAR 738-70 requires marking and lighting for objects that are obstructions.

➔ ODA exercises its authority to regulate obstruction to air navigation through OAR 738, Division 70.

b.2 FAA Design Standards

Safety areas are defined by FAA airport design criteria standards to allow for the safe and efficient operation of an airport. These safety areas include:

- ➔ **Runway Protection Zone:** Runway Protection Zones, formerly clear zones, were originally established to define land areas underneath aircraft approach paths. Allowing control of these areas by airport operators was desirable to prevent the creation of airport hazards or the development of incompatible land use. A 1952 report by the President's Airport Commission, entitled "The Airport and Its Neighbors," recommended the establishment of clear areas beyond runway ends. Provision of these clear areas was intended not only to preclude obstructions potentially hazardous to aircraft, but also to control building construction as protection to people on the ground. The Department of Commerce concurred with the recommendation

on the basis that this area was "primarily for the purpose of safety for people on the ground." The FAA adopted clear zones with dimensional standards to implement the Commission's recommendation. Guidelines were developed recommending that clear zones be kept free of structures and any development that would create a place of public assembly. Today, clear zones are referred to as Runway Protection Zones, whose function remains to protect people and property on the ground.

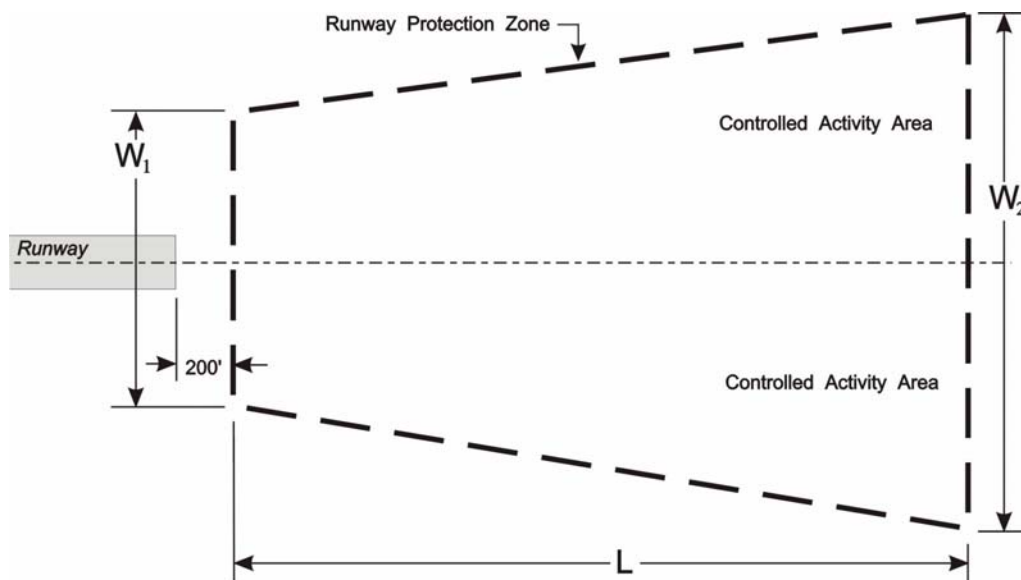
→ *Design standards are defined and explained by the FAA Advisory Circular 150/5300-13, Airport Design.*

A Runway Protection Zone (RPZ) is an area that begins at a point 200 feet beyond the end of the runway. The length of the RPZ extends 1,000, 1,700, or 2,500 feet depending on the category of runway and type of approach (visual, non-precision or precision). The inner width of a RPZ is located closest to the end of the runway. Opposite this end is the outer width, which is the wider end. The inner width of a RPZ varies from 250 feet to 1,000 feet. The outer width of a RPZ varies from 450 feet to 1,750 feet. As with the length of the RPZ, the inner and outer widths of a RPZ are dependent on the runway category and approach type. **Exhibit 3-4** depicts a schematic of the RPZ and presents its required dimensions by runway category and runway approach type.

- **Runway Safety Area:** The Runway Safety Area (RSA) is a critical surface surrounding the runway. RSAs should be cleared and graded and free of potentially hazardous surface variations. The RSAs should be properly drained and capable of supporting snow removal, aircraft rescue and fire fighting (ARFF) equipment, or an aircraft (without causing damage to the aircraft). The size of the RSA is dependent upon the runway design category and approach type (visual, non-precision, or precision). Taxiways also have similar safety area requirements.
- **Runway Object Free Area:** The runway Object Free Area (OFA) is a two-dimensional ground area surrounding the runway. FAA standards prohibit parked aircraft and objects from locating within the OFA. The runway OFA extends beyond the runway end at lengths that vary from 240 feet to 1,000 feet, depending on the runway design category and the approach type. There are also taxiway OFAs.

These safety zones (RSAs and OFAs) are almost always contained within airport property. The RPZs, however, can extend beyond airport property. Therefore, from an off-airport land use compatibility perspective, the critical safety zone for land use compatibility planning is the RPZ. The FAA recommends that the entire RPZ should be owned by the airport whenever possible.

Exhibit 3-4: Runway Protection Zone and Dimension Requirements



Runway Protection Zone Dimension Requirements

Approach Visibility Minimums ¹	Facilities Expected to Serve	Dimensions			
		Length (L)	Inner Width (W ₁)	Outer Width (W ₂)	RPZ (acres)
Visual and Not lower than 1 Mile	Small Aircraft Exclusively	1,000	250	450	8.035
	Aircraft Approach Categories A & B	1,000	500	700	13.770
	Aircraft Approach Categories C & D	1,700	500	1,010	29.465
Not lower than ¼ Mile	All Aircraft	1,700	1,000	1,510	48.978
Lower than ¼ Mile	All Aircraft	2,500	1,000	1,750	78.914

All dimensions in feet unless otherwise noted.

Source: FAA Advisory Circular 150/5300-13, Airport Design

Note:

¹The RPZ dimensional standards are for the runway end with the specified approach visibility minimums. The departure RPZ dimensional standards are equal to or less than the approach RPZ dimensional standards. When a RPZ begins other than 200 feet beyond the runway end, separate approach and departure RPZs should be provided. Refer to appendix 14 of FAA Advisory Circular 150/5300-13, Airport Design, for approach and departure RPZs.

3.2 Compatibility Concerns

→ *Compatibility concerns can take many forms: from the level of density to wildlife attractants and each has associated safety issues.*

There are basic categories of concern when discussing compatible land uses. The following outlines the top priority items that need to be addressed as part of a land use compatibility program. Some factors to consider include the density of developments and the height of structures. Other conditions to consider when planning for safe airport environs include distracting lights, reflective glare, smoke, dust, induced fog, electronic interference, and bird attractants. These conditions can distract the pilot and interfere with their safe approach and departure from an airport. Land uses that can lead to, or contribute to, these conditions should be discouraged in the airport environs. In particular, proposed development should not be permitted beneath the approach surface of a runway if that development generates any of the potentially hazardous conditions described in the following paragraphs. This is by no means an inclusive list, however, it illustrates the diverse types of land uses that a planner needs to be cognizant of when developing an airport land use plan.

3.2a. Density Development

A primary means of limiting the risks of damage or injury to persons or property on the ground due to near-airport aircraft accidents is to limit the density of land use development in these areas. The question of where to set these limits is dependent upon both the probability of an accident and the degree of risk that the community finds acceptable. From the previous sections, it is clear that accident probabilities increase with closer proximity to runway ends both because of greater concentration of aircraft over that area and because aircraft are flying at low altitude.

The areas where aircraft regularly fly less than 500 feet above the ground are regarded as the most critical. Low flight altitudes present the greatest risks because they offer pilots less opportunity to recover from unexpected occurrences. Because aircraft are turning to follow the traffic pattern, this area encompasses more than just the area beneath the FAR Part 77 approach surface. Turns mostly take place between 2,000 and 5,000 feet from the runway end, depending upon the aircraft type, the number in the traffic pattern, and the pilot's flying techniques.

These points raise the question of the degree of risk to which adjacent uses will be subjected. Perhaps the best measure of development density in this context is the number of persons per acre. Because the risks differ inside a building versus outside, different standards are often applied for each condition. Some airports and local communities have set development density limitations ranging from 25 to 100 people for various parts of a runway approach corridor. Shopping centers are likely to average about 75 people per acre and restaurants are often over 100. In general, high density residential development and places of public assembly should not be permitted in the airport's approach corridors.

3.2b. Open Areas

Another facet of the safety/density issue is how to reduce the risks for the occupants of an aircraft in the event that an emergency landing cannot be avoided. Given that aircraft are normally controllable during an emergency descent, pilots will head for the best available open space if they cannot reach the airport. An open area does not have to be very large to enable a successful landing for the occupants to survive the accident with limited injury. Because the pilot's discretion in selecting an emergency landing site is reduced as the aircraft's altitude decreases, open areas should preferably be spaced more closely in those locations that aircraft can over-fly.

→ *RPZs and approach areas are often the most critical areas that must be protected from incompatible land use.*

3.2c. Height of Structures

As indicated in the previous section, Part 77 of the Federal Aviation Regulation provides basic guidance regarding the airport-vicinity airspace that should be

protected from tall structures. The most critical locations with regard to height are beneath the airport approach surfaces. Tall objects in the approach corridors may pose risks even though they do not penetrate the defined Part 77 surfaces. Such objects can adversely affect minimum instrument approach altitudes. As such, the siting of multi-story facilities and communication towers should be carefully considered in relation to airport activities.

3.2d. Lights

Lights that shine upward are potentially hazardous since they can detract from a pilot's ability to identify an airport at night. A pilot may perceive such lights from adjacent land uses as part of the airport and/or runway lights.

3.2e. Glare

Reflective surfaces can produce a blinding glare, distracting pilots. Water surfaces and building materials also need to be considered with regards to glare.

3.2f. Smoke

Smoke generated by nearby business, industry, or field burning operations can create severe visual difficulties when a pilot is either looking for an airport or preparing to take-off or land. An extensive amount of smoke can drastically curtail airport operations. Dust, fog, and steam, that all contribute to reduced visibility can limit the effectiveness of an airport.

3.2g. Electronic Interference

Land uses that generate electronic transmissions should not be permitted near airports. Such uses can interfere with aviation navigational signals and radio communications.

3.2h. Bird Attractants

Water impoundments, garbage dumps, sanitary landfills, sewage treatment plants and certain species of flora and fauna often attract birds. Increased numbers of birds around airports increase the possibility of collisions between birds and aircraft. Damage to an aircraft and its occupants from a bird strike can be devastating. *FAA Order 5200.5, Guidance Concerning Sanitary Landfills On or Near Airports*, states that sanitary landfills, because of their bird attractive qualities, are considered to be an incompatible land use if located within specified distances as cited by the FAA. *Advisory Circular 150/5200-33, Hazardous Wildlife Attractants on or Near Airports* discusses the various incompatible land uses, and bird attractants are included in this list. It is stated in *FAA Order 5050.4A, Airport Environmental Handbook*, that the FAA advises against locating such facilities within 5,000 feet of all runways accommodating or planned to accommodate piston-type aircraft, and within 10,000 feet of all runways accommodating or planned to accommodate turbine (jet) powered aircraft. Oregon State solid waste management rules dictate specific operating criteria for municipal and non-municipal solid waste landfill sites that encourage compatible land uses around airports. For example, the State's rules on landfill site location requirements relative to airports, coincide with the requirements set forth in *FAA Order 5050.4A*. In addition, the State requires that landfill sites be periodically covered with earth material to minimize bird attraction.¹

➔ *Wildlife attractants, specifically bird attractants, are a concern to airports since wildlife can collide with aircraft in the air and on the ground. This can cause loss of life and damage to property.*

Other potentially hazardous conditions should be recognized when planning compatible land use in the airport environs. In general, places of public assembly; distracting lights, glare, smoke, electronic interference; and bird attractors should not be within runway protection zones, approach zones, transitional zones, or beneath the airport traffic pattern. Additionally, sources emitting electronic interference and bird attractors are not acceptable forms of land use within the horizontal and conical zones.

¹ Oregon Department of Environmental Quality, Administrative Rules, Solid Waste Management, Division 340-94-040(10) and Division 340-95-020(22), March 1993.

Table 3-4 identifies land uses that are generally compatible or incompatible within airport safety areas and Part 77 surfaces. There are specific types of development that are usually compatible with an airport. In general, these include most agriculture, commercial, and industrial land uses. Other types of development, such as residential and places of public assembly are typically considered to be incompatible with an airport. If residential development is planned near an airport, it should be low density. Guidelines presented in this table need to be verified on a case-by-case basis.

3.3 Noise Related Concerns

Noise is defined in Webster's dictionary as "any sound that is undesired or interferes with one's hearing of something." Aircraft sounds are perceived differently by various individuals. However, concerns about aircraft noise are often reflections of the degree to which aircraft noise intrudes on existing background noise. In general, where ambient noise is low, aircraft noise is perceived as a problem. For example, in an urban area, noise generated by aircraft is muffled by noise produced by cars, trucks, and industry. In quiet, less developed areas, noise generated by a small aircraft could be annoying to the nearby resident. Each community must decide whether noise-related land use controls around their airport should be limited to substantially noise-impacted areas, or if they see a need to control land use in areas impacted by more moderate noise levels.

➔ *Noise related issues are often hard to address because many concerns are based upon perceived impacts.*

Historically, airports were constructed on the outskirts of communities. Aircraft noise was not a problem since the airport was located at a significant distance from developed areas. Through the years, development has often expanded toward the airport. As communities have expanded toward an airport, land uses that are sensitive to noise have developed closer to the airport. In fact, in Oregon, residential development and other high density development is now occurring near many of the airports. Coupled with increases in air traffic volumes, the potential for noise problems related to land use in the airport environs has intensified in recent years. Inappropriate development near airports increases the perceived impact of aircraft noise.

3.3a. Noise Impacts

Noise impacts around an airport are greatly influenced by various factors. Factors affecting an airport's noise impact include the number of aircraft operations and the type of aircraft using the airport. In addition, each airport is different in geographical location, size, role, airfield layout, and its patterns of surrounding land use. Thus, each airport may have its own particular noise problem that requires solutions tailored to that specific airport site.

Noise impact areas for an airport are identified by noise contours. The basic methodology employed to define aircraft noise levels involves the use of a mathematical model: the Federal Aviation Administration's (FAA) Integrated Noise Model (INM). The INM contains a database that relates slant range distance and engine thrust to noise levels related to each specific type of aircraft. On an irregular grid around the airport, the Model computes the associated noise exposure level for the specific aircraft and engine thrust used at that point along the aircraft route of flight. The individual noise exposure levels are summed for each grid location. Equal noise levels are then indicated by a series of contour lines superimposed on a map of the airport and its environs. Although lines on a map tend to be viewed as definitive, it should be emphasized that the Model is only a planning tool. By developing a set of noise contours for an airport, a planner can identify areas that are most likely to be impacted by aircraft noise, and plan accordingly. A later section of this report provides noise contour examples for airports with varying activity levels.

➔ *The industry standard for noise modeling is the FAA Integrated Noise Model (INM).*

Table 3-4: Compatible Land Uses per FAR Part 77 Surfaces and FAA Safety Areas

Legend:						
C Generally compatible land use						
NC Incompatible Land Use						
• Not clearly compatible or incompatible, requires specific study						
Criteria for Compatibility:						
1. Does not exceed height standards						
2. Does not attract large concentrations of people						
3. Does not create a bird attractant						
4. Does not cause a distracting light/glare						
5. Does not cause a source of smoke						
6. Does not cause an electrical interference						
7. Does meet compatible DNL sound levels						
Land Uses	Primary Surface	Transitional Surface	Horizontal Surface	Conical Surface	Approach Surface	Runway Protection Zone
Residential						
Residential, other than those listed below	NC	NC	•	C	•	NC
Mobile home parks	NC	NC	•	C	•	NC
Transient lodgings	NC	NC	•	C	•	NC
Public Use						
Places of public assembly (schools, hospitals, churches, auditoriums)	NC	NC	•	C	NC	NC
Government services	NC	•	C	C	•	NC
Transportation (parking, highways, terminals)	NC	•	C	C	•	•
Commercial Use						
Offices, business and professional	NC	•	C	C	•	NC
Wholesale & retail - building materials, hardware and farm equipment	•	•	C	C	•	NC
Retail trade - general	NC	•	C	C	•	NC
Utilities	NC	•	•	•	•	•
Communication	NC	•	•	•	•	NC
Manufacturing & production						
Manufacturing - general	NC	•	•	•	•	NC
Agricultural (except livestock) and forestry	•	•	C	C	•	•
Livestock farming and breeding	NC	•	•	C	•	NC
Mining and fishing, resource production and extraction	NC	NC	•	•	•	NC
Recreational						
Outdoor sports arenas and spectator sports	NC	NC	•	C	NC	NC
Nature exhibits and zoos	NC	NC	•	C	NC	NC
Amusement parks, resorts and camps	NC	NC	C	C	NC	NC
Golf courses	NC	NC	C	C	NC	NC
Parks	NC	•	•	•	•	•

The Federal Aviation Administration (FAA) is the federal agency involved with providing guidance for developing local plans and zoning ordinances for areas affected by aircraft noise. Federal Aviation Regulations (FARs) pertaining to aircraft noise include: FAR Part 150 - Airport Noise Compatibility Planning, FAR Part 36 - Noise Standards, FAR Part 91 - Transition to all Stage 3 fleet operating in the 48 contiguous United States and the District of Columbia, and FAR Part 161 - Notice and approval of airport noise and access restrictions

→ *Appendix J provides information regarding measuring aircraft noise.*

- **FAR Part 150** contains many regulations in the "Aviation Safety and Noise Abatement Act, 1979." Under FAR Part 150, local jurisdictions can prepare and submit to the FAA a Noise Exposure Map (NEM) for the airports environs and a Noise Compatibility Plan (NCP), if desired. This voluntary program applies to all publicly owned, public use airports that are included in the National Plan of Integrated Airport Systems (NPIAS). The NPIAS identifies the type and estimated costs of airport development eligible for FAA Airport Improvement Program (AIP) funds. The NPIAS is considered the planning document while the AIP is the implementing program. The FAR Part 150 regulation does not apply to privately owned airports (unless they are included in the NPIAS), heliports, or military facilities.

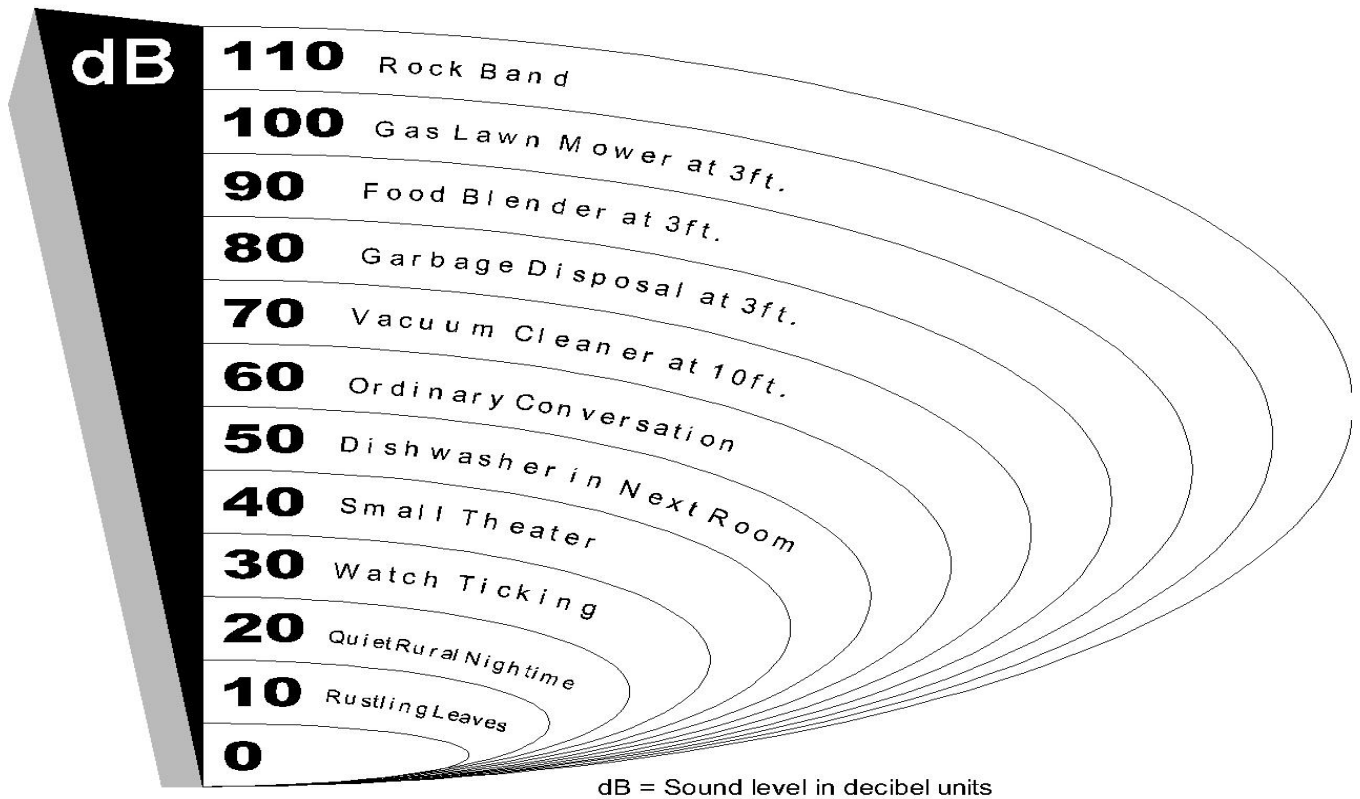
Other provisions established by FAR Part 150 include:

- ✓ Making the decibel (dBA) the universal noise measurement tool
- ✓ Making the DNL the universal Noise Contour measure
- ✓ Defining land uses which are acceptable for areas within each DNL Noise Contour

Noise is measured in decibels (dB). Aircraft sound levels are measured using the A-weighted decibel scale (dBA). FAR Part 150 approves the decibel (dBA) unit as the universal noise measurement tool. The A-weighted decibel unit most closely approximates the manner in which the human ear responds to sound. **Exhibit 3-5** depicts common sounds and their associated noise levels while **Table 3-5** presents estimated noise levels associated with various aircraft types at maximum gross takeoff weight.

Many studies have been done to measure how much noise an aircraft generates. Although several noise measures have been developed, the Environmental Protection Agency (EPA) and the FAA use a method called the day-night average sound level (DNL) noise contour method as the primary measure for defining noise around an airport. DNL is defined as the average A-weighted sound level, measured in decibels, for a 24-hour period. This level is obtained after a 10-decibel penalty is applied to noise events occurring between the nighttime hours of 10:00 p.m. to 7:00 a.m., local time. The 10-decibel penalty applied to noise events occurring at night represents the differences in perception of sound levels between day and night. DNL is a summation metric that allows more objective analysis; it describes noise exposure comprehensively over a large area.

Exhibit 3-5: Common Sounds and Their Noise Levels



Source: Oregon Department of Transportation, Aeronautics Section, Technical Report, Airport Land Use Compatibility Guidelines, November, 1994

Table 3-5: Estimated Part 36 A-Weighted Sound Levels		
Manufacturer	Airplane	Estimated dBA
Boeing	B-747-200	99
Boeing	B-727-200	88
Boeing	B-737-200	87
McDonnell Douglas	DC 9-30	85
Learjet	23	84
Sabreliner	Sabre 60	84
Gulfstream	G-II	84
Boeing	B-767-300	80
Learjet	240	80
McDonnell Douglas	MD-80	78
Fokker	F-27-200	78
Dassault Brequet	Falcon 20	77
Airbus	A-300B1	76
Boeing	B-757-200	74
Cessna	207	74
Learjet	Learjet 24E	73
Fokker	Fokker 100	72
Cessna	210	71
Learjet	Learjet 35A	71
Beech	B36TC Bonanza	71
Embraer	EMB 110-P2	71
Cessna	Citation III	70
Piper	PA-42 Cheyenne	70
Dehavilland	DHC-7	69
Fairchild	SA 226-AC Metro III	69
Beech	Super King Air 200	68
Learjet	Learjet 55	67
Gulfstream	G-IV	66
Dornier	D-228	66
Beech	65 Queen Air	65
Saab Fairchild	SF 340	65
Mooney	M 20C	65
BAE	Jetstream 31	63
Piper	PA-44-180	62
Gulfstream	GA-5A	60
Beech	A-23	58
Piper	PA-30 Twin Comanche	58

Source: FAA AC 36-3F; noise level estimates are provided in FAR Part 36 (estimates reflect noise levels at 6,500 meters from start of takeoff roll)

After DNL noise contours are developed for an airport area, three basic noise impact areas can be identified. These major impact areas, referred to as noise corridor zones, can be defined as a "severe" noise impact area, a "substantial" noise impact area, or a "moderate" noise impact area. The severe noise impact area includes "those areas contained within the 70 DNL contour and above." The substantial noise impact category is defined by the areas of land impacted by the 65 DNL to the 70 DNL contour. Areas impacted by the 55 DNL up to the 65 DNL contour are within the moderate noise impact category. Areas exposed to 55 DNL or less are not considered to be seriously impacted, from a noise perspective.

FAA Part 150 describes acceptable types of land use for each DNL sound level. It is desirable that areas impacted by the 70 DNL contour or greater be acquired by the airport owner. Typically this level of noise impact beyond airport property is associated with large, high activity airports. For airports with low activity, noise contours of 70 DNL and above are usually contained within airport property. For small airports, the 65 DNL will often fall within the existing airport property line. For larger airports, the 65 DNL contour may extend off airport property. Land uses that should not be located within areas exposed to 65 DNL and above include all residential development. When public institutions such as schools, hospitals, and churches are constructed within noise contours of 65 DNL or higher, measures should be taken to achieve reduced noise levels. Most land uses are compatible in areas impacted by noise levels less than 65 DNL.

The State of Oregon accepts the DNL Noise Contour method as the primary measurement defining noise around an airport. Although the FAA regards 65 DNL contours and above as significant, the State of Oregon regards 60 DNL and 55 DNL contours as significant. The State recognizes that, in some instances, land use controls and restrictions that apply to the 65 DNL may be appropriate for applications to areas impacted by 55 DNL and 60 DNL. For example, a rural area exposed to 55 DNL to 65 DNL noise levels may be more affected by these levels than an urban area. This is because there is typically a higher level of background noise associated with an urban area. **Table 3-6** depicts FAA accepted land uses for each DNL sound level.

On the State level, the Oregon Department of Environmental Quality (DEQ) finds that noise pollution associated with Oregon airports threatens the public health and welfare of residents living near these airports. The Environmental Quality Commission (EQC) states that a coordinated statewide program is needed to ensure that noise abatement programs are developed which effectively mitigate airport noise impacts where needed. Therefore, the DEQ has adopted Oregon Administrative Rule Chapter 340, Division 35 - "Noise Control Regulations" and an "Airport Noise Control Procedure Manual." The manual and OAR 340-35-045 - Noise Control Regulation for Airports establish procedures for an airport sponsor to use when a noise contour map or airport land use plan is needed. They also establish 55 DNL as a study boundary for planning and zoning measures and recommend specific mitigation for that area with noise impacts greater than 65 DNL. There are additional Federal Aviation Regulations that have positive impacts on airport land use compatibility. These regulations include Part 36, Part 91, and Part 161.

✈ *The FAA acknowledges the 65 DNL noise contour as the limit of impact from aircraft noise, whereas at the state level, the 55 DNL noise contour is recognized by the State Department of Environmental Quality within OAR Chapter 340, Division 35.*

Table 3-6: Land Use Compatibility with Yearly Day-Night Average Sound Levels

Legend:						
Y (Yes) -	Land use and related structures compatible without restrictions					
N (No) -	Land use and related structures are not compatible and should be prohibited					
NLR -	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure					
DNL -	Average Day-Night Sound Level					
25, 30, 35 -	Land use and related structures generally compatible; measures to achieve NLR of 25, 30, 35 dB must be incorporated into design and construction of structure.					
Land Use	Below 65	65-70	70-75	75-80	85-85	Over 85
Residential						
Residential, other than mobile homes and transient lodging	Y	N ⁽¹⁾	N ⁽¹⁾	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N ⁽¹⁾	N ⁽¹⁾	N ⁽¹⁾	N	N
Public						
Schools	Y	N ⁽¹⁾	N ⁽¹⁾	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	Y ⁽⁴⁾
Parking	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	N
Commercial						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail - building materials, hardware and farm equipment	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	N
Retail trade - general	Y	Y	25	30	N	N
Utilities	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	N
Communication	Y	Y	25	30	N	N

Table 3-6: (Continued)						
Land Use	Below 65	65-70	70-75	75-80	80-85	Over 85
Manufacturing & Production						
Manufacturing - general	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	N
Photographic and optical	Y	Y	25	30	N	N
Agricultural (except livestock) and forestry	Y	Y ⁽⁶⁾	Y ⁽⁷⁾	Y ⁽⁸⁾	Y ⁽⁸⁾	Y ⁽⁸⁾
Livestock farming and breeding	Y	Y ⁽⁶⁾	Y ⁽⁷⁾	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y ⁽⁵⁾	Y ⁽⁵⁾	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusement parks, resorts and camps	Y	Y	Y	N	N	N
Riding stables and water recreation	Y	Y	25	30	N	N

Source: FAR Part 150, Appendix A, Table 1

Notes:

1. When the community determines that residential or school uses must be allowed, measures to achieve an outdoor to indoor NLR of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5,10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. The use of NLR criteria will not, however, eliminate outdoor noise problems.
2. Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
3. Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
4. Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
5. Land use is compatible provided special sound reinforcement systems are installed.
6. Residential buildings require an NLR of 25 dB.
7. Residential buildings require an NLR of 30 dB.
8. Residential buildings are not permitted.

- **FAR Part 36** categorizes aircraft by the level of noise the aircraft generates. The categories are termed Stage 1 (the loudest), Stage 2, and Stage 3 (the quietest). Those aircraft meeting Stage 1 noise levels have already been retired and are no longer operating in the U.S. commercial fleet. As of January 1989, approximately 65 percent of the U.S. airline fleet was comprised of Stage 2 aircraft, while the remaining aircraft met Stage 3 noise levels. FAR Part 36 dictates that all aircraft currently being produced comply with Stage 3 noise levels.
- **FAR Part 91** further mandates a deadline of December 31, 1999 for the retirement of all Stage 2 aircraft. Waivers authorizing Stage 2 aircraft operations may be granted under special circumstances as indicated by FAR Part 91-873. However, under no circumstances will Stage 2 aircraft be permitted to operate after Dec. 31, 2003. In other words, as of January 1, 2004, the U.S. commercial airline fleet will be comprised completely of Stage 3 aircraft. This transition to a quieter fleet mix will result in smaller noise contours, thus reducing the noise impact area surrounding many airports.
- **FAR Part 161** implements the Airport Noise and Capacity Act of 1990. This regulation defines requirements and procedures for airport proprietors to follow when implementing Stage 3 aircraft noise and access restrictions. Under this regulation, airport proprietors can impose limitations on Stage 2 or Stage 3 aircraft utilized by commercial carriers, for the purpose of controlling airport noise. Such restrictions include, but are not limited to:
 - ✓ limiting noise generated on either a single-event or cumulative basis
 - ✓ limiting the total number of Stage 2 or Stage 3 aircraft operations
 - ✓ implementing a noise budget or noise allocation program that includes Stage 2 or Stage 3 aircraft
 - ✓ limiting the number of hours of Stage 2 or Stage 3 aircraft operations
 - ✓ implementing a program of airport-use charges that has the direct or indirect effect of controlling airport noise.

→ *The best approach to reducing noise related concerns is to keep noise-sensitive developments from the approach areas.*

Before the above described restrictions are adopted, the airport proprietor must inform the public of the proposed restriction, its anticipated or actual costs and benefits, an alternative restriction and comparison of the two. The proprietor must allow the public to comment on the proposed restriction. The airport proprietor then submits an application to the FAA for approval of the proposed noise or access restrictions. A written agreement between the airport proprietor and the commercial operators affected by the proposed restriction must be in effect within 180 days prior to the date of the proposed restriction. FAR Part 161 provides for improved airport land use compatibility by permitting the airport proprietor to implement noise and access restrictions at the airport.

The basic approach to enhancing noise compatibility is to minimize the extent to which noise impacts disrupt human activities or otherwise create an annoyance. In general, the best approach is to allow as few people to occupy highly noise impacted areas as possible. When this approach is not practical, the alternatives include:

- ✓ shielding people from the noise,
- ✓ increasing awareness of noise issues through education programs, and
- ✓ allowing land uses which have relatively high ambient noise levels, or are otherwise not particularly noise-sensitive.

This section has provided resource and background data, which is important for understanding the Federal and State regulations that prescribe and influence planning for compatible land use in the airport environs. Information on the location and the physical dimensions of areas to be protected to meet both safety and noise related planning goals, has also been provided. A subsequent section of these guidelines, Planning for Compatible Land Use, provides information that can be used by planners to examine, on a concurrent basis, areas that should be planned for to meet the various safety and noise related objectives described in this section. There are a number of strategies that can be considered by planners to promote compatible land use in the airport environs. These can be categorized as being "preventive" or "corrective" in their nature. These strategies are described in Chapter 6 of the guide.

3.4 Summary

Airports will continue to be an important component of the global economy, as well as the local community, and need to be protected through legislation and regulation of surrounding land uses. Preserving the economic vitality of the aviation system is directly related to the preservation of viable airports and compatible land uses. The various methods outlined in this document are available for use in ensuring the development of compatible land uses, where possible.

4.0 Roles, Responsibilities and Funding for Land Use Planning

The roles, responsibilities and funding opportunities for those involved in implementing programs for airport compatible land uses involve many entities of government and the public. Each group provides a vital part of the overall strategy toward successful land use compatibility. It is important to understand the requirements that are placed on each entity involved. The roles, responsibilities and (where applicable) the funding options available from each of these various entities are discussed below.

4.1 Federal Government

➔ *The federal agency primarily responsible for aviation related land use compatibility is the Federal Aviation Administration (FAA).*

At the federal level the primary agency responsible for aviation related land use compatibility is the Federal Aviation Administration (FAA). Other federal departments have minor regulatory review of various aspects of airport development and, more importantly, off airport land issues. These other federal departments are quite diverse and are not considered to have a substantial role in the daily issues of compatible airport land uses, but will be discussed in the following chapter with regards to specific regulations.

The FAA is responsible for federal laws and regulations affecting the aviation industry. Federal Aviation Regulations (FARs), FAA Orders and FAA Advisory Circulars (ACs) are the primary tools used in this endeavor. The FAA is also the funding mechanism for master plans, noise and land use studies and other issues related to land use compatibility, as well as the expansion and safe operation of airports and aviation related activities. As the governing body, the FAA is responsible for preservation of the national airspace and control of aircraft while in flight. This responsibility includes areas such as airworthiness and noise emissions of aircraft, as well as navigational aids and air traffic control facilities.

➔ *The FAA has become more proactive in developing FAA Orders and Advisory Circulars to address more non-traditional compatible land use issues such as wetlands, bird attractants and cell towers.*

As the national representative for aviation related issues, the FAA has a complex set of branches, departments and offices to oversee the various aspects of the aviation industry. Chapter 7 provides a summary of federal and state agency contacts. It is important to note that each of these various sections/branches has a specific area of expertise or interest as it relates to aviation. There are numerous opportunities for overlap between the various offices/branches and coordination between them is essential to provide a comprehensive assessment of land use issues. Access to the majority of the various branches is available on a local level through the FAA-Northwest Mountain Regional Office located in Renton, Washington. Chapter 7 provides contact information for the various federal agencies that may be involved in land use planning issues.

Specific FAA regulations and their impact on land use issues provide the foundation for airport owners to build from when developing a compatible land use strategy. These various regulations have historically focused on on-airport safety and land use. However, as land use issues continue to plague the nation's airports, the FAA has become more proactive in developing FAA Orders and Advisory Circulars to address more non-traditional compatible land use issues such as wetlands, bird attractants and cell towers. These various regulations are addressed in the following chapter.

While the FAA is the primary funding source for capital improvement projects at airports nationwide, their funding opportunities related to land use issues focus on two areas: land acquisition to provide open space around airports and noise related mitigation measures. The primary funding focus is acquiring clear runway safety areas and approach areas in close proximity to the airport. The secondary funding emphasis is acquisition of easements to provide height controls over properties in close proximity to the airport environs. When warranted by a noise study (see the following chapter on specific regulations), the FAA will typically

participate in noise mitigation measures, which may include sound proofing structures, construction of noise barriers or possibly acquisition to remove or relocate a noise-sensitive development. Additionally, funds are available for master planning, which provides the foundation for the land use plan of the airport.

4.2 State Government

The Oregon Department of Aviation was formerly the Aeronautics Section of the Oregon Department of Transportation (ODOT). It was established as a section of the ODOT in 1921 and was the first governmental agency in the nation to be dedicated to aviation. With more than 80 years of experience at improving and advancing the aviation system of Oregon, there is a solid foundation for state involvement in compatible land use planning. As previously mentioned, the initial land use guidelines document has been used as a primer for many other states who have developed similar programs to encourage compatible land use patterns. The ODA spearheads the overall preservation of aviation activities in the state. However, with the strong state planning policies, there are numerous agencies also intimately involved in the development of compatible land use programs. A brief sample of these various agencies is discussed below.

→ *The Oregon Department of Aviation has the distinction of having been the first governmental agency in the nation dedicated to aviation.*

4.2a. Department of Aviation (ODA)

The role of the ODA is to advance aviation in Oregon and develop a statewide aviation system as a part of Oregon's transportation network, while creating and implementing strategies to protect and improve Oregon's aviation system. ODA also develops land use guidelines and model land use ordinances to assist local jurisdictions in planning for appropriate land uses, height limitations, and developing other regulations to protect airports and operations within airport environs. ODA also serves as a clearinghouse for technical support and information on aviation issues to local jurisdictions and airport operators. As previously mentioned, the Oregon Department of Aviation (ODA) is specifically authorized to:

- develop a state Aviation System Plan
- establish minimum design and dimensional standards for heliports and general aviation airports
- regulate commercial activities on state-owned airport property
- establish airport or heliport site approval and licensure processes
- receive notice of land use activities that impact airports
- review and provide comments on proposed noise regulations, and
- coordinate certain activities with city and county planning authorities e.g., ODA must provide a list of applicable public use airports within local jurisdictions, provide a drawing of approach surfaces for each applicable airport classification to local jurisdictions, etc., among other activities.

All of these functions combine to create a solid agency framework geared to the preservation and development of aviation opportunities within the state of Oregon.

ODA, in cooperation with the FAA, works to fund the various airport-related compatible land use programs approved by the FAA. As previously mentioned, these typically include fee simple land acquisition and aviation easements to

ensure clear runway safety and approach areas, as well as provide noise mitigation programs. Planning activities are also eligible for funding requests based upon availability of federal and state funds.

4.2b. Department of Transportation (ODOT)

The Oregon Department of Transportation (ODOT) has jurisdiction over state transportation systems, particularly relating to roads and highways of significance on the state, regional, and district level. With the state Department of Land Conservation and Development (DLCD), ODOT governs the development of state and local Transportation System Plans (TSPs) and associated implementation measures to comply with local comprehensive plans. ODOT and DLCD also help meet transportation benchmarks outlined in the Oregon Transportation Plan, and conform to applicable state statutes and administrative rules (i.e., the Transportation Planning Rule, OAR 660-012). ODOT works with local jurisdictions to help fund the development of TSPs and comprehensive plan refinements. In that TSPs must provide means for adequate ground access to airports, and include elements supporting airports and airport operations, ODOT augments aviation-related activities conducted by ODA and DLCD.

→ TSPs must provide means for adequate ground access to airports, and include elements supporting airports and airport operations.

As outlined below, there are some funding opportunities from ODOT for land use related issues, however, they are often combined or associated with a larger scale project. ODOT has relatively stable funding for grants to develop and update TSPs for local jurisdictions. Since airport-related issues (e.g., access to airport facilities) can be addressed through the TSP adoption or update process, this represents another potential funding tool to support airport planning and compatibility.

4.2c. Department of Land Conservation and Development (DLCD)

The seven-member Land Conservation and Development Commission (LCDC) promulgates administrative rules implementing the Oregon land use program in conformance with statewide planning goals. The Department of Land Conservation and Development (DLCD) administers the state land use program on behalf of the Commission by acknowledging that local comprehensive plans and land use regulations are consistent with their goals. City and county comprehensive plans are required to have transportation elements that establish policies and land use regulations relating to publicly- and privately-owned public use airports that provide important links to air traffic in the state, essential safety or emergency services, or are of economic importance to the county where the airport is located. In this regard, DLCD serves to direct local governments to work with ODA and sponsors of the state's public use airports to adopt appropriate land use compatibility strategies for each airport.

→ DLCD serves to direct local governments to work with ODA and sponsors of the state's public use airports to adopt appropriate land use compatibility strategies for each airport.

DLCD also promulgates rules requiring preparation of coordination programs for state agencies (OAR Chapter 660, Division 30), which obligate agencies to identify their land use programs and demonstrate that they are consistent with acknowledged comprehensive plans and statewide planning goals. State agency coordination programs also require agencies to adopt or amend agency land use programs to assure goal compliance and plan compatibility. These programs also establish a means of dispute resolution and describe the agency's program for cooperation with and technical assistance to local governments, and the procedures for coordinating with other agencies. Certain issues can present conflicts for local governments in terms of meeting seemingly competing land use requirements (e.g., protecting local airports from bird strikes to meet APR requirements vis-à-vis Oregon Department of Fish and Wildlife standards for wildlife protection). DLCD's agency coordination programs ostensibly provide a vehicle for addressing these conflicting agency demands as well as technical assistance to address such issues.

DLCD also provides funding assistance and technical support to local jurisdictions to update plans and regulations, including transportation system

plans, and to develop plans integrating land use and transportation systems. The agency also coordinates with local governments to establish work programs as part of required periodic review of comprehensive plans.

For communities and counties with small populations no longer required to go through periodic review, or for other communities needing assistance outside the periodic review process, there are other strategies for financing plan and code updates.

- DLCD Technical Assistance Grants. Although available state funding is not commensurate with the amount of need and number of requests made by local jurisdictions, the state does provide a source for funding planning efforts by local jurisdictions to update codes and ordinances.
- DLCD & ODOT Transportation Growth Management Program. Grants through this program are intended to link transportation and land use, promote community livability, and reduce automobile reliance. These grants are not intended to specifically fund aviation-related plans, but some communities (e.g., Corvallis) have developed area plans for portions of the community that could affect or govern land uses in the vicinity of an airport.
- Cities or counties exempt from periodic review requirements are allowed under OAR 660-025-0030(4) to request periodic review by LCDC. Conceivably, funding requested on this basis could be used to implement planning for airport-related issues (e.g., land use compatibility, wetlands/natural resource inventories) under the auspices of periodic review.

4.2d. Department of Environmental Quality (DEQ)

Relating to airport planning and operations, the Oregon Environmental Quality Commission approves, and the DEQ administers, applicable administrative rules such as Airport Noise Abatement programs, approves the siting and expansion of landfills, and regulates the storage and handling of hazardous materials (including aviation fuels).

The DEQ administers Oregon's water quality certification program under the federal Clean Water Act, and the federal National Pollutant Discharge Elimination System (NPDES) permit program. This certification and approval of a NPDES permit and associated erosion and sediment control plan may be required for airport improvement and expansion projects.

The DEQ also determines whether receiving bodies are (a) "limited" for any water quality parameter, (b) are important in the ability to receive permission to discharge runoff, or (c) conduct other activities that could potentially diminish water quality parameters in a receiving body. These requirements pertaining to pollutant discharge into receiving bodies can require airports to modify certain operations (e.g., de-icing, storm water runoff), in order to preserve the quality of water in receiving streams. Since several threatened and endangered aquatic species and their habitats now have federal and state protection, the relationship between DEQ and airport operators is paramount.

4.2e. Department of Fish and Wildlife (ODFW)

The Oregon Department of Fish and Wildlife (ODFW) has jurisdiction over anadromous fish species (i.e., salmonids) and state-listed endangered or threatened species. ODFW also serves as a conduit in which some federal regulations are enforced within the state, and coordinates with other state agencies and federal agencies (e.g., National Marine Fisheries Service, U.S. Fish and Wildlife Service) to protect threatened and endangered species.

→ *The DEQ is an important partner in siting landfills and administering the Airport Noise Abatement program.*

ODFW developed the state Wildlife Diversity Plan, which includes procedures and criteria for state listing of endangered species and provisions for incidental take permits. Airport operators and sponsors also work closely with ODFW to develop approved wildlife mitigation plans that reduce potential threats to air navigation from birds and other wildlife on airport property.

4.2f. Division of State Lands (DSL)

The Division of State Lands (DSL) has jurisdiction over “waters of the state of Oregon,” which includes wetlands, waterways, and certain other water bodies and impoundments. DSL implements provisions of the Oregon Fill and Removal Law (ORS 196.600 through 196.905), and any improvement project that would impact wetlands or waters of the state must be coordinated with DSL. The state law directs DSL to issue a permit authorizing fill or removal of material from waters of the state when specific criteria are met. State law also dictates that the DSL impose conditions, limitations, or mitigation necessary to avoid, minimize, or compensate for wetland impacts.

➔ *The Division of State Lands regulates wetlands, waterways and water impoundments.*

Since DSL and U.S. Army Corps of Engineers both have jurisdiction over wetlands and waters for their respective agencies, they administer a coordinated review and permitting (Joint Permit) program. The joint regulatory program includes a common application form and often a shared public notice process.

DSL also administers the Oregon Natural Heritage Program (ONHP), which inventories threatened and endangered plant and animal species, and species of concern, local importance, or rarity. Airport operations, development, and expansion can have potentially significant impact on not only wetlands but also significant plant or animal species habitats. Such airport-related projects should not be undertaken without first consulting with ONHP inventories and/or conducting on-site investigations.

4.2g. Other Agencies

As noted above, ODFW administers the fish and wildlife endangered species program, but the program relating to endangered plants is administered through the Oregon Department of Agriculture.

Airport operators may also have cause to engage the Oregon Department of Geology and Mineral Industries (DOGAMI), as the agency that approves plans for aggregate extraction and post-mining reclamation. As such activities may involve open water impoundments with potential bird strike hazards, the size, nature, and operation of mining operations near airports is of great concern.

4.2h. Summary of State Agencies

The previous summaries outline the primary state agencies, which have ties to airport land use compatibility related issues. While these are the departments that have the most connections to airport developments, additional departments may be involved in specific issues for and around individual airports. Early communication and coordination with ODA is highly recommended to ensure appropriate coordination with these departments as specific projects warrant.

➔ *Local governments are the front line in providing compatible land uses.*

4.3 Local Governments

Local governments are the first line of defense for compatible land use issues. While federal and state agencies create the guidelines and regulations related to land use issues, it is the local units of government, which are charged with the implementation and enforcement of these measures. Land use zoning and control are the responsibility of the local land use planners and elected officials, including noise impacts, tall structures, landfills and wildlife issues. They are also required to develop plans and regulations that comply with not only state-

mandated airport and transportation-related rules, but also an infinite number of other, sometimes conflicting, state agency requirements. The relationship between local jurisdictions and airports is of critical importance, since airport sponsors rely upon city and county staff to provide notice of land use actions proximate to airports, and establish the policy basis that enables the airport to operate effectively.

Coordination and communication between local jurisdictions and airports is essential to the effective implementation and subsequent enforcement of land use compatibility initiatives. In an effort to build cooperation, coordination and communication between not only the local jurisdictions and airports, but also the general citizenry, public education programs should be considered.

4.4 Airport Owners/Managers

The sponsor/management of the airport has the responsibility of being an ambassador to local jurisdictions of government and local citizens to inform them of the importance of compatible land use planning around airports. Airport owners/managers must be vigilant in their efforts to keep abreast of their local communities' actions regarding land use issues in proximity to the airport environs. Airport operators and sponsors must be closely involved with city and county officials in developing comprehensive plan policies, plan elements, and land use regulations that:

- preserve the viability of airport uses
- minimize and/or mitigate potential noise impacts on surrounding uses
- preserve adequate space for airport operations, expansion, and safety zones, and
- protect airports and airport environs from encroachment and incompatible land uses.

→ *Airport owners must work with airport users to educate them about land use issues.*

As many of the public use airports have FAA grant obligations, the Grant Assurances, which are part of their grant package, must be adhered to. Sound airport land use compatibility planning/management is incumbent on all local governments, but it is a grant compliance requirement for those airport sponsors who are also the authority for planning, zoning and permitting activity in the airport environs. Consequently, airport owners must also be cognizant of the commitment these assurances carry with regards to land use compatibility. When receiving federal funds, a local community must be aware of the potential penalties for failing to fulfill the assurances. An example of these assurances is the preservation of a clear RPZ. The airport sponsor should acquire the entire RPZ in fee whenever possible since it should not be off-airport, however, an easement should be acquired if outright purchase is not possible. Commitments from the assurances include the preservation of compatible land uses and the protection of navigable airspace. Chapter 5 contains additional discussion concerning various grand assurance requirements.

4.5 Airport Users

The general aviation users, airlines and cargo carriers are equally responsible for awareness of issues relating to land use compatibility. Airlines and air cargo carriers are required to replace or retrofit existing aircraft to meet the most current noise level requirements. Pilots, both commercial service and general

aviation, are responsible to operate their aircraft in a prudent manner which reduces noise impacts to local land uses, as well as operate in accordance with standard operating procedures. This includes such activities as adhering to local noise abatement procedures and following posted traffic patterns during approach and departure operations.

4.6 Local Citizens

→ *Education of the general public about the need for compatible land uses is essential to a successful protection program.*

The role of local citizens in the land use planning process is one of understanding and education. Involving the public in the planning process is essential so they understand the importance of maintaining compatible land uses near their local airport. Raising public awareness about the detrimental impacts of incompatible land uses is important to developing and understanding the commitment required to create a safe operating environment for not only the airport but the citizenry located in proximity to the airports. The most desired climate for implementation of compatible land use initiatives is one in which the local government has the support of citizens to implement the necessary policies and procedures. This support is usually gained through the process of educating and informing the public on the two primary topics of safety and noise related issues.

Local citizens are also an important part of the land use planning process since they are often the individuals most affected by the land use techniques utilized to develop compatible land uses. For example, a local homeowner whose residence is located in the runway protection zone at a local airport needs to be educated about the need for clear airspace within the runway protection zone. This current property owner may be an advocate of aviation and may verbally commit to the local airport that he will cut trees on his property or promise to avoid any further development that may penetrate the required safety areas. While this relationship is positive, the property owner must be educated about the need to procure at least an easement over his property to ensure the lifetime commitment to preserving the clear airspace once he is no longer in residence at the property.

Educating and informing the local population about the necessity of compatible land uses around airports is essential to the preservation of the aviation system. These individuals influence the decisions of local planners, elected officials and policy-makers who are directly responsible for the implementation of the various planning techniques required for implementation of compatible land uses.

4.7 Summary

→ *Each community is unique and must develop a compatible land use program that meets the individual needs of the community.*

There are many levels of responsibility in land use compatibility issues. The majority of the responsibility for the implementation and enforcement falls to the local community and the airport owner, while the job of instituting and developing various funding sources falls on the shoulders of the federal and state agencies. This does not mean that the federal and state agencies do not involve themselves in the implementation or enforcement stages, but merely demonstrates that the land use compatibility is a local issue, which must be addressed in relation to the impacts on the local community. This truly illustrates the fact that the implementation of land use issues is not something that can be done in a "one-size-fits-all" format. Each community and each airport is unique in physical requirements, goals, users, service market and surrounding environs, not to mention its role in the local community and local economy. All of these factors play a critical role in the actual development of a land use compatibility program for each airport in the state.

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5.0 Federal and State Regulations Related to Airport Compatible Land Use Planning

There are many entities involved in implementing programs related to land use compatibility around airports. These include the FAA, state and local governments and the community at-large. Familiarity with the regulations mandated by each entity is foremost in efforts to protect the airport's environs. The various regulations related to airport land use issues have been separated into three primary categories for ease of review: planning related regulations, noise related regulations and environmental related regulations. Each of these areas of interest is discussed below with summaries of both federal and state regulations. The following descriptions are not meant to be an inclusive list of federal and state regulations, but simply a summary of the primary rules and regulations with ties to land use issues. Additional coordination or involvement with other federal or state agencies may be required on a project specific basis. Early coordination with ODA is recommended in order to identify the potential involvement of these other agencies, as soon as possible.

5.1 Planning Related Legislation and Regulations

✈ *Planning regulations lay the foundation for the creation of a land use planning process and provide the fundamental tools to implement the resulting program.*

Planning related regulations are the most critical of the three basic types of rules. These planning regulations lay the foundation for the creation of a land use planning process and provide the fundamental tools to implement the resulting program. These regulations cover a wide range of topics dealing with everything from airspace related issues to the content of an airport master plan. Used in conjunction with one another, they provide the core regulations governing airport land use compatibility issues.

5.1a. Federal Level Planning Regulations

Federal statutes and regulations relating to land use compatibility and airports, are summarized below. This is not an exhaustive summary, however, it provides the primary legislation related to land use issues.

a.1 Airport and Airway Improvement Act of 1982 United States Code (USC), Title 49

Upon acceptance of Federal funds, this Act obligates the airport owners to operate and maintain the airport and comply with specific assurances, including maintenance of compatible land uses around airports. The implementation of this Act is handled through stipulations outlined in the grant documents signed by airport owners when they accept federal funds for a project.

a.2 Objects Affecting Navigable Airspace Federal Code of Federal Regulations (CFR) Title 14, Part 77

This federal regulation establishes standards for determining obstructions in navigable airspace. It sets forth requirements for construction and alteration of structures (i.e. buildings, towers, etc.). It also provides for studies of obstructions to determine their effect on the safe and efficient use of airspace, as well as providing for public hearings regarding these obstructions, along with provisions for the creation of antenna farm areas. It also establishes methods of identifying surfaces that must be free from penetration by obstructions, including buildings, cranes, cell towers, etc., in the vicinity of an airport. The specifics of this regulation are outlined in Chapter 3 of this document. This regulation is predominately concerned with airspace related issues. Implementation and enforcement of the elements contained in this regulation is a cooperative effort between the FAA and the individual state aviation agencies, in this instance, ODA.

a.3 Proposed Construction or Alteration of Objects That May Affect the Navigable Airspace**FAA Advisory Circular (AC) 70/7460-2J**

This form works in conjunction with the requirements of FAR Part 77. It is required at all federally obligated airports to assess all proposed or temporary construction in the vicinity of the airport. The FAA conducts an aeronautical study and issues a determination to the proponent and the airport operator if the proposed development is determined to be a hazard. It is imperative that local planners are aware of the various critical safety considerations when siting developments around airports. A sample FAA 7460-1 is included in Appendix K of this document.

**a.4 General Operating and Flight Rules – FAR Part 91
Federal Code of Federal Regulations (CFR) Title 14, Part 91**

This federal regulation establishes general rules for the operation of aircraft with regards to various airports, various types of flight, i.e., Instrument Flight Rules (IFR) or Visual Flight Rules (VFR) conditions, as well as maintenance, special flight operations, foreign aircraft operations and operating noise limits. FAR Part 91 requirements are considered planning regulations. This is because the recommendations for various types of flight operations translate into specific spatial requirements for safety areas that must be planned for during the master planning process.

**a.5 Airport Land Use Compatibility Planning
FAA Advisory Circular (AC) 150/5060-6**

This document guides the development of a compatibility plan to ensure the environs surrounding an airport are not developed in a manner that could pose a risk to the airport's operations. This document specifically looks at land use and noise issues. (1977)

**a.6 Airport Master Plans
FAA Advisory Circular (AC) 150/5070-6A**

This document guides the development of airport master plans. The guiding principle of the airport planning process is to develop a safe and efficient airport through the use of acceptable standards. While there are many steps in the planning process, none of these steps should be treated in a piecemeal manner. The air-side and land-side issues must be equally evaluated to create a plan that provides for compatible airport and community development where possible. (1985)

**a.7 A Model Zoning Ordinance to Limit Height of Objects Around Airports
FAA Advisory Circular (AC) 150/5190-4A**

This advisory circular concerns itself with developing zoning ordinances to control the height of objects. It is based upon the surfaces described in Subpart C of FAR Part 77, Objects Affecting Navigable Airspace, current edition. This document provides sample language and model ordinances for use by local airports. (1987)

**a.8 Airport Design
Advisory Circular (AC) 150/5300-13 Change 7**

This document provides the basic standards and recommendations for airport design. This document consolidates five previous documents pertaining to airport design. The most recent update provides expanded information for new approach procedures for Runway Protection Zones, threshold-siting criteria and new instrument approach categories.

a.9 FAA Order 18, November, 1999, US Standards for Terminal Instrument Procedures (TERPS) FAA Order 8260. 3 B change 14 (July 7, 1976 with changes 1-19 through May 2002)

This document contains standards for establishing and designing instrument flight procedures. The criteria are applicable at any location over which the U.S. has jurisdiction.

a.10 Grant Assurances

Pursuant to the provisions of Title 49, U.S.C., subtitle VII, as amended, assurances are required to be submitted as part of a project application by sponsors requesting funds. Upon acceptance of the grant offer by the sponsor, these assurances are incorporated in, and become part of, the grant agreement. For planning related projects, the number of assurances that apply to the project are more limited. A summary of some of the planning assurances are noted below:

- compliance with all applicable Federal laws, regulations, executive orders, policies, guidelines and requirements as they relate to the project
- responsibility and authority of the sponsor to carry out the proposed project
- availability of the local share of funds for the proposed project
- preservation of the rights and powers of the sponsor, and the airport
- consistency with local plans
- creation of an accurate accounting , auditing and record-keeping process
- accessibility of the public to project information and the planning process
- compliance with civil rights issues
- provision of engineering and design services
- compliance with current policies, standards and specifications.

The aforementioned issues are a sample for the thirty-seven assurance issues currently listed within the federal grant assurances. Each airport sponsor should be cognizant of these assurances as they apply to their specific airport project and must work to maintain compliance with these assurances.

→ *Oregon is unique in that there are numerous state regulations that govern airport-related planning and development.*

5.1b. State Level Planning Legislation and Regulations

The topics of various state level planning regulations are addressed in a broader format than the federal regulations. The following summaries illustrate the relationships between the various state rules and regulations.

b.1 Comprehensive Planning and Periodic Review

Oregon's land use planning program requires cities and counties to prepare, adopt and amend comprehensive plans in compliance with 19 Statewide Planning Goals and administrative rules (OARs) that implement these goals. The State Land Conservation and Development Commission (LCDC) adopted the

goals and rules. One of these Goals (Goal 12, Transportation Planning) promotes the provision of a safe, convenient, and economic statewide transportation network, including passenger and freight air transportation. The goal is achieved by the creation of transportation system plans (TSPs).

Oregon Revised Statutes (ORS 197.628 et seq.) also require local governments to periodically review comprehensive plans and to implement land use regulations to ensure that they adequately provide “needed housing, employment, transportation and public facilities and services.” Through the periodic review process, local governments work with the state Department of Land Conservation and Development (DLCD), the agency arm implementing policies established through LCDC, to update certain comprehensive plan elements (e.g., transportation plans) and/or regulations (e.g., airport compatibility zoning).

The need for periodic review is based upon a determination that there has been:

- a change in circumstances such that the local plan or land use regulations do not comply with statewide planning goals,
- the existing plan or regulations are not achieving the goals, or
- there are agency plans or programs that affect land use which require modification to local plans or regulations to assure compliance with the goals.

Many communities find the latter circumstance most common in relation to providing for safe airports and compatible land uses nearby. For communities with deficient regulations concerning compatible land uses and airport safety, periodic review can be an effective means of implementing new regulations or modifying existing regulations to meet state standards. State funding is also available to assist local governments in complying with plan and code updates required through periodic review.

However, by recent changes to state law, periodic review is no longer mandatory for counties with populations of less than 15,000 people and cities with a population of less than 2,500 within their Urban Growth.

For smaller jurisdictions no longer obligated to go through periodic review, and therefore not directly eligible for funding assistance through this venue, there are other possible funding strategies outlined in discussion of state roles and responsibilities in Chapter 4.

b.2 Airport Planning Rule (APR)

To aid in implementing Goal 12 and provisions for local government airport regulations outlined in ORS 836.600 et seq., the LCDC adopted the Airport Planning Rule (APR). Outlined in OAR Chapter 660, Division 13, the APR establishes a series of local government requirements pertaining to aviation facility planning. These include requirements to:

- Adopt comprehensive plan and land use regulations for airports to carry out the requirements established in the APR and applicable ORS;
- Map and provide supporting documentation to establish airport boundaries, identify existing and proposed facilities, site future expansion areas and/or airport uses, map airport safety and

→ *The APR provides specific requirements for aviation facility planning, comprehensive planning, and land use regulations.*

compatibility zones and imaginary surfaces, and delineate noise impact boundaries;

- Adopt an Airport Safety Overlay Zone prohibiting structures, trees, etc., from penetrating airport imaginary surfaces based upon FAA standards, and establish limited height exceptions and a means of approving variances when supported by the ODA and FAA;
- Develop compatibility standards to prohibit residential and public assembly uses within runway protection zones, limit certain uses within noise impact boundaries, limit outdoor lighting, prohibit new and expanded industrial uses that cause emissions hazardous to aviation, and require coordinated review with ODA of radio, TV, and cellular facilities proximate to airports;
- Regulate water impoundments (e.g., gravel pits) per ORS 836.623(2) through (6), and prohibit new landfills near airports per DEQ standards;
- Adopt land use regulations for non-towered airports authorizing various aviation and airport-related uses and activities, as well as forestry and agricultural uses;
- Allow certain industrial, manufacturing, and other uses within airport boundaries if they would result in no significant hazard or limitation on approved airport uses, and are consistent with local comprehensive plans, statewide planning goals, and other OARs; and
- Update local plans and land use regulations to conform to the APR during periodic review or a TSP update, and ensure that future amendments to local plans and regulations also comply with provisions of the APR.

The APR serves as the state regulatory basis for ensuring that local government airport planning conforms to the hierarchy of state plans and statutory requirements (i.e., Goal 12, ORS 836.600 et seq., Oregon Transportation Plan, Oregon Aviation Plan). These rules outline the clear, comprehensive parameters for local governments to follow as a framework for airport planning.

b.3 Transportation Planning Rule (TPR)

The state Transportation Planning Rule (TPR, embodied in OAR Chapter 660, Division 12) contains planning requirements for local governments to develop Transportation System Plans (TSPs) as elements of comprehensive plans. These TSPs are required to contain elements intended to preserve local components of the state’s public use aviation system, as identified in the 2000 Oregon Aviation Plan, as well as plan for multi-modal ground transportation system needs.

The TPR requires local jurisdictions to adopt land use regulations for land uses within airport noise corridors and FAR Part 77 imaginary surfaces, and to restrict physical hazards to air navigation. Since publication of the 1994 Oregon Airport Land Use Compatibility Guidebook, several changes to the TPR were enacted that have bearing on airport planning. These changes include:

- OAR 660-012-0045(2), which requires local governments to adopt land use or subdivision ordinance regulations consistent with federal and state requirements that protect transportation facilities, corridors and functions, including:

→ *TSPs need to address the APR issues and ground access to the airport facilities.*

- ✓ controlling land uses within airport noise corridors and imaginary surfaces, and limiting physical hazards to air navigation to protect public use airports, and
- ✓ developing a process for coordinated review of future land use decisions affecting transportation corridors or facilities (including public use airports).

Therefore, these TPR standards obligate local governments through their TSP and comprehensive plan to protect public use airports from incompatible uses through planning and ongoing review of local land use decisions on development proposals that could impact airport facilities.

OAR 660-012-0065(3), which allows for expansions or alterations of public use airports without having to seek exceptions from certain statewide planning goals (Goals 3, 4, 11 and 14), when the expansion or alteration does not change the design class of aircraft planned for the subject airport.

This standard significantly streamlines the approval process for certain types of airport expansions and modifications on rural lands surrounding airports.

b.4 Notice Requirements

ORS 197.183 requires local governments to provide notice to the Oregon Department of Aviation when applications are received for water impoundments (e.g., new gravel pits) larger than ¼ acre in size located within 10,000 feet of an airport identified in ORS 836.610(1). Standards in ORS 836.623 outline the local government responsibilities for approving or denying such impoundments.

Implementing state statutes (ORS 215.223, 215.416, and 227.175) and administrative rules (OAR 738-100-0010) also require local planning authorities to send notice of public hearings and decisions on land use permits or zone changes to owners of public use airports and to the Oregon Department of Aviation when the subject property is within 5,000 feet of the sides or ends of a runway on a visual airport, or 10,000 feet on an instrument airport. Notice need not be provided if the permit or zone change would allow a structure of less than 35 feet in height and the property is located outside the runway approach surface or on property owned by the airport.

5.2 Noise Related Legislation

The previous rules and regulations provide the overall framework for airport planning, while this section addresses specific issues as they relate to noise impacts. These regulations provide general federal and state guidelines for the two primary areas: the measurement of noise and the methods of mitigation. These are the two main focus areas that address how noise is measured, how it can affect surrounding land uses and how to reduce impacts through various mitigation measures. As with the planning regulations, this section is not meant to be an all-inclusive list, rather it is meant to provide a summary of the primary legislation related to noise issues.

➔ *The method of measurement and various mitigation measures are addressed at the federal and state levels.*

5.2a. Federal Legislation

a.1 Aviation Safety and Noise Abatement Act of 1979 (ASNA) United States Code (USC), Title 49

This Act required that a single system be developed for measuring noise and determining noise exposure caused by airport operations & required identification of land uses normally compatible with exposures of individuals to noise. Section 103 of the Act authorized the Secretary of the DOT to make grants for airport noise compatibility planning to minimize noise impacts on communities around airports.

a.2 Noise Compatibility Program FAR Part 150 - Code of Federal Regulations (CFR) Title 14, Part 150

Part 150 established the measures required by the ASNA and was ultimately revised to include a standardized airport noise compatibility program including:

- voluntary noise exposure maps (NEMs) and noise compatibility programs,
- (NCPs) by airport owners to FAA,
- standard noise measurement methodologies and units,
- identification of land uses that are normally compatible or incompatible with various levels of noise, and
- procedures and criteria for preparation and submission of NEMs and NCPs.

The Final Rule included language that stated that Part 150 regulations apply to any “public use airport” as defined by Section 502 (17) of the Airport and Airway Improvement Act of 1982.

a.3 Airport Noise & Capacity Act of 1990 (National Noise Policy)

The increasing public outcry against aircraft noise required the establishment of a procedure to eliminate Stage I (the noisiest) and Stage II aircraft from operating in the United States and required that as of December 31, 1999, all turbojet aircraft must meet the quietest Stage 3 noise levels.

a.4 Notice and Approval of Airport Noise and Access Restrictions FAR Part 161- Code of Federal Regulations (CFR) Title 14, Part 161

Establishes the implementation of the Airport Noise and Capacity Act of 1990 (49 U.S.C. App. 2153,2154,2155, and 2156) that requires notification of and creation of procedures for the operation of Stage 2 and Stage 3 aircraft noise restrictions.

a.5 Noise Control and Compatibility Planning for Airports FAA Advisory Circular (AC) 150/5020-1

This document provides guidance for the implementation of FAR Part 150 which allows for the development of a plan to establish compatibility between surrounding land uses through the reduction of non-compatible land uses around airports and noise-sensitive areas and the prevention of additional non-compatible land uses. (1983)

a.6 Airport Landscaping for Noise Control FAA Advisory Circular (AC) 150/5320-14

Establishes guidance for the implementation of landscaping for noise control purposes. The document recommends various species of vegetation to be used for noise control. (1978)

5.2b. State Noise Legislation and Regulations

State Department of Environmental Quality (DEQ) standards for noise control, abatement, and mitigation are outlined in OAR Chapter 340, Division 35. These rules define and establish parameters for the Airport Noise Abatement Program, airport noise standards, and airport noise impact boundaries (i.e., an annual average day-night airport noise level of 55 dBA, also referred to as 55 DNL). Since the 55 DNL noise contour can extend well beyond airport boundaries, these OARs also identify noise abatement methods (e.g., soundproofing programs, land acquisition within the 55 and 65 DNL boundaries, modifications to state Uniform Building Code standards for development within the 55 DNL boundary, etc.), provisions for monitoring, and exceptions.

OAR 340-035-0045 establishes a number of noise control regulations for airports, and promulgates an Airport Noise Control Procedure Manual intended to assist airports in calculating noise impact boundaries. Establishing noise contours for public use airports is completed through local airport master planning (as required under section (3)(d) of this rule), and may be eligible for FAA grant funding. Ongoing monitoring, however, can be more problematic. The state has not funded ongoing noise abatement monitoring through DEQ for some time. Therefore, responsibilities for addressing complaints concerning various sources of noise (including airports), and applying DEQ noise standards, can fall to local jurisdictions.

5.3 Environmental Legislation and Regulations

The regulations related to airport development and compatible land uses becomes a very large topic if all of the ancillary issues are included in the discussion. For the purposes of this document, the primary state and federal regulations have been summarized to provide a reference to the most common rules that are applied to airport development. This is not meant to be an all-inclusive list of regulations, rather, it should serve as a general guide for the review of environmental impacts. For example, the National Environmental Policy Act (NEPA) of 1969 is referenced, as is the Airport Environmental Handbook, which includes over twenty different categories of environmental consideration. This illustrates the diverse range of issues that may be impacted by airport development or may create an impact on airport development. As previously noted, each airport sponsor should seek the guidance of the Oregon Department of Aviation regarding site-specific issues or concerns with regards to environmental issues.

➔ *Environmental regulations are addressed within various federal and state documents, with the Airport Environmental Handbook and the National Environmental Policy Act of 1969 being cited most often.*

5.3a. Federal Legislation and Regulations

**a.1 Airport Environmental Handbook
FAA Order 5050.4A**

Establishes the instructions and guidance for preparing and processing the environmental assessments (EA), finding-of-no-significant-impacts (FONSI) and environmental impact statements (EIS) for the proposed federal action on airport development proposals requiring federal environmental approval. (1985) There are over twenty (20) categories of impacts that are evaluated as a part of this process. These categories and a brief summary of each are listed below.

- ➔ Compatible Land Uses – are defined as “the compatibility of existing and planned land uses in the vicinity of an airport and are usually associated with the extent of the noise impacts related to that airport.”
- ➔ Social Impacts - associated with the relocation of residences or businesses, altering surface transportation patterns, dividing or disrupting established communities, or disrupting orderly, planned development.

➔ *Twenty-one environmental categories are assessed to determine impacts on the surrounding community and the environment.*

- Induced Socioeconomic Impacts - address such issues as population movement and growth, public service demands, and changes in the business and economic activity to the extent of the proposed airport development. These impacts are further impacted by significant impacts in the noise, land use and direct social impact categories.
- Environmental Justice - intended to identify, address and avoid disproportionately high and adverse human or environmental effects on minority and low-income populations.
- Air Quality – The Clean Air Act (CAA), administered by the U.S. EPA, establishes national air quality standards. An air quality analysis is required for airport development projects that involve airport location, runway development, or physical airside/or landside improvements that increase airport capacity. An air quality analysis is also required for any proposed development that does not conform to an approved state implementation plan for controlling area-wide air pollution impacts.
- Water Quality - The quality of ground and surface water must not be degraded by planned construction. The Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, provides the authority to establish water quality standards. Section 404 (b) (1) of Clean Water Act of 1977, provides for protection of waters, including wetlands, and assures that alternatives are considered, including mitigation. Administered by the U.S. Army Corps of Engineers. Airport development projects can often involve impacts to wetlands.

Section 401 of the Clean Water Act is administered by individual states through the Department of Natural Resources and protects waters from pollutants. Storm water runoff is a concern at airports due to the refueling and deicing operations.

- Department of Transportation, Section 4(f) - provides that no program or project requiring the use of any publicly-owned land from a public park, recreation area or wildlife or waterfowl refuge, will be permitted unless there is no other alternative and that planning of such program or project includes plans to minimize harm resulting from the use of the property. It should be noted that this legislation has been superseded by Section 303© of the Title 49, USC, however, the criteria remain the same.
- Historical, Architectural, Archaeological, and Cultural Resources – Based upon the requirements of the National Historic Preservation Act of 1969, it is intended to assure coordination of federal historic preservation matters and to recommend measures to coordinate federal historic preservation activities and to comment on federal actions affecting properties included in or eligible for inclusion in the National Register of Historic Places. The Secretary of the Interior is authorized to maintain a record of objects of significant American history, architecture, archaeology, and culture, referred to as the National Register.
- Biotic Communities - protects biotic communities, including native and introduced plants and animals in the project area.
- Endangered/Threatened Species of Flora and Fauna - The Endangered Species Act, Section 7, as amended, requires each federal agency to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or

threatened species. Administered by the U.S. Fish and Wildlife Service, this Act ensures that proposed projects do not result in loss of habitat.

- Wetlands - Wetlands are areas that are inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances does or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.
- Floodplain - Floodplains are “the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands that are subject to a one percent or greater change of flooding in any given year.”
- Coastal Zone Management - Coastal Zone Management is to preserve and protect the Nation’s coastal zone, to encourage wise use of land and water resources of a coastal zone, to prepare a plan to provide protection of natural resources and coordination of the public, federal state, local interstate and regional agencies and governments affecting the coastal zone.
- Coastal Barriers - The Coastal Barriers Resources Act of 1982, PL 97-348, prohibits, with some exceptions, Federal financial assistance for development within the Coastal Barrier Resources System, which consists of undeveloped coastal barriers along the Atlantic Ocean or Gulf Coasts.
- Wild and Scenic Rivers - The Wild and Scenic Rivers Act describes those river areas eligible to be included in a system afforded protection under the Act as flowing and possessing “outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values.”
- Farmland - The Farmland Protection Policy Act authorizes the Department of Agriculture to develop criteria for identifying the effects of Federal programs on the conversion of farmland to non-agricultural uses.
- Energy Supply and Natural Resources - Energy requirements generally fall into two categories: those which relate to changed demands or stationary facilities (e.g. airfield lighting and terminal building heating), and secondly, those which involve the movement of air and ground vehicles. For most airport actions, changes in energy or other natural resource consumption will not result in significant impacts.
- Light Emissions - Consideration shall be given to any lighting associated with an airport that will create an annoyance among people in the vicinity. An EA should consider site location, type of system, and measures to lessen annoyance.
- Solid Waste Impacts - Airfield development (runways, taxiways and related items) will not usually impose any direct relationship to solid waste collection. Terminal area development may involve circumstances that require consideration of solid waste impacts. Consultation with local officials concerning solid waste disposal facilities shall be documented in the environmental assessment.
- Construction Impacts - Any specific activities which may create adverse environmental impacts including noise, dust, air pollution from burning debris and water pollution from erosion shall be discussed in the

→ Some categories may not be relevant to every project and are accordingly removed from consideration.

environmental assessment. In general, a description of the type and nature of the construction and measures taken to minimize potential impacts should be detailed.

- Design, Art, and Architectural Application - Normally, the environmental assessment will include some discussion of design, art, and architecture in mitigating adverse visual and other environmental impacts and encouraging enhancement of the environment. FAA's Airport Improvement Program Handbook prescribes guidelines for treating and promoting design, art, and architectural objectives in airport aid projects.

a.2 National Environmental Policy Act of 1969 (NEPA)

The NEPA resulted in the development of guidelines for application of a national policy of the federal government to consider impacts of proposed action on the environment. The Act specifically states that "governments, and other public and private organizations, use all practical means and measures to create and maintain conditions under which man and nature can exist in harmony." In land use planning, when an airport sponsor proposes a project or action that requires federal approval, all actions are reviewed to determine their impacts on the environment.

**a.3 Hazardous Wildlife Attractants On or Near Airports
FAA Advisory Circular (AC) 150/5200-33**

This document provides guidance regarding the types of land uses, which are considered to be incompatible near airports due to their nature as wildlife attractants. These uses include but are not limited to the following: wastewater treatment facilities, wetlands, dredge spoil containment areas and solid waste landfills. Typically, these uses should be located at least 5,000 feet away from an airport runway end if the airport serves piston-type aircraft and at least 10,000 feet away from an airport runway end if the airport serves turbojet aircraft. (1997)

→ *Wildlife attractants on or near airports continue to be an issue of concern across the nation.*

**a.4 Criteria for Municipal Solid Waste Landfills
Code of Federal Regulations (CFR) Title 40, Part 258, Subpart B**

The subpart establishes criteria for the expansion and/or development of new landfills with regards to airports. In part it states that:

- a) Owners or operators of new Municipal Solid Waste Landfills (MSWLF) units, and lateral expansions that are located within 10,000 feet (3,048 meters) of any airport runway end used by turbojet aircraft or within 5,000 feet (1,524 meters) of any airport runway end used by only piston-type aircraft must demonstrate that the units are designed and operated so that the MSWLF unit does not pose a bird hazard to aircraft.
- (b) Owners or operators proposing to site new MSWLF units and lateral expansions within a five-mile radius of any airport runway end used by turbojet or piston-type aircraft must notify the affected airport and the Federal Aviation Administration (FAA).

**a.5 Construction or Establishment of Landfills Near Public Airports
FAA Advisory Circular (AC) 150/5200-34**

This document provides guidance regarding the requirements for complying with new federal statutory requirements concerning the construction or establishment of municipal solid waste landfills (MSWLF) near public airports. Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21), Pub. L. No. 106-181 (April 5, 2000) has replaced section 1220 of the 1996 Reauthorization Act, 49, U.S.C. §44718 (d), with new language that further

limits the construction or establishment of a MSWLF near certain smaller public airports.

These new limitations apply to only those airports that are recipients of Federal grants and to those that primarily serve general aviation aircraft and scheduled air carrier operations using aircraft with less than 60 passenger seats. These new restrictions require a minimum separation distance of six (6) statute miles between a new MSWLF and a public airport. (2000)

5.3b. State Environmental Legislation and Regulations

The 2000 Oregon Aviation Plan found that half of the airports in the state have reported migratory bird areas located nearby, and nearly half have reported water impoundments near their airports. While having wetlands and open waterways available for migratory and non-migratory birds and other aquatic life may be an ecological blessing, such circumstances can represent significant hazards to aviation from potential bird strikes. Additionally, some 15% of airports reported having open landfills nearby, thus further contributing to bird strike concerns. FAA Circulars advise significant separation between airports and airport operations and bird attractants, such as wetlands, wastewater treatment sites, gravel extraction reclamation sites, and landfills.

➔ *Wetlands, water impoundments, and landfills are the three primary areas of environmental concern within the state.*

The following identify applicable state regulations pertaining to wetlands, open water impoundments from surface mining activities, and landfills relative to airport planning:

b.1 Wetlands

The Oregon Removal-Fill Law (ORS 196.600 through 196.905) requires a permit administered by the Oregon Division of State Lands (DSL) for any proposals that involve more than 50 cubic yards of fill in, or removal from “waters of the state of Oregon.” Waters of the state include jurisdictionally inventoried wetlands, waterways, and certain water bodies. DSL wetland permitting requirements and mitigation protocols are outlined in OAR Chapter 141, Division 85. Although certain exemptions are allowed, there are no provisions waiving airports from complying with wetland fill requirements in an effort to address potential bird strike hazards.

If wetlands are located within an airport boundary and must be filled, they may be mitigated effectively on-site without becoming a bird attractant through sound mitigation planning and design. Off-site mitigation may be accomplished through wetland mitigation banking or by cooperatively planning with DSL staff to enhance or create wetlands of comparable functional values off-site within the same watershed.

Wetlands located proximate to an airport boundary and/or within the vicinity of airport operations are more difficult to address outside of a comprehensive wetland mitigation effort. Collaboration with city and county authorities in addressing wetlands comprehensively in the Goal 5 (Natural Resources) process will likely have more far-reaching effect in addressing wetlands impacts upon aviation. OAR Chapter 660, Division 23 outlines the procedures for complying with inventoried Goal 5 resources, including wetlands (OAR 660-023-0100). Under (3)(a) of this OAR, for areas within Urban Growth Boundaries or Urban Unincorporated Communities, local governments are required to conduct a Local Wetlands Inventory (LWI) under procedures in OAR 141-086-0010 through 0240. Such communities must identify “significant wetlands” and adopt the LWI as part of its comprehensive plan and local land use regulations. For areas outside of

UGBs and UUCs, local governments must adopt or use the statewide wetland inventory. In any case, public use airport owners and managers are well-served

by being involved with city and county officials in comprehensive planning efforts and periodic review updates to achieve compliance with Goal 5.

b.2 Open Water Impoundments

Consumptive natural resources such as sand and gravel deposits meeting significance criteria are regulated as Goal 5 resources under OAR 660-023-0180. Mining of such aggregate resources may form open water impoundments, or such man-made waterways may be created as a product of required mining reclamation efforts. As noted above, such impoundments proximate to airports can increase risk of bird strikes. To address this risk and prevent conflicts with bird movements, ORS 836.623(2) prohibits new open water impoundments of ¼-acre in size or larger within airport approach corridors, within 5,000 feet from the end of a runway, and on land owned by the airport where necessary for airport operations.

Local governments can also adopt regulations expanding the area subject to this prohibition on new open water impoundments (up to 40,000 feet within an approach corridor for an airport with an instrument approach) when supported by substantial evidence and findings of fact demonstrating that the impoundment(s) would likely result in a significant increase in hazardous bird movements across runways or approach corridors. These standards offer the potential for significant influence for airport operators in relation to the aggregate mining operations and reclamation when proximate to airport runways and approach corridors.

b.3 Landfills

State regulations governing municipal solid waste landfills by the Oregon DEQ are outlined in OAR Chapter 340, Division 94. These standards track the guidelines for landfill siting and operations outlined in federal law (CFR Title 40, Part 258, Subpart B). To minimize the potential for hazards from bird and wildlife attractants, new landfills and landfill expansions should be developed in keeping with applicable FAA advisory circulars (AC 150/5200-34) to ensure adequate separation from airport environs.

5.4 Summary

The various regulations previously discussed provide a substantial base of information to use as the foundation for an airport land use plan. The regulations also provide numerous avenues for land use controls at the federal and state level. It is utilizing these regulations in a comprehensive and complimentary manner that is often the challenge to land use planners.

None of these regulations by themselves are an effective means of land use control, however, as a package in concert with each other, they can provide a rigorous set of land use regulations with which an airport can be protected. This protection assumes that the regulations are used to plan, develop, implement and maintain the necessary land use controls and programs.

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6.0 Techniques for Establishing Compatible Land Uses

Incompatible land uses plague airports nationwide. Today airports have two primary actions available to deal with compatibility issues:

- Reduce the number of existing incompatible land uses
- Implement strategies outlined in their land use plans to prevent future incompatibilities

6.1 Preventive Techniques

Various methods to achieve compatible land use are found below and include planning related options and actual implementation techniques. It is always more desirable to prevent the establishment of incompatible land uses than to correct them after the fact. Planning techniques are grouped into two basic categories: planning and ordinances. Both methods are useful, especially when one is used in conjunction with the other. **Table 6-1** highlights various preventive techniques.

6.1a. Planning

Planning related techniques are the first step in developing comprehensive land uses around an airport. The planning techniques related to land use, need to focus on the site-specific issues. However, their authority lies with the statewide and comprehensive planning, which takes place on the broader scale. The actions outlined in these various broad-scale planning arenas provide the foundation for airports to develop their own land use plans. These plans are based on safety and noise-related concerns and criteria, as previously discussed. The initial planning documents should guide preventive and corrective measures for the existing and future growth of the airport. The following measures provide the foundation for the various levels of planning available for land use issues.

→ *Planning techniques and zoning ordinances are the basis for preventive techniques for land use compatibility.*

a.1 Statewide Planning

As identified in Chapter 5, Oregon's planning program is driven by 19 statewide planning goals, with Goal 12 (Transportation) being most directly applicable to air transportation planning and operations. To realize these goals, there are a series of applicable state statutes and implementing administrative rules.

There are instances in local planning implementation where conflicts arise between competing goals (e.g., protecting public use airports under Goal 12 from bird strike hazards associated with water impoundments versus natural wildlife protection under Goal 5.) Local jurisdictions and state agencies continue to grapple with the means of effectively addressing conflicts between goals, while balancing mandates for goal and regulatory compliance.

Table 6-1: Preventive Techniques for Establishing Compatible Land Uses				
Preventive Measures				
Technique	Description	Advantage	Disadvantage	When to use
Comprehensive Planning	Mandated by Oregon Law; describes all future land use for the community	Low cost and minimal controversy if airport is not in a developed area	Not effective when existing incompatible development has encroached on the airport; only effective when supported by zoning	Each time a comprehensive plan is developed or updated, steps should be taken to ensure land use compatibility in the airport environs
Coordination Agreements	Agreement between two or more jurisdictions that are impacted by an airport	Most applicable when airport and area of influence are located outside the physical boundaries of the public sponsor (example: City of Eugene is the sponsor for the Eugene Airport which is located in the unincorporated community of Lane County)	Ineffective unless all parties share similar land use planning goals and objectives for areas in the airport environs	When comprehensive plans are updated and/or urban growth boundaries (UGBs) are amended
Urban Growth Boundaries	Mandated by Oregon Law; limits the developable area within a community	Controls the growth boundaries for a community	Many airports are located within UGBs. This can place the development pressures on property near the airports where adjoining development may be incompatible	Where opportunities present themselves, efforts should be made to have UGB limits and the associated development complement the airport-related safety areas
Airport Overlay Zone	Places additional conditions on affected land; underlying zone remains unchanged	Easy to implement, reduces hazards and incompatible land use	If land use is incompatible in underlying zone, this incompatibility will continue	Required by APR
Airport Development Zone	Creates separate zoning districts for airports	Creates a more distinct area of influence for the airport; gives the airport better opportunity to expand for airport-related dependent and compatible uses; avoids possible unintended uses that often accompany an overlay zone	Does not include areas beyond airport property; adjacent land uses can still be incompatible	Most applicable to airport property and identified expansion areas
Height Restrictions	Safety mandated by Oregon Administrative Rule Chapter 738, Division 70 - Physical Hazards to Air Navigation within the airport object-free zone	Prevents the location of objects which pose violations to FAR Part 77 surface	Only effective in preventing new height obstructions; may not be effective when terrain or trees are obstructions	Should be adopted as part of zoning to support land use identified in comprehensive plan. Required by APR

→ *Oregon cities and counties must prepare a comprehensive land use plan and TSPs that address airport issues as well.*

a.2 Comprehensive Planning

Oregon cities and counties must prepare comprehensive land use plans and have them acknowledged by LCDC as being in conformance with the 19 statewide planning goals. Goal 12 requires the provision of “a safe, convenient and economic transportation system,” which includes air transportation. LCDC’s adoption of the Transportation Planning Rule and Airport Planning Rule has given more specific direction on how local agencies must conduct planning for and around airports.

a.3 Transportation System Plans (TSPs)

Transportation System Plans (TSPs) are required of local governments pursuant to OAR 660, Division 12. Communities may develop stand-alone airport plans, or address airport-related issues within an airport element of a local transportation plan. In any event, public use airports can help assure airport land use compatibility by adopting and implementing an airport layout plan (ALP) and map. The ALP and map should be incorporated either directly, or by reference, as part of the local jurisdiction’s transportation system plan to meet the requirements of the APR and other applicable agency rules and statutory requirements. FAA guidelines are explicit concerning the text and diagram components commonly included as part of an airport master planning effort. The ALP should address existing conditions, existing and future land use compatibility issues and conflicts, proposed actions, and the jurisdiction(s) responsible for implementation.

An Airport Layout Plan and map are essential parts of transportation system plans. The airport plan should address existing conditions, as well as existing and future land use compatibility issues. It should identify actions to be taken and identify the jurisdiction or agencies responsible for implementation.

a.4 Coordination Agreements

Land impacted or affected by airports often is located in more than one jurisdiction. When this is the case, coordination between jurisdictions is necessary to establish or preserve compatible land uses and a coordination agreement between the affected jurisdictions is required. This usually occurs if an airport or an airport’s impact area is located outside the jurisdiction of the airport sponsor. Coordination agreements can also be used to identify responsibilities for noise abatement programs and height restrictions.

a.5 Urban Growth Boundaries

An urban growth boundary (UGB) is defined as an area of land that is served by urban services and facilities and is determined to be suitable and necessary for future urban expansion. UGBs are developed in an attempt to establish the limits of full-build out. Oregon is the national leader in the development and use of UGBs to manage growth of urban development.

The incorporated communities in Oregon have UGBs acknowledged by LCDC. The UGB’s procure a minimum 20-year land supply. The extension of urban levels of key services is generally limited to land within UGB’s. Airports within or proximate to UGBs may benefit from the availability of urban services. But they can also be impacted by the encroachment of incompatible land uses inside the UGB. Airport sponsors should work aggressively with local jurisdictions to develop and implement appropriate zoning and land use measures (see below) as tools to limit or mitigate potential incompatibilities.

→ *Appendices D, E, and F provide sample ordinances to address airport safety and compatibility overlay zones.*

6.1b. Ordinances

Zoning is an effective tool used to reduce incompatible land uses in and around airports. It is most effective if implemented early in the development of an airport and its surrounding environs. When developing a zoning ordinance, issues to consider include:

- the review of existing zoning and approval actions necessary by state agencies, and
- determination of whether assistance may be needed from an outside consultant, or if in-house analysis is sufficient.

b.1 Airport Overlay Zoning

An Airport Overlay Zone is a zone that promotes compatible land uses for specific distances around airports. An Airport Overlay Zone applies additional conditions or restrictions to a specified area while retaining the existing base zoning classification. This zone can be highly effective in addressing a number of potential incompatibilities with airports and airport operations. For example, the Airport Overlay Zone may limit the height of objects surrounding an airport, restrict uses producing conditions that may be hazardous to air navigation (e.g., smoke, glare), and limit uses that are noise-sensitive. Model Airport Overlay Zoning Ordinances are included in Appendices D, E and F.

b.2 Airport Development Zoning

This type of zoning is applied to areas around an airport identified for airport-related and dependent uses. It often replaces industrial, public facility or other designations currently given to the airport site and immediate vicinity. The Airport Development Zone is a base zoning district that identifies outright and conditionally permitted uses on airport property. The zone should include areas used or needed for airport operations, areas needed for anticipated facility growth, airport-related industry and commercial operations and airport-related industrial, commercial or recreational activities. According to OAR 660-013-0160, local governments must update their zoning and land use regulations to conform to this division at periodic review. Amendments to plan and land use regulations may be accomplished per OAR 660-013-0160 (5) through the plan requirements of ORS 197.610 to 197.625 in advance of periodic review, where such amendments are in full compliance with Division 13 of OAR 660.

b.3 Local Ordinances

In addition to zoning ordinances, local jurisdictions may also address and/or mitigate potential land use incompatibilities through Site Plan Review procedures and building code standards.

b.4 Height Restrictions

Providing height restrictions on proposed development beyond the airport property is an essential element of any land use plan that focuses on safety of the airport and the public. Used in conjunction with the Airport Overlay Zone, height restrictions can be used to preserve navigable airspace. According to the FAA and the regulations outlined in *FAR Part 77 – Objects Affecting Navigable Airspace*, any object or structure which penetrates any of the “imaginary surfaces” outlined in FAR Part 77 are considered to be an obstruction to air navigation. Details on specific height restrictions should be included in the development of zoning regulations, and the regulations contained in FAR 77 should form the basis of the height restrictions. FAA Form 7460-1 should be submitted to both the FAA and Oregon Department of Aviation. It is important to understand the timeframe necessary for government review and to hold final approval of land use applications until both FAA and ODA comments are received. The regulations contained in FAR Part 77 attempt to accomplish the following:

- Establish standards and requirements for notice to FAA of proposed construction or alteration of a structure which may impact aviation and therefore requires a study for aeronautical effect
- Establish standards for determining which structures will be obstructions to air navigation

→ *FAR Part 77 establishes standards for notifying the FAA of proposed construction with the use of FAA Form 7460-1, shown in Appendix K.*

- Provide for studies of obstructions to determine their effect on the safe and efficient use of airspace. If an object is identified as an obstruction, but does not adversely affect a significant volume of air traffic, it is determined not to be a hazard to air navigation.
- Provide authority for public hearings and other reviews to examine the potential for hazardous effects to air navigation of proposed construction or alterations
- Reference guidelines for marking and lighting obstructions to air navigation

All of these goals should be contained in an overall land use plan that addresses these specific height related issues.

6.1c. Summary of Preventive Techniques

The techniques described above may be used as individual elements of a larger comprehensive land use plan or can be used as independent methods of establishing land use compatibility. Each community has its own unique issues which should be dealt with on a case-by-case basis. The information contained in this guide can be used as a resource for establishing these various techniques and protection measures.

6.2 Corrective and Preventive Techniques

Acquisition techniques are the primary tool used as either a corrective or preventive measure for land use compatibility. As a corrective technique, land acquisition can be used to remove, lower or control existing land uses. As a preventive tool, acquisitions can take place to acquire property and easements prior to the development of a conflicting land use. Acquisition typically has two forms; fee simple acquisition or acquisition of easements. Each of these methods is discussed below. Planners should use both of these methods as corrective and preventive measures where necessary to provide compatible land uses. **Table 6-2** highlights these various preventive techniques.

6.2a. Fee Simple Acquisition

Property acquisitions may appear to be an excessive expense. However, it is good planning to acquire property prior to development rather than after it becomes an incompatible land use. As airport expansion becomes imminent, the value of land adjacent the airport is often inflated in an attempt to reap a larger financial gain during the acquisition process. Acquisition prior to land costs increasing represents potential savings for the airport owner.

→ *Property acquisitions and aviation easements are the most common corrective and preventive techniques.*

Fee simple acquisition is the process by which the airport purchases property from the existing property owner in its entirety, including the property and structures or facilities on the property, as well as the air and mineral rights. This is the most effective means of acquisition because it places sole ownership of the property in the hands of the airport. This allows the airport to maintain the property in a compatible manner. The FAA recommends airport sponsors own the property under the runway approach and departure areas that include, as a minimum, the limits of the Runway Protection Zones (RPZs).

The federal process outlined in *FAA Advisory Circular 150/5100-17 change 3 – Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects* and the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (P.L. 91-646) must be adhered to when purchasing property with federal funds. The FAA has developed a very useful information brochure titled *Land Acquisition for Public Airports*, which summarizes the required process for land acquisition. Guidance should be

received from the ODA when land acquisition is considered, to ensure the proper process is utilized if federal funding is applied to an acquisition project.

6.2b. Easements

Easements may be used as an effective method of land use control to reduce incompatible land uses in the airport environs. To be effective, they should be used in concert with a broader land use plan and they must be enforced. Easements are typically a less expensive method of land use control, but are governed by the same process as outlined in the fee simple acquisition process, which includes the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and associated FAA Advisory Circulars. There are three basic types of avigation and hazard easements that can be used depending upon the situation and type of land use control required. One major advantage of easements is that they are usually permanent agreements, whereas zoning ordinances can be changed, thus impacting or changing the affect on the airport. **Table 6-3** illustrates the various easements and the rights that are acquired by the easements. **Exhibit 6-1** illustrates how a property is controlled by avigation easement.

Table 6-2: Preventive and Corrective Techniques for Establishing Compatible Land Uses

Preventive Measures				
Technique	Description	Advantage	Disadvantage	When to use
Fee Simple Acquisition	Purchase of land and all land use rights	Allow complete control over future and pre-existing land use; not reversible	Often very costly with possible legal opposition; takes land off tax roles	Should be considered to protect critical safety zones (RPZs) and areas subject to high levels of noise impact. Most effective method for resolving existing problems: may be eligible for FAA grant
Easements	Transfer of money to obtain the rights to use or restrict use in a specified manner	Can provide more positive control than zoning; less expensive than acquisitions, land may remain on active tax roles	Does not alter existing incompatible use	Can be used to compensate owner for substantial noise impacts, and can be used to gain right to remove obstructions (i.e., trim trees)
Transfer of Development Rights	Property or development rights transferred to alternative location	Less costly than purchase	Applicable in very limited situations, not suitable to large areas; requires coordination	TDR opportunities may substantially differ between cities and counties. Coordination with DLCD and ODA is suggested if this action is considered

6.2c. Transfer of Development Rights

The Transfer of Development Rights (TDR) involves separate ownership and the use of various “rights” associated with a parcel of land. Under the TDR concept, some of the property’s development rights are transferred to an alternate location where they may be used to intensify allowable development. For example, land identified within the approach to an airport could be kept in open space or agricultural use and its development rights for residential use transferred to locations outside the approach area. Landowners could be compensated for the transferred rights by selling the development rights at the new location. In order to be a viable option, the TDR approach must be fully coordinated with an overall

planning and zoning process, which is best achieved through the use of planned zoning. TDR opportunities may substantially differ between cities and counties.

6.2d. Summary of Corrective and Preventive Techniques

The techniques described as corrective and preventive have the ability to be used to correct an existing incompatible land use or used as a means to prevent future incompatible land uses from being established. In either case, these methods require the local community to monitor the uses in these areas. For example, acquiring an avigation easement over a piece of property, while legally binding, does not guarantee that a future property owner will be made aware of the easement and thus be mindful of its impact and restrictions on the property. There are many instances where a change of ownership has led to the new owner unknowingly compromising the existing easement and its restrictions. Consequently, oversight of these types of techniques is essential to their success as land use measures.

Exhibit 6.1 – Area Controlled by Avigation Easement

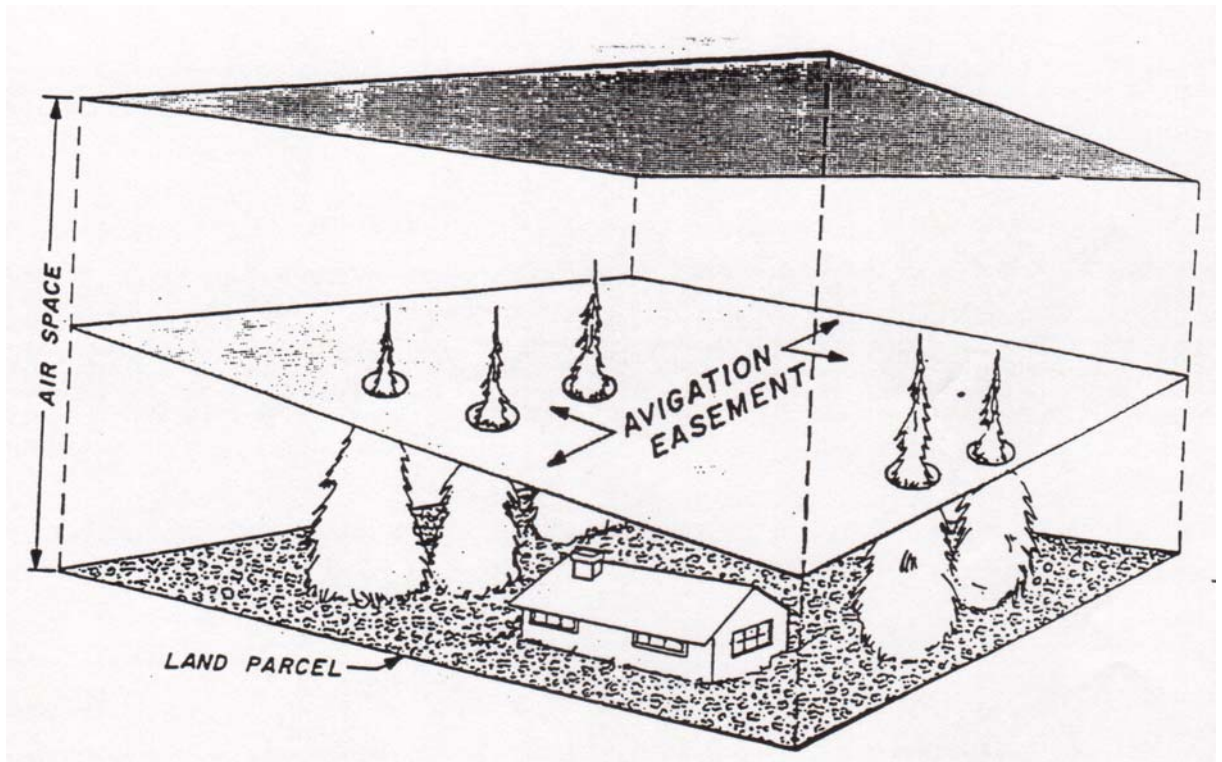


Table 6-3: Basic Types of Avigation and Hazard Easements

Type of Avigation / Hazard Easements	Rights Acquired
Model Avigation and Hazard Easement	<ol style="list-style-type: none"> 1. Right-of-flight at any altitude above the approach surface 2. Prevents any obstruction above approach surface 3. Right to cause noise, vibrations, fumes, dust, and fuel particles 4. Prohibits creation of electrical interference or unusual lighting 5. Grants right-of-entry to remove trees, buildings, etc., above approach surface
Limited Avigation Easement	<ol style="list-style-type: none"> 1. Right-of-flight above approach slope surface (20:1, 34:1 or 50:1) 2. Prohibits any obstruction above approach slope surface 3. Right-of-entry to remove any structure or growth above approach slope surface
Clearance Easement	<ol style="list-style-type: none"> 1. Prohibits any structure, growth or obstruction above approach slope surface (20:1, 34:1 or 50:1) 2. Right-of-entry to remove, mark, or light any structure or growth above approach slope surface

6.3 Corrective Techniques

Many airports have some form of incompatible land use in close proximity to the airport. Developing plans to mitigate these incompatibilities is an important step in preserving the airports of the state. Since each airport has its own unique land use issues, it is important to provide an assortment of techniques for airports to use in their plan. The various methods outlined below are the most common forms of corrective actions available. **Table 6-4** highlights these various corrective techniques.

6.3a. Change in Operational Procedures

One remedy for some compatibility issues is a change in operational procedures. For example, if an airport is experiencing noise complaints from a residential neighborhood which lies under the extended runway approach area, the airport could create a non-standard departure/approach pattern, which would require aircraft to turn before reaching the neighborhood to reduce noise from overflights. This is a perceptual remedy since the level of noise is most likely within acceptable levels. A procedural change such as this can be implemented fairly efficiently through the use of promotional material from the airport, pilot information/support groups and airport directories. It should be noted that this does not remove or change the incompatible land use, but it does reduce the impact and provides a temporary fix to the issue. Specific examples include use of preferential runways, non-standard turns and non-standard approach/departures.

✈ *Changes in operational procedures are only temporary fixes to incompatible land uses issues and should not be used as actual mitigation measures.*

Examples of possible operational procedures targeted to effect noise control may include, but are not limited to, the following:

- restricting the ground movement of aircraft
- restricting engine run-ups or the use of ground equipment (identifying times of day and/or limiting locations)
- raising the glide slope angle or intercept
- managing aircraft power and flaps
- limiting the use of reverse thrust, and
- changing the traffic pattern.

All of these procedures are considered to be acceptable methods of mitigation. However, as noted previously, they are considered temporary measures and should be used as interim mitigation options until a more permanent option for addressing the land use issue is available.

6.3b. Noise Mitigation

Aircraft noise is one of the largest areas of concern with regards to land use issues. Developing mitigation options for noise impacts is one of the most costly corrective measures. Noise is often defined as unwanted sound, which provides a very large spectrum of options when trying to address a “noise” related problem. For example, someone who lives fifteen hundred feet from the end of a runway has a different definition of noise compared to someone who is three thousand feet away from the airport, yet they both may have noise complaints. Soundproofing, noise barriers, and land acquisition are common types of noise mitigation measures available.

Table 6-4: Corrective Techniques for Establishing Compatible Land Uses

Preventive Measures				
Technique	Description	Advantage	Disadvantage	When to use
Change Operational Procedures	Changing normal operating patterns to reduce noise can include preferential runway end use, non-standard turns on departures, non-standard approach and departure altitudes	Can help reduce noise impacts in areas of incompatible development	Does not change incompatible land use; may be only temporary fix if continued development of incompatible use occurs or airport grows	Consider as part of Master Plan, Part 150 or Environmental Assessment for airport; must be fully coordinated with airport owner, users, and FAA
Noise Mitigation	Sound barriers or soundproofing can be used to mitigate existing noise impacts	Can help to reduce noise impacts on noise-sensitive land uses that have developed within the airport environs	Very costly to implement; is not a long-term solution but a temporary fix	Can be investigated as part of an airport planning or noise study; applicable for larger airports and smaller airports that want to do volunteer soundproofing and ground sound barriers

b.1 Noise Barriers

Noise barriers provide mitigation options with a very specific focus. Since noise barriers have limited applications, they are typically used on airport property to shield noise-sensitive areas from the most intense levels of noise from the airport. For example, when aircraft depart an airport they must do a run-up where the engine(s) of the aircraft are brought to full power and then tested. The action is typically noisy and normally done at the end of the runway just prior to take-off. If an airport has a noise-sensitive area near the run-up area, then a noise barrier may be required to shield the sensitive area from the run-up noise. This also applies to airports that have aircraft engine repair or maintenance. Since these businesses often test the engines after their repair or maintenance, a specific location for engine run-ups may be necessary. A noise barrier can surround this run-up area in an effort to contain the aircraft noise.

➔ *Noise barriers and soundproofing are two methods of mitigating noise impacts.*

Noise barriers can take many different forms. Coniferous trees and shrubs can often be used as noise barriers, however, these forms of vegetation often have limited noise reduction attributes but act as a visual barrier and are thus perceived as a noise barrier. Topographic features can also be used as barriers. Earthen berms are the most common topographic feature since they are easy to create and fairly inexpensive to construct. Man-made noise barriers are the most costly of the options, which often include fencing or masonry walls. Fencing is the most common type of noise barrier since it serves two purposes; the screening of the visual impacts as well as the noise. Masonry walls also provide barriers but are used in areas where there is a specific point of noise generation such as the engine run-up areas previously discussed.

b.2 Soundproofing

Soundproofing, while considered a mitigation measure, is a temporary fix to a noise issue. Since soundproofing only addresses the indoor environment, the outside impacts of noise levels go unchecked. For example, if a home is determined to be within an area with a high level of noise, the house can have improvements made to reduce the levels of noise within the structure. Windows and doors of a more dense construction can be installed, as well as air conditioning units or a central air system, which reduces the need to open windows that allow noise to enter the structure. Additional insulation can also be installed to deaden the outside noise. All of these measures, while helpful to the indoor setting, do nothing to lower the outdoor noise levels. While this is acceptable, it should be a consideration when developing a compatible land use plan. For example, an airport receives repeated calls from a neighbor of the airport with noise complaints. He complains about noise levels while he is trying to entertain guests at his home on the weekends in the summer. This neighbor is most likely having a barbecue or picnic in his backyard. In this instance, soundproofing his residence will not mitigate his noise issues since the major complaints are associated with outdoor activities. It is important to recognize this issue and be cognizant of it as an airport attempts to mitigate noise issues in the local community.

b.3 Summary of Noise Mitigation

As outlined above, noise barriers and soundproofing are methods of addressing noise related land use issues, however, both of them may have limited applications depending upon the nature of noise complaints at each airport. Prior to utilizing either of these methods, the long term goals of the land use plan should be identified to ensure that these methods will provide the desired results and advance the existence of compatible land uses around the airport. More often, land acquisition is a more viable option since it addresses the heart of the problem - incompatible land uses in close proximity of the airport. Land acquisition is a mitigation measure, which can be used as a corrective and a preventive technique and is addressed below.

➔ *Using a combination of preventive and corrective techniques, along with a comprehensive plan is required to develop a successful compatible land use program.*

6.4 Summary

The various techniques for addressing compatible land use have one thing in common - the need to have an underlying plan for comprehensive land use for the airport. None of these techniques are effective if an overall plan is not in place to guide the selection, implementation and maintenance of these techniques. The airport must be aware of the various techniques used to provide for compatible land uses and work to maintain those techniques since each method has their own requirements and focus. Using a combination of these techniques provides an airport with a wide range of opportunities to provide compatible land uses near the airport.

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7.0 Resources for Airport Compatible Land Use Planning

→ *Each airport must address their specific land use issues with techniques and tools appropriate for their situation.*

As the previous chapters have illustrated, there are a tremendous number of state and federal rules and regulations that relate to airport and aviation related land use planning. This guide is not an exhaustive list of these rules and regulations, nor is it a complete how-to guide to address all of your planning questions. Each airport and its host community have specific concerns and various techniques available to address land use related issues within their own community. This guide provides a broad framework of information that can be used to address these issues, however, additional research is suggested to create a land use program specifically tailored to your community.

This chapter contains resource information that the reader can use to address the land use issues related to their community and their airport. Templates have been developed, based upon the model overlay zone ordinances, which provide a graphic representation of the land areas around airports that are impacted by the various FAA related safety zones and areas. In addition to the templates, a list of agency contacts has been provided which can be used by the user should specific questions arise. These items, in conjunction with the questions contained in Chapter 1, should be used to assess compliance with state and federal rules, regulations and guidelines.

Information contained in this document, and the various sources used to develop it, can be supplemented with additional data. The FAA has developed a valuable resource for airport sponsors and their communities to plan and manage land use compatibility and airport noise, the FAA Airport Noise Compatibility Planning Toolkit, which can be found at www.aee.faa.gov/noise/lupitoolkit.htm. Any or all of the documents contained in this toolkit can be downloaded and printed, as needed.

7.1 Planning Templates

As discussed in Chapters 1 and 3, the first step in examining land use compatibility surrounding an airport is to identify whether incompatibilities exist today and whether or not adequate measures also exist to prevent future incompatibility. Safety, height restrictions, and noise must be considered when planning for land uses compatible with airport operations. The FAA has established safety criteria related to the height of objects in proximity to airports, and in the approaches to airports, that affect both the ground and the air. There are also areas on the ground that are more prone to high noise levels around an airport and should be protected from incompatible use. It is the intent of this Guidebook to provide planners with information that offers a combined application, considering both safety and noise criteria, to direct the control of land use around airports throughout Oregon. This combined application has been used to develop overlay-planning templates for airports, which can be used in the community planning process.

These templates can be used to identify those land uses that are currently incompatible, as well as those areas that may be undeveloped that should be protected to prevent future incompatibility. Local planners, as appropriate within each safety and noise-restricted area, should consider preventive measures and corrective actions discussed in the previous chapter. For areas that fall within the templates that are presently undeveloped, preventive measures that were discussed in the previous chapter should be considered and implemented. For incompatible land uses or existing activities that fall within the templates, corrective actions (discussed in the previous section) should be considered to resolve or mitigate, to the extent possible, incompatibilities that may now exist in

the no development, the limited development, or the height restricted development areas.

Three different types of planning templates representing three different overlay zoning ordinances were developed to reflect the combined application of both safety and noise related land use planning for the airport environs. Activity levels, runway lengths, and approach categories were the primary inputs used to develop each of the three planning templates. Planning templates were developed for the following:

- *Private use airports*
- *Public use airports with only visual approaches*
- *Public use airports with instrument approaches, non-commercial service*

Designing planning templates for the larger commercial service airports such as Portland, Eugene, and Medford, would not be useful because of the vast mix of aircraft that operate at these airports. More specific information related to critical aircraft and fleet mix is required to develop an applicable template for each of these airports. The templates are intended to be non-airport specific. Specific safety and noise criteria, especially for the more active airports in Oregon, may vary considerably from the general planning guidelines provided in this section. In developing the generalized safety and noise compatibility templates presented in this section, it was assumed that larger and more active airports in Oregon would have the ability to develop their own airport-specific standards. The following sections describe the planning templates for each airport category and the assumptions that were used to develop them. A brief summary of visual and instrument airports is located on page 7-15.

→ *Planning templates based upon the state model ordinances for airport safety and compatibility overlay zones can be used to illustrate general impact areas.*

The planning templates for the three airport categories address the safety areas for the various categories. The templates are based upon the model ordinances for airport safety and compatibility overlay zones (Appendices D,E, and F). These general guidelines were developed to define those areas that should have limited development compatible with the airport and its operations, and those areas where development only needs to be height restricted to conform to FAR Part 77. All of these areas, however, need to consider FAR Part 77 guidelines. The dimensions of each of these areas have been simplified to provide planners with easier interpretation of the technical dimensional criteria contained in Federal and State planning documents for both safety and noise compatibility.

Many airports in Oregon have already adopted overlay zoning. These planning templates are not intended to replace such zoning, but rather they are provided for those airports that have not yet taken steps to promote compatible land use in the airport environs. The planning templates are also available to airports where current controls have proven to be ineffective. The templates are intended to protect the airports as a viable part of the transportation system. Information contained in this chapter should be used by planners to assess their current land use controls. Information contained in this section can also be used to check the effectiveness of Comprehensive Plans and Zoning Ordinances when they are periodically reviewed.

7.1a. Private Use Airports

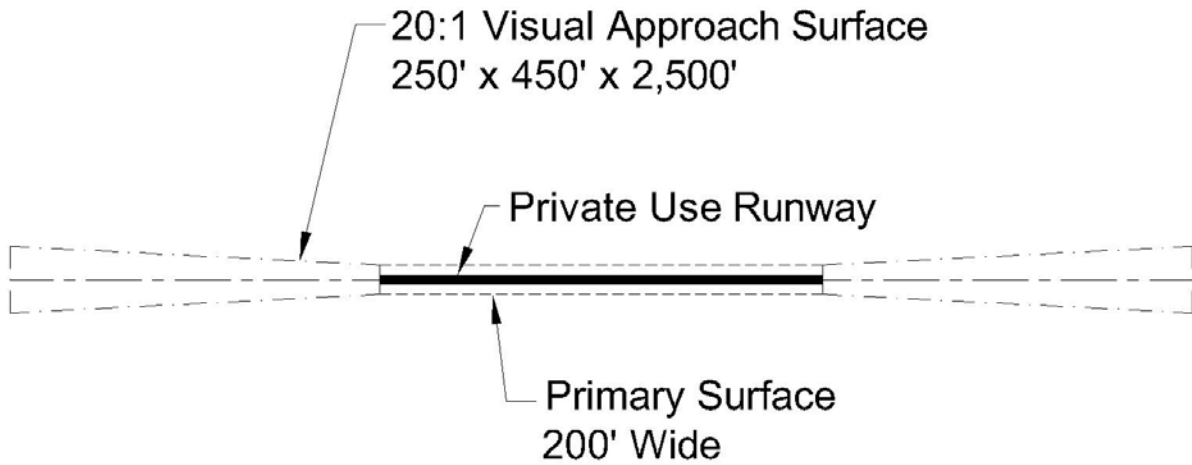
The private use airport template is useful for the vast majority of Oregon's small general aviation airports. The purpose of the safety overlay zone is to encourage and support the continued operations and vitality of the private use airports which

→ *Private use airports have a fairly limited overlay zone.*

were the base for three or more aircraft in December 31, 1994 and certain privately-owned public use airports.

As shown in **Exhibit 7-1**, the primary surface is 200 feet wide and ends at each runway end. The visual approach surface begins at the end of the runway with a width of 250 feet. It then expands uniformly to a width of 450 feet for that end of a private use airport with a visual approach. The surface extends for a horizontal distance of 2,500 feet at a slope of 20 feet outward for each one foot upward. **Appendix F** should be referenced for the complete text of the private use airport safety overlay zone model ordinance.

Exhibit 7-1: Planning Template for Private Use Airport



7.1b. Public Use Airports with Only Visual Approaches

This template is useful for those general aviation airports with visual approaches. As shown in **Exhibit 7-2**, the horizontal surface of an airport with a non-precision approach, forms an oval band shape that extends to 5,000 feet from the end of the runway's primary surface. Inside the oval band, the runway, the runway protection zones, the visual approach surfaces, and their dimensions are depicted. By illustrating the safety zone, the areas suitable for development and the specific types of development compatible with both criteria can be determined. In general terms, the following are suggested guidelines for development at a public use airport with only visual approaches. **Table 7-1** provides a summary of the land uses and their accessory uses that are permitted, permitted under limited circumstances and those prohibited in the manner described. Table 7-1 applies to both the Public Use Airports with visual approaches and the Public Use Airports with Instrument Approaches.

b.1 Airport Noise Impact Boundary

The area within 1,500 feet of an airport runway or within an established noise contour with boundaries exceeding 55 DNL is contained in the Airport Noise Impact Boundary. Land uses within the Airport Noise Impact Boundary shall be established consistent with the levels identified in OAR 660, Division 13, Exhibit 5. The information contained in Exhibit 5 is shown in this document as **Table 3-6**.

Table 7-1 also outlines the permitted, permitted with circumstances, and non-permitted uses relative to the general impact areas.

b.2 Airport Direct Impact Area

The area within 5,000 feet of an airport runway, excluding the lands within the runway protection zones and the approach surfaces is defined as the Airport Direct Impact Area. This physical area is shown in **Exhibit 7-2**. The dimensions of the various surfaces depend upon the runway type. As noted in **Table 7-1**, there are various levels of development allowed based upon the type of land use.

b.3 Airport Secondary Impact Area

The areas within 5,000 feet and 10,000 feet of an airport runway, as presented in **Exhibit 7-2**, are defined as the Airport Secondary Impact Area. This area includes all of the horizontal surface and the conical surface from the FAR Part 77 Surfaces. This area has various uses allowed as noted in **Table 7-1**.

TABLE 7-1: LIMITATIONS & RESTRICTIONS ON ALLOWED USES				
KEY: P = Use is Permitted L = Use is Allowed Under Limited Circumstances (see footnotes) N = Use is Not Allowed				
	RPZ ¹	Approach Surface ⁸	Direct Impact Area	Secondary Impact Area
Public Airport	L ²	L ⁹	P	P
Residential	N	L ¹⁰	L ¹⁴	P
Commercial	N	L ⁹	L ¹⁵	P
Industrial	N	L ⁹	P	P
Institutional	N	L ⁹	L ¹⁵	P
Farm Use	P ³	P ³	P ³	P ³
Roads/Parking	L ⁴	P	P	P
Utilities	L ⁵	L ⁵	L ⁵	L ⁵
Parks/Open Space	L ⁶	P	P	P
Golf Courses	L ⁷	L ^{7 9}	L ⁷	L ⁷
Athletic Fields	N	L ⁹	L ¹⁴	P
Sanitary Landfills	N	N	N	N
Water Treatment Plants	N	N	N	N
Mining	N	L ¹¹	L ¹¹	L ¹¹
Water Impoundments	N	N ¹²	N ¹⁶	N ¹⁶
Wetland Mitigation	N	L ¹³	L ¹³	L ¹³

Source: Model Public Use Airport Safety And Compatibility Overlay Zone (Visual and Instrument Approach Airports), ODA

Notes:

- ¹ No Structures shall be allowed within the Runway Protection Zone (RPZ). Exceptions shall be made only for structures accessory to airport operations whose location within the RPZ has been approved by the Federal Aviation Administration.
- ² In the RPZ, public airport uses are restricted to those uses and facilities that require location in the RPZ.
- ³ Farming practices that minimize wildlife attractants are encouraged.
- ⁴ Roads and parking areas are permitted in the RPZ only upon demonstration that there are not practicable alternatives. Lights, guardrails, and related accessory structures are prohibited. Cost may be considered in determining whether practicable alternatives exist.
- ⁵ In the RPZ, utilities, powerlines and pipelines must be underground. In approach surfaces and in airport direct and secondary impact areas, the proposed height of utilities shall be coordinated with the airport sponsor and Department of Aviation (ODA).
- ⁶ Public assembly facilities are prohibited in the RPZ.
- ⁷ Golf courses may be permitted only upon demonstration, supported by substantial evidence, that management techniques will be utilized to reduce existing wildlife attractants and avoid the recreation of new wildlife attractant. Such techniques shall be required as conditions of the approval. Structures are not permitted within the RPZ. For purposes of this document, tee markers, tee signs, pin cups and pins are not considered to be structures.

-
- ⁸ Within 10,000 feet from the end of the primary surface of a non-precision instrument runway, and within 50,000 feet from the end of the primary surface of a precision instrument runway.
 - ⁹ Public assembly facilities may be allowed in an approach surface only if the potential danger to public safety is minimal. In determining whether a proposed use is appropriate, consideration shall be given to: proximity to the RPZ; density of people per acre; frequency of use; level of activity at the airport; and other factors relevant to public safety. In general, high density uses should not be permitted within airport approach surfaces, and on-residential structures should be located outside approach surfaces unless no practicable alternatives exist.
 - ¹⁰ Residential densities within approach surfaces should not exceed the following densities: (1) within 500 feet of the outer edge of the RPZ, 1 unit per acre; (2) within 500 to 1,500 feet of the outer edge of the RPZ, 2 units per acre; (3) within 1,500 to 3,000 feet of the outer edge of the RPZ, 4 units per acre.
 - ¹¹ Mining operations involving the creation or expansion of water impoundments shall comply with the requirements of this document regarding water impoundments.
 - ¹² Water impoundments are prohibited within 5,000 feet from the edge or end of a runway.
 - ¹³ Wetland Mitigation required for projects located within an approach surface, the airport direct or secondary impact area shall be authorized only upon demonstration, supported by substantial evidence, that it is impracticable to provide mitigation outside of these areas. Proposals for wetland mitigation shall be coordinated with the airport sponsor, the Department of Aviation, the FAA and the wetland-permitting agencies prior to the issuance of required permits. Wetland mitigation shall be designed and located to avoid creating a wildlife hazard or increasing hazardous movements of birds across runway and approach surfaces. Conditions shall be imposed as are appropriate and necessary to prevent in perpetuity an increase in hazardous bird movements across runway and approach surfaces. See section 0.90 of Appendix D or E for the best management practices for airports located near significant wetlands or wildlife habitat areas.
 - ¹⁴ Within the transitional surface, residential uses and athletic fields are not permitted.
 - ¹⁵ Within the transitional surface, overnight accommodations, such as hotels, motels, hospitals and dormitories, are not permitted.
 - ¹⁶ See section .08 of Appendix D or E prohibiting or regulating water impoundments within 5,000 or 10,000 feet of the end or edge of a runway.
-

7.1c. Public Use Airports with Instrument Approaches

The larger general aviation, and the smaller commercial service or business class general aviation airports in the state, can apply the Public Use Airports With Instrument Approaches template. Many of the larger airports in Oregon that fall into this classification have airport-specific planning studies that provide more detailed safety and noise related data. Information from these airport-specific studies is considered preferable for compatible land use planning in lieu of the generalized safety and noise related planning templates described in this section.

As shown in **Exhibit 7-3**, this template provides an assortment of dimensions depending upon the type of runway and the level of instrumentation.

c.1 Airport Noise Impact Boundary

The Airport Noise Impact Boundary includes all areas within 1,500 feet of an airport runway or within an established noise contour boundary which exceeds 55 DNL. This area typically includes the RPZ, primary surface and transitional surfaces. Development in this area should reflect the findings shown in **Table 7-1**.

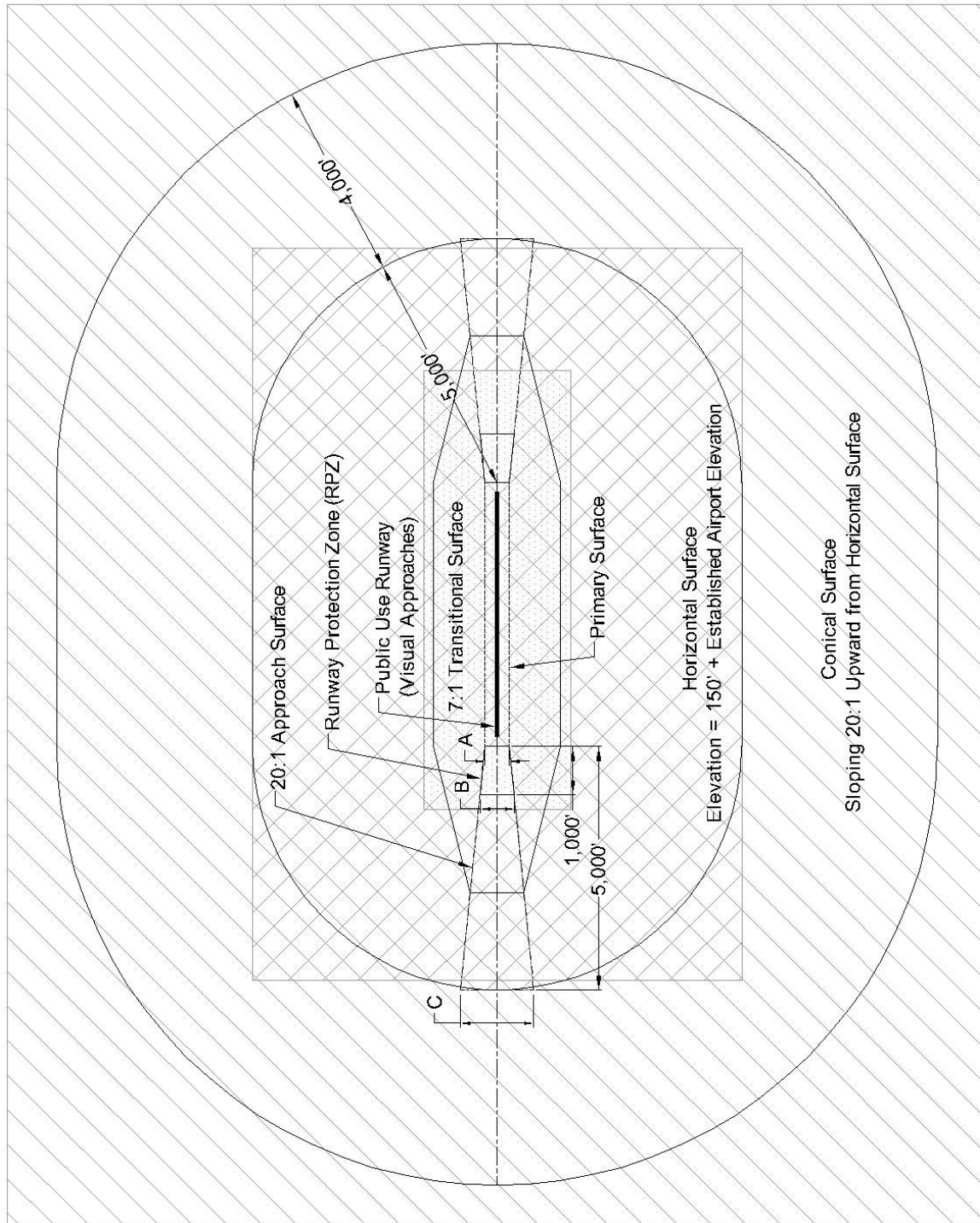
c.2 Airport Direct Impact Area




For this airport category, the Airport Direct Impact Area includes the property within 5,000 feet of an airport runway, excluding the lands within the runway protection zones and approach surfaces. As illustrated in **Table 7-1**, this area has moderate restrictions on the type of land uses allowed.

c.3 Airport Secondary Impact Area

The Airport Secondary Impact Area encompasses the property within 5,000 feet and 10,000 feet of an airport runway. As depicted in **Exhibit 7-3**, the dimensions of the surfaces vary depending upon the runway type and level of instrumentation. **Table 7-1** provides a broad summary of the compatible land uses for this area.

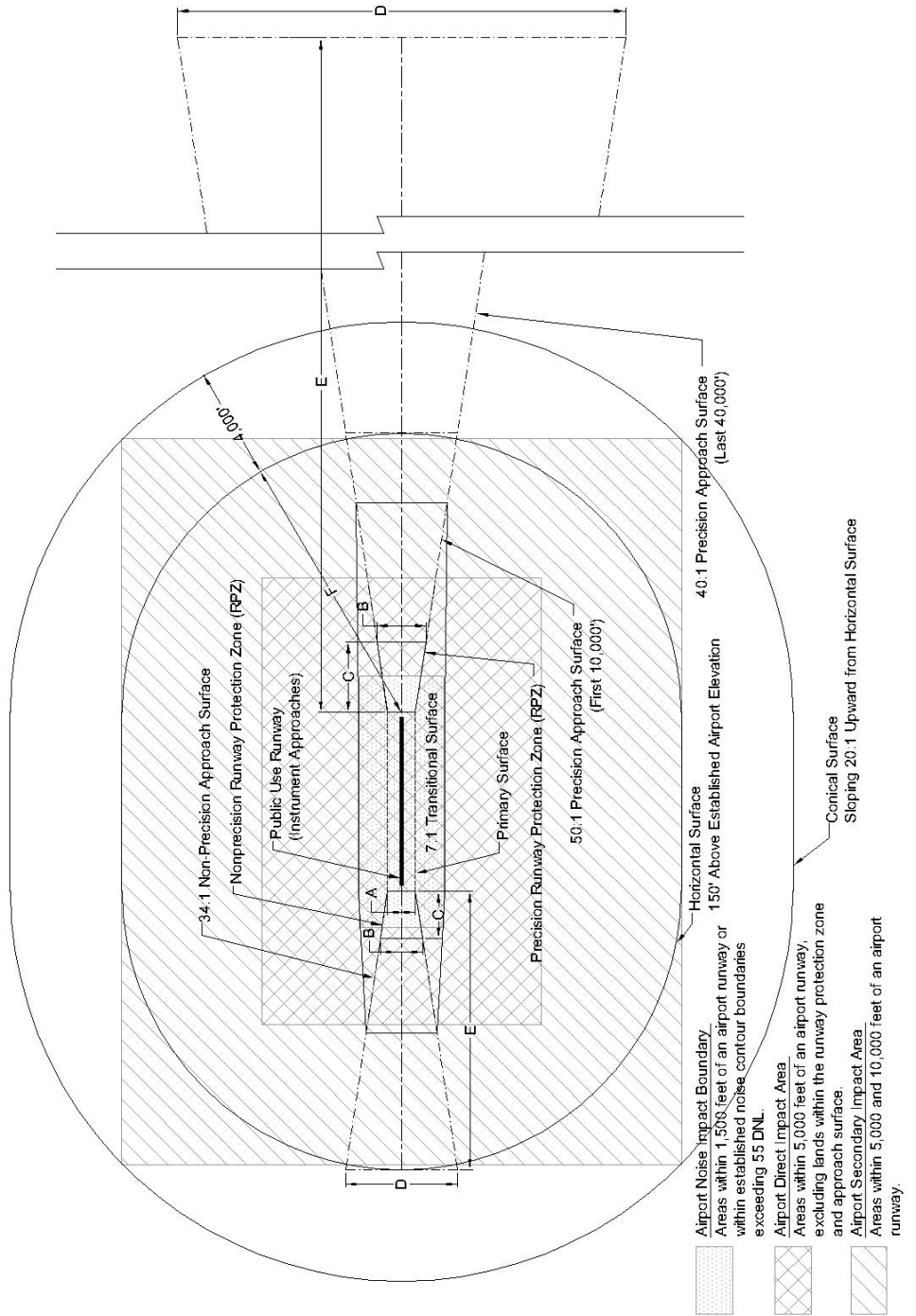
Exhibit 7-2: Planning Template for Public Use Airport with Only Visual Approaches



-  **Airport Noise Impact Boundary**
Areas within 1,500 feet of an airport runway or within established noise contour boundaries exceeding 55 DNL.
-  **Airport Direct Impact Area**
Areas within 5,000 feet of an airport runway, excluding lands within the runway protection zone and approach surface.
-  **Airport Secondary Impact Area**
Areas within 5,000 and 10,000 feet of an airport runway.

Dimension	Utility (Aircraft 12,500 lb. & Under)	Other than Utility
A	250	450
B	450	700
C	1,250	1,500

Exhibit 7-3: Planning Template for Public Use Airport with Instrument Approaches



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Dimensional Information for Exhibit 7-3		
Dimension	Runway/Approach Type	Feet
A	Utility runways	500 ¹
	Other than utility runways having nonprecision approaches with visibility minimums greater than ¾ statute mile	500
	Nonprecision instrument runways with visibility minimums at or below ¾ statute mile and for precision instrument runways	1,000
B	Utility runways	450
	Other than utility runways, Aircraft Approach Categories A & B, with visibility minimums greater than 1-mile	700
	Other than utility runways, Aircraft Approach Categories C & D, with visibility minimums greater than 1-mile	1,010
	Other than utility runways, with visibility minimums greater than ¾ mile and less than or equal to 1-mile	1,510
	Other than utility runways with visibility minimums lower than ¾ mile	1,750
C	Utility runways	1,000
	Other than utility runways having nonprecision instrument approaches	1,700 ²
	Precision instrument runways	2,500
D	Utility runways	2,000
	Other than utility runways having a nonprecision instrument approach with visibility minimums greater than ¾ statute mile	3,500
	Other than utility runways having a nonprecision instrument approach with visibility minimums at or below ¾ statute mile	4,000
	Precision instrument runways	16,000
E	Utility runways	5,000
	Other than utility runways with nonprecision instrument approach (34:1 approach slope)	10,000
	Other than utility runways with precision instrument approach (50:1 approach slope for first 10,000' and 40:1 approach slope for last 40,000')	50,000
F	Utility Runways	5,000
	Other than utility runways	10,000

Notes:

¹ 250 feet for utility runways with visibility minimums greater than 1-mile

² 1,000 feet for other than utility runways, Aircraft Approach Categories A & B, with visibility minimums greater than 1-mile.

Table 7-2: Existing Public Use Facilities

All Privately Owned Private Use Airports with 3 or more based aircraft (December 1994) should use the PRIVATE Planning Template. See Appendix N for airports this classification applies to.

Planning Template Key:

Private = Private Use Airports

PUVA = Public Use Airports with Visual Approaches

PUIA = Public Use Airports with Instrument Approaches

Airport Key:

Italics = privately owned

Bold = NPIAS

* = existing scheduled commercial air service resulting in a wide variety of aircraft that use these airports; airport-specific criteria for compatible land use planning should be used

Airport	City Owner	Planning Template	Runway Number : Runway Length x Width	Surface Type
Category 1				
Eastern Oregon Regional at Pendleton*	Pendleton	PUIA	07-25: 6300 x 150	Asphalt
	City of Pendleton		11-29: 5581 x 100	Asphalt
			16-34: 4341 x 75	Asphalt
Eugene Mahlon Sweet Field*	Eugene	PUIA	16-34: 8009 x 150	Asphalt
	City of Eugene		03-21: 5228 x 150	Asphalt
Klamath Falls *	Klamath Falls	PUIA	14-32: 10301 x 150	Asphalt
	City of Klamath Falls		07-25: 5260 x 100	Asphalt
North Bend Municipal*	North Bend	PUIA	04-22: 5321 x 150	Asphalt
	City of North Bend		13-31: 4586 x 150	Asphalt
			16-34: 2320 x 150	Asphalt
Portland International*	Portland	PUIA	10R-28L: 11000 X 150	Asphalt
	Port of Portland		10L-28R: 8000 X 150	Asphalt
			03-21: 7001 X 150	Asphalt
Roberts Field Redmond*	Redmond	PUIA	04-22: 7040 x 150	Asphalt
	City of Redmond		10-28: 7006 x 100	Asphalt
Rogue Valley International-Medford*	Medford	PUIA	14-32: 8798 x 150	Asphalt
	Jackson County		09-27: 3155 x 100	Asphalt
Category 2				
Astoria Regional	Astoria	PUIA	08-26: 5796 x 100	Asphalt
	Port of Astoria		13-31: 4996 x 100	Asphalt
Aurora State	Aurora	PUIA	17-35: 5004 x 100	Asphalt
	State of Oregon			

Table 7-2 (Continued)				
Airport	City Owner	Planning Template	Runway Number : Runway Length x Width	Surface Type
Category 2 - Continued				
Bend Municipal	Bend	PUIA	16-34: 5005 x 75	Asphalt
	City of Bend			
Corvallis Municipal	Corvallis	PUIA	17-35: 5900 x 150	Asphalt
	City of Corvallis		09-27: 3345 x 75	Asphalt
Hillsboro (Portland)	Hillsboro	PUIA	12-30: 6600 x 150	Asphalt
	Port of Portland		02-20: 4049 x 100	Asphalt
McMinnville Municipal	McMinnville	PUIA	04-22: 5420 x 150	Asphalt
	City of McMinnville		17-35: 4676 x 150	Asphalt
Portland Heliport	Portland	PUVA	80 x 80	Concrete
	City of Portland			
Roseburg Regional	Roseburg	PUVA	16-34: 4602 x 100	Asphalt
	City of Roseburg			
Salem McNary Field	Salem	PUIA	13-31: 5811 x 150	Asphalt
	City of Salem		16-34: 5145 x 140	Asphalt
Scappoose Industrial Airpark	Scappoose	PUIA	15-33: 5100 x 150	Asphalt
	Port of St. Helens			
Troutdale (Portland)	Troutdale	PUVA	07-25: 5399 x 150	Asphalt
	Port of Portland			
Category 3				
Baker City Municipal	Baker City	PUIA	12-30: 5095 x 100	Asphalt
	City of Baker City		16-34: 4359 x 75	Asphalt
			08-26: 3999 x 140	Asphalt
Burns Municipal	Burns	PUIA	12-30: 5100 x 75	Asphalt
	City of Burns		03-21: 4500 x 60	Concrete
Columbia Gorge Regional/ The Dalles Municipal	The Dalles	PUVA	12-30: 5097 x 150	Asphalt
	City of The Dalles/Klickitat County, WA		07-25: 4647 x 150	Asphalt
			02-20: 4401 x 150	Asphalt
Grant County Regional/ Ogilvie Field	John Day	PUVA	17-35: 4500 x 60	Asphalt
	Grant County		09-27: 3436 x 60	Asphalt
La Grande/ Union County	La Grande	PUIA	12-30: 5600 x 100	Asphalt
	Union County		16-34: 3874 x 60	Asphalt
Lake County	Lakeview	PUIA	16-34: 5306 x 100	Asphalt
	Lake County			
Ontario Municipal	Ontario	PUIA	14-32: 4529 x 100	Asphalt
	City of Ontario			

Table 7-2 (Continued)				
Airport	City Owner	Planning Template	Runway Number : Runway Length x Width	Surface Type
Category 4				
Albany Municipal	Albany	PUVA	16-34: 3004 x 75	Asphalt
	City of Albany			
Ashland Municipal	Ashland	PUVA	12-30: 3603 x 75	Asphalt
	City of Ashland			
Bandon State	Bandon	PUVA	16-34: 3600 x 60	Asphalt
	State of Oregon			
Brookings	Brookings	PUVA	12-30: 2900 x 60	Asphalt
	Curry County			
<i>Chehalem Airpark</i>	Newberg	PUVA	07-25: 2285 x 40	Asphalt
	Private			
Chiloquin State	Chiloquin	PUVA	17-35: 3735 x 60	Asphalt
	State of Oregon			
Condon State-Pauling Field	Condon	PUVA	07-25: 3500 x 60	Concrete
	State of Oregon			
Cottage Grove State	Cottage Grove	PUVA	15-33: 3200 x 60	Asphalt
	State of Oregon			
<i>Country Squire Airpark</i>	Sandy	PUVA	07-25: 3095 x 32	Asphalt
	Private			
Creswell Hobby Field	Creswell	PUVA	15-33: 3100 x 60	Asphalt
	City of Creswell			
Enterprise Municipal	Enterprise	PUVA	12-30: 2850 x 50	Asphalt
	City of Enterprise			
Florence	Florence	PUVA	15-33: 3000 x 60	Asphalt
	City of Florence			
Gold Beach Municipal	Gold Beach	PUVA	16-34: 3200 x 75	Asphalt
	Port of Gold Beach			
Grants Pass	Grants Pass	PUVA	12-30: 3999 x 75	Asphalt
	Josephine County			
Hermiston Municipal	Hermiston	PUVA	04-22: 4500 x 75	Asphalt
	City of Hermiston			
Illinois Valley	Cave Junction	PUVA	18-36: 5200 x 75	Asphalt
	Josephine County			
Independence State	Independence	PUVA	16-34: 3000 x 60	Asphalt
	State of Oregon			
Joseph State	Joseph	PUVA	15-33: 5200 x 60	Asphalt
	State of Oregon			
Ken Jernstedt Airfield	Hood River	PUVA	07-25: 3040 x 75	Asphalt
	Port of Hood River			
Lebanon State	Lebanon	PUVA	16-34: 2877 x 50	Asphalt
	State of Oregon			
<i>Lenhardt Airpark</i>	Hubbard	PUVA	02-20: 3200 x 45	Asphalt
	Private			
Lexington	Lexington	PUVA	08-26: 4150 x 75	Asphalt
	Morrow County			
Madras City-County	Madras	PUVA	16-34: 5100 x 75	Asphalt
	City of Madras/ Jefferson County		03-21: 2700 x 50	Asphalt
Mulino (Portland)	Mulino	PUVA	14-32: 3600 x 100	Asphalt
	Port of Portland			
Myrtle Creek Municipal	Myrtle Creek	PUVA	03-21: 2600 x 50	Asphalt
	City of Myrtle Creek			
Newport Municipal	Newport	PUVA	16-34: 5698 x 150	Asphalt
	City of Newport		02-20: 3001 x 75	Asphalt
Prineville	Prineville	PUVA	10-28: 5000 x 60	Asphalt
	Crook County/City of Prineville		15-33: 4000 x 40	Asphalt

Table 7-2 (Continued)

Airport	City Owner	Planning Template	Runway Number : Runway Length x Width	Surface Type
Category 4 - Continued				
Seaside Municipal	Seaside	PUVA	16-34: 2360 x 50	Asphalt
	City of Seaside			
Siletz Bay State	Gleneden Beach	PUVA	17-35: 3300 x 60	Asphalt
	State of Oregon			
<i>Sisters Eagle Air</i>	Sisters	PUVA	02-20: 3550 x 30	Asphalt
	Private			
<i>Sportsman Airpark</i>	Newberg	PUVA	17-35: 2745 x 50	Asphalt
	Private			
<i>Stark's Twin Oaks Airpark</i>	Hillsboro	PUVA	02-20: 2465 x 48	Asphalt
	Private			
Sunriver	Sunriver	PUVA	18-36: 5455 x 70	Asphalt
	Private			
Tillamook	Tillamook	PUVA	13-31: 4990 x 100	Asphalt
	Port of Tillamook Bay		01-19: 2900 x 75	Asphalt
<i>Valley View</i>	Estacada	PUVA	16-34: 3780 x 32	Asphalt
	Private			
Category 5				
Alkali Lake State	Alkali Lake	PUVA	18-36: 6100 x 150	Gravel
	State of Oregon			
Arlington Municipal	Arlington	PUVA	06-24: 5000 x 100	Turf-Gravel
	City of Arlington			
Beaver Marsh	Beaver Marsh	PUVA	18-36: 4500 x 60	Dirt
	Private			
Boardman	Boardman	PUVA	04-22: 4200 x 150	Asphalt
	Port of Morrow			
Cape Blanco State	Denmark	PUVA	14-32: 5100 x 150	Asphalt
	State of Oregon			
Cascade Locks State	Cascade Locks	PUVA	06-24: 1800 x 30	Asphalt
	State of Oregon			
Christmas Valley	Christmas Valley	PUVA	07-25: 5200 x 60	Asphalt
	Christmas Valley Parks/Rec. Dist.			
Crescent Lake State	Crescent Lake	PUVA	13-31: 3900 x 30	Asphalt
	State of Oregon			
<i>Davis</i>	Gates	PUVA	07-25: 1940 x 50	Turf
	Private			
<i>George Felt</i>	Roseburg	PUVA	10-28: 2300 x 100	Turf
	Private			
Lake Billy Chinook	Culver	PUVA	16-34: 5000 x 80	Dirt
	Private			
Lake Woahink SPB	Florence	PUVA	N/A	Water
	Private			
Lakeside State	Lakeside	PUVA	15-33: 2150 x 100	Turf
	State of Oregon			
Malin	Malin	PUVA	14-32: 2800 x 30	Asphalt-Gravel
	City of Malin			
McDermitt State	McDermitt	PUVA	16-34: 5900 x 60	Asphalt
	State of Oregon			
McKenzie Bridge State	McKenzie Bridge	PUVA	06-24: 2600 x 90	Turf
	State of Oregon			
Memaloose USFS	Imnaha	PUVA	17-35: 2900 x 120	Dirt
	USFS			
Miller Memorial Airpark	Vale	PUVA	18-36: 3872 x 65	Gravel
	City of Vale		10-28: 2200 x 40	Gravel

Table 7-2 (Continued)				
Airport	City Owner	Planning Template	Runway Number : Runway Length x Width	Surface Type
Category 5 - Continued				
Monument Municipal	Monument	PUVA	14-32: 2140 x 29	Gravel-Turf
	City of Monument			
Nehalem Bay State	Manzanita	PUVA	15-33: 2350 x 50	Asphalt
	State of Oregon			
Oakridge State	Oakridge	PUVA	09-27: 3610 x 47	Asphalt
	State of Oregon			
Owyhee Reservoir State	Owyhee	PUVA	13-31: 1840 x 30	Dirt
	State of Oregon			
Pacific City State	Pacific City	PUVA	14-32: 1875 x 30	Asphalt
	State of Oregon			
Paisley	Paisley	PUVA	13-31: 4300 x 60	Asphalt
	Lake County			
Pinehurst State	Pinehurst	PUVA	04-22: 2800 x 30	Asphalt
	State of Oregon			
Powers	Powers	PUVA	13-31: 2500 x 60	Turf
	Port of Coquille River			
Prospect State	Prospect	PUVA	02-20: 4000 x 50	Asphalt
	State of Oregon			
Rome State	Rome	PUVA	03-21: 6000 x 150	Asphalt
	State of Oregon			
Sandy River	Sandy	PUVA	08-26: 2115 x 100	Turf
	Private			
Santiam Junction State	Santiam Junction	PUVA	06-24: 2800 x 150	Gravel
	State of Oregon			
Silver Lake USFS	Silver Lake	PUVA	03-21: 3000 x 55	Gravel
	USFS			
Skyport	Cornelius	PUVA	16-34: 2000 x 60	Turf-Gravel
	Private			
Toketee State	Clearwater	PUVA	11-29: 5350 x 60	Dirt
	State of Oregon			
Toledo State	Toledo	PUVA	13-31: 1750 x 40	Asphalt
	State of Oregon			
Vernonia Airfield	Vernonia	PUVA	09-27: 2940 x 45	Turf
	City of Vernonia			
Wakonda Beach State	Waldport	PUVA	16-34: 2000 x 50	Turf
	State of Oregon			
Wasco State	Wasco	PUVA	07-25: 3450 x 60	Asphalt
	State of Oregon			

7.1d. Summary of Planning Templates

The three planning templates illustrate the appropriate safety zones for the various airport categories. **Table 7-2** suggests the template that is currently best suited for each of the Oregon airports. As activity increases or approaches change, applicable planning standards will vary accordingly. As previously discussed, different criteria determine land use compatibility within each safety zone and noise contour. **Exhibit 3-4** depicts the compatibility of different land uses within the various FAA Safety Zones and the FAR Part 77 surfaces. **Exhibit 3-6** depicts the FAA's acceptable land uses with various DNL noise levels. These standards should be used to identify existing incompatibilities and to identify areas that should be protected from future development.

➔ *Table 7-2 provides recommendations for planning template usage.*

It is also important to understand the basic difference between an airport with visual approaches versus an airport with instrument approaches. Aircraft often fly in clouds and navigate by electronic equipment. So, weather, and when a pilot is able to see the airport, can become crucial factors in determining access by air to an airport. A visual approach means an aircraft must be able to actually see and land at the airport in visual meteorological conditions (VMC). A visual approach may not be a straight-in approach to a specific runway end. An airport with instrument approaches may have (and need) straight-in approaches that allow an aircraft to descend to a lower altitude while still in the clouds before determining if it is able to land. In this case, the zoning restrictions must be more stringent. Because all-weather landing capability may be of great importance to future business travelers and cargo shippers, it may be very important to consider the possibility of eventually developing instrument landing capability at your airport even though it presently seems unnecessary.

7.2 Troubleshooting Matrix

In those instances where land use incompatibilities currently exist, a "troubleshooting" matrix has been developed. This matrix cites specific "problem" areas and identifies example actions that can be considered to address certain land use or development issues. As shown in **Table 7-3**, specific situations are identified that represent possible conflicts with either safety or noise-related guidelines. Depending on whether the potential impact relates to noise or safety, different actions are available to address the incompatibility. Further, strategies identified in this matrix represent both preventive and correction actions. This exhibit also references the location in the Guidebook where more detailed information on specific strategies and/or safety and noise related planning criteria are available. Specific examples from the various Appendices can be adopted to achieve certain preventive measures or corrective actions as noted.

The Guidebook provides information for each community to use to examine their airport's compatibility with the surrounding environs. It is the responsibility of each local community to actually determine and identify where existing incompatible land uses have developed in the airport environs, and to determine what strategies are most appropriate to prevent further encroachment and to correct existing encroachment.

Table 7-3: Land Use Troubleshooting Matrix					
Land Use	Potential Impact	Chapter 3 Reference	Example Actions Available	Chapter 6 Reference	Appendix Reference
Existing Residential Development	Noise Concern	Page 3-13	Soundproofing Noise Easement	Page 6-10	J, I (Example 1)
	Safety Concern	Pages 3-1 & 3-11	Fee Simple Acquisition	Page 6-5	N/A
Proposed Residential Development	Noise Concern	Page 3-13	Hold Harmless Agreement/ Fair Disclosure Statement	NA	I (Example 3 & Example 4)
	Safety Concern	Pages 3-1 & 3-11	Comprehensive Plan	Page 6-3	N/A
Landfills	Safety Concern	Pages 3-1 & 3-12	Airport Overlay Zoning	Page 6-4	D, E, F
School, Hospital, and Church Development	Noise Concern	Page 3-13 & 3-18	Soundproofing Noise Easement	Page 6-10	J, I (Example 1)
	Safety Concern	Pages 3-11	Airport Overlay Zoning	Page 6-4	D, E, F
Radio / Television Tower	Safety Concern	Page 3-12	Avigation & Hazard Easement	Page 6-6	I (Example 4)
			Height Limitation Zoning	Page 6-4	N/A
Factory Smoke	Safety Concern	Page 3-12	Avigation & Hazard Easement	Page 6-6	I (Example 2)
			Airport Overlay Zoning	Page 6-4	D, E, F
Golf Courses	Safety Concern	Page 3-11 & 3-12	Avigation & Hazard Easement	Page 6-6	I (Example 2)
			Airport Overlay Zoning	Page 6-4	D, E, F
Auditoriums/ Outdoor Theaters	Safety Concern	Page 3-11	Airport Overlay Zoning	Page 6-4	D, E, F
Power Lines	Safety Concern	Page 3-12	Avigation & Hazard Easement	Page 6-6	I (Example 2)
			Height Limitation Ordinance	Page 6-4	N/A
Agricultural Activities	Safety Concern	Pages 3-11 & 3-12	Avigation & Hazard Easement	Page 6-6	I (Example 2)
Water Impoundments	Safety Concern	Pages 3-11 & 3-12	Avigation & Hazard Easement	Page 6-6	I (Example 2)

7.3 Agency Contacts

There are a multitude of state and federal agencies that have various interests in compatible land use planning related to airports. As you work to plan for compatible land uses around your airport, questions may arise that can only be answered by these various agencies. This guide suggests that you begin your search for answers with the Oregon Department of Aviation (ODA). The Aviation Department webpage has a staff roster with telephone extensions to help you reach the right person. If you have a more general transportation question, the best place to start would be your ODOT regional representative. The ODOT webpage lists representatives by region and includes a map of region boundaries. For questions related to comprehensive planning, contact your DLCD field representative. They are listed on the DLCD web page. For questions about federal rules and regulations, start with the FAA website. Website addresses and general information phone numbers are listed below to get you started.

Oregon Department of Aviation

<http://www.aviation.state.or.us/>
3040 25th St. SE
Salem, OR 97302-1125
Phone: (503) 378-4880
Fax: (503) 373-1688
Toll Free: (800) 874-0102

Oregon Department of Transportation

<http://www.odot.state.or.us/>
355 Capitol St. NE
Salem, OR 97301-3871
(888) ASK-ODOT

Region 1

123 NW Flanders Street
Portland, OR 97209-4037
Phone: (503) 731-8200
Fax: (503) 731-8259
www.odot.state.or.us/region1/

Region 2

455 Airport Road SE, Building B
Salem, OR 97301-5395
Phone: (503) 986-2600
Fax: (503) 986-2840
www.odot.state.or.us/region2/

Region 3

3500 NW Stewart Parkway
Roseburg, OR 97470
Phone: (541) 957-3500
Fax: (541) 957-3547
www.odot.state.or.us/region3/

Region 4

63034 O.B. Riley Road
 Bend, OR 97701
 Phone: (541) 388-6032
 Fax: (541) 385-0476
www.odot.state.or.us/region4/

Region 5

3012 Island Avenue
 La Grande, OR 97701
 Phone: (541) 388-0632
 Fax: (541) 963-9079
www.odot.state.or.us/region5/

Transportation Development Division

Administration
 Mill Creek Office Park
 555 13th Street NE, Suite 2
 Salem, OR 97301-4178
 Phone: (503) 986-3420
 Fax: (503) 986-4173

**Planning Section, Planning Group, Access Management Unit, and
 Transportation Planning Analysis Unit**

Mill Creek Office Park
 555 13th Street NE, Suite 2
 Salem, OR 97301-4178
 Phone: (503) 986-4121
 Fax: (503) 986-4174

Oregon Department of Land Conservation and Development (DLCD)

DLCD - Salem Office

635 Capitol St. NE, Suite 150
 Salem, OR 97301-2540
 Phone: (503) 373-0050
 Fax: (503) 378-5518
 TTY: Oregon Relay Services,
 1-800-735-2900

DLCD – Portland Office

800 NE Oregon Street, #18, Suite 1145
 Portland, OR 97232
 Phone: (503) 731-4065
 Fax: (503) 731-4068

DLCD – Community Solutions Office

155 Cottage St. NE
 Salem, OR 97301
 Phone: (503) 378-6892 x 31

DLCD – ODOT Office

123 NW Flanders
 Portland, OR 97209-4037
 Phone: (503) 731-8356
 Fax: (503) 731-3266

DLCD – Central Point

155 N. First St.
Central Point, OR 97502
Phone: (541) 858-3152
Fax: (541) 858-3142

DLCD - Bend

Empire Corporate Park
20300 Empire Ave. Suite 1
Bend, OR 97701
Phone: (541) 388-6157
Fax: (541) 388-6480

DLCD – Oregon Coast

Coastal Field Office, Suite B
365 Port Street
Waldport, OR 97394
Phone: (541) 563-2056
Fax: (541) 563-4022

Federal Aviation Administration***FAA Home Page***

<http://www.faa.gov/>

Community and Environmental Needs Division

<http://www.faa.gov/arp/600home.cfm>

Advisory Circulars

<http://www.faa.gov/arp/150acs.cfm?ARNav=acs>

Seattle Airports District Office

Serving Idaho, Oregon & Washington
1601 Lind Avenue, S.W., Suite 250
Renton, WA 98055-4056
Phone: (452) 227-2650
Fax: (452) 227-1650

Portland Flight Standards District Office

1800 N.E. 25th Avenue – Suite 15
Hillsboro, OR 97124
Phone: (503) 681-5500
Fax: (503) 681-5555

Northwest Mountain Region Headquarters

1601 Lind Avenue, S.W., Suite 250
Renton, Washington 98055-4056

All of the following have the address listed above:

Office of the Regional Administrator

Routing Symbol: ANM-1
Phone: (452) 227-2001
Fax: (452) 227-1006

Flight Standards Division

Routing Symbol: ANM-200
 Phone: (452) 227-2200
 Fax: (452) 227-1200

Airway Facilities Division

Routing Symbol: ANM-400
 Phone: (452) 227-2400
 Fax: (452) 227-1400

Air Traffic Division

Routing Symbol: ANM-500
 Phone: (452) 227-2500
 Fax: (452) 227-1500

Airports Division

Routing Symbol: ANM-600
 Phone: (452) 227-2600
 Fax: (452) 227-1600

Civil Aviation Security Division

Routing Symbol: ANM-700
 Phone: (452) 227-2700
 Fax: (452) 227-1700

Military Representatives

Routing Symbol: ANM-900
 Phone: (452) 227-2947
 Fax: (452) 227-1114

7.4 Summary

This document provides a significant amount of information related to land use planning in the airport environs. Implementation of the Guidelines must be accomplished on the local level. Information that has been provided in the Guidelines includes:

- Roles of various agencies and individuals in land use planning process
- Safety impacts including FAA safety zones and FAR Part 77
- Noise impacts
- Land development controls
- Noise mitigation measures

→ *Implementation of the elements contained in the Guidebook must be accomplished at the local level.*

Because of the large area affected by the operation of an airport, no single policy or regulation will ensure that all adjacent land uses will be compatible with the airport. The variety of strategies discussed in these guidelines is presented with the intent to help achieve the highest level of compatible land use in airport environs determined to be realistic for each community. Airports in Oregon serve not only their respective urban areas, but also their respective agricultural and recreational areas. The airport sponsor should make all other jurisdictions aware of the benefits they gain from the availability of the airport. If the airport affects several jurisdictions, the cooperation of all of the jurisdictions is necessary to achieve long-term compatible land use.

✈ *Each airport and its community must select unique tools and techniques to address their specific land use issues.*

The land use planning requirements for each airport are different, as is the need to implement all or portions of these guidelines. Information provided in these Guidelines is meant to identify the issues, discuss a range of strategies to promote land use compatibility, and provide examples of ordinances that can be modified to fit local needs. As defined by Oregon state statutes, the responsibility for implementing appropriate portions of these guidelines rests with each local jurisdiction that falls within the airport operating environs.

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Appendix A - OAR 660-013 - Airport Planning

Appendix B - ORS Chapter 836 -Airports and Landing Fields

Appendix C - OAR 660-012 - Transportation Planning - (Excerpt)

Appendix D - Model Public Use Airport Safety and Compatibility Overlay Zone for Public Use Airports with Instrument Approaches

Appendix E - Model Public Use Airport Safety and Compatibility Overlay Zone for Public Use Airports with Only Visual Approaches

Appendix F - Model Private Use Airport Safety Overlay Zone

Appendix G - Model Public Use Airport Zone

Appendix H - Model Private Use Airport Zone

Appendix I - Sample Agreements and Easements

Appendix J - Measuring Aircraft Noise

Appendix K - FAA Form 7460-1 - Notice of Proposed Construction or Alternation

Appendix L - Publicly Owned Public Use Airports with Three or More Based Aircraft

Appendix M - Privately Owned Public Use Airports That: Provide Links in Essential Safety or Emergency Services, or Are of Economic Importance

Appendix N - Privately Owned Private Use Airports with Three or More Based Aircraft

Appendix O - Publicly Owned Public Use Airports with Less Than Three Based Aircraft

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Appendix A

OAR 660-013

Airport Planning

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**The Oregon Administrative Rules contain OARs filed
through August 15, 2002**

LAND CONSERVATION AND DEVELOPMENT DEPARTMENT

DIVISION 13

AIRPORT PLANNING

660-013-0010

Purpose and Policy

- (1) This division implements ORS 836.600 through 836.630 and Statewide Planning Goal 12 (Transportation). The policy of the State of Oregon is to encourage and support the continued operation and vitality of Oregon's airports. These rules are intended to promote a convenient and economic system of airports in the state and for land use planning to reduce risks to aircraft operations and nearby land uses.
- (2) Ensuring the vitality and continued operation of Oregon's system of airports is linked to the vitality of the local economy where the airports are located. This division recognizes the interdependence between transportation systems and the communities on which they depend.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.635 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0020

Definitions

For purposes of this division, the definitions in ORS Chapter 197 apply unless the context requires otherwise. In addition, the following definitions apply:

- (1) "Airport" means the strip of land used for taking off and landing aircraft, together with all adjacent land used in connection with the aircraft landing or taking off from the strip of land, including but not limited to land used for existing airport uses.
- (2) "Aircraft" means helicopters and airplanes, but not hot air balloons or ultralights.
- (3) "Airport Uses" means those uses described in OAR 660-013-0100.
- (4) "Non Towered Airport" means an airport without an existing or approved control tower on June 5, 1995.
- (5) "Public Assembly Uses" means a structure or outdoor facility where concentrations of people gather for purposes such as deliberation, education, worship, shopping, business, entertainment, amusement, sporting events, or similar activities, excluding air shows. Public Assembly Uses does not include places where people congregate for short periods of time such as parking lots and bus stops or uses approved by the FAA in an adopted airport master plan.

- (6) "Sponsor" means the owner, manager, other person, or entity designated to represent the interests of an airport.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.635 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0030

Preparation and Coordination of Aviation Plans

- (1) The Oregon Department of Transportation (ODOT) shall prepare and adopt a state Aviation System Plan (state ASP) as part of the State Transportation System Plan in accordance with ORS 184.618 and the State Agency Coordination Program approved under ORS 197.180. ODOT shall coordinate the preparation, adoption, and amendment of land use planning elements of the state ASP with local governments and airport sponsors. The purpose of the state ASP is to provide state policy guidance and a framework for planning and operation of a convenient and economic system of airports, and for land use planning to reduce risks to aircraft operations and nearby land uses. The state ASP shall encourage and support the continued operation and vitality of Oregon's airports.
- (2) A city or county with planning authority for one or more airports, or areas within safety zones or compatibility zones described in this division, shall adopt comprehensive plan and land use regulations for airports consistent with the requirements of this division and ORS 836.600 through 836.630. Local comprehensive plan and land use regulation requirements shall be coordinated with acknowledged transportation system plans for the city, county, and Metropolitan Planning Organization (MPO) required by OAR 660, Division 12. Local comprehensive plan and land use regulation requirements shall be consistent with adopted elements of the state ASP and shall be coordinated with affected state and federal agencies, local governments, airport sponsors, and special districts. If a state ASP has not yet been adopted, the city or county shall coordinate the preparation of the local comprehensive plan and land use regulation requirements with ODOT. Local comprehensive plan and land use regulation requirements shall encourage and support the continued operation and vitality of airports consistent with the requirements of ORS 836.600 through 836.630.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0040

Aviation Facility Planning Requirements

A local government shall adopt comprehensive plan and land use regulation requirements for each state or local aviation facility subject to the requirements of ORS 836.610(1). Planning requirements for airports identified in ORS 836.610(1) shall include:

- (1) A map, adopted by the local government, showing the location of the airport boundary. The airport boundary shall include the following areas, but does not necessarily include all land within the airport ownership:

- (a) Existing and planned runways, taxiways, aircraft storage (excluding aircraft storage accessory to residential airpark type development), maintenance, sales, and repair facilities;
 - (b) Areas needed for existing and planned airport operations; and
 - (c) Areas at non-towered airports needed for existing and planned airport uses that:
 - (A) Require a location on or adjacent to the airport property;
 - (B) Are compatible with existing and planned land uses surrounding the airport; and
 - (C) Are otherwise consistent with provisions of the acknowledged comprehensive plan, land use regulations, and any applicable statewide planning goals.
 - (d) "Compatible," as used in this rule, is not intended as an absolute term meaning no interference or adverse impacts of any type with surrounding land uses.
- (2) A map or description of the location of existing and planned runways, taxiways, aprons, tiedown areas, and navigational aids;
 - (3) A map or description of the general location of existing and planned buildings and facilities;
 - (4) A projection of aeronautical facility and service needs;
 - (5) Provisions for airport uses not currently located at the airport or expansion of existing airport uses:
 - (a) Based on the projected needs for such uses over the planning period;
 - (b) Based on economic and use forecasts supported by market data;
 - (c) When such uses can be supported by adequate types and levels of public facilities and services and transportation facilities or systems authorized by applicable statewide planning goals;
 - (d) When such uses can be sited in a manner that does not create a hazard for aircraft operations; and
 - (e) When the uses can be sited in a manner that is:
 - (A) Compatible with existing and planned land uses surrounding the airport; and
 - (B) Consistent with applicable provisions of the acknowledged comprehensive plan, land use regulations, and any applicable statewide planning goals.
 - (6) When compatibility issues arise, the decision maker shall take reasonable steps to eliminate or minimize the incompatibility through location, design, or conditions. A decision on compatibility pursuant to this rule shall further the policy in ORS 836.600.

- (7) A description of the types and levels of public facilities and services necessary to support development located at or planned for the airport including transportation facilities and services. Provision of public facilities and services and transportation facilities or systems shall be consistent with applicable state and local planning requirements.
- (8) Maps delineating the location of safety zones, compatibility zones, and existing noise impact boundaries that are identified pursuant to OAR 340, Division 35.
- (9) Local government shall request the airport sponsor to provide the economic and use forecast information required by this rule. The economic and use forecast information submitted by the sponsor shall be subject to local government review, modification and approval as part of the planning process outlined in this rule. Where the sponsor declines to provide such information, the local government may limit the airport boundary to areas currently devoted to airport uses described in OAR 660-013-0100.

Stat. Auth.: ORS 183 & 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0050

Implementation of Local Airport Planning

A local government with planning responsibility for one or more airports or areas within safety zones or compatibility zones described in this division or subject to requirements identified in ORS 836.608 shall adopt land use regulations to carry out the requirements of this division, or applicable requirements of ORS 836.608, consistent with the applicable elements of the adopted state ASP and applicable statewide planning requirements.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0070

Local Government Safety Zones for Imaginary Surfaces

- (1) A local government shall adopt an Airport Safety Overlay Zone to promote aviation safety by prohibiting structures, trees, and other objects of natural growth from penetrating airport imaginary surfaces.
 - (a) The overlay zone for public use airports shall be based on **Exhibit 1** (See page A-13) incorporated herein by reference.
 - (b) The overlay zone for airports described in ORS 836.608(2) shall be based on **Exhibit 2** (See page A-17) incorporated herein by reference.
 - (c) The overlay zone for heliports shall be based on **Exhibit 3** (See page A-19) incorporated herein by reference.
- (2) For areas in the safety overlay zone, but outside the approach and transition surface, where the terrain is at higher elevations than the airport runway surface such that existing structures and planned development

exceed the height requirements of this rule, a local government may authorize structures up to 35 feet in height. A local government may adopt other height exceptions or approve a height variance when supported by the airport sponsor, ODOT Aeronautics Division, and the FAA.

Stat. Auth.: ORS 183

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0080

Local Government Land Use Compatibility Requirements For Public Use Airports

- (1) A local government shall adopt airport compatibility requirements for each public use airport identified in ORS 836.610(1). The requirements shall:
 - (a) Prohibit new residential development and public assembly uses within the Runway Protection Zone (RPZ) identified in **Exhibit 4** (See page A-21);
 - (b) Limit the establishment of uses identified in Exhibit 5 within a noise impact boundary that has been identified pursuant to OAR 340, Division 35 consistent with the levels identified in **Exhibit 5** (See page A-23);
 - (c) Prohibit the siting of new industrial uses and the expansion of existing industrial uses where either, as a part of regular operations, would cause emissions of smoke, dust, or steam that would obscure visibility within airport approach corridors;
 - (d) Limit outdoor lighting for new industrial, commercial, or recreational uses or the expansion of such uses to prevent light from projecting directly onto an existing runway or taxiway or into existing airport approach corridors except where necessary for safe and convenient air travel;
 - (e) Coordinate the review of all radio, radiotelephone, and television transmission facilities and electrical transmission lines with ODOT Aeronautics Division;
 - (f) Regulate water impoundments consistent with the requirements of ORS 836.623(2) through (6); and
 - (g) Prohibit the establishment of new landfills near airports, consistent with Department of Environmental Quality (DEQ) rules.
- (2) A local government may adopt more stringent regulations than the minimum requirements in section (1)(a) through (e) and (g) based on the requirements of ORS 836.623(1)

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0100**Airport Uses at Non-Towered Airports**

Local government shall adopt land use regulations for areas within the airport boundary of non-towered airports identified in ORS 836.610(1) that authorize the following uses and activities:

- (1) Customary and usual aviation-related activities including but not limited to takeoffs, landings, aircraft hangars, tiedowns, construction and maintenance of airport facilities, fixed-base operator facilities, a residence for an airport caretaker or security officer, and other activities incidental to the normal operation of an airport. Residential, commercial, industrial, manufacturing, and other uses, except as provided in this rule, are not customary and usual aviation-related activities and may only be authorized pursuant to OAR 660-013-0110.
- (2) Emergency Medical Flight Services, including activities, aircraft, accessory structures, and other facilities necessary to support emergency transportation for medical purposes. "Emergency Medical Flight Services" does not include hospitals, medical offices, medical labs, medical equipment sales, and similar uses.
- (3) Law Enforcement and Firefighting Activities, including aircraft and ground based activities, facilities and accessory structures necessary to support federal, state or local law enforcement and land management agencies engaged in law enforcement or firefighting activities. These activities include transport of personnel, aerial observation, and transport of equipment, water, fire retardant and supplies.
- (4) Flight Instruction, including activities, facilities, and accessory structures located at airport sites that provide education and training directly related to aeronautical activities. "Flight Instruction" does not include schools for flight attendants, ticket agents, or similar personnel.
- (5) Aircraft Service, Maintenance and Training, including activities, facilities, and accessory structures provided to teach aircraft service and maintenance skills, maintain, service and repair aircraft and aircraft components, but not including activities, structures, and facilities for the manufacturing of aircraft for sale to the public or the manufacturing of aircraft related products for sale to the public. "Aircraft Service, Maintenance and Training" includes the construction of aircraft and aircraft components for personal use. The assembly of aircraft and aircraft components is allowed as part of servicing, maintaining, or repairing aircraft and aircraft components.
- (6) Aircraft Rental, including activities, facilities, and accessory structures that support the provision of aircraft for rent or lease to the public.
- (7) Aircraft Sales and the sale of aeronautic equipment and supplies, including activities, facilities, and accessory structures for the storage, display, demonstration and sale of aircraft and aeronautic equipment and supplies to the public.
- (8) Aeronautic Recreational and Sporting Activities, including activities, facilities and accessory structures at airports that support recreational use of aircraft and sporting activities that require the use of aircraft or other devices used and intended for use in flight. Aeronautic Recreation and

Sporting Activities on airport property shall be subject to approval of the airport sponsor. Aeronautic recreation and sporting activities include but are not limited to: fly-ins; glider flights; hot air ballooning; ultralight aircraft flights; displays of aircraft; aeronautic flight skills contests; gyrocopter flights; flights carrying parachutists; and parachute drops onto an airport. As used in this rule, parachuting and parachute drops includes all forms of skydiving. Parachuting businesses may be allowed only where they have secured approval to use a drop zone that is at least 10 contiguous acres. A local government may establish a larger size for the required drop zone where evidence of missed landings and dropped equipment supports the need for the larger area. The configuration of 10 acre minimum drop zone shall roughly approximate a square or circle and may contain structures, trees, or other obstacles if the remainder of the drop zone provides adequate areas for parachutists to safely land.

- (9) Crop Dusting Activities, including activities, facilities and structures accessory to crop dusting operations. These include, but are not limited to: aerial application of chemicals, seed, fertilizer, pesticide, defoliant and other activities and chemicals used in a commercial agricultural, forestry or rangeland management setting.
- (10) Agricultural and Forestry Activities, including activities, facilities and accessory structures that qualify as a "farm use" as defined in ORS 215.203 or "farming practice" as defined in ORS 30.930.
- (11) Air passenger and air freight services and facilities at public use airports at levels consistent with the classification and needs identified in the state ASP.

Stat. Auth.: ORS 183 & ORS 197
 Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859
 Hist.: LCDC 6 -1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0110

Other Uses Within the Airport Boundary

Notwithstanding the provisions of OAR 660-013-0100, a local government may authorize commercial, industrial, manufacturing and other uses in addition to those listed in OAR 660-013-0100 within the airport boundary where such uses are consistent with applicable provisions of the acknowledged comprehensive plan, statewide planning goals and LCDC administrative rules and where the uses do not create a safety hazard or otherwise limit approved airport uses.

Stat. Auth.: ORS 183 & ORS 197
 Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859
 Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0140

Safe Harbors

A "safe harbor" is a course of action that satisfies certain requirements of this division. Local governments may follow safe harbor requirements rather than addressing certain requirements in these rules. The following are considered to be "safe harbors":

- (1) Portions of existing acknowledged comprehensive plans, land use regulations, Airport Master Plans and Airport Layout Plans adopted or otherwise approved by the local government as mandatory standards or requirements shall be considered adequate to meet requirements of these rules for the subject areas of rule requirements addressed by such plans and elements, unless such provisions are contrary to provisions of ORS 836.600 through 836.630. To the extent these documents do not contain specific provisions related to requirements of this division, the documents can not be considered as a safe harbor. The adequacy of existing provisions shall be evaluated based on the specificity of the documents and relationship to requirements of these rules;
- (2) This division does not require elimination of existing or allowed airport related uses authorized by an acknowledged comprehensive plan and land use regulations; and
- (3) Notwithstanding the safe harbor provisions of this rule, land use regulations applicable to non-towered airports shall authorize airport uses required by this division.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0155

Planning Requirements for Small Airports

- (1) Airports described in ORS 836.608(2) shall be subject to the planning and zoning requirements described in ORS 836.608(2) through (6) and (8).
- (2) The provisions of OAR 660-013-0100 shall be used in conjunction with ORS 836.608 to determine appropriate types of uses authorized within airport boundaries for airports described in 836.608(2).
- (3) The provisions of OAR 660-013-0070(1)(b) shall be used to protect approach corridors at airports described in ORS 836.608(2).
- (4) Airport boundaries for airports described in ORS 836.608(2) shall be adopted by local government pursuant to the requirements in ORS 836.608(2).

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0160

Applicability

This division applies as follows:

- (1) Local government plans and land use regulations shall be updated to conform to this division at periodic review, except for provisions of Chapter 859, OR Laws 1997 that became effective on passage. Prior to the adoption of the list of airports required by ORS 836.610(3), a local government shall be required to include a periodic review work task to comply with this division. However, the periodic review work task shall not

begin prior to the Department of Transportation's adoption of the list of airports required by ORS 836.610(3). For airports affecting more than one local government, applicable requirements of this division shall be included in a coordinated work program developed for all affected local governments concurrent with the timing of periodic review for the jurisdiction with the most land area devoted to airport uses.

- (2) Amendments to plan and land use regulations may be accomplished through plan amendment requirements of ORS 197.610 to 197.625 in advance of periodic review where such amendments include coordination with and adoption by all local governments with responsibility for areas of the airport subject to the requirements of this division.
- (3) Compliance with the requirements of this division shall be deemed to satisfy the requirements of Statewide Planning Goal 12 (Transportation) and OAR 660, Division 12 related Airport Planning.
- (4) Uses authorized by this division shall comply with all applicable requirements of other laws.
- (5) Notwithstanding the provisions of OAR 660-013-0140 amendments to acknowledged comprehensive plans and land use regulations, including map amendments and zone changes, require full compliance with the provisions of this division, except where the requirements of the new regulation or designation are the same as the requirements they replace.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

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Appendix A
OAR 660 Division 13
EXHIBITS

These attachments, as they apply to public use airports, are intended to reflect Federal Aviation (FAA) Regulations (FARS) and Design Standards, as amended. These attachments, as they apply to privately owned, private use airports, reflect State Standards.

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Exhibit #1 – Public Use Airport Overlay Zone

1. Airport Approach Zone means the land that underlies the approach surface, excluding the Runway Protection Zone.
2. Airport Imaginary Surfaces mean surfaces established with relation to the airport and to each runway based on the category of each runway according to the type of approach available or planned for that runway. The slope and dimensions of the approach surface applied to each end of the runway shall be determined by the most precise approach existing or planned for that runway end.
3. Approach Surface means a surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of the runway based upon the type of approach available or planned for that runway end.
 - a) The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of:
 - A) 1,250 feet for that end of a utility runway with only visual approaches.
 - B) 1,500 feet for that end of a runway other than a utility runway with only visual approaches.
 - C) 2,000 feet for that end of a utility runway with a non-precision instrument approach.
 - D) 3,500 feet for that end of a non-precision instrument runway other than utility, having visibility minimums greater than three-fourths statute mile.
 - E) 4,000 feet for that end of a non-precision instrument runway, other than utility, having a non-precision instrument approach with visibility minimums as low as three-fourths statute mile.
 - F) 16,000 feet for precision instrument runways.
 - b) The approach surface extends for a horizontal distance of:
 - A) 5,000 feet at a slope of 20 to 1 for all utility and visual runways.
 - B) 10,000 feet at a slope of 34 to 1 for all non-precision instrument runways other than utility.
 - C) 10,000 feet at a slope of 50 to 1 with an additional 40,000 feet at a slope of 40 to 1 for all precision instrument runways.
 - c) The outer width of an approach surface to an end of a runway will be that width prescribed in this subsection for the most precise approach existing or planned for that runway end.

4. Conical Surface means a surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

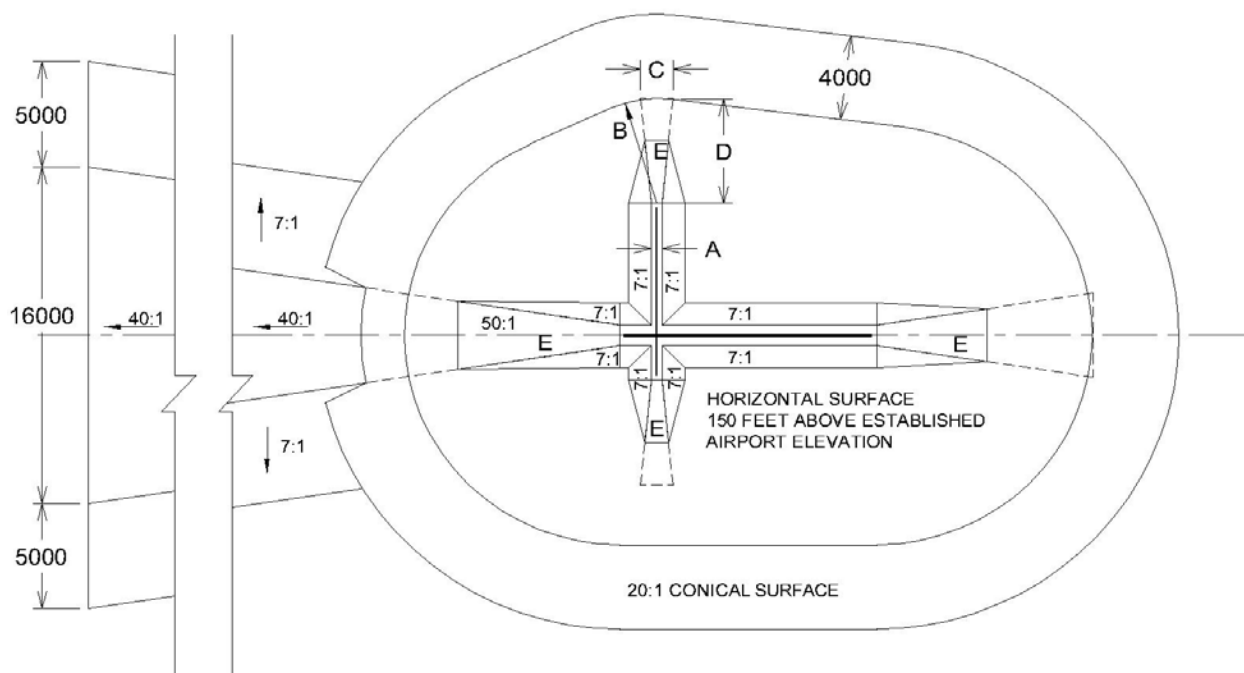
5. Horizontal Surface means a horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is:
 - a) 5,000 feet for all runways designated as utility or visual.
 - b) 10,000 feet for all other runways.
 - c) The radius of the arc specified for each end of a runway will have the same arithmetical value. That value will be highest determined for either end of the runway. When a 5,000 foot arc is encompassed by tangents connecting two adjacent 10,000 foot arcs, the 5,000 foot arc shall be disregarded on the construction of the perimeter of the horizontal surface.

6. Primary Surface means a surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond the end of that runway, but when the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at the end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface of a runway will be that width prescribed in this section for the most precise approach existing or planned for either end of the runway. The width of the primary surface is:
 - a) 250 feet for utility runways having only visual approaches.
 - b) 500 feet for utility runways having non-precision approaches
 - A) For other than utility runways the width is:
 - i) 500 feet for visual runways having only visual approaches,
 - ii) 500 feet for non-precision instrument runways having visibility minimums greater than three-fourths statute mile, and
 - iii) 1,000 feet for non-precision instrument runway having a non-precision instrument approach with visibility minimum as low as three-fourths of a statute mile, and for precision instrument runways.

7. Transitional Surface means those surfaces which extend upward and outward at 90 degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces to the point of intersection with the horizontal and conical surfaces. Transitional surfaces for those portions of the precision approach surfaces, which project through

and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at a 90 degree angle to the extended runway centerline.

8. Non-Precision instrument runway means a runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in non-precision instrument approach procedure has been approved, or planned, and for which no precision approach facilities are planned, or indicated on an FAA planning document.
9. Precision instrument runway means a runway having an existing instrument approach procedure utilizing an instrument approach procedure utilizing an Instrument Landing System (ILS), or a Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated by an FAA approved airport layout plan or any other FAA planning document.
10. Runway Protection Zone (RPZ) means an area off the runway end to enhance the protection of people and property on the ground. The dimensions of the RPZ for Public-use airports shall be as depicted in attachment #4 of these rules.
11. Utility runway means a runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 maximum gross weight and less.
12. Visual runway means a runway intended solely for the operations of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA approved airport layout plan, or by any planning document submitted to the FAA by competent authority.



DIM	ITEM	DIMENSIONAL STANDARDS					Precision Instrument Runway
		Visual Runway		Non-Precision Instrument Runway			
		A	B	A	B	D	
A	Width Primary Surface and Approach Surface Width at Inner End	250	500	500	500	1,000	1,000
B	Radius of Horizontal Surface	5,000	5,000	5,000	10,000	10,000	10,000
		Visual Approach		Non-Precision Instrument Approach			Precision Instrument Approach
		A	B	A	B	D	
C	Approach Surface Width at End	1,250	1,500	2,000	3,500	4,000	16,000
D	Approach Surface Length	5,000	5,000	5,000	10,000	10,000	*
E	Approach Slope	20:1	20:1	20:1	34:1	34:1	*

A – Utility Runways

B – Runways Larger Than Utility

C – Visibility Minimums Greater Than ¼ Mile

D – Visibility Minimums As Low As ¼ Mile

* – Precision Instrument Approach Slope is 50:1 for Inner 10,000 Feet and 40,000 feet

Exhibit #2 – Private Use Airport Overlay Zone

1. Airport Imaginary Surfaces mean surfaces established with relation to the airport and to each runway based on the category of each runway according to the type of approach available or planned for that runway. The slope and dimensions of the approach surface applied to each end of the runway shall be determined by the most precise approach existing or planned for that runway end.
2. Approach Surface means a surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway. The inner edge of the approach surface is the same width as the primary surface and expands uniformly to a width of 450 feet for that end of a private use airport with only visual approaches. The approach surface extends for a horizontal distance of 2,500 feet at a slope of twenty to one.
3. Primary Surface means a surface longitudinally centered on a runway. The primary surface ends at each end of the runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface is 200 feet for the Private Use airport runways.



DIM	ITEM	DIMENSIONAL STANDARDS IN FEET
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	200
B	APPROACH SURFACE WIDTH AT THE END	450
C	APPROACH SURFACE LENGTH	2500
D	APPROACH SLOPE	20:1

Exhibit #3 – Heliport Overlay Zone

1. Heliport means an area of land, water, or structure designated for the landing or take-off of helicopters or other rotorcraft.
2. Heliport Imaginary Surfaces means airport imaginary surfaces as they apply to heliports.
3. Heliport Approach Surface means the approach surface beginning at each end of the heliport primary surface and has the same width as the primary surface. The surface extends outward and upward for a horizontal distance of 4,000 feet where its width is 500 feet. The slope of the approach surface is 8 to 1 for civil heliports and 10 to 1 for military heliports.
4. Heliport Instrument Procedure Surfaces means the criteria for heliports set forth in the United States Standard for Terminal Instrument Procedures.
5. Heliport Primary Surface means the area of the primary surface that coincides in size and shape with the designated take-off and land area of a heliport. This surface is a horizontal plane at the established heliport elevation.
6. Heliport Transitional Surfaces means surfaces extending outward and upward from the lateral boundaries of the heliport primary surface and from the approach surfaces at a slope of 2 to 1 for a distance of 250 feet measured horizontally from the centerline of the primary and approach surfaces.

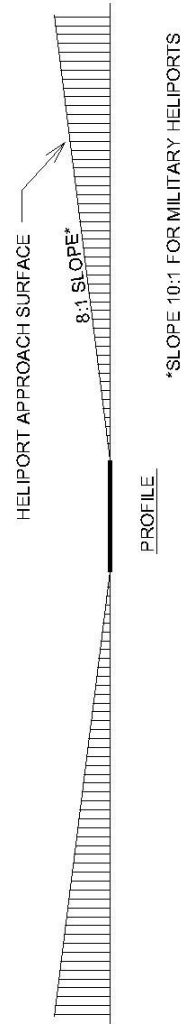
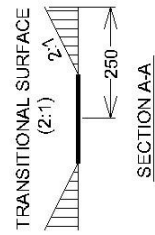
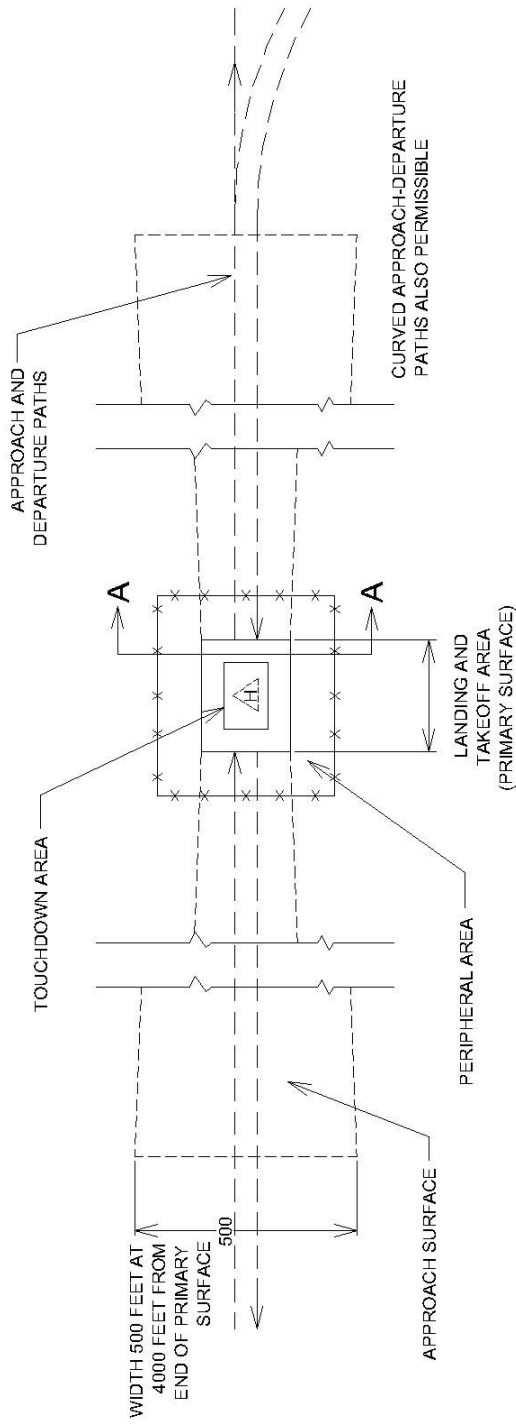
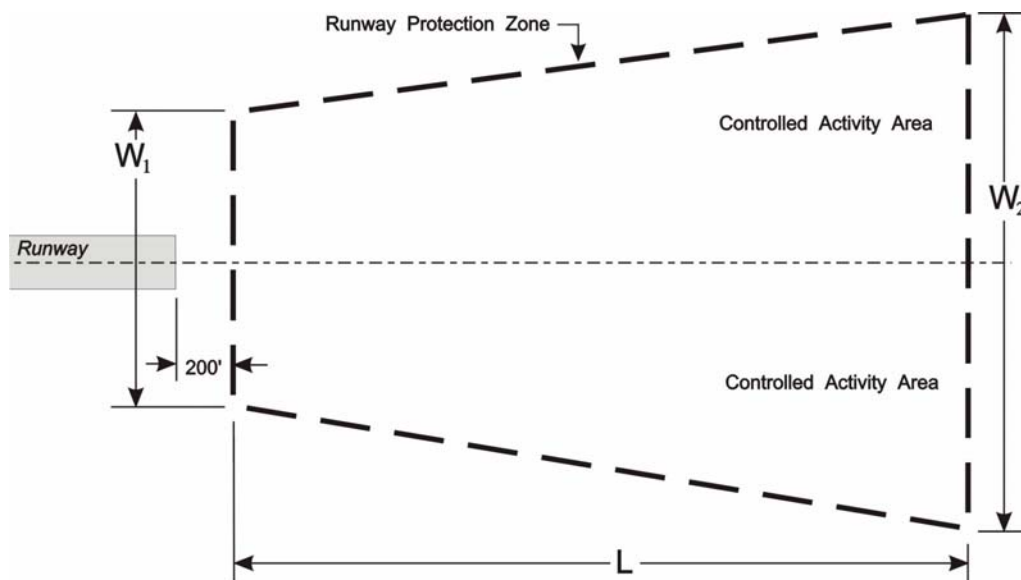


Exhibit #4 – Runway Protection Zone

Runway Protection Zone (RPZ) means an area off the runway end to enhance the protection of people and property on the ground. The Runway Protection Zone is trapezoidal in shape and centered about the extended runway centerline. The RPZ dimension for a particular runway end is a function of the type of aircraft and the approach visibility minimum associated for that runway end.

- a) The RPZ extends from each end of the primary surface, as defined in Attachment 1, Section 10, for a horizontal distance of:
 - A) 1,000 feet for all utility and visual runways.
 - B) 1,700 feet for all non-precision instrument runways other than utility.
 - C) 2,500 feet for all precision instrument runways.

Exhibit #4 - Runway Protection Zone and Dimension Requirements



Runway Protection Zone Dimension Requirements

Approach Visibility Minimums ¹	Facilities Expected to Serve	Dimensions			
		Length (L)	Inner Width (W_1)	Outer Width (W_2)	RPZ (acres)
Visual and Not lower than 1 Mile	Small Aircraft Exclusively	1,000	250	450	8.035
	Aircraft Approach Categories A & B	1,000	500	700	13.770
	Aircraft Approach Categories C & D	1,700	500	1,010	29.465
Not lower than ¼ Mile	All Aircraft	1,700	1,000	1,510	48.978
Lower than ¼ Mile	All Aircraft	2,500	1,000	1,750	78.914

All dimensions in feet unless otherwise noted.

Source: FAA Advisory Circular 150/5300-13, Airport Design

Note:

¹The RPZ dimensional standards are for the runway end with the specified approach visibility minimums. The departure RPZ dimensional standards are equal to or less than the approach RPZ dimensional standards. When a RPZ begins other than 200 feet beyond the runway end, separate approach and departure RPZs should be provided. Refer to appendix 14 of FAA Advisory Circular 150/5300-13, *Airport Design*, for approach and departure RPZs.

Exhibit #5 – Noise Compatibility						
<p>Legend: Y (Yes) - Land use and related structures compatible without restrictions N (No) - Land use and related structures are not compatible and should be prohibited NLR - Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure DNL - Average Day-Night Sound Level 25, 30, 35 - Land use and related structures generally compatible; measures to achieve NLR of 25, 30, 35 dB must be incorporated into design and construction of structure.</p>						
Land Use	Below 65	65-70	70-75	75-80	85-85	Over 85
Residential						
Residential, other than mobile homes and transient lodging	Y	N ⁽¹⁾	N ⁽¹⁾	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N ⁽¹⁾	N ⁽¹⁾	N ⁽¹⁾	N	N
Public						
Schools	Y	N ⁽¹⁾	N ⁽¹⁾	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	Y ⁽⁴⁾
Parking	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	N
Commercial						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail - building materials, hardware and farm equipment	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	N
Retail trade - general	Y	Y	25	30	N	N
Utilities	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	N
Communication	Y	Y	25	30	N	N

Exhibit #5 – Noise Compatibility (Continued)						
Land Use	Below 65	65-70	70-75	75-80	80-85	Over 85
Manufacturing & Production						
Manufacturing - general	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	N
Photographic and optical	Y	Y	25	30	N	N
Agricultural (except livestock) and forestry	Y	Y ⁽⁶⁾	Y ⁽⁷⁾	Y ⁽⁸⁾	Y ⁽⁸⁾	Y ⁽⁸⁾
Livestock farming and breeding	Y	Y ⁽⁶⁾	Y ⁽⁷⁾	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y ⁽⁵⁾	Y ⁽⁵⁾	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusement parks, resorts and camps	Y	Y	Y	N	N	N
Riding stables and water recreation	Y	Y	25	30	N	N

Source: FAR Part 150, Appendix A, Table 1

Notes:

- When the community determines that residential or school uses must be allowed, measures to achieve an outdoor to indoor NLR of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5,10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. The use of NLR criteria will not, however, eliminate outdoor noise problems.
- Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
- Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
- Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
- Land use is compatible provided special sound reinforcement systems are installed.
- Residential buildings require an NLR of 25 dB.
- Residential buildings require an NLR of 30 dB.
- Residential buildings not permitted.

Appendix A

OAR 660-013

Airport Planning

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**The Oregon Administrative Rules contain OARs filed
through August 15, 2002**

LAND CONSERVATION AND DEVELOPMENT DEPARTMENT

DIVISION 13

AIRPORT PLANNING

660-013-0010

Purpose and Policy

- (1) This division implements ORS 836.600 through 836.630 and Statewide Planning Goal 12 (Transportation). The policy of the State of Oregon is to encourage and support the continued operation and vitality of Oregon's airports. These rules are intended to promote a convenient and economic system of airports in the state and for land use planning to reduce risks to aircraft operations and nearby land uses.
- (2) Ensuring the vitality and continued operation of Oregon's system of airports is linked to the vitality of the local economy where the airports are located. This division recognizes the interdependence between transportation systems and the communities on which they depend.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.635 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0020

Definitions

For purposes of this division, the definitions in ORS Chapter 197 apply unless the context requires otherwise. In addition, the following definitions apply:

- (1) "Airport" means the strip of land used for taking off and landing aircraft, together with all adjacent land used in connection with the aircraft landing or taking off from the strip of land, including but not limited to land used for existing airport uses.
- (2) "Aircraft" means helicopters and airplanes, but not hot air balloons or ultralights.
- (3) "Airport Uses" means those uses described in OAR 660-013-0100.
- (4) "Non Towered Airport" means an airport without an existing or approved control tower on June 5, 1995.
- (5) "Public Assembly Uses" means a structure or outdoor facility where concentrations of people gather for purposes such as deliberation, education, worship, shopping, business, entertainment, amusement, sporting events, or similar activities, excluding air shows. Public Assembly Uses does not include places where people congregate for short periods of time such as parking lots and bus stops or uses approved by the FAA in an adopted airport master plan.

- (6) "Sponsor" means the owner, manager, other person, or entity designated to represent the interests of an airport.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.635 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0030

Preparation and Coordination of Aviation Plans

- (1) The Oregon Department of Transportation (ODOT) shall prepare and adopt a state Aviation System Plan (state ASP) as part of the State Transportation System Plan in accordance with ORS 184.618 and the State Agency Coordination Program approved under ORS 197.180. ODOT shall coordinate the preparation, adoption, and amendment of land use planning elements of the state ASP with local governments and airport sponsors. The purpose of the state ASP is to provide state policy guidance and a framework for planning and operation of a convenient and economic system of airports, and for land use planning to reduce risks to aircraft operations and nearby land uses. The state ASP shall encourage and support the continued operation and vitality of Oregon's airports.
- (2) A city or county with planning authority for one or more airports, or areas within safety zones or compatibility zones described in this division, shall adopt comprehensive plan and land use regulations for airports consistent with the requirements of this division and ORS 836.600 through 836.630. Local comprehensive plan and land use regulation requirements shall be coordinated with acknowledged transportation system plans for the city, county, and Metropolitan Planning Organization (MPO) required by OAR 660, Division 12. Local comprehensive plan and land use regulation requirements shall be consistent with adopted elements of the state ASP and shall be coordinated with affected state and federal agencies, local governments, airport sponsors, and special districts. If a state ASP has not yet been adopted, the city or county shall coordinate the preparation of the local comprehensive plan and land use regulation requirements with ODOT. Local comprehensive plan and land use regulation requirements shall encourage and support the continued operation and vitality of airports consistent with the requirements of ORS 836.600 through 836.630.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0040

Aviation Facility Planning Requirements

A local government shall adopt comprehensive plan and land use regulation requirements for each state or local aviation facility subject to the requirements of ORS 836.610(1). Planning requirements for airports identified in ORS 836.610(1) shall include:

- (1) A map, adopted by the local government, showing the location of the airport boundary. The airport boundary shall include the following areas, but does not necessarily include all land within the airport ownership:

- (a) Existing and planned runways, taxiways, aircraft storage (excluding aircraft storage accessory to residential airpark type development), maintenance, sales, and repair facilities;
 - (b) Areas needed for existing and planned airport operations; and
 - (c) Areas at non-towered airports needed for existing and planned airport uses that:
 - (A) Require a location on or adjacent to the airport property;
 - (B) Are compatible with existing and planned land uses surrounding the airport; and
 - (C) Are otherwise consistent with provisions of the acknowledged comprehensive plan, land use regulations, and any applicable statewide planning goals.
 - (d) "Compatible," as used in this rule, is not intended as an absolute term meaning no interference or adverse impacts of any type with surrounding land uses.
- (2) A map or description of the location of existing and planned runways, taxiways, aprons, tiedown areas, and navigational aids;
 - (3) A map or description of the general location of existing and planned buildings and facilities;
 - (4) A projection of aeronautical facility and service needs;
 - (5) Provisions for airport uses not currently located at the airport or expansion of existing airport uses:
 - (a) Based on the projected needs for such uses over the planning period;
 - (b) Based on economic and use forecasts supported by market data;
 - (c) When such uses can be supported by adequate types and levels of public facilities and services and transportation facilities or systems authorized by applicable statewide planning goals;
 - (d) When such uses can be sited in a manner that does not create a hazard for aircraft operations; and
 - (e) When the uses can be sited in a manner that is:
 - (A) Compatible with existing and planned land uses surrounding the airport; and
 - (B) Consistent with applicable provisions of the acknowledged comprehensive plan, land use regulations, and any applicable statewide planning goals.
 - (6) When compatibility issues arise, the decision maker shall take reasonable steps to eliminate or minimize the incompatibility through location, design, or conditions. A decision on compatibility pursuant to this rule shall further the policy in ORS 836.600.

- (7) A description of the types and levels of public facilities and services necessary to support development located at or planned for the airport including transportation facilities and services. Provision of public facilities and services and transportation facilities or systems shall be consistent with applicable state and local planning requirements.
- (8) Maps delineating the location of safety zones, compatibility zones, and existing noise impact boundaries that are identified pursuant to OAR 340, Division 35.
- (9) Local government shall request the airport sponsor to provide the economic and use forecast information required by this rule. The economic and use forecast information submitted by the sponsor shall be subject to local government review, modification and approval as part of the planning process outlined in this rule. Where the sponsor declines to provide such information, the local government may limit the airport boundary to areas currently devoted to airport uses described in OAR 660-013-0100.

Stat. Auth.: ORS 183 & 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0050

Implementation of Local Airport Planning

A local government with planning responsibility for one or more airports or areas within safety zones or compatibility zones described in this division or subject to requirements identified in ORS 836.608 shall adopt land use regulations to carry out the requirements of this division, or applicable requirements of ORS 836.608, consistent with the applicable elements of the adopted state ASP and applicable statewide planning requirements.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0070

Local Government Safety Zones for Imaginary Surfaces

- (1) A local government shall adopt an Airport Safety Overlay Zone to promote aviation safety by prohibiting structures, trees, and other objects of natural growth from penetrating airport imaginary surfaces.
 - (a) The overlay zone for public use airports shall be based on **Exhibit 1** (See page A-13) incorporated herein by reference.
 - (b) The overlay zone for airports described in ORS 836.608(2) shall be based on **Exhibit 2** (See page A-17) incorporated herein by reference.
 - (c) The overlay zone for heliports shall be based on **Exhibit 3** (See page A-19) incorporated herein by reference.
- (2) For areas in the safety overlay zone, but outside the approach and transition surface, where the terrain is at higher elevations than the airport runway surface such that existing structures and planned development

exceed the height requirements of this rule, a local government may authorize structures up to 35 feet in height. A local government may adopt other height exceptions or approve a height variance when supported by the airport sponsor, ODOT Aeronautics Division, and the FAA.

Stat. Auth.: ORS 183

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0080

Local Government Land Use Compatibility Requirements For Public Use Airports

- (1) A local government shall adopt airport compatibility requirements for each public use airport identified in ORS 836.610(1). The requirements shall:
 - (a) Prohibit new residential development and public assembly uses within the Runway Protection Zone (RPZ) identified in **Exhibit 4** (See page A-21);
 - (b) Limit the establishment of uses identified in Exhibit 5 within a noise impact boundary that has been identified pursuant to OAR 340, Division 35 consistent with the levels identified in **Exhibit 5** (See page A-23);
 - (c) Prohibit the siting of new industrial uses and the expansion of existing industrial uses where either, as a part of regular operations, would cause emissions of smoke, dust, or steam that would obscure visibility within airport approach corridors;
 - (d) Limit outdoor lighting for new industrial, commercial, or recreational uses or the expansion of such uses to prevent light from projecting directly onto an existing runway or taxiway or into existing airport approach corridors except where necessary for safe and convenient air travel;
 - (e) Coordinate the review of all radio, radiotelephone, and television transmission facilities and electrical transmission lines with ODOT Aeronautics Division;
 - (f) Regulate water impoundments consistent with the requirements of ORS 836.623(2) through (6); and
 - (g) Prohibit the establishment of new landfills near airports, consistent with Department of Environmental Quality (DEQ) rules.
- (2) A local government may adopt more stringent regulations than the minimum requirements in section (1)(a) through (e) and (g) based on the requirements of ORS 836.623(1)

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0100**Airport Uses at Non-Towered Airports**

Local government shall adopt land use regulations for areas within the airport boundary of non-towered airports identified in ORS 836.610(1) that authorize the following uses and activities:

- (1) Customary and usual aviation-related activities including but not limited to takeoffs, landings, aircraft hangars, tiedowns, construction and maintenance of airport facilities, fixed-base operator facilities, a residence for an airport caretaker or security officer, and other activities incidental to the normal operation of an airport. Residential, commercial, industrial, manufacturing, and other uses, except as provided in this rule, are not customary and usual aviation-related activities and may only be authorized pursuant to OAR 660-013-0110.
- (2) Emergency Medical Flight Services, including activities, aircraft, accessory structures, and other facilities necessary to support emergency transportation for medical purposes. "Emergency Medical Flight Services" does not include hospitals, medical offices, medical labs, medical equipment sales, and similar uses.
- (3) Law Enforcement and Firefighting Activities, including aircraft and ground based activities, facilities and accessory structures necessary to support federal, state or local law enforcement and land management agencies engaged in law enforcement or firefighting activities. These activities include transport of personnel, aerial observation, and transport of equipment, water, fire retardant and supplies.
- (4) Flight Instruction, including activities, facilities, and accessory structures located at airport sites that provide education and training directly related to aeronautical activities. "Flight Instruction" does not include schools for flight attendants, ticket agents, or similar personnel.
- (5) Aircraft Service, Maintenance and Training, including activities, facilities, and accessory structures provided to teach aircraft service and maintenance skills, maintain, service and repair aircraft and aircraft components, but not including activities, structures, and facilities for the manufacturing of aircraft for sale to the public or the manufacturing of aircraft related products for sale to the public. "Aircraft Service, Maintenance and Training" includes the construction of aircraft and aircraft components for personal use. The assembly of aircraft and aircraft components is allowed as part of servicing, maintaining, or repairing aircraft and aircraft components.
- (6) Aircraft Rental, including activities, facilities, and accessory structures that support the provision of aircraft for rent or lease to the public.
- (7) Aircraft Sales and the sale of aeronautic equipment and supplies, including activities, facilities, and accessory structures for the storage, display, demonstration and sale of aircraft and aeronautic equipment and supplies to the public.
- (8) Aeronautic Recreational and Sporting Activities, including activities, facilities and accessory structures at airports that support recreational use of aircraft and sporting activities that require the use of aircraft or other devices used and intended for use in flight. Aeronautic Recreation and

Sporting Activities on airport property shall be subject to approval of the airport sponsor. Aeronautic recreation and sporting activities include but are not limited to: fly-ins; glider flights; hot air ballooning; ultralight aircraft flights; displays of aircraft; aeronautic flight skills contests; gyrocopter flights; flights carrying parachutists; and parachute drops onto an airport. As used in this rule, parachuting and parachute drops includes all forms of skydiving. Parachuting businesses may be allowed only where they have secured approval to use a drop zone that is at least 10 contiguous acres. A local government may establish a larger size for the required drop zone where evidence of missed landings and dropped equipment supports the need for the larger area. The configuration of 10 acre minimum drop zone shall roughly approximate a square or circle and may contain structures, trees, or other obstacles if the remainder of the drop zone provides adequate areas for parachutists to safely land.

- (9) Crop Dusting Activities, including activities, facilities and structures accessory to crop dusting operations. These include, but are not limited to: aerial application of chemicals, seed, fertilizer, pesticide, defoliant and other activities and chemicals used in a commercial agricultural, forestry or rangeland management setting.
- (10) Agricultural and Forestry Activities, including activities, facilities and accessory structures that qualify as a "farm use" as defined in ORS 215.203 or "farming practice" as defined in ORS 30.930.
- (11) Air passenger and air freight services and facilities at public use airports at levels consistent with the classification and needs identified in the state ASP.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6 -1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0110

Other Uses Within the Airport Boundary

Notwithstanding the provisions of OAR 660-013-0100, a local government may authorize commercial, industrial, manufacturing and other uses in addition to those listed in OAR 660-013-0100 within the airport boundary where such uses are consistent with applicable provisions of the acknowledged comprehensive plan, statewide planning goals and LCDC administrative rules and where the uses do not create a safety hazard or otherwise limit approved airport uses.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0140

Safe Harbors

A "safe harbor" is a course of action that satisfies certain requirements of this division. Local governments may follow safe harbor requirements rather than addressing certain requirements in these rules. The following are considered to be "safe harbors":

- (1) Portions of existing acknowledged comprehensive plans, land use regulations, Airport Master Plans and Airport Layout Plans adopted or otherwise approved by the local government as mandatory standards or requirements shall be considered adequate to meet requirements of these rules for the subject areas of rule requirements addressed by such plans and elements, unless such provisions are contrary to provisions of ORS 836.600 through 836.630. To the extent these documents do not contain specific provisions related to requirements of this division, the documents can not be considered as a safe harbor. The adequacy of existing provisions shall be evaluated based on the specificity of the documents and relationship to requirements of these rules;
- (2) This division does not require elimination of existing or allowed airport related uses authorized by an acknowledged comprehensive plan and land use regulations; and
- (3) Notwithstanding the safe harbor provisions of this rule, land use regulations applicable to non-towered airports shall authorize airport uses required by this division.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0155

Planning Requirements for Small Airports

- (1) Airports described in ORS 836.608(2) shall be subject to the planning and zoning requirements described in ORS 836.608(2) through (6) and (8).
- (2) The provisions of OAR 660-013-0100 shall be used in conjunction with ORS 836.608 to determine appropriate types of uses authorized within airport boundaries for airports described in 836.608(2).
- (3) The provisions of OAR 660-013-0070(1)(b) shall be used to protect approach corridors at airports described in ORS 836.608(2).
- (4) Airport boundaries for airports described in ORS 836.608(2) shall be adopted by local government pursuant to the requirements in ORS 836.608(2).

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDD 3-1999, f. & cert. ef. 2-12-99

660-013-0160

Applicability

This division applies as follows:

- (1) Local government plans and land use regulations shall be updated to conform to this division at periodic review, except for provisions of Chapter 859, OR Laws 1997 that became effective on passage. Prior to the adoption of the list of airports required by ORS 836.610(3), a local government shall be required to include a periodic review work task to comply with this division. However, the periodic review work task shall not

begin prior to the Department of Transportation's adoption of the list of airports required by ORS 836.610(3). For airports affecting more than one local government, applicable requirements of this division shall be included in a coordinated work program developed for all affected local governments concurrent with the timing of periodic review for the jurisdiction with the most land area devoted to airport uses.

- (2) Amendments to plan and land use regulations may be accomplished through plan amendment requirements of ORS 197.610 to 197.625 in advance of periodic review where such amendments include coordination with and adoption by all local governments with responsibility for areas of the airport subject to the requirements of this division.
- (3) Compliance with the requirements of this division shall be deemed to satisfy the requirements of Statewide Planning Goal 12 (Transportation) and OAR 660, Division 12 related Airport Planning.
- (4) Uses authorized by this division shall comply with all applicable requirements of other laws.
- (5) Notwithstanding the provisions of OAR 660-013-0140 amendments to acknowledged comprehensive plans and land use regulations, including map amendments and zone changes, require full compliance with the provisions of this division, except where the requirements of the new regulation or designation are the same as the requirements they replace.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 836.600 - ORS 836.630 & 1997 OL, Ch. 859

Hist.: LCDC 6-1996, f. & cert. ef. 12-23-96; LCDD 3-1999, f. & cert. ef. 2-12-99

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Appendix A
OAR 660 Division 13
EXHIBITS

These attachments, as they apply to public use airports, are intended to reflect Federal Aviation (FAA) Regulations (FARS) and Design Standards, as amended. These attachments, as they apply to privately owned, private use airports, reflect State Standards.

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Exhibit #1 – Public Use Airport Overlay Zone

1. Airport Approach Zone means the land that underlies the approach surface, excluding the Runway Protection Zone.
2. Airport Imaginary Surfaces mean surfaces established with relation to the airport and to each runway based on the category of each runway according to the type of approach available or planned for that runway. The slope and dimensions of the approach surface applied to each end of the runway shall be determined by the most precise approach existing or planned for that runway end.
3. Approach Surface means a surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of the runway based upon the type of approach available or planned for that runway end.
 - a) The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of:
 - A) 1,250 feet for that end of a utility runway with only visual approaches.
 - B) 1,500 feet for that end of a runway other than a utility runway with only visual approaches.
 - C) 2,000 feet for that end of a utility runway with a non-precision instrument approach.
 - D) 3,500 feet for that end of a non-precision instrument runway other than utility, having visibility minimums greater than three-fourths statute mile.
 - E) 4,000 feet for that end of a non-precision instrument runway, other than utility, having a non-precision instrument approach with visibility minimums as low as three-fourths statute mile.
 - F) 16,000 feet for precision instrument runways.
 - b) The approach surface extends for a horizontal distance of:
 - A) 5,000 feet at a slope of 20 to 1 for all utility and visual runways.
 - B) 10,000 feet at a slope of 34 to 1 for all non-precision instrument runways other than utility.
 - C) 10,000 feet at a slope of 50 to 1 with an additional 40,000 feet at a slope of 40 to 1 for all precision instrument runways.
 - c) The outer width of an approach surface to an end of a runway will be that width prescribed in this subsection for the most precise approach existing or planned for that runway end.

4. Conical Surface means a surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

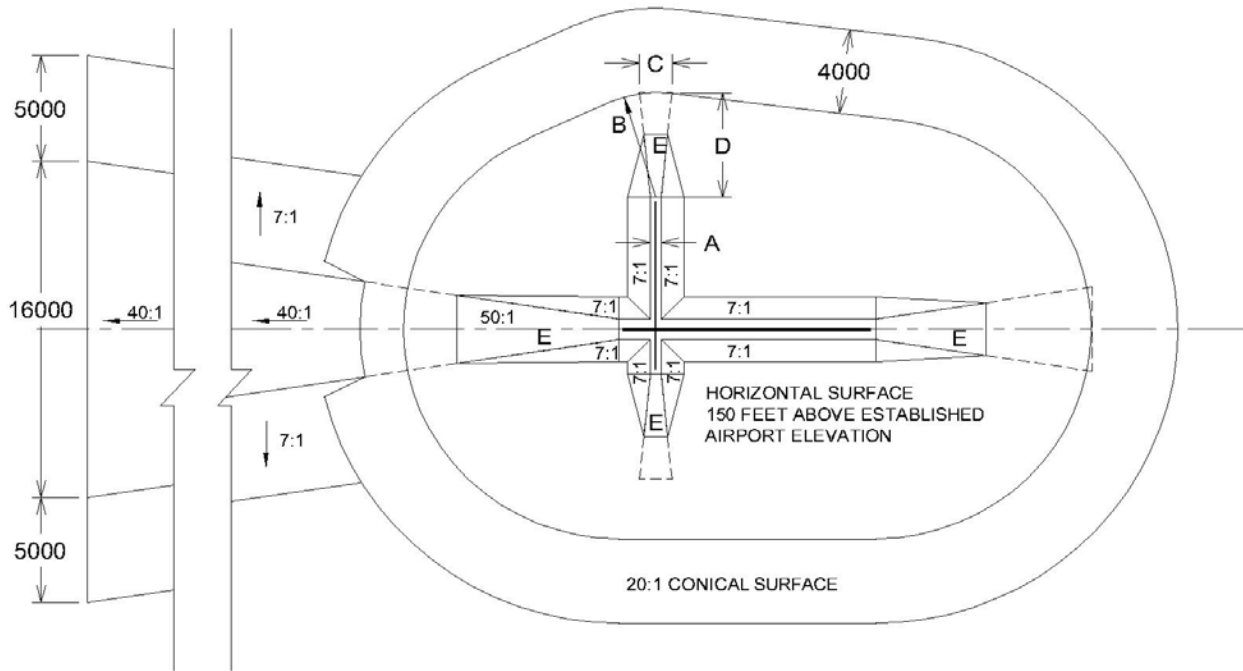
5. Horizontal Surface means a horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is:
 - a) 5,000 feet for all runways designated as utility or visual.
 - b) 10,000 feet for all other runways.
 - c) The radius of the arc specified for each end of a runway will have the same arithmetical value. That value will be highest determined for either end of the runway. When a 5,000 foot arc is encompassed by tangents connecting two adjacent 10,000 foot arcs, the 5,000 foot arc shall be disregarded on the construction of the perimeter of the horizontal surface.

6. Primary Surface means a surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond the end of that runway, but when the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at the end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface of a runway will be that width prescribed in this section for the most precise approach existing or planned for either end of the runway. The width of the primary surface is:
 - a) 250 feet for utility runways having only visual approaches.
 - b) 500 feet for utility runways having non-precision approaches
 - A) For other than utility runways the width is:
 - i) 500 feet for visual runways having only visual approaches,
 - ii) 500 feet for non-precision instrument runways having visibility minimums greater than three-fourths statute mile, and
 - iii) 1,000 feet for non-precision instrument runway having a non-precision instrument approach with visibility minimum as low as three-fourths of a statute mile, and for precision instrument runways.

7. Transitional Surface means those surfaces which extend upward and outward at 90 degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces to the point of intersection with the horizontal and conical surfaces. Transitional surfaces for those portions of the precision approach surfaces, which project through

and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at a 90 degree angle to the extended runway centerline.

8. Non-Precision instrument runway means a runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in non-precision instrument approach procedure has been approved, or planned, and for which no precision approach facilities are planned, or indicated on an FAA planning document.
9. Precision instrument runway means a runway having an existing instrument approach procedure utilizing an instrument approach procedure utilizing an Instrument Landing System (ILS), or a Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated by an FAA approved airport layout plan or any other FAA planning document.
10. Runway Protection Zone (RPZ) means an area off the runway end to enhance the protection of people and property on the ground. The dimensions of the RPZ for Public-use airports shall be as depicted in attachment #4 of these rules.
11. Utility runway means a runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 maximum gross weight and less.
12. Visual runway means a runway intended solely for the operations of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA approved airport layout plan, or by any planning document submitted to the FAA by competent authority.



DIM	ITEM	DIMENSIONAL STANDARDS					Precision Instrument Runway
		Visual Runway		Non-Precision Instrument Runway			
		A	B	A	B	C	
A	Width Primary Surface and Approach Surface Width at Inner End	250	500	500	500	1,000	1,000
B	Radius of Horizontal Surface	5,000	5,000	5,000	10,000	10,000	10,000
		Visual Approach		Non-Precision Instrument Approach			Precision Instrument Approach
		A	B	A	B	C	
C	Approach Surface Width at End	1,250	1,500	2,000	3,500	4,000	16,000
D	Approach Surface Length	5,000	5,000	5,000	10,000	10,000	*
E	Approach Slope	20:1	20:1	20:1	34:1	34:1	*

A – Utility Runways

B – Runways Larger Than Utility

C – Visibility Minimums Greater Than ¾ Mile

D – Visibility Minimums As Low As ¾ Mile

* – Precision Instrument Approach Slope is 50:1 for Inner 10,000 Feet and 40,000 feet

Exhibit #2 – Private Use Airport Overlay Zone

1. Airport Imaginary Surfaces mean surfaces established with relation to the airport and to each runway based on the category of each runway according to the type of approach available or planned for that runway. The slope and dimensions of the approach surface applied to each end of the runway shall be determined by the most precise approach existing or planned for that runway end.
2. Approach Surface means a surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway. The inner edge of the approach surface is the same width as the primary surface and expands uniformly to a width of 450 feet for that end of a private use airport with only visual approaches. The approach surface extends for a horizontal distance of 2,500 feet at a slope of twenty to one.
3. Primary Surface means a surface longitudinally centered on a runway. The primary surface ends at each end of the runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface is 200 feet for the Private Use airport runways.



DIM	ITEM	DIMENSIONAL STANDARDS IN FEET
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	200
B	APPROACH SURFACE WIDTH AT THE END	450
C	APPROACH SURFACE LENGTH	2500
D	APPROACH SLOPE	20:1

Exhibit #3 – Heliport Overlay Zone

1. Heliport means an area of land, water, or structure designated for the landing or take-off of helicopters or other rotorcraft.
2. Heliport Imaginary Surfaces means airport imaginary surfaces as they apply to heliports.
3. Heliport Approach Surface means the approach surface beginning at each end of the heliport primary surface and has the same width as the primary surface. The surface extends outward and upward for a horizontal distance of 4,000 feet where its width is 500 feet. The slope of the approach surface is 8 to 1 for civil heliports and 10 to 1 for military heliports.
4. Heliport Instrument Procedure Surfaces means the criteria for heliports set forth in the United States Standard for Terminal Instrument Procedures.
5. Heliport Primary Surface means the area of the primary surface that coincides in size and shape with the designated take-off and land area of a heliport. This surface is a horizontal plane at the established heliport elevation.
6. Heliport Transitional Surfaces means surfaces extending outward and upward from the lateral boundaries of the heliport primary surface and from the approach surfaces at a slope of 2 to 1 for a distance of 250 feet measured horizontally from the centerline of the primary and approach surfaces.

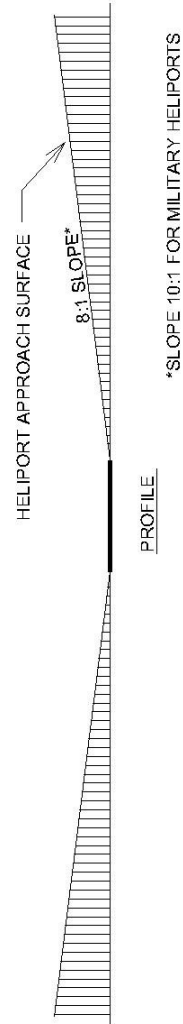
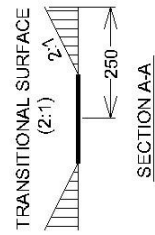
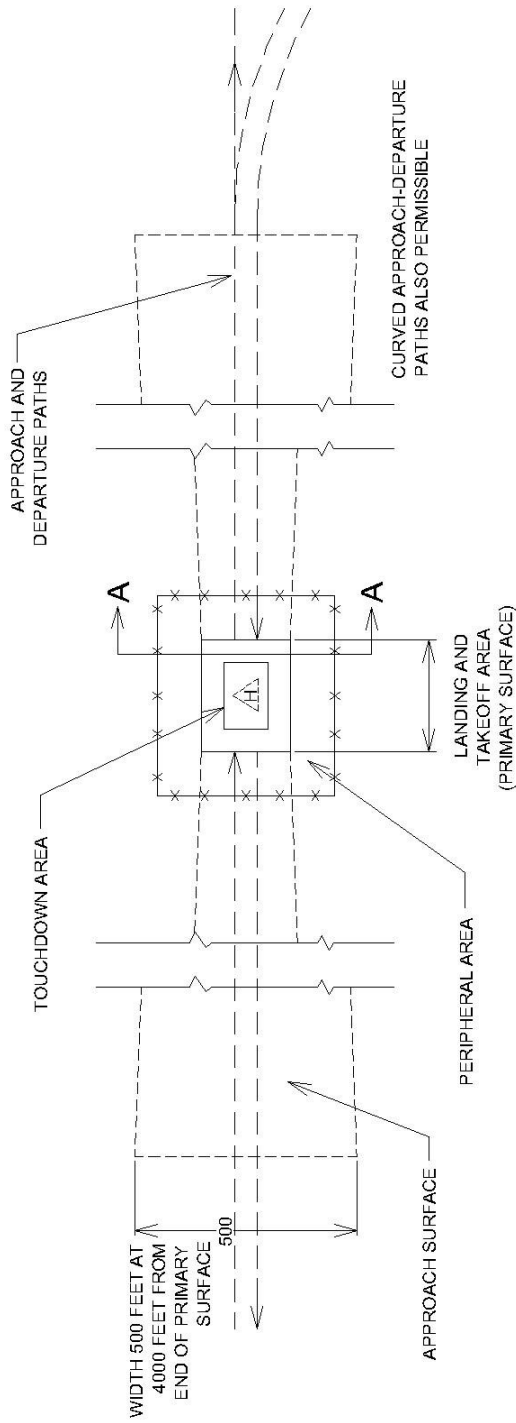
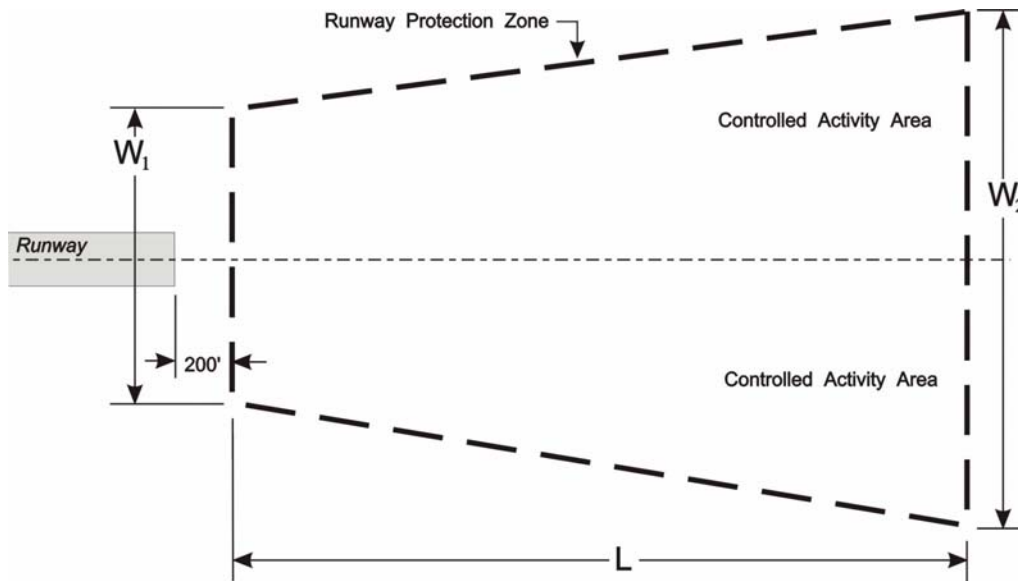


Exhibit #4 – Runway Protection Zone

Runway Protection Zone (RPZ) means an area off the runway end to enhance the protection of people and property on the ground. The Runway Protection Zone is trapezoidal in shape and centered about the extended runway centerline. The RPZ dimension for a particular runway end is a function of the type of aircraft and the approach visibility minimum associated for that runway end.

- a) The RPZ extends from each end of the primary surface, as defined in Attachment 1, Section 10, for a horizontal distance of:
 - A) 1,000 feet for all utility and visual runways.
 - B) 1,700 feet for all non-precision instrument runways other than utility.
 - C) 2,500 feet for all precision instrument runways.

Exhibit #4 - Runway Protection Zone and Dimension Requirements



Runway Protection Zone Dimension Requirements

Approach Visibility Minimums ¹	Facilities Expected to Serve	Dimensions			
		Length (L)	Inner Width (W ₁)	Outer Width (W ₂)	RPZ (acres)
Visual and Not lower than 1 Mile	Small Aircraft Exclusively	1,000	250	450	8.035
	Aircraft Approach Categories A & B	1,000	500	700	13.770
	Aircraft Approach Categories C & D	1,700	500	1,010	29.465
Not lower than ¼ Mile	All Aircraft	1,700	1,000	1,510	48.978
Lower than ¼ Mile	All Aircraft	2,500	1,000	1,750	78.914

All dimensions in feet unless otherwise noted.

Source: FAA Advisory Circular 150/5300-13, Airport Design

Note:

¹The RPZ dimensional standards are for the runway end with the specified approach visibility minimums. The departure RPZ dimensional standards are equal to or less than the approach RPZ dimensional standards. When a RPZ begins other than 200 feet beyond the runway end, separate approach and departure RPZs should be provided. Refer to appendix 14 of FAA Advisory Circular 150/5300-13, *Airport Design*, for approach and departure RPZs.

Exhibit #5 – Noise Compatibility						
<p>Legend: Y (Yes) - Land use and related structures compatible without restrictions N (No) - Land use and related structures are not compatible and should be prohibited NLR - Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure DNL - Average Day-Night Sound Level 25, 30, 35 - Land use and related structures generally compatible; measures to achieve NLR of 25, 30, 35 dB must be incorporated into design and construction of structure.</p>						
Land Use	Below 65	65-70	70-75	75-80	85-85	Over 85
Residential						
Residential, other than mobile homes and transient lodging	Y	N ⁽¹⁾	N ⁽¹⁾	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N ⁽¹⁾	N ⁽¹⁾	N ⁽¹⁾	N	N
Public						
Schools	Y	N ⁽¹⁾	N ⁽¹⁾	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	Y ⁽⁴⁾
Parking	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	N
Commercial						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail - building materials, hardware and farm equipment	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	N
Retail trade - general	Y	Y	25	30	N	N
Utilities	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	N
Communication	Y	Y	25	30	N	N

Exhibit #5 – Noise Compatibility (Continued)						
Land Use	Below 65	65-70	70-75	75-80	80-85	Over 85
Manufacturing & Production						
Manufacturing - general	Y	Y	Y ⁽²⁾	Y ⁽³⁾	Y ⁽⁴⁾	N
Photographic and optical	Y	Y	25	30	N	N
Agricultural (except livestock) and forestry	Y	Y ⁽⁶⁾	Y ⁽⁷⁾	Y ⁽⁸⁾	Y ⁽⁸⁾	Y ⁽⁸⁾
Livestock farming and breeding	Y	Y ⁽⁶⁾	Y ⁽⁷⁾	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y ⁽⁵⁾	Y ⁽⁵⁾	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusement parks, resorts and camps	Y	Y	Y	N	N	N
Riding stables and water recreation	Y	Y	25	30	N	N

Source: FAR Part 150, Appendix A, Table 1

Notes:

1. When the community determines that residential or school uses must be allowed, measures to achieve an outdoor to indoor NLR of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5,10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. The use of NLR criteria will not, however, eliminate outdoor noise problems.
2. Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
3. Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
4. Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
5. Land use is compatible provided special sound reinforcement systems are installed.
6. Residential buildings require an NLR of 25 dB.
7. Residential buildings require an NLR of 30 dB.
8. Residential buildings not permitted.

Appendix B

ORS Chapter 836

Airports and Landing Fields

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Chapter 836 — Airports and Landing Fields

2001 EDITION

GENERAL PROVISIONS

836.005 Definitions. When used in the laws of this state relating to aviation, unless the context otherwise provides:

- (1) "Air navigation facility" means any facility other than one owned or operated by the United States used in, available for use in, or designed for use in, aid of air navigation, including airports and any structures, mechanisms, lights, beacons, markers, communicating system or other instrumentalities or devices used or useful as an aid, or constituting an advantage or convenience to the safe taking-off, navigation and landing of aircraft, or the safe and efficient operation or maintenance of an airport, and any combination of any or all of such facilities.
- (2) "Aircraft" means any contrivance used or designed for navigation of or flight in the air, but does not mean a one-person motorless glider that is launched from the earth's surface solely by the operator's power.
- (3) "Airport" means any area of land or water, within or without this state, that is used, or intended for use, for the landing and take-off of aircraft, and any appurtenant areas that are used, or intended for use, for airport buildings or other airport facilities or rights of way, together with all airport buildings and facilities located thereon.
- (4) "Airport hazard" means any structure, object of natural growth, or use of land, that obstructs the airspace required for the flight of aircraft in landing or taking off at an airport, or is otherwise hazardous to such landing or taking off.
- (5) "Aviation" means the science and art of flight and includes but is not limited to:
 - (a) Transportation by aircraft;
 - (b) The operation, construction, repair or maintenance of aircraft, aircraft power plants and accessories, including the repair, packing and maintenance of parachutes;

- (c) The design, establishment, construction, extension, operation, improvement, repair or maintenance of airports or other air navigation facilities; and
 - (d) Instruction in flying or ground subjects pertaining thereto.
- (6) "Department" means the Oregon Department of Aviation.
 - (7) "Civil aircraft" means any aircraft other than a public aircraft.
 - (8) "Municipality" means any county, city, town, village, borough, authority, district or other political subdivision or public corporation of this state. "Municipal" means pertaining to a municipality as defined in this section.
 - (9) "Operation of aircraft" or "operate aircraft" means the use, navigation or piloting of aircraft in the airspace over this state or upon any airport within this state.
 - (10) "Person" means any individual, firm, partnership, corporation, company, association, joint stock association, or body politic; and includes any trustee, receiver, assignee, or other similar representative thereof.
 - (11) "Pilot" means any individual certificated by the federal government to operate an aircraft or an individual in training for such certification who possesses a valid student pilot certificate issued by the appropriate federal agency.
 - (12) "Public aircraft" means any aircraft used exclusively in the service of any government or of any political subdivision thereof, including the government of any state, territory or possession of the United States, or the District of Columbia, but not including any government-owned aircraft engaged in carrying persons or property for commercial purposes.
 - (13) "State" or "this state" means the State of Oregon and territory over which any municipality of the State of Oregon has jurisdiction. [Formerly 492.010; 1989 c.102 §1; 1993 c.741 §93; 1999 c.935 §36]

STATE ASSISTANCE

836.010 Availability of services of department. The Director of the Oregon Department of Aviation may, insofar as is reasonably possible, make available the Oregon Department of Aviation’s engineering and other technical services with or without charge, to any person requesting such services in connection with the planning, acquisition, construction, improvement, maintenance or operation of airports or air navigation facilities. [Formerly 492.020]

836.015 Financial assistance by director. The Director of the Oregon Department of Aviation as authorized by the State Aviation Board may render financial assistance by grant or loan, or both, to any municipality or municipalities acting jointly in the planning, acquisition, construction, improvement, maintenance or operation of an airport owned or controlled, or to be owned or controlled by such municipality or municipalities, out of appropriation made by the legislature for such purposes. The financial assistance may be furnished in connection with federal or other financial aid for the same purposes. [Formerly 492.030]

836.020 Department as municipal agent. The Oregon Department of Aviation shall, upon request, act as agent of any municipality or municipalities acting

jointly, in accepting, receiving, receipting for and disbursing federal moneys and other moneys, public or private, made available to finance in whole, or in part, the planning, acquisition, construction, improvement, maintenance or operation of a municipal airport or air navigation facility. The department shall upon request, act as its or their agents in contracting for and supervising such planning, acquisition, construction, improvement, maintenance or operation. All municipalities are authorized to designate the department as their agent for such purposes. [Formerly 492.040]

836.025 Establishment of airports and air navigation facilities by department.

- (1) The Oregon Department of Aviation may, on behalf of and in the name of the state, out of moneys made available for such purposes, plan, establish, construct, enlarge, improve, maintain, equip, operate, regulate, protect and police airports and air navigation facilities, either within or without the state, including the construction, installation, equipment, maintenance and operation at such airports of buildings and other facilities for the servicing of aircraft or for the comfort and accommodation of air travelers.
- (2) For such purposes the department may, by purchase, gift, devise, lease, condemnation or otherwise, acquire property, real or personal, or any interest therein, including easements in airport hazards or land outside the boundaries of an airport or airport site, as are necessary to permit safe and efficient operation of the airports or to permit the removal, elimination, obstruction-marking or obstruction-lighting of airport hazards, or to prevent the establishment of airport hazards. In like manner the department may acquire existing airports and air navigation facilities; provided it shall not acquire or take over any airport or air navigation facility owned or controlled by a municipality of this or any other state without the consent of the municipality. [Formerly 492.050]

836.030 Disposal of property. The Oregon Department of Aviation as authorized by the State Aviation Board may by sale, lease, or otherwise, dispose of any property mentioned in ORS 836.025, any airport, air navigation facility, or portion thereof or interest therein. The disposal by sale, lease or otherwise shall be in accordance with the laws of this state governing the disposition of other property of the state, except that in the case of disposals to any municipality or state government or the United States for aviation purposes incident thereto, the sale, lease, or other disposal may be effected in such manner and upon such terms as the department may deem in the best interest of the state. [Formerly 492.060]

836.035 Effect of statute on airport zoning. ORS 836.005 to 836.120, 836.200, 836.205, 836.215, 836.220 and 836.240 do not limit any right, power or authority of the state or a municipality to regulate airport hazards by zoning. [Formerly 492.070]

836.040 Joint exercise of power. The Oregon Department of Aviation may exercise any powers granted by ORS 836.025 to 836.050 jointly with any municipalities or agencies of the state government, with other states or their municipalities, or with the United States. [Formerly 492.080]

836.045 Condemnation by department. In the condemnation of property authorized by ORS 836.025, the Oregon Department of Aviation as authorized by the State Aviation Board shall proceed in the name of the state in the manner provided by ORS chapter 35. For the purpose of making surveys and examinations relative to any condemnation proceedings, it shall be lawful to enter upon any land, doing no unnecessary damage. Notwithstanding the provisions of

any other statute, or the charter of any municipality, the department may take possession of any property to be condemned at any time after the commencement of the condemnation proceedings. The department shall not be precluded from abandoning the condemnation of any such property in any case where possession thereof has not been taken. [Formerly 492.090]

836.050 Condemnation of railroad or public utility property.

- (1) No operating property of any public utility, as defined in ORS 757.005, or any telecommunications carrier as defined in ORS 133.721, shall be condemned pursuant to ORS 836.025 and 836.045 unless the Public Utility Commission, after notice and hearing in accordance with the rules of procedure of the commission, has found that public convenience and necessity require such condemnation. All administrative expenses incurred in any such hearing shall be paid by the party not prevailing therein.
- (2) No operating property of any railroad, as defined in ORS 824.200, shall be condemned pursuant to ORS 836.025 and 836.045 unless the Oregon Department of Aviation, after notice and hearing, has found that public convenience and necessity require such condemnation. All administrative expenses incurred in any such hearing shall be paid by the party not prevailing therein. [Formerly 492.100; 1995 c.733 §50; 1999 c.1093 §20]

836.055 Commercial concessions at state airports.

- (1) In operating an airport or air navigation facility owned or controlled by the state the Oregon Department of Aviation as authorized by the State Aviation Board may enter into contracts, leases and other arrangements for a term not exceeding 30 years with any persons:
 - (a) Granting the privilege of using or improving such airport or air navigation facility or any portion or facility thereof or space therein for commercial purposes;
 - (b) Conferring the privilege of supplying goods, commodities, things, services or facilities at such airport or air navigation facility; or
 - (c) Making available services to be furnished by the department or its agents at such airport or air navigation facility.
- (2) In each such case the department may establish the terms and conditions and fix the charges, rentals or fees for the privileges or services, which shall be reasonable and uniform for the same class of privilege or service and shall be established with due regard to the property and improvements used and the expenses of operation to the state; provided, that in no case shall the public be deprived of its rightful, equal and uniform use of the airport, air navigation facility, or portion or facility thereof. [Formerly 492.110]

836.060 Operation of state airports by private persons.

- (1) The Oregon Department of Aviation as authorized by the State Aviation Board may by contract, lease or other arrangement, upon a consideration fixed by it, grant to any qualified person for a term not to exceed 30 years the privilege of operating, as agent of the state or otherwise, any airport owned or controlled by the state; provided, that no such person shall be granted any authority to operate the airport other than as a public airport, or to enter into any contracts, leases, or other arrangements in connection with the operation of the airport which the department might not have undertaken under ORS 836.055.

- (2) The department shall grant no exclusive right for the use of any airway, airport, or air navigation facility under its jurisdiction. This subsection shall not prevent the making of contracts, leases, and other arrangements pursuant to this section or ORS 836.055. [Formerly 492.120]

836.065 Liens of state for repairs, improvements or services to personal property. To enforce the payment of any charges for repairs to, or improvements, or storage or care of any personal property made or furnished by the Oregon Department of Aviation or its agents in connection with the operation of an airport or air navigation facility owned or operated by the state, the state shall have liens on such property, which shall be enforceable by the department as provided by law. [Formerly 492.130]

836.070 Use of federal and other moneys. The Oregon Department of Aviation as authorized by the State Aviation Board may accept, receive, receipt for, disburse and expend federal moneys, and other moneys, public or private, made available to accomplish, in whole or in part, any of the purposes of this chapter and ORS chapters 835 and 837. In accepting federal moneys under this subsection, the department shall have the same authority to enter into contracts on behalf of the state as is granted to the department with respect to federal moneys accepted on behalf of municipalities. [Formerly 492.140]

836.072 Use of moneys from increase in taxes.

- (1) Moneys from the increases in taxes by the amendments to ORS 319.020 by sections 1 and 3, chapter 1037, Oregon Laws 1999, shall be used by the Oregon Department of Aviation to establish and fund a program to maintain and preserve the pavements used for runways, taxiways and aircraft parking areas at public use airports in this state.
- (2) Projects for maintenance and preservation of pavements at public use airports that are identified in the plan developed under ORS 835.015 are eligible for funding under this section. The following expenses of projects selected may be funded under this section:
 - (a) Construction expenses;
 - (b) Engineering expenses; and
 - (c) Administrative expenses.
- (3) The Director of the Oregon Department of Aviation shall prepare a list of recommended projects. Factors to be used by the director include, but are not limited to:
 - (a) The age and condition of pavements;
 - (b) An airport's role in the state's aviation system, as described by the plan developed under ORS 835.015; and
 - (c) Local financial participation in projects.
- (4) The director shall forward the list of recommended projects to the State Aviation Board for approval.
- (5) The department may adopt such rules as it deems necessary for implementation of the airport pavement preservation program. [1999 c.1037 §5; 2001 c.104 §318; 2001 c.378 §2]

Note: 836.072 was enacted into law by the Legislative Assembly but was not added to or made a part of ORS chapter 836 or any series therein by legislative action. See Preface to Oregon Revised Statutes for further explanation.

836.075 State airway system. The Oregon Department of Aviation as authorized by the State Aviation Board may designate, design and establish, expand or modify a state airway system which will serve the interest of the state. It may chart such airways system and arrange for publication and distribution of such maps, charts, notices and bulletins relating to such airways as may be required in the public interest. The system shall be supplementary to and coordinated in design and operation with the federal airways system. It may include all types of air navigation facilities, whether publicly or privately owned, provided that such facilities conform to federal safety standards. [Formerly 492.150]

836.080 Exemptions from ORS 836.085 to 836.120.

- (1) The provisions of ORS 836.085 to 836.120 do not apply to airports owned or operated by the United States.
- (2) The Oregon Department of Aviation as authorized by the State Aviation Board may, from time to time, to the extent necessary, exempt any class of airports, pursuant to a reasonable classification or grouping, from any rule or regulation promulgated under ORS 836.085 to 836.120, or from any requirement of such a rule or regulation, if it finds that the application of such rule, regulation or requirement would be an undue burden on such class and is not required in the interest of public safety. [Formerly 492.160]

836.085 Approval of airport sites; fee. Except as provided in ORS 836.080, the Oregon Department of Aviation as authorized by the State Aviation Board shall provide for the approval of proposed airport sites and the issuance of certificates of such approval. The following apply to this section:

- (1) A nonrefundable fee of \$75, together with an amount not to exceed \$300 established by the department for the cost of inspecting and approving an airport site for potential approval, shall accompany the application for site approval.
- (2) The department shall determine approval of airport sites under this section based on the conditions under ORS 836.095. [Formerly 492.170; 1997 c.585 §1]

836.090 Application for site approval. Subject to the rules of procedure adopted by the State Aviation Board providing for such approvals, any municipality or person desiring or planning to construct or establish an airport must, prior to the construction or establishment of the proposed airport, submit to the Oregon Department of Aviation an application for approval of the site which shall include an outline plan and written description of the project, showing particularly the airport location in respect to surrounding topography that could affect the airport location. [Formerly 492.180]

836.095 Approval criteria and conditions.

- (1) The Oregon Department of Aviation shall with reasonable dispatch grant approval of a proposed airport site if it is satisfied that the site is adequate for the proposed airport, that such proposed airport, if constructed or established, will conform to minimum standards of safety and that safe air traffic patterns could be worked out for such proposed airport and for all existing airport and approved airport sites in its vicinity. In determining

whether an airport site is adequate for a proposed airport, the department shall evaluate all of the following aspects of the site:

- (a) All real property devoted to or to be used in connection with any aviation activity at the proposed airport.
 - (b) The location of the airport in relation to any surrounding topography, trees or structures that could affect the safety of the airport.
 - (c) The location and configuration of the proposed airport's runways and operation areas in relation to those of existing and approved airports or airport sites in the vicinity that could affect the safety of aircraft operating from the proposed airport, or from other airports.
- (2) An approval of a proposed airport site may be granted under this section subject to any reasonable conditions which the department may deem necessary to effectuate the purposes of ORS 836.085 to 836.120, and shall remain in effect, unless sooner revoked by the department, until a license for an airport located on the approved site has been issued pursuant to ORS 836.105. [Formerly 492.190]

836.100 Revocation of approval. The Oregon Department of Aviation may, after notice and opportunity for hearing to holders of certificates of airport site approval under ORS 836.095, revoke such approval when it reasonably determines:

- (1) That there has been an abandonment of the site as an airport site;
- (2) That there has been a failure within two years, to develop the site as an airport or to comply with the conditions of the approval; or
- (3) That prior to commencement of construction and because of change of physical or legal conditions or circumstances the site is no longer usable for the aviation purposes for which the approval was granted. [Formerly 492.200]

836.105 Licensing of airports. Except as provided in ORS 836.080, the Oregon Department of Aviation is authorized to provide for the licensing of airports and the annual renewal of such licenses. The following apply to this section:

- (1) The department may charge license fees not exceeding \$30 for each original license, and not exceeding \$30 for each renewal thereof.
- (3) Upon the adoption of a rule providing for such licensing, the department shall with reasonable dispatch, upon receipt of an application for an original license and the payment of the duly required fee therefor, issue an appropriate license if it is satisfied that the airport conforms to minimum standards of safety and that safe air traffic patterns can be worked out for such airport and for all existing airports and approved airport sites in its vicinity.
- (3) All licenses shall be renewable annually upon payment of the fees prescribed.
- (4) Licenses and renewals thereof may be issued subject to any reasonable conditions that the department may deem necessary to effectuate the purposes of ORS 836.085 to 836.120. [Formerly 492.210; 1997 c.585 §2]

836.110 Revocation of license; refusal of renewal. The Oregon Department of Aviation may, after notice and opportunity for hearing to the licensee, revoke any airport license or renewal thereof, or refuse to issue a renewal, when it shall reasonably determine:

- (1) That there has been an abandonment of the airport as such;
- (2) That there has been a failure to comply with the conditions of the license or renewal thereof; or
- (3) That because of change of physical or legal conditions or circumstances the airport has become either unsafe or unusable for the aviation purposes for which the license or renewal was issued. [Formerly 492.220]

836.115 Public hearing regarding site or license; transcripts. In connection with the grant of approval of a proposed airport site or the issuance of an airport license under ORS 836.085 to 836.110, the Oregon Department of Aviation may, on its own motion or upon the request of an affected or interested person, hold a hearing open to the public on any issue. Hearing transcripts shall be provided to requesting parties, at cost. [Formerly 492.230]

836.120 Unlicensed airport operation prohibited. Except as provided in ORS 836.080, no person, municipality or officer or employee thereof, shall operate an airport without an appropriate license for such, as is duly required by rule or regulation issued pursuant to ORS 836.105. [Formerly 492.240]

MUNICIPAL AIRPORTS

836.200 Authority to establish airports. All municipalities of this state, separately or jointly or in cooperation with the federal government or state, may acquire, establish, construct, expand or lease, control, equip, improve, maintain, operate, police and regulate airports for the use of aircraft, either within this state or within any adjoining state, and may use for such purposes any available property owned or controlled by such municipalities or political subdivisions. All municipalities shall notify the Oregon Department of Aviation of, and allow the department to participate in an advisory capacity in, all municipal airport or aviation system planning. [Formerly 492.310]

836.205 Acquisition of lands declared to be for public purpose. All lands heretofore or hereafter acquired, owned, leased, controlled or occupied by municipalities, for the purposes specified in ORS 836.200 are declared to be acquired, owned, leased, controlled or occupied for public and governmental and municipal purposes. [Formerly 492.320]

836.210 Delegation of authority to develop and maintain airports; regulations for charges, fees and tolls. Municipalities of this state which establish airports, or which acquire, lease or set apart real property for such purposes, may:

- (1) Delegate the authority for the planning, construction, equipment, improvement, maintenance and operation thereof in any offices, board or body of such municipality.
- (2) Provide by regulation for charges, fees and tolls for the use of such airport and civil penalties for the violation of such regulations. [Formerly 492.330]

836.215 Municipal acquisition of property for airports. Private property, or any interest therein of whatever kind, and an easement for the operation of aircraft and all operations incidental thereto, to and from the property for the

purposes specified in ORS 836.200, may be acquired by any municipality, by gift, grant, purchase, lease or contract, if the municipality is able to agree with the property owners on the terms of acquisition. If the municipality and the property owners are unable to agree upon terms, private property may be acquired by condemnation in the manner provided in ORS chapter 35. As an alternative, the municipality, if a port, may condemn the private property, or any interest therein, for the operation of aircraft and all operations incidental thereto, in the same manner and procedure as is provided by statute for condemnation of property by corporations organized for construction and operation of railroads. [Formerly 492.340; 2001 c.104 §319]

836.220 Source of airport funds. The purchase price or compensation for real or other property acquired in accordance with ORS 836.215 and the cost and expenses for the development, improvement, maintenance and operation of airports, may be paid for by appropriation of moneys available; or entirely or in part from the proceeds of the sale of bonds of the municipality, as the governing body of the municipality may determine, subject, however, to the authorization therefor at a regular or special election, if such authorization is a prerequisite to the issuance of bonds of the municipality for public purposes generally. [Formerly 492.350]

836.230 Use of funds from operation. The officials of any municipality acquiring, establishing, developing, operating, maintaining or controlling an airport under authority of ORS 836.200 may use for such purposes funds derived from operation of the airport. [Formerly 492.360]

836.240 Authorization to budget and levy taxes. Any municipality acting under authority of ORS 836.200 may provide in its annual budget and tax levy an amount of money necessary for the maintenance and operation of such airports. [Formerly 492.370]

836.245 Authority as supplemental. The authority conferred by ORS 836.200, 836.205, 836.215, 836.220 and 836.240 is in addition and supplemental to the authority conferred by any other law. [Formerly 492.380]

836.250 Acquisition by municipality of real property contiguous to airport; subsequent use or disposition; financing acquisition or use.

- (1) In addition to the authority conferred upon them by any other law, any municipality of this state acquiring, establishing, developing, operating, maintaining or controlling an airport under ORS 836.200 to 836.245, may acquire real property, or any interest therein of whatever kind, contiguous to the airport by gift, grant, purchase, lease or contract for future development and expansion of the airport or its facilities. Until needed for such future development and expansion, the municipality may use the real property or interest therein so acquired by renting, leasing, controlling or occupying it.
- (2) If any real property owned by any municipality referred to in subsection (1) of this section and held for the use of an airport or its facilities is determined not to be needed for such purposes by the governing body of a municipality controlling the airport, such governing body may lease, occupy, use, sell, convey or dispose of such real property. Any sale of real property shall be made in accordance with the provisions of ORS 275.110 and 275.120. The proceeds of any sales made by the municipality shall apply against any indebtedness acquired under ORS 836.220. If no indebtedness exists, such funds shall be deposited to the general fund of such municipality.

- (3) All funds needed by any municipality to carry out any provision of this section may be provided in the same manner as funds may be provided under ORS 836.220 or 836.240, or both. [Formerly 492.390]

836.300 [Formerly 492.520; 1995 c.285 §10; repealed by 1997 c.859 §14]

836.305 [Formerly 492.530; 1995 c.285 §11; repealed by 1997 c.859 §14]

836.310 [Formerly 492.540; repealed by 1997 c.859 §14]

836.315 [Formerly 492.550; repealed by 1997 c.859 §14]

836.320 [Formerly 492.560; repealed by 1997 c.859 §14]

836.325 [Formerly 492.570; repealed by 1997 c.859 §14]

836.330 [Formerly 492.580; repealed by 1997 c.859 §14]

836.335 [Formerly 492.590; repealed by 1997 c.859 §14]

MISCELLANEOUS

836.340 Procedure for relocation of public utility property.

- (1) No airport zoning regulations adopted under authority of ORS 836.600 to 836.630 shall require the alteration or relocation of the operating property of any public utility, as defined in ORS 757.005, without the consent of such utility or unless the Public Utility Commission, after notice and hearing in accordance with the rules of procedure of the commission, determines that such alteration or relocation is justified by the public interest.
- (2) All administrative expenses incurred in any such hearing shall be paid by the party not prevailing therein. All actual and necessary expenses incurred in making such alteration or change, if any, shall be borne by the municipality. [Formerly 492.600; 1995 c.733 §51; 1997 c.859 §1]

836.345 [Formerly 492.610; repealed by 1997 c.859 §14]

836.350 [Formerly 492.629; repealed by 1997 c.859 §14]

836.355 [Formerly 492.630; repealed by 1997 c.859 §14]

836.360 [Formerly 492.640; repealed by 1997 c.859 §14]

836.365 [Formerly 492.650; repealed by 1997 c.859 §14]

836.370 [Formerly 492.660; repealed by 1997 c.859 §14]

836.375 [Formerly 492.670; repealed by 1997 c.859 §14]

836.380 [Formerly 492.680; repealed by 1997 c.859 §14]

836.385 [Formerly 492.690; repealed by 1997 c.859 §14]

836.390 [Formerly 492.700; repealed by 1997 c.859 §14]

836.395 [Formerly 492.710; repealed by 1997 c.859 §14]

836.400 [Formerly 492.510; repealed by 1997 c.859 §14]

836.500 Marks and lights on structures or obstructions; acquisition of right or easement. Every municipality which develops or operates an airport may acquire the right or easement for a term of years or perpetually, to place and maintain suitable marks for the daytime, and to place, operate and maintain suitable lights for the nighttime marking of buildings or other structures or obstructions, to enhance the safety of aircraft utilizing such airport. Such rights or easements may be acquired by grant, purchase, lease or condemnation in the same manner as is provided in ORS chapter 35. [Formerly 492.760]

836.505 Designation of landing places on public lands; rules governing user.

- (1) Landing places for aircraft may from time to time be designated, set apart and marked by the Oregon Department of Aviation or other public officials who are in charge of any land owned or controlled by the state or by any municipality, or park commission.

- (2) Such officials may make reasonable rules and regulations subject to the approval of the State Aviation Board governing the use of the landing places by aviators and other persons, and may change the rules and regulations from time to time. The rules and regulations shall be such as will promote the safe and orderly use of the airports affected. All aviators and other persons using such landing places shall at all times comply with all such rules and regulations. [Formerly 492.770]

836.510 Use of certain ocean beaches as landing fields. Except as permitted under ORS 836.520, no person shall use for a landing field for aircraft any part of the Oregon shore of the Pacific Ocean between high and low tide, commonly known as the "beach," and which by law has been made a state recreation area, except for an emergency. [Formerly 492.780]

836.515 Petition to set aside shore as landing field. Any person, municipality or municipal corporation desiring to use for a landing field for aircraft any part of the Oregon shore of the Pacific Ocean described in ORS 836.510 shall petition the State Aviation Board to set aside and designate a particular area of the shore for a landing field for aircraft. The petition shall clearly describe the area sought for such purpose and shall contain information giving the type and number of aircraft which will use such field, the extent to which and the purpose for which such field shall be so used, together with such other information as the board may require. Before the petition is filed with the board it shall be approved in writing by the Oregon Department of Aviation. [Formerly 492.790]

836.520 Action on petition; order setting aside area for landing field; user permits; revocation of order or permit. The State Aviation Board shall give due consideration to each petition submitted under ORS 836.515, and may in its discretion order a public hearing in the vicinity in which it is proposed to establish the landing field, at which hearing all persons interested may appear and be heard. If after due consideration the board is of the opinion that the best interests of the general public will be served by granting the petition, an order may be made which shall be entered in the minutes of the board. The order shall provide that the described area shall be set aside as a landing field for aircraft and the order may authorize the issuance of a permit to the applicant to use the field for said purpose. The permit shall contain such conditions and safeguards with respect to policing and other matters incident to the public welfare as the board deems proper for the safety of the general public. The board may, for a violation of any of the terms or conditions of the permit, recall and cancel the same. The board may in its discretion vacate the order setting aside the area for a landing field whenever in the judgment of the board the interests of the general public warrant such action. [Formerly 492.800]

836.525 Enforcement of ORS 836.510 and 836.520. The law enforcing agencies authorized to enforce the laws of the state with respect to the rules of the road and the regulation of motor vehicles using the public highways of the state are likewise authorized to enforce ORS 836.510 and 836.520. [Formerly 492.810]

836.530 Rules and standards; orders; appeals.

- (1) In addition to any other rulemaking authority, the Director of the Oregon Department of Aviation may adopt rules:
 - (a) To define physical hazards to air navigation and determine whether specific types or classes of objects or structures constitute hazards. Rules defining physical hazards and determining whether specific types or classes of objects or structures constitute hazards may be

adopted only after a fact-finding process and must be supported by substantial evidence.

- (b) Establishing standards for lighting or marking objects and structures that constitute hazards to air navigation.
- (2) In accordance with the rules adopted under this section, the director shall do the following:
- (a) Determine whether specific objects or structures constitute a hazard to air navigation.
 - (b) Determine responsibility for installation and maintenance of lighting or marking specific objects or structures that constitute hazards to air navigation.
 - (c) Issue orders to require that specific objects or structures determined to be hazards to air navigation be marked or lighted in accordance with rules adopted under this section.
- (3) Rules and standards adopted under this section are limited to and shall not be more restrictive than current federal norms, including but not limited to, regulations and circulars, pertaining to objects affecting navigable airspace.
- (4) Any person or entity required to comply with an order issued under this section may contest the order as provided under ORS 183.310 to 183.550. [Formerly 492.820; 1999 c.935 §37]

LOCAL GOVERNMENT AIRPORT REGULATION

836.600 Policy. In recognition of the importance of the network of airports to the economy of the state and the safety and recreation of its citizens, the policy of the State of Oregon is to encourage and support the continued operation and vitality of Oregon’s airports. Such encouragement and support extends to all commercial and recreational uses and activities described in ORS 836.616 (2). [1995 c.285 §2]

836.605 Definitions for ORS 836.600 to 836.630. As used in ORS 836.600 to 836.630:

- (1) "Aircraft" means helicopters and airplanes but not hot air balloons or ultralights.
- (2) "Airports" means the strip of land used for taking off and landing aircraft, together with all adjacent land used in 1994 in connection with the aircraft landing or taking off from the strip of land, including but not limited to land used for the existing commercial and recreational airport uses and activities as of December 31, 1994. [1995 c.285 §3]

836.608 Airport operation as matter of state concern; local planning documents to recognize airport location; limitations on use; expansion of facility.

- (1) The continued operation and vitality of airports registered, licensed or otherwise recognized by the Department of Transportation on December 31, 1994, is a matter of state concern.
- (2) A local government shall recognize in its planning documents the location of private-use airports and privately owned public-use airports not listed under ORS 836.610 (3) if the airport was the base for three or more aircraft,

as shown in the records of the Department of Transportation, on December 31, 1994. Local planning documents shall establish a boundary showing areas in airport ownership, or subject to long-term lease, that are developed or committed to airport uses described in ORS 836.616 (2). Areas committed to airport uses shall include those areas identified by the airport owner that the local government determines can be reasonably expected to be devoted to airport uses allowed under ORS 836.616 (2).

- (3)
 - (a) A local government shall not impose limitations on the continued operation of uses described in ORS 836.616 (2) that existed at any time during 1996 at an airport described in subsection (2) of this section. A local government shall allow for the growth of uses described in ORS 836.616 (2) that existed at any time during 1996 at an airport described in subsection (2) of this section. A local government shall not impose additional limitations on a use approved by the local government prior to January 1, 1997, for an airport described in subsection (2) of this section. Notwithstanding subsection (4) of this section, the construction of additional hangars or tie-downs by the owner of an airport described in subsection (2) of this section, basing additional aircraft and increases in flight activity shall be permitted at an airport described in subsection (2) of this section.
 - (b) A local government may authorize the establishment of a new use described in ORS 836.616 (2) at an airport described in subsection (2) of this section following a public hearing on the use. The hearing shall be for the purpose of establishing compliance with adopted clear and objective standards relating to the compatibility and adequacy of public facilities and services as provided under subsection (5) of this section. Standards and requirements as adopted by the local government shall further the policy of ORS 836.600 to the maximum extent practicable.
- (4) Growth of an existing use on an airport as described in subsection (3)(a) of this section that requires a building permit shall be allowed as an administrative decision without public hearing unless the growth:
 - (a) Cannot be supported by existing public facilities and services and transportation systems authorized by applicable statewide land use planning goals;
 - (b) Forces a significant change or significantly increases the costs of conducting existing uses on surrounding lands; or
 - (c) Exceeds the standards of ORS 215.296 (1) if the airport is adjacent to land zoned for exclusive farm use.
- (5) A local government shall authorize a new use described in subsection (3)(b) of this section provided the use:
 - (a) Is or will be supported by adequate types and levels of public facilities and services and transportation systems authorized by applicable statewide land use planning goals;
 - (b) Does not seriously interfere with existing land uses in areas surrounding the airport; and

- (c) The local government reviews the use under the standards described in ORS 215.296 if the airport is adjacent to land zoned for exclusive farm use.
- (6) An applicant for a new use under subsection (5) of this section may demonstrate that the standards for approval will be satisfied through the imposition of conditions. Any conditions imposed shall be clear and objective.
- (7) A local government may adopt standards and requirements for the establishment of new airports, the expansion of existing airports and the regulation of uses and activities at airports serving as the base for two or fewer aircraft on December 31, 1994, as shown in the records of the Department of Transportation. The standards and requirements shall comply with applicable statewide land use planning laws.
- (8) The Land Conservation and Development Commission shall adopt rules regulating the height of structures to protect approach corridors at airports described in subsection (2) of this section and at publicly owned airports that are the base for two or fewer aircraft. [1997 c.859 §3]

Note: 836.608, 836.612 and 836.623 were added to and made a part of 836.600 to 836.630 by legislative action but were not added to any smaller series therein. See Preface to Oregon Revised Statutes for further explanation.

836.610 Local government land use plans and regulations to accommodate airport zones and uses; funding.

- (1) Local governments shall amend their comprehensive plan and land use regulations consistent with the rules for airports adopted by the Land Conservation and Development Commission under ORS 836.616 and 836.619. Airports subject to the rules shall include:
 - (a) Publicly owned airports registered, licensed or otherwise recognized by the Department of Transportation on or before December 31, 1994, that in 1994 were the base for three or more aircraft; and
 - (b) Privately owned public-use airports specifically identified in administrative rules of the Oregon Department of Aviation that:
 - (A) Provide important links in air traffic in this state;
 - (B) Provide essential safety or emergency services; or
 - (C) Are of economic importance to the county where the airport is located.
- (2)
 - (a) Local governments shall amend their comprehensive plan and land use regulations as required under subsection (1) of this section not later than the first periodic review, as described in ORS 197.628 to 197.650, conducted after the date of the adoption of a list of airports by the Oregon Department of Aviation under subsection (3) of this section.
 - (b) A state agency or other person may provide funding to a local government to accomplish the planning requirements of this section earlier than otherwise required under this subsection.

- (3) The Oregon Department of Aviation by rule shall adopt a list of airports described in subsection (1) of this section. The rules shall be reviewed and updated periodically to add or remove airports from the list. An airport may be removed from the list only upon request of the airport owner or upon closure of the airport for a period of more than three years. [1995 c.285 §4; 1997 c.859 §2]

836.612 Approval or expansion of land use activities subject to prior court decisions. Nothing in ORS 836.608 or 836.616 is intended to allow the approval or expansion of a land use activity inside the boundaries of an airport if the activity has been limited or prohibited by the decision of a court of competent jurisdiction rendered prior to August 13, 1997. [1997 c.859 §6]

Note: See note under 836.608.

836.615 [1995 c.285 §5; repealed by 1997 c.859 §4 (836.616 enacted in lieu of 836.615)]

836.616 Rules for airport uses and activities.

- (1) Following consultation with the Oregon Department of Aviation, the Land Conservation and Development Commission shall adopt rules for uses and activities allowed within the boundaries of airports identified in ORS 836.610 (1) and airports described in ORS 836.608 (2).
- (2) Within airport boundaries established pursuant to commission rules, local government land use regulations shall authorize the following uses and activities:
 - (a) Customary and usual aviation-related activities including but not limited to takeoffs, landings, aircraft hangars, tie-downs, construction and maintenance of airport facilities, fixed-base operator facilities and other activities incidental to the normal operation of an airport;
 - (b) Emergency medical flight services;
 - (c) Law enforcement and firefighting activities;
 - (d) Flight instruction;
 - (e) Aircraft service, maintenance and training;
 - (f) Crop dusting and other agricultural activities;
 - (g) Air passenger and air freight services at levels consistent with the classification and needs identified in the State Aviation System Plan;
 - (h) Aircraft rental;
 - (i) Aircraft sales and sale of aviation equipment and supplies; and
 - (j) Aviation recreational and sporting activities.
- (3) All land uses and activities permitted within airport boundaries, other than the uses and activities established under subsection (2) of this section, shall comply with applicable land use laws and regulations. A local government may authorize commercial, industrial and other uses in addition to those listed in subsection (2) of this section within an airport boundary where such uses are consistent with applicable provisions of the

acknowledged comprehensive plan, statewide land use planning goals and commission rules and where the uses do not create a safety hazard or limit approved airport uses.

- (4) The provisions of this section do not apply to airports with an existing or approved control tower on June 5, 1995. [1997 c.859 §5 (enacted in lieu of 836.615)]

836.619 State compatibility and safety standards for land uses near airports. Following consultation with the Oregon Department of Aviation, the Land Conservation and Development Commission shall adopt rules establishing compatibility and safety standards for uses of land near airports identified in ORS 836.610 (1). [1997 c.859 §8 (enacted in lieu of 836.620)]

836.620 [1995 c.285 §6; repealed by 1997 c.859 §7 (836.619 enacted in lieu of 836.620)]

836.623 Local compatibility and safety requirements may be more stringent than state requirements; criteria; water impoundments; report to federal agency; application to certain activities.

- (1) A local government may adopt land use compatibility and safety requirements that are more stringent than the minimum required by Land Conservation and Development Commission rules for issues other than water impoundments where such regulations are within its authority. Local government action regarding new water impoundments shall comply with subsection (2) of this section. If a local government receives information in a hearing on a land use application alleging that public safety requires a higher level of protection than the minimum established in commission rules and if the information is supported by evidence, the governing body shall consider the information and adopt findings explaining the bases for any decision regarding the need for more stringent requirements. Land use requirements regarding safety and compatibility shall consider the effects of mitigation measures or conditions that could reduce safety risks and incompatibility.
- (2) The following requirements and conditions shall apply to safety risks associated with potential bird strike hazards resulting from new water impoundments proposed in close proximity to an airport identified under ORS 836.610 (1):
- (a) No new water impoundments of one-quarter acre or larger shall be allowed:
- (A) Within an approach corridor and within 5,000 feet from the end of a runway; or
- (B) On land owned by the airport or airport sponsor where the land is necessary for airport operations;
- (b) A local government may adopt regulations that limit the establishment of new water impoundments of one-quarter acre or larger for areas outside an approach corridor and within 5,000 feet of a runway only where the local government adopts findings of fact, supported by substantial evidence in the whole record, that the impoundments are likely to result in a significant increase in hazardous movements of birds feeding, watering or roosting in areas across the runways or approach corridors. The local government shall consider the effects of

mitigation measures or conditions that could reduce safety risks and incompatibility;

- (c) A local government may adopt regulations that limit the establishment of new water impoundments of one-quarter acre or larger between 5,000 feet and 10,000 feet of a runway outside an approach corridor and between 5,000 feet and 40,000 feet within an approach corridor for an airport with an instrument approach only where the local government adopts findings of fact, supported by substantial evidence in the whole record, that the impoundments are likely to result in a significant increase in hazardous movements of birds feeding, watering or roosting in areas across the runways or approach corridors. The local government shall consider the effects of mitigation measures or conditions that could reduce safety risks and incompatibility;
 - (d) If a local government receives information and supporting evidence in the hearing process that alleges a significant increase in hazardous movements of birds feeding, watering or roosting in areas across the runways or approach corridors, the local government shall consider the information and evidence and adopt findings as required by paragraphs (b) and (c) of this subsection explaining the bases for any decision regarding the need to limit the establishment of new water impoundments of one-quarter acre or larger; and
 - (e) Notwithstanding the requirements of paragraphs (a) to (c) of this subsection, wetlands mitigation required for projects located within the areas identified in paragraphs (a) to (c) of this subsection shall be authorized where it is not practicable to provide off-site mitigation.
- (3) A local government that receives information under subsection (2)(d) of this section shall forward the information to the Federal Aviation Administration for review and comment prior to any final action by the local government to impose a compatibility or safety standard more stringent than required by rule of the Land Conservation and Development Commission.
 - (4) Subsection (2) of this section does not apply to a storm water management basin established by an airport identified under ORS 836.610 (1) or agricultural water impoundments in which the water is used directly for growing crops such as cranberries or rice.
 - (5) Subsection (2)(a) to (c) of this section does not apply to seaplane landing areas.
 - (6) As used in this section, "significant" means a level of increased flight activity by birds across approach corridors and runways that is more than incidental or occasional, considering the existing ambient levels of flight activity by birds in the vicinity. [1997 c.859 §9]

Note: See note under 836.608.

836.625 Application to airport uses of land use limitations in farm use zones; effect on tax assessment.

- (1) The limitations on uses made of land in exclusive farm use zones described in ORS 215.213 and 215.283 do not apply to the provisions of ORS 836.600 to 836.630 regarding airport uses.

- (4) The provisions of this section do not affect the eligibility of a zone for special assessment under ORS 308A.050 to 308A.128. [1995 c.285 §7; 1997 c.859 §11; 1999 c.314 §77]

836.630 Siting of new airports to comply with land use laws; limitation on rules.

- (1) Nothing in ORS 836.600 to 836.625 shall be interpreted to allow the siting of a new airport except as provided in ORS chapters 197 and 215 and in conformance with all applicable land use regulations and ordinances.
- (2) The Oregon Department of Aviation shall propose and the Land Conservation and Development Commission shall adopt rules under ORS 836.616 and 836.619 that are no more restrictive than the commission determines necessary to effect the policy established in ORS 836.600.
- (3) The provisions of ORS 836.600 to 836.630 and any rules established hereunder shall be liberally construed to further the policy established in ORS 836.600. [1995 c.285 §8; 1997 c.859 §12]

836.635 [1995 c.285 §9; repealed by 1997 c.859 §14]

Appendix C

OAR 660-012

Transportation Planning

(Excerpt)

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Excerpt of OAR 660 Division 12 Transportation Planning

OAR 660-012-0045

Implementation of the Transportation System Plan

- (1) Each local government shall amend its land use regulations to implement the TSP.
 - (a) The following transportation facilities, services and improvements need not be subject to and use regulations except as necessary to implement the TSP and, under ordinary circumstances do not have a significant impact on land use:
 - (A) Operation, maintenance, and repair of existing transportation facilities identified in the TSP, such as road, bicycle, pedestrian, port, airport and rail facilities, and major regional pipelines and terminals;
 - (B) Dedication of right-of-way, authorization of construction and the construction of facilities and improvements, where the improvements are consistent with clear and objective dimensional standards;
 - (C) Uses permitted outright under ORS 215.213(1)(m) through (p) and ORS 215.283(1)(k) through (n), consistent with the provisions of 660-012-0065; and
 - (D) Changes in the frequency of transit, rail and airport services.
 - (b) To the extent, if any, that a transportation facility, service or improvement concerns the application of a comprehensive plan provision or land use regulation, it may be allowed without further land use review if it is permitted outright or if it is subject to standards that do not require interpretation or the exercise of factual, policy or legal judgment;
 - (c) In the event that a transportation facility, service or improvement is determined to have a significant impact on land use or to concern the application of a comprehensive plan or land use regulation and to be subject to standards that require interpretation or the exercise of factual, policy or legal judgment, the local government shall provide a review and approval process that is consistent with 660-012-0050. To facilitate implementation of the TSP, each local government shall amend its land use regulations to provide for consolidated review of land use decisions required to permit a transportation project.
- (2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:
 - (a) Access control measures, for example, driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;

- (b) Standards to protect future operation of roads, transitways and major transit corridors;
- (c) Measures to protect public use airports by controlling land uses within airport noise corridors and imaginary surfaces, and by limiting physical hazards to air navigation;
- (d) A process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites;
- (e) A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors or sites;
- (f) Regulations to provide notice to public agencies providing transportation facilities and services, MPOs, and ODOT of:
 - (A) Land use applications that require public hearings;
 - (B) Subdivision and partition applications;
 - (C) Other applications which affect private access to roads; and
 - (D) Other applications within airport noise corridors and imaginary surfaces that affect airport operations.
- (g) Regulations assuring that amendments to land use designations, densities, and design standards are consistent with the functions, capacities and levels of service of facilities identified in the TSP.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040

Hist.: LCDC 1-1991, f. & cert. ef. 5-8-91; LCDC 4-1995, f. & cert. ef. 5-8-95;

LCDC 11-1995, f. & cert. ef. 12-22-95; LCDD 6-1998, f. & cert. ef. 10-30-98

Appendix D

**Model Public Use Airport Safety
and Compatibility Overlay Zone
for Public Use Airports
with Instrument Approaches**

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**MODEL PUBLIC USE AIRPORT SAFETY AND
COMPATIBILITY OVERLAY ZONE
FOR PUBLIC USE AIRPORTS WITH INSTRUMENT APPROACHES**

.010 Purpose. The purpose of this overlay zone is to encourage and support the continued operation and vitality of public use airports with instrument approaches by establishing compatibility and safety standards to promote air navigational safety at such public use airports and to reduce potential safety hazards for persons living, working or recreating near such public use airports. [ORS 836.600; ORS 836.619; OAR 660-013-0070; OAR 660-013-0080]

.020 Definitions. [ORS 836.605; ORS 836.623(6); OAR 660-013-0020; OAR 660-013-0070(1)(a), (b); OAR 660-013-0080(1)(a)]

Airport. The strip of land used for taking off and landing aircraft, together with all adjacent land used in connection with the aircraft landing or taking off from the strip of land, including but not limited to land used for existing airport uses.

Airport Direct Impact Area. The area located within 5,000 feet of an airport runway, excluding lands within the runway protection zone and approach surface.

Airport Elevation. The highest point of an airport's usable runway, measured in feet above mean sea level.

Airport Imaginary Surfaces. Imaginary areas in space and on the ground that are established in relation to the airport and its runways. Imaginary areas are defined by the primary surface, runway protection zone, approach surface, horizontal surface, conical surface and transitional surface.

Airport Noise Impact Boundary. Areas located within 1,500 feet of an airport runway or within established noise contour boundaries exceeding 55 Ldn.

Airport Secondary Impact Area. The area located between 5,000 and 10,000 feet from an airport runway.

Airport Sponsor. The owner, manager, or other person or entity designated to represent the interests of an airport.

Approach Surface. A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface.

(A) The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of:

- (1) 2,000 feet for a utility runway having a non-precision instrument approach;
- (2) 3,500 feet for a non-precision instrument runway, other than utility, having visibility minimums greater than three-fourths statute mile;

- (3) 4,000 feet for a non-precision instrument runway, other than utility, having visibility minimums at or below three-fourths statute mile; and
 - (4) 16,000 feet for precision instrument runways.
- (B) The approach surface extends for a horizontal distance of:
- (1) 5,000 feet at a slope of 20 feet outward for each foot upward for all utility runways;
 - (2) 10,000 feet at a slope of 34 feet outward for each foot upward for all non-precision instrument runways, other than utility; an
 - (3) 10,000 feet at a slope of 50 feet outward for each one foot upward, with an additional 40,000 feet at slope of 40 feet outward for each one foot upward, for precision instrument runways.
- (C) The outer width of an approach surface will be that width prescribed in this subsection for the most precise approach existing or planned for that runway end.

Conical Surface. A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

Department of Aviation. The Oregon Department of Aviation, formerly the Aeronautics Division of the Oregon Department of Transportation.

FAA. The Federal Aviation Administration.

FAA's Technical Representative. As used in this ordinance, the federal agency providing the FAA with expertise on wildlife and bird strike hazards as they relate to airports. This may include, but is not limited to, the USDA-APHIS-Wildlife Services.

Height. The highest point of a structure or tree, plant or other object of natural growth, measured from mean sea level.

Horizontal Surface. A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is:

- (A) 5,000 feet for all runways designated as utility.
- (B) 10,000 feet for all other runways.
- (C) The radius of the arc specified for each end of a runway will have the same arithmetical value. That value will be the highest determined for either end of the runway. When a 5,000 foot arc is encompassed by tangents connecting two adjacent 10,000 foot arcs, the 5,000 foot arc shall be disregarded on the construction of the perimeter of the horizontal surface.

Non-precision Instrument Runway. A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in non-precision instrument approach has been approved, or planned, and for which no precision approach facilities are planned or indicated on an FAA-approved airport layout plan or other FAA planning document.

Obstruction. Any structure or tree, plant or other object of natural growth that penetrates an imaginary surface.

Other than Utility Runway. A runway that is constructed for and intended to be used by turbine driven aircraft or by propeller-driven aircraft exceeding 12,500 pounds gross weight.

Precision Instrument Runway. A runway having an existing instrument approach procedure utilizing air navigation facilities that provide both horizontal and vertical guidance, such as an Instrument Landing System (ILS) or Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated by an FAA-approved airport layout plan or other FAA planning document.

Primary Surface. A surface longitudinally centered on a runway. When a runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway. When a runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface is:

- (A) 500 feet for utility runways having non-precision instrument approaches,
- (B) 500 feet for other than utility runways having non-precision instrument approaches with visibility minimums greater than three-fourths statute mile, and
- (C) 1,000 feet for non-precision instrument runways with visibility minimums at or below three-fourths statute mile, and for precision instrument runways.

Public Assembly Facility. A permanent or temporary structure or facility, place or activity where concentrations of people gather in reasonably close quarters for purposes such as deliberation, education, worship, shopping, employment, entertainment, recreation, sporting events, or similar activities. Public assembly facilities include, but are not limited to, schools, churches, conference or convention facilities, employment and shopping centers, arenas, athletic fields, stadiums, clubhouses, museums, and similar facilities and places, but do not include parks, golf courses or similar facilities unless used in a manner where people are concentrated in reasonably close quarters. Public assembly facilities also do not include air shows, structures or uses approved by the FAA in an adopted airport master plan, or places where people congregate for short periods of time such as parking lots or bus stops.

Runway. A defined area on an airport prepared for landing and takeoff of aircraft along its length.

Runway Protection Zone (RPZ). An area off the runway end used to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape and centered about the extended runway centerline. The inner width of the RPZ is the same as the width of the primary surface. The outer width of the RPZ is a function of the type of aircraft and specified approach visibility minimum associated with the runway end. The RPZ extends from each end of the primary surface for a horizontal distance of:

- (A) 1,000 feet for utility runways.
- (B) 1,700 feet for other than utility runways having non-precision instrument approaches.
- (C) 2,500 feet for precision instrument runways.

[NOTE: the outer width of the RPZ is specified by airport type in OAR 660, Division 13, Exhibit 4]

Significant. As it relates to bird strike hazards, "significant" means a level of increased flight activity by birds across an approach surface or runway that is more than incidental or occasional, considering the existing ambient level of flight activity by birds in the vicinity.

Structure. Any constructed or erected object which requires location on the ground or is attached to something located on the ground. Structures include but are not limited to buildings, decks, fences, signs, towers, cranes, flagpoles, antennas, smokestacks, earth formations and overhead transmission lines. Structures do not include paved areas.

Transitional Surface. Those surfaces that extend upward and outward at 90 degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces to the point of intersection with the horizontal and conical surfaces. Transitional surfaces for those portions of the precision approach surfaces which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at a 90 degree angle to the extended runway centerline.

Utility Runway. A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight or less.

Visual Runway. A runway intended solely for the operation of aircraft using visual approach procedures, where no straight-in instrument approach procedures or instrument designations have been approved or planned, or are indicated on an FAA-approved airport layout plan or any other FAA planning document.

Water Impoundment. Includes wastewater treatment settling ponds, surface mining ponds, detention and retention ponds, artificial lakes and ponds, and similar water features. A new water impoundment includes an expansion of an existing water impoundment except where such expansion was previously authorized by land use action approved prior to the effective date of this ordinance.

- .030 Imaginary Surface and Noise Impact Boundary Delineation.** The airport elevation, the airport noise impact boundary, and the location and dimensions of the runway, primary surface, runway protection zone,

approach surface, horizontal surface, conical surface and transitional surface shall be delineated for each airport subject to this overlay zone and shall be made part of the Official Zoning Map. **[NOTE: Airports utilizing best management practices should include direct and secondary impact boundaries in this list.]** All lands, waters and airspace, or portions thereof, that are located within these boundaries or surfaces shall be subject to the requirements of this overlay zone. [ORS 836.619; OAR 660-013-0040(8); OAR 660-013-0070(1); OAR 660-013-0080(1)]

.040 Notice of Land Use and Permit Applications within Overlay Zone

Area. Except as otherwise provided herein, written notice of applications for land use or limited land use decisions, including comprehensive plan or zoning amendments, in an area within this overlay zone, shall be provided to the airport sponsor and the Department of Aviation in the same manner as notice is provided to property owners entitled by law to written notice of land use or limited land use applications. [ORS 836.623(1); OAR 738-100-010; ORS 215.416(6); ORS 227.175(6)]

- A. Notice shall be provided to the airport sponsor and the Department of Aviation when the property, or a portion thereof, that is subject to the land use or limited land use application is located within 10,000 feet of the sides or ends of a runway:
- B. Notice of land use and limited land use applications shall be provided within the following timelines.
 - 1. Notice of land use or limited land use applications involving public hearings shall be provided prior to the public hearing at the same time that written notice of such applications is provided to property owners entitled to such notice.
 - 2. Notice of land use or limited land use applications not involving public hearings shall be provided at least 20 days prior to entry of the initial decision on the land use or limited land use application.
- C. Notice of the decision on a land use or limited land use application shall be provided to the airport sponsor and the Department of Aviation within the same timelines that such notice is provided to parties to a land use or limited land use proceeding.
- D. Notices required under Paragraphs A-C of this section need not be provided to the airport sponsor or the Department of Aviation where the land use or limited land use application meets all of the following criteria:
 - 1. Would only allow structures of less than 35 feet in height;
 - 2. Involves property located entirely outside the approach surface;
 - 3. Does not involve industrial, mining or similar uses that emit smoke, dust or steam; sanitary landfills or water impoundments; or radio, radiotelephone, television or similar transmission facilities or electrical transmission lines; and
 - 4. Does not involve wetland mitigation, enhancement, restoration or creation.

.050 Height Limitations on Allowed Uses in Underlying Zones. All uses permitted by the underlying zone shall comply with the height limitations in this Section. When height limitations of the underlying zone are more restrictive than those of this overlay zone, the underlying zone height limitations shall control. [ORS 836.619; OAR 660-013-0070]

- A. Except as provided in subsections B and C of this Section, no structure or tree, plant or other object of natural growth shall penetrate an airport imaginary surface. [ORS 836.619; OAR 660-013-0070(1)]
- B. For areas within airport imaginary surfaces but outside the approach and transition surfaces, where the terrain is at higher elevations than the airport runway surfaces such that existing structures and permitted development penetrate or would penetrate the airport imaginary surfaces, a local government may authorize structures up to 35 feet in height.
- C. Other height exceptions or variances may be permitted when supported in writing by the airport sponsor, the Department of Aviation and the FAA. Applications for height variances shall follow the procedures for other variances and shall be subject to such conditions and terms as recommended by the Department of Aviation and the FAA.

.060 Procedures. An applicant seeking a land use or limited land use approval in an area within this overlay zone shall provide the following information in addition to any other information required in the permit application: **[NOTE: where uses otherwise allowed outright become "limited" under this ordinance, the local government needs to identify the applicable administrative review process.]**

- A. A map or drawing showing the location of the property in relation to the airport imaginary surfaces. The Planning Department shall provide the applicant with appropriate base maps upon which to locate the property.
- B. Elevation profiles and a site plan, both drawn to scale, including the location and height of all existing and proposed structures, measured in feet above mean sea level.
- C. If a height variance is requested, letters of support from the airport sponsor, the Department of Aviation and the FAA.

.070 Land Use Compatibility Requirements. [Option 1 – Minimum Requirements] Applications for land use or building permits for properties within the boundaries of this overlay zone shall comply with the requirements of this chapter as provided herein. [ORS 836.619; OAR 660-013-0080]

- A. Noise. Within airport noise impact boundaries, land uses shall be established consistent with the levels identified in OAR 660, Division 13, Exhibit 5. A declaration of anticipated noise levels shall be attached to any subdivision or partition approval or other land use approval or building permit affecting land within airport noise impact boundaries. In areas where the noise level is anticipated to be at or above 55 Ldn, prior to issuance of a building permit for construction of a noise sensitive land use (real property normally used for

sleeping or as a school, church, hospital, public library or similar use), the permit applicant shall be required to demonstrate that a noise abatement strategy will be incorporated into the building design that will achieve an indoor noise level equal to or less than 55 Ldn. [OAR 340-035-0045(1)(d), (4)] [NOTE: FAA Order 5100.38A, Chapter 7 provides that interior noise levels should not exceed 45 decibels in all habitable zones.]

- B. Outdoor Lighting. No new or expanded industrial, commercial or recreational use shall project lighting directly onto an existing runway or taxiway or into existing airport approach surfaces except where necessary for safe and convenient air travel. Lighting for these uses shall incorporate shielding in their designs to reflect light away from airport approach surfaces. No use shall imitate airport lighting or impede the ability of pilots to distinguish between airport lighting and other lighting.
- C. Glare. No glare producing material, including but not limited to unpainted metal or reflective glass, shall be used on the exterior of structures located within an approach surface or on nearby lands where glare could impede a pilot's vision.
- D. Industrial Emissions. No new industrial, mining or similar use, or expansion of an existing industrial, mining or similar use, shall, as part of its regular operations, cause emissions of smoke, dust or steam that could obscure visibility within airport approach surfaces, except upon demonstration, supported by substantial evidence, that mitigation measures imposed as approval conditions will reduce the potential for safety risk or incompatibility with airport operations to an insignificant level. The review authority shall impose such conditions as necessary to ensure that the use does not obscure visibility.
- E. Communications Facilities and Electrical Interference. Proposals for the location of new or expanded radio, radiotelephone, and television transmission facilities and electrical transmission lines within this overlay zone shall be coordinated with the Department of Aviation and the FAA prior to approval. [NOTE: See the additional safeguards set out in the Best Management Practices alternative below. The Department of Aviation highly recommends those safeguards.]
- F. Use Prohibitions in RPZ. Notwithstanding the underlying zoning, the following uses are prohibited in the RPZ.
 - 1. New residential development.
 - 2. Public assembly facilities.
- G. Landfills. No new sanitary landfills shall be permitted within 10,000 feet of any airport runway. Expansions of existing landfill facilities within these distances shall be permitted only upon demonstration that the landfills are designed and will operate so as not to increase the likelihood of bird/aircraft collisions. Timely notice of any proposed expansion shall be provided to the airport sponsor, the Department of Aviation and the FAA, and any approval shall be accompanied by such conditions as are necessary to ensure that an increase in bird/aircraft collisions is not likely to result.

OR...

.070 Land Use Compatibility Requirements. [Option 2 – Best Management Practices] Applications for land use or building permits for properties within the boundaries of this overlay zone shall comply with the requirements of this chapter as provided herein. [ORS 836.619; ORS 836.623(1); OAR 660-013-0080]

- A. **Noise.** Within airport noise impact boundaries, land uses shall be established consistent with the levels identified in OAR 660, Division 13, Exhibit 5. A declaration of anticipated noise levels shall be attached to any subdivision or partition approval or other land use approval or building permit affecting land within airport noise impact boundaries. In areas where the noise level is anticipated to be at or above 55 Ldn, prior to issuance of a building permit for construction of a noise sensitive land use (real property normally used for sleeping or as a school, church, hospital, public library or similar use), the permit applicant shall be required to demonstrate that a noise abatement strategy will be incorporated into the building design that will achieve an indoor noise level equal to or less than 55 Ldn. **[NOTE: FAA Order 5100.38A, Chapter 7 provides that interior noise levels should not exceed 45 decibels in all habitable zones.]**
- B. **Outdoor Lighting.** No new or expanded industrial, commercial or recreational use shall project lighting directly onto an existing runway or taxiway or into existing airport approach surfaces except where necessary for safe and convenient air travel. Lighting for these uses shall incorporate shielding in their designs to reflect light away from airport approach surfaces. No use shall imitate airport lighting or impede the ability of pilots to distinguish between airport lighting and other lighting.
- C. **Glare.** No glare producing material, including but not limited to unpainted metal or reflective glass, shall be used on the exterior of structures located within an approach surface or on nearby lands where glare could impede a pilot's vision.
- D. **Industrial Emissions.** No new industrial, mining or similar use, or expansion of an existing industrial, mining or similar use, shall, as part of its regular operations, cause emissions of smoke, dust or steam that could obscure visibility within airport approach surfaces, except upon demonstration, supported by substantial evidence, that mitigation measures imposed as approval conditions will reduce the potential for safety risk or incompatibility with airport operations to an insignificant level. The review authority shall impose such conditions as necessary to ensure that the use does not obscure visibility.
- E. **Communications Facilities and Electrical Interference.** No use shall cause or create electrical interference with navigational signals or radio communications between an airport and aircraft. Proposals for the location of new or expanded radio, radiotelephone, and television transmission facilities and electrical transmission lines within this overlay zone shall be coordinated with the Department of Aviation and the FAA prior to approval. Approval of cellular and other telephone or radio communication towers on leased property located within airport imaginary surfaces shall be conditioned to require their removal within 90 days following the expiration of the lease

agreement. A bond or other security shall be required to ensure this result.

- F. Limitations and Restrictions on Allowed Uses in the RPZ, Approach Surface, and Airport Direct and Secondary Impact Areas. The land uses identified in Table 1, and their accessory uses, are permitted, permitted under limited circumstances, or prohibited in the manner therein described. In the event of conflict with the underlying zone, the more restrictive provisions shall control. As used in this section, a limited use means a use that is allowed subject to special standards specific to that use.

TABLE A-1: LIMITATIONS & RESTRICTIONS ON ALLOWED USES				
KEY: P = Use is Permitted L = Use is Allowed Under Limited Circumstances (see footnotes) N = Use is Not Allowed				
	RPZ ¹	Approach Surface ⁸	Direct Impact Area	Secondary Impact Area
Public Airport	L ²	L ⁹	P	P
Residential	N	L ¹⁰	L ¹⁴	P
Commercial	N	L ⁹	L ¹⁵	P
Industrial	N	L ⁹	P	P
Institutional	N	L ⁹	L ¹⁵	P
Farm Use	P ³	P ³	P ³	P ³
Roads/Parking	L ⁴	P	P	P
Utilities	L ⁵	L ⁵	L ⁵	L ⁵
Parks/Open Space	L ⁶	P	P	P
Golf Courses	L ⁷	L ^{7 9}	L ⁷	L ⁷
Athletic Fields	N	L ⁹	L ¹⁴	P
Sanitary Landfills	N	N	N	N
Water Treatment Plants	N	N	N	N
Mining	N	L ¹¹	L ¹¹	L ¹¹
Water Impoundments	N	N ¹²	N ¹⁶	N ¹⁶
Wetland Mitigation	N	L ¹³	L ¹³	L ¹³

Source: *Model Public Use Airport Safety And Compatibility Overlay Zone (Visual and Instrument Approach Airports)*, ODA

Notes:

- ¹ No Structures shall be allowed within the Runway Protection Zone (RPZ). Exceptions shall be made only for structures accessory to airport operations whose location within the RPZ has been approved by the Federal Aviation Administration.
- ² In the RPZ, public airport uses are restricted to those uses and facilities that require location in the RPZ.
- ³ Farming practices that minimize wildlife attractants are encouraged.
- ⁴ Roads and parking areas are permitted in the RPZ only upon demonstration that there are not practicable alternatives. Lights, guardrails, and related accessory structures are prohibited. Cost may be considered in determining whether practicable alternatives exist.
- ⁵ In the RPZ, utilities, powerlines and pipelines must be underground. In approach surfaces and in airport direct and secondary impact areas, the proposed height of utilities shall be coordinated with the airport sponsor and Department of Aviation (ODA).
- ⁶ Public assembly facilities are prohibited in the RPZ.
- ⁷ Golf courses may be permitted only upon demonstration, supported by substantial evidence, that management techniques will be utilized to reduce existing wildlife attractants and avoid the recreation of new wildlife attractant. Such techniques shall be required as conditions of the approval. Structures are not permitted within the RPZ. For purposes of this document, tee markers, tee signs, pin cups and pins are not considered to be structures.
- ⁸ Within 10,000 feet from the end of the primary surface of a non-precision instrument runway, and within 50,000 feet from the end of the primary surface of a precision instrument runway.
- ⁹ Public assembly facilities may be allowed in an approach surface only if the potential danger to public safety is minimal. In determining whether a proposed use is appropriate, consideration shall be given to: proximity to the

RPZ: density of people per acre; frequency of use; level of activity at the airport; and other factors relevant to public safety. In general, high density uses should not be permitted within airport approach surfaces, and on-residential structures should be located outside approach surfaces unless no practicable alternatives exist.

¹⁰ Residential densities within approach surfaces should not exceed the following densities: (1) within 500 feet of the outer edge of the RPZ, 1 unit per acre; (2) within 500 to 1,500 feet of the outer edge of the RPZ, 2 units per acre; (3) within 1,500 to 3,000 feet of the outer edge of the RPZ, 4 units per acre.

¹¹ Mining operations involving the creation or expansion of water impoundments shall comply with the requirements of this document regarding water impoundments.

¹² Water impoundments are prohibited within 5,000 feet from the edge or end of a runway.

¹³ Wetland Mitigation required for projects located within an approach surface, the airport direct or secondary impact area shall be authorized only upon demonstration, supported by substantial evidence, that it is impracticable to provide mitigation outside of these areas. Proposals for wetland mitigation shall be coordinated with the airport sponsor, the Department of Aviation, the FAA and the wetland-permitting agencies prior to the issuance of required permits. Wetland mitigation shall be designed and located to avoid creating a wildlife hazard or increasing hazardous movements of birds across runway and approach surfaces. Conditions shall be imposed as are appropriate and necessary to prevent in perpetuity an increase in hazardous bird movements across runway and approach surfaces. See section 0.90 of Appendix D or E for the best management practices for airports located near significant wetlands or wildlife habitat areas.

¹⁴ Within the transitional surface, residential uses and athletic fields are not permitted.

¹⁵ Within the transitional surface, overnight accommodations, such as hotels, motels, hospitals and dormitories, are not permitted.

¹⁶ See section .08 of Appendix D or E prohibiting or regulating water impoundments within 5,000 or 10,000 feet of the end or edge of a runway.

.080 Water Impoundments within Approach Surfaces and Airport Direct and Secondary Impact Boundaries. Any use or activity that would result in the establishment or expansion of a water impoundment shall comply with the requirements of this section. (ORS 836.623(2); OAR 660-013-0080(1)(f)]

- A. No new or expanded water impoundments of one-quarter acre in size or larger are permitted:
 - 1. Within an approach surface and within 5,000 feet from the end of a runway; or
 - 2. On land owned by the airport sponsor that is necessary for airport operations.

OR...

[for airports where it can be demonstrated with substantial evidence that new water impoundments would result in a significant increase in hazardous movements of birds across runways or approach surfaces, taking into consideration mitigation measures or conditions that could reduce safety risks and incompatibility] [ORS 836.623(2)(b), (c); ORS 836.623(4), (5)]

- A. No new or expanded water impoundments of one-quarter acre in size or larger are permitted within 5,000 feet from the end or edge of a runway.
- B. The establishment of a new water impoundment one-quarter acre in size or larger between 5,000 and 10,000 feet of a runway outside an approach surface and between 5,000 feet and 40,000 feet within an approach corridor for an airport with an instrument approach may be permitted only upon determination that such water impoundment, with reasonable and practicable mitigation measures, is not likely to result in a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces. **[NOTE: FAA Part 77 discourages water impoundments within 50,000 feet of a runway within an approach surface.] [ORS 836.623(2)(c); OAR 660, Division 13, Exhibit 1, Section 3(b)(C);]**

1. Process. An application for approval of a new water impoundment shall be considered utilizing the review process applied to applications for conditional use permits. In addition to the parties required by law to be mailed written notice of the public hearing on the application, written notice of the hearing shall be mailed to the airport sponsor, the Seattle Airports District Office of the FAA, the FAA's technical representative, and the Oregon Department of Aviation.
 - a. Prior to filing its application, the applicant shall coordinate with the airport sponsor, the Department of Aviation, and the FAA (Seattle Airports District Office) and FAA's technical representative regarding the proposed water impoundment, its short and long term potential to significantly increase hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces, and proposed mitigation.
 - (1) For water impoundments individually or cumulatively exceeding five (5) acres in size on the subject property, the applicant shall prepare a draft bird strike study as provided in subsection .2 of this section. The airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative shall have 45 days to review the study draft. Their comments shall be included and addressed in a final bird strike study.
 - (2) For water impoundments that do not individually or cumulatively exceed five (5) acres in size on the subject property, the bird strike study requirements in subsection 2 of this section may be reduced or waived upon agreement by the airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative if the applicant can demonstrate, to the satisfaction of the airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative that the proposed water impoundment, with appropriate short and long term mitigation, will not result in a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces. As used herein, "appropriate mitigation" means small-scale measures of proven reliability that can be applied in perpetuity and that the applicant has the financial resources to support.
 - b. An application shall not be deemed complete for land use review purposes until the applicant has filed with the Director the final bird strike study addressing comments from the airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative. When no bird strike study is required, the application shall not be deemed complete until the applicant has filed with the Director correspondence or other proof demonstrating agreement among the airport sponsor, the Department

of Aviation, and the FAA and FAA's technical representative that no bird strike study is required.

2. Bird Strike Study. A bird strike study required under this section shall contain at least the following information:
 - a. A description of the proposed project, its location in relation to the airport and the bird strike study area, which shall include at least the project site, the airport property, all lands within 10,000 feet from the end or edge of the airport runway, and other surrounding habitat areas which form the local bird ecosystem.
 - b. A description of bird feeding, watering and roosting habitats in the bird strike study area, including discussion of feeding behavior and food sources and identification of loafing, watering, roosting and nesting area locations.
 - c. A description of existing and planned airport operations and air traffic patterns and any available history of bird strike incidents.
 - d. Wildlife surveys and documentation of existing bird species, populations, activities and flight patterns in the bird strike study area. The surveys shall address bird species and their composition; bird population estimates and densities per unit area; feeding behavior; food sources; seasonal use patterns; frequency of occurrence; location of loafing, roosting and nesting areas; and analysis of the relation of bird flight movements to airport traffic patterns and navigational safety. The airport sponsor shall provide approach and departure air space information up to five statutory miles from the airport.
 - e. An evaluation of the anticipated effects of the proposal on the population density, behavior patterns, movements and species composition of birds within the bird strike study area and of the impact of these effects on air navigation and safety considering possible mitigation.
 - f. Identification and evaluation of proposed and alternative short and long term mitigation measures that would prevent a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways and approach surfaces that otherwise might result from the proposed use. The evaluation shall discuss the proven reliability of proposed measures, their effectiveness over both the short and long term, their costs, and the applicant's financial ability to assure their perpetual implementation, *i.e.* ongoing implementation for as long as a potential bird strike hazard persists.
 - g. Such other information as is recommended by the FAA's technical representative or is required to demonstrate

compliance with the requirements of subsection .3 of this section.

3. Required Findings. The determination whether a proposed new water impoundment, with reasonable and practicable mitigation measures, is likely to significantly increase hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces shall be based upon the proposal's potential, both in the short term and in the long term, to significantly increase bird strike hazards to air navigation, and the appropriateness, effectiveness and affordability of proposed mitigation measures or other conditions needed to reduce bird strike hazards. In determining compliance with this standard, the findings shall address each of the following factors:
 - a. The demonstrated overall effectiveness and reliability of proposed measures and conditions, in both the short and long term and under similar circumstances and conditions, to avoid a significant increase in bird strike hazards to air navigation. Experimental measures or measures not based on accepted technology and industry practices shall be considered ineffective, inappropriate and of unproven reliability.
 - b. The economic, social and environmental impacts of proposed measures to the neighboring community and the affected natural environment.
 - c. The applicant's ability to pay for necessary short and long-term mitigation measures, including fallback measures that may be required if initially proposed mitigation measures prove ineffective, and to assure the perpetual implementation of those measures for as long as a potential bird strike hazard persists. An applicant's failure to demonstrate its financial ability to assure the perpetual implementation of necessary and appropriate measures shall render those measures unreasonable and impracticable for purposes of the application.
 - d. The applicant's ability to accurately monitor the effectiveness of mitigation over time.
 - e. The potential impacts to navigational safety and air travel if the applicant cannot perform necessary mitigation measures or maintain those measures in perpetuity, or if those measures prove to be ineffective at avoiding a significant increase in bird strike hazards to air navigation.
 - f. The applicant's reclamation plan.
4. Mitigation Measures and Approval Conditions. A decision approving an application shall require, as conditions of approval, all measures and conditions deemed appropriate and necessary to prevent in perpetuity a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways and approach surfaces.

- a. Only customary measures based on accepted technology and industry practice may be considered and imposed as approval conditions.
 - b. Serious consideration shall be given to all measures and conditions recommended by the Department of Aviation and the FAA and FAA's technical representative. Generally, such measures and conditions shall be attached to a decision approving an application unless findings are adopted, supported by substantial evidence, demonstrating why such measures and conditions are not necessary to reduce bird hazard impacts resulting from the water impoundment to an insignificant level.
 - c. A decision to approve shall require from the applicant a performance bond or other form of secure financial support. Such bond or security shall be in an amount sufficient to assure perpetual implementation of appropriate and necessary mitigation measures for as long as a potential bird strike hazard persists.
 - d. A decision to approve shall require appropriate monitoring of the effectiveness of mitigation over time. Upon request, monitoring data and reports shall be made available to the airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative. The decision shall allow for modifications to approval conditions should existing mitigation measures prove ineffective at preventing a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways and approach surfaces. Modifications to approval conditions shall be considered utilizing the review process applied to applications for conditional use permits.
5. Exemptions. The requirements of this section shall not apply to:
- a. Storm water management basins established by an airport identified under ORS 836.610(1).
 - b. Seaplane landing areas within airports identified under ORS 836.610(1).

.090 Wetland Mitigation, Creation, Enhancement and Restoration within Approach Surfaces and Airport Direct and Secondary Impact Boundaries.

- A. Notwithstanding the requirements of Section .080, wetland mitigation, creation, enhancement or restoration projects located within areas regulated under Section .080 shall be allowed upon demonstration of compliance with this requirements of this Section.
- B. Wetland mitigation, creation, enhancement or restoration projects existing or approved on the effective date of this ordinance and located within areas regulated under Section .080 are recognized as lawfully existing uses.

- C. To help avoid increasing safety hazards to air navigation near public use airports, the establishment of wetland mitigation banks in the vicinity of such airports but outside approach surfaces and areas regulated under Section .080 is encouraged.
- D. Applications to expand wetland mitigation projects in existence as of the effective date of this ordinance, and new wetland mitigation projects, that are proposed within areas regulated under Section .080 shall be considered utilizing the review process applied to applications for conditional use permits and shall be permitted upon demonstration that:
 - 1. It is not practicable to provide off-site mitigation; or
 - 2. The affected wetlands provide unique ecological functions, such as critical habitat for threatened or endangered species or ground water discharge, and the area proposed for mitigation is located outside an approach surface.
- E. Wetland mitigation permitted under subsection D. of this Section shall be designed and located to avoid creating a wildlife hazard or increasing hazardous movements of birds across runways or approach surfaces.
- F. Applications to create, enhance or restore wetlands that are proposed to be located within approach surfaces or within areas regulated under Section .080, and that would result in the creation of a new water impoundment or the expansion of an existing water impoundment, shall be considered utilizing the review process applied to applications for conditional use permits and shall be permitted upon demonstration that:
 - 1. The affected wetlands provide unique ecological functions, such as critical habitat for threatened or endangered species or ground water discharge; and
 - 2. The wetland creation, enhancement or restoration is designed and will be maintained in perpetuity in a manner that will not increase hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces.
- G. Proposals for new or expanded wetland mitigation, creation, enhancement or restoration projects regulated under this Section shall be coordinated with the airport sponsor, the Department of Aviation, the FAA and FAA's technical representative, the Oregon Department of Fish & Wildlife (ODFW), the Oregon Division of State Lands (DSL), the US Fish & Wildlife Service (USFWS), and the US Army Corps of Engineers (Corps) as part of the permit application.
- H. A decision approving an application under this Section shall require, as conditions of approval, measures and conditions deemed appropriate and necessary to prevent in perpetuity an increase in hazardous bird movements across runways and approach surfaces.

.100 Nonconforming Uses.

- A. These regulations shall not be construed to require the removal, lowering or alteration of any structure not conforming to these

regulations. These regulations shall not require any change in the construction, alteration or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this overlay zone.

- B. Notwithstanding subsection A. of this section, the owner of any existing structure that has an adverse effect on air navigational safety as determined by the Department of Aviation shall install or allow the installation of obstruction markers as deemed necessary by the Department of Aviation, so that the structures become more visible to pilots.
- C. No land use or limited land use approval or other permit shall be granted that would allow a nonconforming use or structure to become a greater hazard to air navigation than it was on the effective date of the overlay zone.

.110 Avigation Easement. Within this overlay zone, the owners of properties that are the subjects of applications for land use or limited land use decisions, for building permits for new residential, commercial, industrial, institutional or recreational buildings or structures intended for inhabitation or occupancy by humans or animals, or for expansions of such buildings or structures by the lesser of 50% or 1000 square feet, shall, as a condition of obtaining such approval or permits, dedicate an avigation easement to the airport sponsor. The avigation easement shall be in a form acceptable to the airport sponsor and shall be signed and recorded in the deed records of the County. The avigation easement shall allow unobstructed passage for aircraft and ensure safety and use of the airport for the public. Property owners or their representatives are responsible for providing the recorded instrument prior to issuance of building permits.

Appendix E

**Model Public Use Airport Safety
and Compatibility Overlay Zone
for Public Use Airports
with Only Visual Approaches**

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**MODEL PUBLIC USE AIRPORT SAFETY AND
COMPATIBILITY OVERLAY ZONE
FOR PUBLIC USE AIRPORTS WITH ONLY VISUAL APPROACHES**

.010 Purpose. The purpose of this overlay zone is to encourage and support the continued operation and vitality of public use airports with instrument approaches by establishing compatibility and safety standards to promote air navigational safety at such public use airports and to reduce potential safety hazards for persons living, working or recreating near such public use airports. [ORS 836.600; ORS 836.619; OAR 660-013-0070; OAR 660-013-0080]

.020 Definitions. [ORS 836.605; ORS 836.623(6); OAR 660-013-0020; OAR 660-013-0070(1)(a), (b); OAR 660-013-0080(1)(a)]

Airport. The strip of land used for taking off and landing aircraft, together with all adjacent land used in connection with the aircraft landing or taking off from the strip of land, including but not limited to land used for existing airport uses.

Airport Direct Impact Area. The area located within 5,000 feet of an airport runway, excluding lands within the runway protection zone and approach surface.

Airport Elevation. The highest point of an airport's usable runway, measured in feet above mean sea level.

Airport Imaginary Surfaces. Imaginary areas in space and on the ground that are established in relation to the airport and its runways. Imaginary areas are defined by the primary surface, runway protection zone, approach surface, horizontal surface, conical surface and transitional surface.

Airport Noise Impact Boundary. Areas located within 1,500 feet of an airport runway or within established noise contour boundaries exceeding 55 Ldn.

Airport Secondary Impact Area. The area located between 5,000 and 10,000 feet from an airport runway.

Airport Sponsor. The owner, manager, or other person or entity designated to represent the interests of an airport.

Approach Surface. A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface.

- (A) The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of:
 - (1) 1,250 feet for a utility runway; or
 - (2) 1,500 feet for a runway other than a utility runway.
- (B) The approach surface extends for a horizontal distance of 5,000 feet at a slope of 20 feet outward for each foot upward.

- (C) The outer width of an approach surface will be that width prescribed in this subsection for the most precise approach existing or planned for that runway end.

Conical Surface. A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

Department of Aviation. The Oregon Department of Aviation, formerly the Aeronautics Division of the Oregon Department of Transportation.

FAA. The Federal Aviation Administration.

FAA's Technical Representative. As used in this ordinance, the federal agency providing the FAA with expertise on wildlife and bird strike hazards as they relate to airports. This may include, but is not limited to, the USDA-APHIS-Wildlife Services.

Height. The highest point of a structure or tree, plant or other object of natural growth, measured from mean sea level.

Horizontal Surface. A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is 5000 feet.

Obstruction. Any structure or tree, plant or other object of natural growth that penetrates an imaginary surface.

Other than Utility Runway. A runway that is constructed for and intended to be used by turbine-driven aircraft or by propeller-driven aircraft exceeding 12,500 pounds gross weight.

Primary Surface. A surface longitudinally centered on a runway. When a runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway. When a runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface is:

- (A) 250 feet for utility runways.
- (B) 500 feet for other than utility runways.

Public Assembly Facility. A permanent or temporary structure or facility, place or activity where concentrations of people gather in reasonably close quarters for purposes such as deliberation, education, worship, shopping, employment, entertainment, recreation, sporting events, or similar activities. Public assembly facilities include, but are not limited to, schools, churches, conference or convention facilities, employment and shopping centers, arenas, athletic fields, stadiums, clubhouses, museums, and similar facilities and places, but do not include parks, golf courses or similar facilities unless used in a manner where people are concentrated in reasonably close quarters. Public assembly facilities also do not include air shows, structures or uses approved by the FAA in an adopted airport

master plan, or places where people congregate for short periods of time such as parking lots or bus stops.

Runway. A defined area on an airport prepared for landing and takeoff of aircraft along its length.

Runway Protection Zone (RPZ). An area off the runway end used to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape and centered about the extended runway centerline. The inner width of the RPZ is the same as the width of the primary surface. The outer width of the RPZ is a function of the type of aircraft and specified approach visibility minimum associated with the runway end. The RPZ extends from each end of the primary surface for a horizontal distance of: 1,000 feet. [NOTE: the outer width of the RPZ is specified by airport type in OAR 660, Division 13, Exhibit 4]

Significant. As it relates to bird strike hazards, "significant" means a level of increased flight activity by birds across an approach surface or runway that is more than incidental or occasional, considering the existing ambient level of flight activity by birds in the vicinity.

Structure. Any constructed or erected object which requires location on the ground or is attached to something located on the ground. Structures include but are not limited to buildings, decks, fences, signs, towers, cranes, flagpoles, antennas, smokestacks, earth formations and overhead transmission lines. Structures do not include paved areas.

Transitional Surface. Those surfaces that extend upward and outward at 90 degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces to the point of intersection with the horizontal and conical surfaces. Transitional surfaces for those portions of the precision approach surfaces which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at a 90 degree angle to the extended runway centerline.

Utility Runway. A runway that is constructed for, and intended to be used by, propeller driven aircraft of 12,500 pounds maximum gross weight or less.

Visual Runway. A runway intended solely for the operation of aircraft using visual approach procedures, where no straight-in instrument approach procedures or instrument designations have been approved or planned, or are indicated on an FAA-approved airport layout plan or any other FAA planning document.

Water Impoundment. Includes wastewater treatment settling ponds, surface mining ponds, detention and retention ponds, artificial lakes and ponds, and similar water features. A new water impoundment includes an expansion of an existing water impoundment except where such expansion was previously authorized by land use action approved prior to the effective date of this ordinance.

.030 Imaginary Surface and Noise Impact Boundary Delineation. The airport elevation, the airport noise impact boundary, and the location and dimensions of the runway, primary surface, runway protection zone, approach surface, horizontal surface, conical surface and transitional

surface shall be delineated for each airport subject to this overlay zone and shall be made part of the Official Zoning Map. **[Note: Airports utilizing best management practices should include direct and secondary impact boundaries in this list]** All lands, waters and airspace, or portions thereof, that are located within these boundaries or surfaces shall be subject to the requirements of this overlay zone. [ORS 836.619; OAR 660-013-0040(8); OAR 660-013-0070(1); OAR 660-013-0080(1)]¹

.040 Notice of Land Use and Permit Applications within Overlay Zone

Area. Except as otherwise provided herein, written notice of applications for land use or limited land use decisions, including comprehensive plan or zoning amendments, in an area within this overlay zone, shall be provided to the airport sponsor and the Department of Aviation in the same manner as notice is provided to property owners entitled by law to written notice of land use or limited land use applications. [ORS 836.623(1); OAR 738-100-010; ORS 215.416(6); ORS 227.175(6)]

- A. Notice shall be provided to the airport sponsor and the Department of Aviation when the property, or a portion thereof, that is subject to the land use or limited land use application is located within 5,000 feet of the sides or ends of a runway.
- B. Notice of land use and limited land use applications shall be provided within the following timelines.
 1. Notice of land use or limited land use applications involving public hearings shall be provided prior to the public hearing at the same time that written notice of such applications is provided to property owners entitled to such notice.
- C. Notice of land use or limited land use applications not involving public hearings shall be provided at least 20 days prior to entry of the initial decision on the land use or limited land use application.
- D. Notice of the decision on the land use or limited land use application shall also be provided to the airport sponsor within the same timelines that notice is provided to parties to the proceeding.
- E. Notices required under Paragraphs A-C of this section need not be provided to the airport sponsor or the Department of Aviation where the land use or limited land use application meets all of the following criteria:
 1. Would only allow structures of less than 35 feet in height;
 2. Involves property located entirely outside the approach surface;
 3. Does not involve industrial uses, mining or similar uses that emit smoke dust or steam; sanitary landfills or water impoundments; or radio, radiotelephone, television or similar transmission facilities or electrical transmission lines; and
 4. Does not involve wetland mitigation, creation, enhancement or restoration.

¹ **NOTE:** For airports served by only piston-powered airports and applying best management practices (see section .090), it is not necessary to map or regulate uses within the airport secondary impact area.

- .050 Height Limitations on Allowed Uses in Underlying Zone.** All uses permitted by the underlying zone shall comply with the height limitations in this Section. When height limitations of the underlying zone are more restrictive than those of this overlay zone, the underlying zone height limitations shall control. [ORS 836.619; OAR 660-013-0070]
- A. Except as provided in subsections B and C of this Section, no structure or tree, plant or other object of natural growth shall penetrate an airport imaginary surface. [ORS 836.619; OAR 660-013-0070(1)]
 - B. For areas within airport imaginary surfaces but outside the approach and transition surfaces, where the terrain is at higher elevations than the airport runway surfaces such that existing structures and permitted development penetrate or would penetrate the airport imaginary surfaces, a local government may authorize structures up to 35 feet in height.
 - C. Other height exceptions or variances may be permitted when supported in writing by the airport sponsor, the Department of Aviation and the FAA. Applications for height variances shall follow the procedures for other variances and shall be subject to such conditions and terms as recommended by the Department of Aviation and the FAA.
- .060 Procedures.** An applicant seeking a land use or limited land use approval in an area within this overlay zone shall provide the following information in addition to any other information required in the permit application: **[NOTE: where uses otherwise allowed outright become "limited" under this ordinance, the local government needs to identify the applicable administrative review process.]**
- A. A map or drawing showing the location of the property in relation to the airport imaginary surfaces. The Planning Department shall provide the applicant with appropriate base maps upon which to locate the property.
 - B. Elevation profiles and a site plan, both drawn to scale, including the location and height of all existing and proposed structures, measured in feet above mean sea level.
 - C. If a height variance is requested, letters of support from the airport sponsor, the Department of Aviation and the FAA.
- .070 Land Use Compatibility Requirements. [Option 1 – Minimum Requirements]** Applications for land use or building permits for properties within the boundaries of this overlay zone shall comply with the requirements of this chapter as provided herein. [ORS 836.619; OAR 660-013-0080]
- A. Noise. Within airport noise impact boundaries, land uses shall be established consistent with the levels identified in OAR 660, Division 13, Exhibit 5. A declaration of anticipated noise levels shall be attached to any subdivision or partition approval or other land use approval or building permit affecting land within airport noise impact boundaries. In areas where the noise level is anticipated to be at or above 55 Ldn, prior to issuance of a building permit for construction of a noise sensitive land use (real property normally used for

- sleeping or as a school, church, hospital, public library or similar use), the permit applicant shall be required to demonstrate that a noise abatement strategy will be incorporated into the building design that will achieve an indoor noise level equal to or less than 55 Ldn. **[NOTE: FAA Order 5100.38A, Chapter 7 provides that interior noise levels should not exceed 45 decibels in all habitable zones.]**
- B. Outdoor Lighting. No new or expanded industrial, commercial or recreational use shall project lighting directly onto an existing runway or taxiway or into existing airport approach surfaces except where necessary for safe and convenient air travel. Lighting for these uses shall incorporate shielding in their designs to reflect light away from airport approach surfaces. No use shall imitate airport lighting or impede the ability of pilots to distinguish between airport lighting and other lighting.
- C. Glare. No glare producing material, including but not limited to unpainted metal or reflective glass, shall be used on the exterior of structures located within an approach surface or on nearby lands where glare could impede a pilot's vision.
- D. Industrial Emissions. No new industrial, mining or similar use, or expansion of an existing industrial, mining or similar use, shall, as part of its regular operations, cause emissions of smoke, dust or steam that could obscure visibility within airport approach surfaces, except upon demonstration, supported by substantial evidence, that mitigation measures imposed as approval conditions will reduce the potential for safety risk or incompatibility with airport operations to an insignificant level. The review authority shall impose such conditions as necessary to ensure that the use does not obscure visibility.
- E. Communications Facilities and Electrical Interference. Proposals for the location of new or expanded radio, radiotelephone, and television transmission facilities and electrical transmission lines within this overlay zone shall be coordinated with the Department of Aviation and the FAA prior to approval. **[NOTE: See the additional safeguards set out in the Best Management Practices alternative below. The Department of Aviation highly recommends those safeguards.]**
- F. Use Prohibitions in RPZ. Notwithstanding the underlying zoning, the following uses are prohibited in the RPZ.
1. New residential development.
 2. Public assembly facilities.
- G. Landfills. No new sanitary landfills, sewage lagoons, sewage sludge disposal facilities or similar facilities shall be permitted within 5,000 feet from any airport runway used by only piston-type aircraft or within 10,000 feet of any airport runway used by turbojet aircraft. Expansions of existing landfill or sewage treatment or disposal facilities within these distances shall be permitted only upon demonstration that the landfills are designed and will operate so as not to increase the likelihood of bird/aircraft collisions. Timely notice of any proposed expansion shall be provided to the airport sponsor, Aviation and the FAA, and any approval shall be accompanied by

such conditions as are necessary to ensure that an increase in bird/aircraft collisions is not likely to result.

OR...

.070 Land Use Compatibility Requirements. [Option 2 – Best Management Practices]

Applications for land use or building permits for properties within the boundaries of this overlay zone shall comply with the requirements of this chapter as provided herein. [ORS 836.619; ORS 836.623(1); OAR 660-013-0080]

- A. Noise. Within airport noise impact boundaries, land uses shall be established consistent with the levels identified in OAR 660, Division 13, Exhibit 5. A declaration of anticipated noise levels shall be attached to any subdivision or partition approval or other land use approval or building permit affecting land within airport noise impact boundaries. In areas where the noise level is anticipated to be at or above 55 Ldn, prior to issuance of a building permit for construction of a noise sensitive land use (real property normally used for sleeping or as a school, church, hospital, public library or similar use), the permit applicant shall be required to demonstrate that a noise abatement strategy will be incorporated into the building design that will achieve an indoor noise level equal to or less than 55 Ldn. **[NOTE: FAA Order 5100.38A, Chapter 7 provides that interior noise levels should not exceed 45 decibels in all habitable zones.]**
- B. Outdoor Lighting. No new or expanded industrial, commercial or recreational use shall project lighting directly onto an existing runway or taxiway or into existing airport approach surfaces except where necessary for safe and convenient air travel. Lighting for these uses shall incorporate shielding in their designs to reflect light away from airport approach surfaces. No use shall imitate airport lighting or impede the ability of pilots to distinguish between airport lighting and other lighting.
- C. Glare. No glare producing material, including but not limited to unpainted metal or reflective glass, shall be used on the exterior of structures located within an approach surface or on nearby lands where glare could impede a pilot's vision.
- D. Industrial Emissions. No new industrial, mining or similar use, or expansion of an existing industrial, mining or similar use, shall, as part of its regular operations, cause emissions of smoke, dust or steam that could obscure visibility within airport approach surfaces, except upon demonstration, supported by substantial evidence, that mitigation measures imposed as approval conditions will reduce the potential for safety risk or incompatibility with airport operations to an insignificant level. The review authority shall impose such conditions as necessary to ensure that the use does not obscure visibility.
- E. Communications Facilities and Electrical Interference. No use shall cause or create electrical interference with navigational signals or radio communications between an airport and aircraft. Proposals for the location of new or expanded radio, radiotelephone, and television transmission facilities and electrical transmission lines within this overlay zone shall be coordinated with the Department of Aviation

and the FAA prior to approval. Approval of cellular and other telephone or radio communication towers on leased property located within airport imaginary surfaces shall be conditioned to require their removal within 90 days following the expiration of the lease agreement. A bond or other security shall be required to ensure this result.

- F. Limitations and Restrictions on Allowed Uses in the RPZ, Approach Surface, and Airport Direct and Secondary Impact Areas. The land uses identified in Table 1, and their accessory uses, are permitted, permitted under limited circumstances, or prohibited in the manner therein described. In the event of conflict with the underlying zone, the more restrictive provisions shall control. As used in this section, a limited use means a use that is allowed subject to special standards specific to that use.

TABLE A-1: LIMITATIONS & RESTRICTIONS ON ALLOWED USES				
KEY: P = Use is Permitted L = Use is Allowed Under Limited Circumstances (see footnotes) N = Use is Not Allowed				
	RPZ ¹	Approach Surface ⁸	Direct Impact Area	Secondary Impact Area
Public Airport	L ²	L ⁹	P	P
Residential	N	L ¹⁰	L ¹⁴	P
Commercial	N	L ⁹	L ¹⁵	P
Industrial	N	L ⁹	P	P
Institutional	N	L ⁹	L ¹⁵	P
Farm Use	P ³	P ³	P ³	P ³
Roads/Parking	L ⁴	P	P	P
Utilities	L ⁵	L ⁵	L ⁵	L ⁵
Parks/Open Space	L ⁶	P	P	P
Golf Courses	L ⁷	L ^{7 9}	L ⁷	L ⁷
Athletic Fields	N	L ⁹	L ¹⁴	P
Sanitary Landfills	N	N	N	N
Water Treatment Plants	N	N	N	N
Mining	N	L ¹¹	L ¹¹	L ¹¹
Water Impoundments	N	N ¹²	N ¹⁶	N ¹⁶
Wetland Mitigation	N	L ¹³	L ¹³	L ¹³

Source: Model Public Use Airport Safety And Compatibility Overlay Zone (Visual and Instrument Approach Airports), ODA

Notes:

- ¹ No Structures shall be allowed within the Runway Protection Zone (RPZ). Exceptions shall be made only for structures accessory to airport operations whose location within the RPZ has been approved by the Federal Aviation Administration.
- ² In the RPZ, public airport uses are restricted to those uses and facilities that require location in the RPZ.
- ³ Farming practices that minimize wildlife attractants are encouraged.
- ⁴ Roads and parking areas are permitted in the RPZ only upon demonstration that there are not practicable alternatives. Lights, guardrails, and related accessory structures are prohibited. Cost may be considered in determining whether practicable alternatives exist.
- ⁵ In the RPZ, utilities, powerlines and pipelines must be underground. In approach surfaces and in airport direct and secondary impact areas, the proposed height of utilities shall be coordinated with the airport sponsor and Department of Aviation (ODA).
- ⁶ Public assembly facilities are prohibited in the RPZ.
- ⁷ Golf courses may be permitted only upon demonstration, supported by substantial evidence, that management techniques will be utilized to reduce existing wildlife attractants and avoid the recreation of new wildlife attractant. Such techniques shall be required as conditions of the approval. Structures are not permitted within the RPZ. For purposes of this document, tee markers, tee signs, pin cups and pins are not considered to be structures.
- ⁸ Within 10,000 feet from the end of the primary surface of a non-precision instrument runway, and within 50,000 feet from the end of the primary surface of a precision instrument runway.
- ⁹ Public assembly facilities may be allowed in an approach surface only if the potential danger to public safety is minimal. In determining whether a proposed use is appropriate, consideration shall be given to: proximity to the RPZ; density of people per acre; frequency of use; level of activity at the airport; and other factors relevant to public safety. In general, high density uses should not be permitted within airport approach surfaces, and on-residential structures should be located outside approach surfaces unless no practicable alternatives exist.
- ¹⁰ Residential densities within approach surfaces should not exceed the following densities: (1) within 500 feet of the outer edge of the RPZ, 1 unit per acre; (2) within 500 to 1,500 feet of the outer edge of the RPZ, 2 units per acre; (3) within 1,500 to 3,000 feet of the outer edge of the RPZ, 4 units per acre.
- ¹¹ Mining operations involving the creation or expansion of water impoundments shall comply with the requirements of this document regarding water impoundments.
- ¹² Water impoundments are prohibited within 5,000 feet from the edge or end of a runway.
- ¹³ Wetland Mitigation required for projects located within an approach surface, the airport direct or secondary impact area shall be authorized only upon demonstration, supported by substantial evidence, that it is impracticable to provide mitigation outside of these areas. Proposals for wetland mitigation shall be coordinated with the airport sponsor, the Department of Aviation, the FAA and the wetland-permitting agencies prior to the issuance of required permits. Wetland mitigation shall be designed and located to avoid creating a wildlife hazard or increasing hazardous movements of birds across runway and approach surfaces. Conditions shall be imposed as are appropriate and necessary to prevent in perpetuity an increase in hazardous bird movements across runway and approach surfaces. See section 0.90 of Appendix D or E for the best management practices for airports located near significant wetlands or wildlife habitat areas.
- ¹⁴ Within the transitional surface, residential uses and athletic fields are not permitted.
- ¹⁵ Within the transitional surface, overnight accommodations, such as hotels, motels, hospitals and dormitories, are not permitted.
- ¹⁶ See section .08 of Appendix D or E prohibiting or regulating water impoundments within 5,000 or 10,000 feet of the end or edge of a runway.

.080 Water Impoundments within Approach Surfaces and Airport Direct and Secondary Impact Boundaries. Any use or activity that would result in the establishment or expansion of a water impoundment shall comply with the requirements of this section. (ORS 836.623(2); OAR 660-013-0080(1)(f))

- A. No new or expanded water impoundments of one-quarter acre in size or larger are permitted:
 - 1. Within an approach surface and within 5,000 feet from the end of a runway; or
 - 2. On land owned by the airport sponsor that is necessary for airport operations.

OR...

[for airports where it can be demonstrated with substantial evidence that new water impoundments would result in a significant increase in hazardous movements of birds across runways or approach surfaces, taking into consideration mitigation measures or conditions that could reduce safety risks and incompatibility] [ORS 836.623(2)(b), (c); ORS 836.623(4), (5)]

- A. No new or expanded water impoundments of one-quarter acre in size or larger are permitted within 5,000 feet from the end or edge of a runway.
- B. The establishment of a new water impoundment one-quarter acre in size or larger within 5,000 to 10,000 feet from the edge or end of a runway may be permitted only upon determination that such water impoundment, with reasonable and practicable mitigation measures, is not likely to result in a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces. **[NOTE: FAA Part 77 discourages water impoundments within 50,000 feet of a runway within an approach surface.]** [ORS 836.623(3)]
 - 1. Process. An application for approval of a new water impoundment shall be considered utilizing the review process applied to applications for conditional use permits. In addition to the parties required by law to be mailed written notice of the public hearing on the application, written notice of the hearing shall be mailed to the airport sponsor, the Department of Aviation, the Seattle Airports District Office of the FAA, and the FAA's technical representative.
 - a. Prior to filing its application, the applicant shall coordinate with the airport sponsor, the Department of Aviation, the FAA (Seattle Airports District Office) and FAA's technical representative regarding the proposed water impoundment, its short and long term potential to significantly increase hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces, and proposed mitigation.
 - (1) For water impoundments individually or cumulatively exceeding five (5) acres in size on the subject property, the applicant shall prepare a draft bird strike study as provided in subsection .2 of this section. The airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative shall have 45 days to review the study draft. Their comments shall be included and addressed in a final bird strike study.
 - (2) For water impoundments that do not individually or cumulatively exceed five (5) acres in size on the subject property, the bird strike study requirements in subsection 2 of this section may be reduced or waived upon agreement by the airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative if the applicant can demonstrate, to the satisfaction of the airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative that the proposed water impoundment, with appropriate short and long term mitigation, will not result in a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces. As used herein, "appropriate mitigation" means small-scale

measures of proven reliability that can be applied in perpetuity and that the applicant has the financial resources to support.

- b. An application shall not be deemed complete for land use review purposes until the applicant has filed with the Director the final bird strike study addressing comments from the airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative. When no bird strike study is required, the application shall not be deemed complete until the applicant has filed with the Director correspondence or other proof demonstrating agreement among the airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative that no bird strike study is required.
2. Bird Strike Study. A bird strike study required under this section shall contain at least the following information:
- a. A description of the proposed project, its location in relation to the airport, and the bird strike study area, which shall include at least the project site, the airport property, all lands within 10,000 feet from the end or edge of the airport runway, and other surrounding habitat areas which form the local bird ecosystem.
 - b. A description of bird feeding, watering and roosting habitats in the bird strike study area, including discussion of feeding behavior and food sources and identification of loafing, watering, roosting and nesting area locations.
 - c. A description of existing and planned airport operations and air traffic patterns and any available history of bird strike incidents.
 - d. Wildlife surveys and documentation of existing bird species, populations, activities and flight patterns in the bird strike study area. The surveys shall address bird species and their composition; bird population estimates and densities per unit area; feeding behavior; food sources; seasonal use patterns; frequency of occurrence; location of loafing, roosting and nesting areas; and analysis of the relation of bird flight movements to airport traffic patterns and navigational safety. The airport sponsor shall provide approach and departure air space information up to five statutory miles from the airport.
 - e. An evaluation of the anticipated effects of the proposal on the population density, behavior patterns, movements and species composition of birds within the bird strike study area and of the impact of these effects on air navigation and safety considering possible mitigation.
 - f. Identification and evaluation of proposed and alternative short and long term mitigation measures that would prevent a significant increase in hazardous movements

of birds feeding, watering or roosting in areas across runways and approach surfaces that otherwise might result from the proposed use. The evaluation shall discuss the proven reliability of proposed measures, their effectiveness over both the short and long term, their costs, and the applicant's financial ability to assure their perpetual implementation, *i.e.* ongoing implementation for as long as a potential bird strike hazard persists.

- g. Such other information as is recommended by the FAA's technical representative or is required to demonstrate compliance with the requirements of subsection .3 of this section.

3. Required Findings. The determination whether a proposed new water impoundment, with reasonable and practicable mitigation measures, is likely to significantly increase hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces shall be based upon the proposal's potential, both in the short term and in the long term, to significantly increase bird strike hazards to air navigation, and the appropriateness, effectiveness and affordability of proposed mitigation measures or other conditions needed to reduce bird strike hazards. In determining compliance with this standard, the findings shall address each of the following factors:

- a. The demonstrated overall effectiveness and reliability of proposed measures and conditions, in both the short and long term and under similar circumstances and conditions, to avoid a significant increase in bird strike hazards to air navigation. Experimental measures or measures not based on accepted technology and industry practices shall be considered ineffective, inappropriate and of unproven reliability.
- b. The economic, social and environmental impacts of proposed measures to the neighboring community and the affected natural environment.
- c. The applicant's ability to pay for necessary short and long-term mitigation measures, including fallback measures that may be required if initially proposed mitigation measures prove ineffective, and to assure the perpetual implementation of those measures for as long as a potential bird strike hazard persists. An applicant's failure to demonstrate its financial ability to assure the perpetual implementation of necessary and appropriate measures shall render those measures unreasonable and impracticable for purposes of the application.
- d. The applicant's ability to accurately monitor the effectiveness of mitigation over time.
- e. The potential impacts to navigational safety and air travel if the applicant cannot perform necessary mitigation measures or maintain those measures in

perpetuity, or if those measures prove to be ineffective at avoiding a significant increase in bird strike hazards to air navigation.

- f. The applicant's reclamation plan.
4. Mitigation Measures and Approval Conditions. A decision approving an application shall require, as conditions of approval, all measures and conditions deemed appropriate and necessary to prevent in perpetuity a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways and approach surfaces.
- a. Only customary measures based on accepted technology and industry practice may be considered and imposed as approval conditions.
 - b. Serious consideration shall be given to all measures and conditions recommended by the Department of Aviation and the FAA and FAA's technical representative. Generally, such measures and conditions shall be attached to a decision approving an application unless findings are adopted, supported by substantial evidence, demonstrating why such measures and conditions are not necessary to reduce bird hazard impacts resulting from the water impoundment to an insignificant level.
 - c. A decision to approve shall require from the applicant a performance bond or other form of secure financial support. Such bond or security shall be in an amount sufficient to assure perpetual implementation of appropriate and necessary mitigation measures for as long as a potential bird strike hazard persists.
 - d. A decision to approve shall require appropriate monitoring of the effectiveness of mitigation over time. Upon request, monitoring data and reports shall be made available to the airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative. The decision shall allow for modifications to approval conditions should existing mitigation measures prove ineffective at preventing a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways and approach surfaces. Modifications to approval conditions shall be considered utilizing the review process applied to applications for conditional use permits.
5. Exemptions. The requirements of this section shall not apply to:
- a. Storm water management basins established by an airport identified under ORS 836.610.
 - b. Seaplane landing areas within airports identified under ORS 836.610.

.090 Wetland Mitigation, Creation, Enhancement and Restoration within Approach Surfaces and Airport Direct and Secondary Impact Boundaries.

- A. Notwithstanding the requirements of Section .080, wetland mitigation, creation, enhancement or restoration projects located within areas regulated under Section .080 shall be allowed upon demonstration of compliance with this requirements of this Section.
- B. Wetland mitigation, creation, enhancement or restoration projects existing or approved on the effective date of this ordinance and located within areas regulated under Section .080 are recognized as lawfully existing uses.
- C. To help avoid increasing safety hazards to air navigation near public use airports, the establishment of wetland mitigation banks in the vicinity of such airports but outside approach surfaces and areas regulated under Section .080 is encouraged.
- D. Applications to expand wetland mitigation projects in existence as of the effective date of this ordinance, and new wetland mitigation projects, that are proposed within areas regulated under Section .080 shall be considered utilizing the review process applied to applications for conditional use permits and shall be permitted upon demonstration that:
 - 1. It is not practicable to provide off-site mitigation; or
 - 2. The affected wetlands provide unique ecological functions, such as critical habitat for threatened or endangered species or ground water discharge, and the area proposed for mitigation is located outside an approach surface.
- E. Wetland mitigation permitted under subsection D. of this Section shall be designed and located to avoid creating a wildlife hazard or increasing hazardous movements of birds across runways or approach surfaces.
- F. Applications to create, enhance or restore wetlands that are proposed to be located within approach surfaces or within areas regulated under Section .080, and that would result in the creation of a new water impoundment or the expansion of an existing water impoundment, shall be considered utilizing the review process applied to applications for conditional use permits and shall be permitted upon demonstration that:
 - 1. The affected wetlands provide unique ecological functions, such as critical habitat for threatened or endangered species or ground water discharge; and
 - 2. The wetland creation, enhancement or restoration is designed and will be maintained in perpetuity in a manner that will not increase hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces.
- G. Proposals for new or expanded wetland mitigation, creation, enhancement or restoration projects regulated under this Section shall be coordinated with the airport sponsor, the Department of

Aviation, the FAA and FAA's technical representative, the Oregon Department of Fish & Wildlife (ODFW), the Oregon Division of State Lands (DSL), the US Fish & Wildlife Service (USFWS), and the US Army Corps of Engineers (Corps) as part of the permit application.

- H. A decision approving an application under this Section shall require, as conditions of approval, measures and conditions deemed appropriate and necessary to prevent in perpetuity an increase in hazardous bird movements across runways and approach surfaces.

.100 Nonconforming Uses.

- A. These regulations shall not be construed to require the removal, lowering or alteration of any structure not conforming to these regulations. These regulations shall not require any change in the construction, alteration or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this overlay zone.
- B. Notwithstanding subsection A. of this section, the owner of any existing structure that has an adverse effect on air navigational safety as determined by the Department of Aviation shall install or allow the installation of obstruction markers as deemed necessary by the Department of Aviation, so that the structures become more visible to pilots.
- C. No land use or limited land use approval or other permit shall be granted that would allow a nonconforming use or structure to become a greater hazard to air navigation than it was on the effective date of this overlay zone.

- .110 Avigation Easement.** Within this overlay zone, the owners of properties that are the subjects of applications for land use or limited land use decisions, for building permits for new residential, commercial, industrial, institutional or recreational buildings or structures intended for inhabitation or occupancy by humans or animals, or for expansions of such buildings or structures by the lesser of 50% or 1000 square feet, shall, as a condition of obtaining such approval or permits, dedicate an avigation easement to the airport sponsor. The avigation easement shall be in a form acceptable to the airport sponsor and shall be signed and recorded in the deed records of the County. The avigation easement shall allow unobstructed passage for aircraft and ensure safety and use of the airport for the public. Property owners or their representatives are responsible for providing the recorded instrument prior to issuance of building permits.

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Appendix F

Model Private Use Airport

Safety Overlay Zone

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MODEL PRIVATE USE AIRPORT SAFETY OVERLAY ZONE

.010 Purpose. The purpose of this overlay zone is to encourage and support the continued operation and vitality of private use airports that were the base for three or more aircraft on December 31, 1994, and certain privately-owned public use airports, by establishing safety standards to promote air navigational safety at these airports as well as the safety of those living near these airports. [ORS 836.608(8); OAR 660-013-0050; OAR 660-013-0070(1)(b); OAR 660-013-0155(1), (2)]

.020 Definitions. [ORS 836.605; OAR 660-013-0070(1)(b)]

Airport. The strip of land used for taking off and landing aircraft, together with all adjacent land used in connection with the aircraft landing or taking off from the strip of land, including but not limited to land used for existing airport uses.

Airport Elevation. The highest point of an airport's usable runway, measured in feet above mean sea level.

Airport Imaginary Surfaces. Imaginary areas in space or on the ground that are established in relation to the airport and its runways. Imaginary areas for private use airports defined by the primary surface and approach surface.

Airport Sponsor. The owner, manager, or other person or entity designated to represent the interests of an airport.

Approach Surface. A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of the runway. The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of 450 feet for that end of a private use airport with only visual approaches. The approach surface extends for a horizontal distance of 2,500 feet at a slope of 20 feet outward for each one foot upward.

Department of Aviation. The Oregon Department of Aviation, formerly the Aeronautics Division of the Oregon Department of Transportation.

Height. The highest point of a structure or tree, plant or other object of natural growth, measured from mean sea level.

Obstruction. Any structure or tree, plant or other object of natural growth that penetrates an imaginary surface.

Primary Surface. A surface longitudinally centered on a runway. The primary surface ends at each end of a runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface is 200 feet.

Runway. A defined area on an airport prepared for landing and takeoff of aircraft along its length.

Structure. Any constructed or erected object which requires location on the ground or is attached to something located on the ground. Structures include but are not limited to buildings, decks, fences, signs, towers,

cranes, flagpoles, antennas, smokestacks, earth formations and overhead transmission lines. Structures do not include paved areas.

.030 Imaginary Surface Delineation. The airport elevation and the location and dimensions of the runway, primary surface and approach surface shall be delineated for each private use airport subject to this overlay zone and shall be made part of the Official Zoning Map. All lands, waters and airspace, or portions thereof, that are located within these surfaces shall be subject to the requirements of this overlay zone. [ORS 836.608(2), (8); OAR 660-013-0050; OAR 660-013-0070(1)(b); OAR 660-013-0155(2)]

.040 Notice of Land Use and Permit Applications within Overlay Zone Area.

- A. Written notice of applications for land use or limited land use decisions, including comprehensive plan or zoning amendments, shall be provided to the airport sponsor and the Department of Aviation in the same manner and within the same timelines as notice is provided to property owners entitled by law to written notice of land use or limited land use applications. Where the application does not involve a public hearing, such notice shall be provided at least 20 days prior to entry of the initial decision on the land use or limited land use application. [ORS 215.416(6); ORS 227.175(6); OAR 738-100-010]
- B. Notice of the decision on a land use or limited land use application shall be provided to the airport sponsor and the Department of Aviation within the same timelines that such notice is provided to parties to a land use or limited land use proceeding.

.050 Height Limitations on Allowed Uses in Underlying Zone. All uses permitted by the underlying zone shall comply with the height limitations in this Section. When height limitations of the underlying zone are more restrictive than those of this overlay zone, the underlying zone height limitations shall control. [ORS 836.608(8); OAR 660-013- 0155(1), (3); OAR 660-013-0070(1)(b)]

- A. Except as provided in subsection B of this Section, no structure or tree, plant or other object of natural growth shall penetrate an airport imaginary surface. [OAR 660-013-0070(1)(b)]
- B. Height variances may be permitted when supported in writing by the airport sponsor and the Department of Aviation. Applications for height variances shall follow the procedures for other variances and shall be subject to such conditions and terms as recommended by the Department of Aviation.

.060 Procedures. An applicant seeking a land use or limited land use approval in an area within this overlay zone shall provide the following information in addition to any other information required in the permit application:

- A. A map or drawing showing the location of the property in relation to the airport imaginary surfaces. The Planning Department shall provide the applicant with appropriate base maps upon which to locate the property.

- B. Elevation profiles and a site plan, both drawn to scale, including the location and height of all existing and proposed structures, measured in feet above mean sea level.
- C. If a height variance is requested, letters of support from the airport sponsor and the Department of Aviation.

.070 Nonconforming Uses.

- A. These regulations shall not be construed to require the removal, lowering or alteration of any structure not conforming to these regulations. These regulations shall not require any change in the construction, alteration or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this overlay zone.
- B. Notwithstanding subsection A. of this section, the owner of any existing structure that has an adverse effect on air navigational safety as determined by the Department of Aviation shall install or allow the installation of obstruction markers as deemed necessary by the Department of Aviation, so that the structures become more visible to pilots.
- C. No land use or limited land use approval or other permit shall be granted that would allow a nonconforming use or structure to become a greater hazard to air navigation than it was on the effective date of this overlay zone.

.080 Avigation Easement. Within this overlay zone, the owners of properties that are the subject of applications for land use or limited land use decisions, for building permits for new residential, commercial, industrial, institutional or recreational buildings or structures intended for inhabitation or occupancy by humans expansions of such buildings or structures by the lesser of 50% or 1000 square feet, shall, as a condition of obtaining such approval or permits, dedicate an avigation easement to the airport sponsor. The avigation easement shall be in a form acceptable to the airport sponsor and shall be signed and recorded in the deed records of the County. The avigation easement shall allow unobstructed passage for aircraft. Property owners or their representatives are responsible for providing the recorded instrument prior to issuance of building permits.

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Appendix F

Model Private Use Airport

Safety Overlay Zone

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MODEL PRIVATE USE AIRPORT SAFETY OVERLAY ZONE

.010 Purpose. The purpose of this overlay zone is to encourage and support the continued operation and vitality of private use airports that were the base for three or more aircraft on December 31, 1994, and certain privately-owned public use airports, by establishing safety standards to promote air navigational safety at these airports as well as the safety of those living near these airports. [ORS 836.608(8); OAR 660-013-0050; OAR 660-013-0070(1)(b); OAR 660-013-0155(1), (2)]

.020 Definitions. [ORS 836.605; OAR 660-013-0070(1)(b)]

Airport. The strip of land used for taking off and landing aircraft, together with all adjacent land used in connection with the aircraft landing or taking off from the strip of land, including but not limited to land used for existing airport uses.

Airport Elevation. The highest point of an airport's usable runway, measured in feet above mean sea level.

Airport Imaginary Surfaces. Imaginary areas in space or on the ground that are established in relation to the airport and its runways. Imaginary areas for private use airports defined by the primary surface and approach surface.

Airport Sponsor. The owner, manager, or other person or entity designated to represent the interests of an airport.

Approach Surface. A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of the runway. The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of 450 feet for that end of a private use airport with only visual approaches. The approach surface extends for a horizontal distance of 2,500 feet at a slope of 20 feet outward for each one foot upward.

Department of Aviation. The Oregon Department of Aviation, formerly the Aeronautics Division of the Oregon Department of Transportation.

Height. The highest point of a structure or tree, plant or other object of natural growth, measured from mean sea level.

Obstruction. Any structure or tree, plant or other object of natural growth that penetrates an imaginary surface.

Primary Surface. A surface longitudinally centered on a runway. The primary surface ends at each end of a runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface is 200 feet.

Runway. A defined area on an airport prepared for landing and takeoff of aircraft along its length.

Structure. Any constructed or erected object which requires location on the ground or is attached to something located on the ground. Structures include but are not limited to buildings, decks, fences, signs, towers,

cranes, flagpoles, antennas, smokestacks, earth formations and overhead transmission lines. Structures do not include paved areas.

.030 Imaginary Surface Delineation. The airport elevation and the location and dimensions of the runway, primary surface and approach surface shall be delineated for each private use airport subject to this overlay zone and shall be made part of the Official Zoning Map. All lands, waters and airspace, or portions thereof, that are located within these surfaces shall be subject to the requirements of this overlay zone. [ORS 836.608(2), (8); OAR 660-013-0050; OAR 660-013-0070(1)(b); OAR 660-013-0155(2)]

.040 Notice of Land Use and Permit Applications within Overlay Zone Area.

- A. Written notice of applications for land use or limited land use decisions, including comprehensive plan or zoning amendments, shall be provided to the airport sponsor and the Department of Aviation in the same manner and within the same timelines as notice is provided to property owners entitled by law to written notice of land use or limited land use applications. Where the application does not involve a public hearing, such notice shall be provided at least 20 days prior to entry of the initial decision on the land use or limited land use application. [ORS 215.416(6); ORS 227.175(6); OAR 738-100-010]
- B. Notice of the decision on a land use or limited land use application shall be provided to the airport sponsor and the Department of Aviation within the same timelines that such notice is provided to parties to a land use or limited land use proceeding.

.050 Height Limitations on Allowed Uses in Underlying Zone. All uses permitted by the underlying zone shall comply with the height limitations in this Section. When height limitations of the underlying zone are more restrictive than those of this overlay zone, the underlying zone height limitations shall control. [ORS 836.608(8); OAR 660-013- 0155(1), (3); OAR 660-013-0070(1)(b)]

- A. Except as provided in subsection B of this Section, no structure or tree, plant or other object of natural growth shall penetrate an airport imaginary surface. [OAR 660-013-0070(1)(b)]
- B. Height variances may be permitted when supported in writing by the airport sponsor and the Department of Aviation. Applications for height variances shall follow the procedures for other variances and shall be subject to such conditions and terms as recommended by the Department of Aviation.

.060 Procedures. An applicant seeking a land use or limited land use approval in an area within this overlay zone shall provide the following information in addition to any other information required in the permit application:

- A. A map or drawing showing the location of the property in relation to the airport imaginary surfaces. The Planning Department shall provide the applicant with appropriate base maps upon which to locate the property.

- B. Elevation profiles and a site plan, both drawn to scale, including the location and height of all existing and proposed structures, measured in feet above mean sea level.
- C. If a height variance is requested, letters of support from the airport sponsor and the Department of Aviation.

.070 Nonconforming Uses.

- A. These regulations shall not be construed to require the removal, lowering or alteration of any structure not conforming to these regulations. These regulations shall not require any change in the construction, alteration or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this overlay zone.
- B. Notwithstanding subsection A. of this section, the owner of any existing structure that has an adverse effect on air navigational safety as determined by the Department of Aviation shall install or allow the installation of obstruction markers as deemed necessary by the Department of Aviation, so that the structures become more visible to pilots.
- C. No land use or limited land use approval or other permit shall be granted that would allow a nonconforming use or structure to become a greater hazard to air navigation than it was on the effective date of this overlay zone.

.080 Avigation Easement. Within this overlay zone, the owners of properties that are the subject of applications for land use or limited land use decisions, for building permits for new residential, commercial, industrial, institutional or recreational buildings or structures intended for inhabitation or occupancy by humans expansions of such buildings or structures by the lesser of 50% or 1000 square feet, shall, as a condition of obtaining such approval or permits, dedicate an avigation easement to the airport sponsor. The avigation easement shall be in a form acceptable to the airport sponsor and shall be signed and recorded in the deed records of the County. The avigation easement shall allow unobstructed passage for aircraft. Property owners or their representatives are responsible for providing the recorded instrument prior to issuance of building permits.

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Appendix G

Model Public Use Airport Zone

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MODEL PUBLIC USE AIRPORT ZONE

- .010 Purpose.** The purpose of the Public Use Airport zone is to encourage and support the continued operation and vitality of [public use airports] [name of specific airport(s)] in the [city] [county] by allowing certain airport-related commercial and recreational uses in accordance with state law. [ORS 836.600] **[NOTE: where the jurisdiction contains just one or a couple airports listed in OAR 738-090-0030(1), it may want to identify the airport(s) by name; otherwise, it should use "public use airports"]**
- .020 Application.** This zoning district applies to all publicly owned airports in the [city] [county], other than towered airports, that were registered, licensed or otherwise recognized by the Oregon Department of Transportation on or before December 31, 1994 and that, in 1994, were the base for three or more aircraft. It also applies to those privately owned public use airports in the [city] [county] identified by rule by the Department of Transportation as providing important links in air traffic in Oregon, or providing essential safety or emergency services, or being of economic importance to the county where the airport is located. [ORS 836.610(1); see also OAR 738-090-0030(1)] **[NOTE: this section reflects state law. Some jurisdictions like to include this type of provision in their zoning ordinances, while others do not. Its use is optional. Local governments choosing to include this section may wish to substitute the names of the affected airports.]**
- .030 Conformance with Airport Overlay Zones.** All uses, activities, facilities and structures allowed in the Public Use Airport Zone shall comply with the requirements of the Public Use Airport Safety and Compatibility Overlay Zone. In the event of a conflict between the requirements of this zone and those of the Public Use Airport Safety and Compatibility Overlay Zone, the requirements of the overlay zone shall control. [ORS 836.619; OAR 660-013-0070, 0080]
- .040 Definitions.**
- A. **Aircraft.** Includes airplanes and helicopters, but not hot air balloons or ultralights.
 - B. **Airport sponsor.** The owner, manager, person or entity designated to represent the interests of an airport. [OAR 660-013-0020]
- .050 Uses Permitted Outright.** The following uses and activities are permitted outright in the Public Use Airport Zone:
- A. Customary and usual aviation-related activities, including but not limited to takeoffs and landings; aircraft hangars and tie-downs; construction and maintenance of airport facilities; fixed based operator facilities; a residence for an airport caretaker or security officer; and other activities incidental to the normal operation of an airport. Except as provided in this ordinance, "customary and usual aviation-related activities" do not include residential, commercial, industrial, manufacturing and other uses.
 - B. Air passenger and air freight services and facilities, at levels consistent with the classification and needs identified in the Oregon Department of Aviation Airport System Plan.

-
- C. Emergency medical flight services, including activities, aircraft, accessory structures, and other facilities necessary to support emergency transportation for medical purposes. Emergency medical flight services do not include hospitals, medical offices, medical labs, medical equipment sales, and other similar uses.
 - D. Law enforcement and firefighting activities, including aircraft and ground-based activities, facilities and accessory structures necessary to support federal, state or local law enforcement or land management agencies engaged in law enforcement or firefighting activities. Law enforcement and firefighting activities include transport of personnel, aerial observation, and transport of equipment, water, fire retardant and supplies.
 - E. Search and rescue operations, including aircraft and ground based activities that promote the orderly and efficient conduct of search or rescue related activities.
 - F. Flight instruction, including activities, facilities, and accessory structures located at airport sites that provide education and training directly related to aeronautical activities. Flight instruction includes ground training and aeronautic skills training, but does not include schools for flight attendants, ticket agents or similar personnel.
 - G. Aircraft service, maintenance and training, including activities, facilities and accessory structures provided to teach aircraft service and maintenance skills and to maintain, service, refuel or repair aircraft or aircraft components. "Aircraft service, maintenance and training" includes the construction and assembly of aircraft and aircraft components for personal use, but does not include activities, structures or facilities for the manufacturing of aircraft or aircraft-related products for sale to the public.
 - H. Aircraft rental, including activities, facilities and accessory structures that support the provision of aircraft for rent or lease to the public.
 - I. Aircraft sales and the sale of aeronautic equipment and supplies, including activities, facilities and accessory structures for the storage, display, demonstration and sales of aircraft and aeronautic equipment and supplies to the public but not including activities, facilities or structures for the manufacturing of aircraft or aircraft-related products for sale to the public.
 - J. Crop dusting activities, including activities, facilities and structures accessory to crop dusting operations. Crop dusting activities include, but are not limited to, aerial application of chemicals, seed, fertilizer, defoliant and other chemicals or products used in a commercial agricultural, forestry or rangeland management setting.
 - K. Agricultural and Forestry Activities, including activities, facilities and accessory structures that qualify as a "farm use" as defined in ORS 215.203 or "farming practice" as defined in ORS 30.930.
 - L. **[NOTE: Other uses, such as commercial or manufacturing uses, may be added to this list if they are consistent with applicable provisions of the acknowledged comprehensive plan and if the uses do not create a safety hazard or otherwise limit approved airport uses. For example, inside an urban growth boundary,**

commercial or manufacturing uses may be allowed. Outside an urban growth boundary, other uses are permitted only if authorized by a goal exception.] [ORS 836.616; OAR 660-013-0100, 0110]

.060 Uses Permitted Subject to the Acceptance of the Airport Sponsor. The following uses and activities and their associated facilities and accessory structures are permitted in the Public Use Airport Zone upon demonstration of acceptance by the airport sponsor. [ORS 836.616(2)(j); OAR 660-013-0100(8)]

- A. Aeronautic recreational and sporting activities, including activities, facilities and accessory structures at airports that support recreational usage of aircraft and sporting activities that require the use of aircraft or other devices used and intended for use in flight. Aeronautic recreation and sporting activities authorized under this paragraph include, but are not limited to, fly-ins; glider flights; hot air ballooning; ultralight aircraft flights; displays of aircraft; aeronautic flight skills contests; and gyrocopter flights, but do not include flights carrying parachutists or parachute drops (including all forms of skydiving). **[NOTE: Federally funded airports may need the concurrence of the FAA to preclude some kinds of aeronautic recreational and sporting activities.]**
- B. Flights carrying parachutists, and parachute drops (including all forms of skydiving) onto an airport, but only upon demonstration that the parachutist business has secured approval to use a drop zone that is at least 10 contiguous acres. The configuration of the drop zone shall roughly approximate a square or a circle and may contain structures, trees, or other obstacles only if the remainder of the drop zone provides adequate areas for parachutists to land safely. **[NOTE: where evidence of missed landings and dropped equipment supports the need for a larger area, a larger drop zone may be required.] [NOTE: Where there is only one airport within the jurisdiction, the city or county may tailor the provisions of this subsection to the interests of the airport sponsor. For example, if the airport sponsor does not want to allow skydiving or ultralight activity, those provisions can be deleted from the ordinance.]**

.070 Uses Permitted Under Prescribed Conditions. The following uses and activities and their associated facilities are permitted in the Public Use Airport Zone upon demonstration of compliance with the standards of this subsection.

- A. **[NOTE: Other uses may be included here, subject to such conditions or standards prescribed by the local government, provided that they are consistent with applicable provisions of the acknowledged comprehensive plan and that the uses do not create a safety hazard or otherwise limit approved airport uses.] [ORS 836.616(3); OAR 660-013-0110]**

.080 [NOTE: This model ordinance does not include standards addressing setbacks or other dimensional requirements, access, parking, landscaping, and the like. While not required by statute, a local government may wish to include such provisions in its Public Use Airport Zone.]

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Appendix H

Model Private Use Airport Zone

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MODEL PRIVATE USE AIRPORT ZONE

- .010 Purpose.** The purpose of the Private Use Airport Zone is to recognize the locations of certain private-use and privately-owned public use airports and to provide for their continued operation and vitality consistent with state law. [ORS 836.608(1)]
- .020 Application.** This zoning district applies to private-use airports in the [city] [county] that were the base for three or more aircraft on December 31, 1994, as shown in the records of the Oregon Department of Transportation, and to those privately-owned public-use airports not identified by rule by the Oregon Department of Transportation as providing important links in air traffic in Oregon, or providing essential safety or emergency services, or being of economic importance to the county where the airport is located. [ORS 836.608(2); OAR 660-013-0155(1); see also OAR 738-090-0030(1)] **[NOTE(1): This section reflects state law. Some jurisdictions like to include this type of provision in their zoning ordinances, while others do not. Its use is optional. Local governments choosing to include this section may wish to substitute the names of the affected airports.] [NOTE(2): A list containing the names and locations of private use airports that, on December 31, 1994, were the base for three or more aircraft as shown in the records of the Department of Transportation may be obtained from the Oregon Department of Aviation. The local government may wish to identify the affected airports by name.]**
- .030 Definitions.**
- A. **Aircraft.** Includes airplanes and helicopters, but not hot air balloons or ultralights.
 - B. **Airport Sponsor.** The owner, manager, person or entity designated to represent the interests of an airport. [OAR 660-013-0020]
- .040 Continued Operation of Existing Uses.** Operation of the following uses may be continued at their current levels as of the effective date of this ordinance upon demonstration that the use existed at the airport at any time during 1996.
- A. Customary and usual aviation-related activities, including but not limited to takeoffs and landings; aircraft hangars and tie-downs; construction and maintenance of airport facilities; fixed based operator facilities; a residence for an airport caretaker or security officer; and other activities incidental to the normal operation of an airport. Except as provided in this ordinance, "customary and usual aviation-related activities" do not include residential, commercial, industrial, manufacturing and other uses.
 - B. Air passenger and air freight services and facilities, at levels consistent with the classification and needs identified in the Oregon Department of Aviation Airport System Plan.
 - C. Emergency medical flight services, including activities, aircraft, accessory structures, and other facilities necessary to support emergency transportation for medical purposes. Emergency medical flight services include search and rescue operations but do not include hospitals, medical offices, medical labs, medical equipment sales, and other similar uses.

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- D. Law enforcement and firefighting activities, including aircraft and ground-based activities, facilities and accessory structures necessary to support federal, state or local law enforcement or land management agencies engaged in law enforcement or firefighting activities. Law enforcement and firefighting activities include transport of personnel, aerial observation, and transport of equipment, water, fire retardant and supplies.
 - E. Search and rescue operations, including aircraft and ground based activities that promote the orderly and efficient conduct of search or rescue related activities.
 - F. Flight instruction, including activities, facilities, and accessory structures located at airport sites that provide education and training directly related to aeronautical activities. Flight instruction includes ground training and aeronautic skills training, but does not include schools for flight attendants, ticket agents or similar personnel.
 - G. Aircraft service, maintenance and training, including activities, facilities and accessory structures provided to teach aircraft service and maintenance skills and to maintain, service, refuel or repair aircraft or aircraft components. "Aircraft service, maintenance and training" includes the construction and assembly of aircraft and aircraft components for personal use, but does not include activities, structures or facilities for the manufacturing of aircraft or aircraft-related products for sale to the public.
 - H. Aircraft rental, including activities, facilities and accessory structures that support the provision of aircraft for rent or lease to the public.
 - I. Aircraft sales and the sale of aeronautic equipment and supplies, including activities, facilities and accessory structures for the storage, display, demonstration and sales of aircraft and aeronautic equipment and supplies to the public but not including activities, facilities or structures for the manufacturing of aircraft or aircraft-related products for sale to the public.
 - J. Crop dusting activities, including activities, facilities and structures accessory to crop dusting operations. Crop dusting activities include, but are not limited to, aerial application of chemicals, seed, fertilizer, defoliant and other chemicals or products used in a commercial agricultural, forestry or rangeland management setting.
 - K. Agricultural and Forestry Activities, including activities, facilities and accessory structures that qualify as a "farm use" as defined in ORS 215.203 or "farming practice" as defined in ORS 30.390.
 - L. Aeronautic recreational and sporting activities, including activities, facilities and accessory structures at airports that support recreational usage of aircraft and sporting activities that require the use of aircraft or other devices used and intended for use in flight, are permitted subject to the acceptance of the airport sponsor. Aeronautic recreation and sporting activities include, but are not limited to, fly-ins; glider flights; hot air ballooning; ultralight aircraft flights; displays of aircraft; aeronautic flight skills contests; gyrocopter flights; flights carrying parachutists; and parachute drops onto an airport. As used herein, parachuting and parachute drops include all forms of skydiving. [ORS 836.608(3)(a); OAR 660-013-0155(2)]

.050 Expansion of Existing Uses. The expansion of uses identified in Section .040 of this zoning district that existed at any time during 1996 is permitted as provided in this section.

A. Expansions Allowed Outright. The following expansions of existing uses are permitted outright:

1. Construction of additional hangars and tie-downs by the owner of the airport.
2. Basing additional aircraft at the airport.
3. Increases in flight activity.

B. Other Expansions of Existing Uses.

1. Growth of existing uses that require building permits, other than those existing uses identified in subsection A of this section, shall be permitted as an administrative decision without public hearing, unless the growth:
 - a. Cannot be supported by existing public facilities and services and transportation systems authorized by applicable statewide land use planning goals;
 - b. Forces a significant change or significantly increases the costs of conducting existing uses on surrounding lands; or
 - c. Exceeds the standards of ORS 215.296(1) if the airport is adjacent to land zoned for exclusive farm use.
2. Growth of an existing use for which a public hearing is required shall be permitted only upon demonstration of compliance with the standards for new uses set out in Section .060 of this zoning district. [ORS 836.608(3)(a), (4); OAR 660-013-0155(2)]

.060 New Uses. Uses identified in Section .040 of this zoning district shall be permitted following public hearing before the **[identify review authority and process]** upon demonstration of compliance with the following standards. An applicant may demonstrate that these standards will be satisfied through the imposition of clear and objective conditions.

1. The use is or will be supported by adequate types and levels of facilities and services and transportation systems authorized by applicable statewide land use planning goals;
2. The use does not seriously interfere with existing land uses in areas surrounding the airport; and
3. For airports adjacent to land zoned for exclusive farm use, the use complies with the requirements in ORS 215.296. [ORS 836.608(3)(b), (5) and (6); OAR 660-013-0155(2)]

.070 Limitations on Height of Structures. All uses, activities, facilities and structures allowed in the Private Use Airport Zone shall comply with the

requirements of the Private Use Airport Safety Overlay Zone. [ORS 836.608(8); OAR 660-013-0070(1)(b); OAR 660- 013-0155(3)]

- .080 [NOTE: This model ordinance does not include standards addressing setbacks or other dimensional requirements, access, parking, landscaping, and the like. While not required by statute, a local government may wish to include such provisions in its Private Use Airport Zone.]**

Appendix I

Sample

Agreements and Easements

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SAMPLE AGREEMENTS AND EASEMENTS

These agreements and easements are provided as examples only. These examples should be tailored to reflect each community's local circumstances and should not be directly reproduced from this document.

SAMPLE AGREEMENTS AND EASEMENTS

- 1. Noise Easement**
- 2. Avigation and Hazard Easement**
- 3. Hold Harmless Agreement**
- 4. Fair Disclosure Statement**
- 5. Suggested Disclosure to Real Estate Buyers**

EXAMPLE 1

NOISE EASEMENT

THIS AGREEMENT, made this _____ day of _____, 20____, between the _____ (Airport Authority), a municipal corporation of the State of Oregon, hereinafter referred to as "Grantee";

The Grantor does hereby grant, in consideration for the right to develop the subject property for residential use, pursuant to City Planning and Zoning Code, Chapter _____ (No.), to the Grantee, its successors and assigns, to have and to hold an easement for aircraft noise impact until _____ shall be abandoned or shall cease to be used for airport purposes, over the following described parcel of land situated in the County of _____, State of Oregon, as follows:

(Legal description and street address of Grantor's parcel of land)

Said Easement shall encompass the right, in the airspace above the surface of the Grantor's property having the same boundaries as the above described property and extending from the surface upwards to the limits of the atmosphere of the earth, to cause in said airspace a maximum of such noise as reflected by the Noise Impact Zone Map adopted by City Ordinance _____ (No.). This easement is only applicable to airport noise caused from runway alignments existing in _____ (Year). More specifically, the noise created by aircraft now known or hereafter used for navigation of or flight in air, shall not exceed the permitted annual average DNL level obtained by using established measurement standards and procedures. The permitted annual average DNL level shall not be greater than the annual average DNL level established in _____ (Year), or the most recent annual average DNL established, pursuant to Section _____ (No.), prior to the date of said Easement, whichever is the lesser. If the permitted annual average DNL level can be shown to have been exceeded, as provided for by Section _____ (No.), said Easement shall be void.

The granting of said Easement shall establish the Grantor's right to develop the above-described parcel of land for residential use. The Grantor's execution and offering of said Easement is sufficient to fulfill the requirements for the issuing of a building permit if all other zoning requirements have been met.

It is understood and agreed that these covenants and agreements shall run with the land, that notice shall be made to and shall be binding upon heirs, administrators, executors, successors, and assigns of the Grantor.

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal this _____ day of _____, 20_____.

Grantor

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EXAMPLE 2

AVIGATION AND HAZARD EASEMENT

WHEREAS, (full name of property owner(s)) hereinafter called the Grantors, are the owners in fee of that certain parcel of land situated in the City of _____, County of _____, State of _____, more particularly described as follows:

(Full description of property to be covered by easement)

hereinafter called "Grantors' property," and outlined on the attached map (Exhibit 1);

NOW, THEREFORE, in consideration of the sum of _____dollars (\$_____) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Grantors, for themselves, their heirs, administrators, executors, successors, and assigns, do hereby grant, bargain, sell, and convey unto (owner and operator of airport, i.e., City of _____) hereinafter called the Grantee, its successors and assigns, for the use and benefit of the public, as easement and right of way, appurtenant to (full name of airport) or the unobstructed passage of all aircraft, ("aircraft" being defined for the purpose of this instrument of any contrivance now known or hereafter invented, used, or designed for navigation of or flight in the air) by whomsoever owned and operated.

In the air space above Grantors' property above an imaginary plane rising and extending in a general (i.e., Easterly) direction over Grantors' property, said imaginary plane running from approximately (i.e., 25) feet Mean Sea level above Point A on Exhibit 1 at the rate of one foot vertically for each (i.e., 50) feet horizontally to approximately (i.e., 55) feet Mean Sea level above Point B on Exhibit 1, to an infinite height above said imaginary plane,¹

(OR USE THE FOLLOWING)

in the air space above Grantors' property above a Mean Sea level of (i.e., 150) feet, to an infinite height above said Mean Sea level of (i.e., 150) feet,¹

(OR USE THE FOLLOWING)

in all air space above the surface of Grantors' property, to an infinite height above said Grantors' property.¹

Together with the right to cause in all air space above the surface of Grantors' property such noise, vibrations, fumes, dust, fuel particles, and all other effects that may be caused or may have been caused by the operation of aircraft landing at, or taking off from, or operating at or on said _____(full name of airport).

¹ Alternative language depending upon desired coverage of easement

The easement and right of way hereby granted includes the continuing right in the Grantee to prevent the erection or growth upon Grantors' property of any building, structure, tree, or other object, extending into the air space above the aforesaid imaginary plane,

(OR USE THE FOLLOWING)

extending into the air space above the said Mean Sea level of (i.e., 150) feet,¹

(OR USE THE FOLLOWING)

extending into the air space above the surface of Grantors' property;¹

and to remove from said air space, or at the sole option of the Grantee, as an alternative, to mark and light as obstructions to air navigation, any such building, structure, tree or other objects now upon, or which in the future may be upon Grantors' property, together with the right of ingress to, egress from, and passage over Grantors' property for the above purposes.

TO HAVE AND TO HOLD said easement and right of way, and all rights appertaining thereto unto the Grantee, its successors, and assigns, until said (full name of airport) shall be abandoned and shall cease to be used for public airport purposes.

AND for the consideration hereinabove set forth, the Grantors, for themselves, their heirs, administrators, executors, successors, and assigns, do hereby agree that for and during the life of said easement and right of way, they will not hereafter erect, permit the erection or growth of, or permit or suffer to remain upon Grantors' property any building, structure, tree, or other object extending into the aforesaid prohibited air space, and that they shall not hereafter use or permit or suffer the use of Grantors' property in such a manner as to create electrical interference with radio communication between any installation upon said airport and aircraft, or as to make it difficult for flyers to distinguish between airport lights and others, or as to impair visibility in the vicinity of the airport or as otherwise to endanger the landing, taking off, or maneuvering of aircraft, it being understood and agreed that the aforesaid covenants and agreements shall run with the land.

In consideration of the premises and to assure Grantee of the continued benefits accorded it under this Easement, (name of mortgagee), owner and holder of a mortgage dated _____ and recorded _____ covering the premises above described, does hereby covenant and agree that said mortgage shall be subject to and subordinate to this Easement and the recording of this Easement shall have preference and precedence and shall be superior and prior in lien to said mortgage irrespective of the date of the making or recording of said mortgage instrument.²

² Local recordation and subordination practices must also be met. If subordination is necessary, in which case the mortgagee must join in the agreement, the above language is suggested.

IN WITNESS WHEREOF, the Grantors have hereunto set their hands and seals
this _____ day of _____, 20_____.

Signed, sealed, and delivered in the presence of:

_____ (SEAL)

_____ (SEAL)

(Notarial Acknowledgment)

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EXAMPLE 3

HOLD HARMLESS AGREEMENT

KNOW ALL MEN BY THESE PRESENTS, that the undersigned, hereinafter referred to as Grantees (whether singular or plural), hereby covenant and agree that they shall not, by reason of their ownership or occupation of the following described real property, protest or bring suit or action against the _____ Airport or the City (County) of _____ for aviation related noise, property damage or personal injuries resulting from activities at or connected with the _____ Airport when such activities conform to the then existing rules and regulations of said airport and the applicable federal air regulations and no negligence on the part of said airport is involved. The real property of Grantees subject to this covenant and agreement is situated in the County of _____, State of Oregon, and described as follows:

(Insert Legal Description and Appropriate Map)

This covenant and agreement is made and executed by the Grantees in consideration of the City (County) of _____ granting a conditional use permit for Grantees use and development of the above described real property, which real property is located in the airport approach zone of the _____ Airport. The execution of this covenant and agreement by Grantees is required by the City (County) of _____ as a prerequisite to the granting of the above said conditional use permit to Grantees. This agreement is executed for the protection and benefit of the _____ Airport and the City (County) of _____ interest in said airport and to prevent development in adjacent lands to said airport which will interfere with the continued operation existent and development of said airport. This covenant and agreement is intended to be binding upon the Grantees, their heirs, assigns, and successors and inure to the benefit of the City (County) of _____ and the Airport, their successors and assigns.

DATED this _____ day of _____, 20_____.

STATE OF OREGON) GRANTEES:
)
)
) ss. _____
)
City/County of _____) _____

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EXAMPLE 4

FAIR DISCLOSURE STATEMENT

A disclosure statement, adhering to the form of the statement below, shall be provided to and signed by each potential purchaser of property within the Airport Influence Area as shown on the approved Airport Land Use Drawing. The signed statement will then be affixed by the Seller to the agreement of the sale.

The tract of land situated at

_____ in _____ (County and State), consisting of approximately _____ acres which is being conveyed from _____ to _____ lies within _____ miles of _____ (airport name) may be subjected to varying noise levels, as the same is shown and depicted on the official Zoning Maps.

CERTIFICATION

The undersigned purchaser(s) of said tract of land certify(ies) that (he) (they) (has) (have) read the above disclosure statement and acknowledge(s) the pre-existence of the airport named above and the noise exposure due to the operation of said airport.

(SIGNED)

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EXAMPLE 5**SUGGESTED DISCLOSURE TO REAL ESTATE BUYERS**

Customarily, someone will request a letter from the municipality about outstanding charges and assessments against a property. Something similar to this language, adapted for your airport, can be incorporated into a letter sent to buyers and title companies in preparation for closing.

“Please be advised that the subject property is located within the height restriction zone of the (blank) airport, or is located within a similar distance from the airport. It is conceivable that standard flight patterns would result in aircraft passing over (or nearly so) the property at altitudes of less than (blank) feet. Current airport use patterns suggest that the average number of takeoffs/touchdowns exceeds (blank) annually. A property buyer should be aware that use patterns vary greatly, with the possibility of increased traffic on (blank). The airport presently serves primarily recreational aircraft, and there are no current initiatives to extend any runway beyond the current (blank) length. Airport plans allow for runway extension in the future, which might impact the number and size of both pleasure and non-pleasure aircraft. Generally, it is not practical to redirect or severely limit airport usage and/or planned-for expansion, and residential development proximate to the airport ought to assume, at some indefinite date, an impact from air traffic.”

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Appendix J

Measuring Aircraft Noise

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MEASURING AIRCRAFT NOISE

Basic Noise Measures

There are several attributes associated with sound: it may be loud or faint; it may be high-pitched or low, discordant or pleasing, etc. These various characteristics must be quantified in order to arrive at an engineering description of any given sound and to have a means for comparing two sounds separated in space and time.

The word noise is in wide use in many fields of technology today, but if we limit our discussion to its use in relation to sound, one may define noise loosely as unwanted sound. For our purposes, an acceptable definition of sound is that it is a physical disturbance of the atmosphere that can be detected by the human ear. A simple source of sound familiar to all of us is the tuning fork. When it is struck, it vibrates in a to-and-fro motion setting the air in motion in the same manner. The resulting disturbance of the air travels outward from the tuning fork and upon entering the ear canal of the listener produces an auditory sensation, or sound.

We are concerned in defining the impact of aircraft noise on people, on communities and on land uses. Before discussing these aspects, it is useful to discuss some of the properties of sound and develop some of the quantitative scales that are used in the measurement of sound.

Decibel Scale

The pressure fluctuations in the quiescent atmosphere, which are detected as sound, are generally very small, but nonetheless here is a large difference in pressure between the faintest audible sound (e.g., rustling leaves) and the loudest sounds (jet engines, rockets). The ratio is on the order of a million billion. Although the human ear can distinguish the difference in loudness between these different sources, the differences in perceived loudness are much smaller than in the actual measured differences in pressure.

It is possible to construct a scale for measuring the pressure fluctuations (sound pressure) which corresponds fairly well with the properties of the human ear as far as loudness perception is concerned. This scale is called the "decibel scale" and quantity that it measures is called sound pressure level. The zero on this scale corresponds roughly to the quietest sound an average person can hear. A sound level of 120 on this scale corresponds to the point where the noise becomes painful.

Frequency Spectrum

Apart from the loudness of a sound, there is the characteristic of pitch. While the size of pressure fluctuations in the air determines the loudness of the sound, the pitch is related to how often such fluctuations repeat. For audible sounds this repetition may vary from about 20 times per second to around 16,000 times per second. If a given sound consists of fluctuations that repeat 440 times per second, we say that the sound has a frequency of 440 Hertz (Hz), where one hertz is equivalent to one frequency per second.

There are various kinds of sounds. The sound produced by the simple tuning fork is known as a pure tone and is usually composed of a single frequency. An example of a more complex sound is a musical note such as Middle C on the piano. This kind of sound has a fundamental frequency (256Hz) plus several overtones or harmonics. In practice one encounters sounds that are much more complex, such as speech, music and the wide range of sounds classified as noise. Each

of these sounds contains energy extending over a rather wide frequency range. This includes, of course, most aircraft noise, as well as the noise produced by most motor vehicles. One can identify the pure tone with the whine of a jet engine compressor or fan, and the broadband noise with the roar of the exhaust of a turbojet engine.

A-Weighted Sound Level

To complicate matters, the human ear is more sensitive to sound energy at higher frequencies than at lower frequencies, and further, the ear's sensitivity to sounds of different frequencies changes with the level (loudness) of the sound. In problems involving people's reaction to noise, one needs a way of accounting for the ears varying sensitivity to noises that vary in frequency and in level. Much effort has gone into studies to develop improved methods of relating physical measurements to the subjective response of human listeners. One early approach for improving the correlation between measured pressures and subjective human response was the introduction of frequency weighing networks on sound level meters.

The weighting network that is in the widest use today is the A-weighting network. The network discriminates against the lower frequencies, to which the ear is less sensitive, according to a relationship approximating a person's subjective reaction in terms of loudness at moderate sound levels. Noise levels with the A-weighting network are identified as the "A-weighted sound pressure level of 77 decibels," or more simply as the "A level of 77dB," or shorter yet, as 77dBA." The A-weighting is widely used throughout the world to measure community and industrial noise. It is also widely used to measure motor vehicle and traffic noise. Table A-1 lists the approximately A-level of some sounds.

Day-Night Average Sound Level (DNL)

The Day-Night average sound level, abbreviated as DNL and symbolized as Ldn, is the 24-hour sound level, in decibels, for the period from midnight to midnight, obtained after the addition of 10 decibels to sound levels from 10 p.m. to 7 a.m. DNL was developed in 1973-74 for the Environmental Protection Agency. DNL is a measurable quantity and can be measured directly at a specific location using portable monitoring equipment. It is widely used for estimating noise impacts at both civil and military airports. DNL may be used for quantifying other noise sources, such as auto traffic, and for comparing them to airport generated noise. A noise contour is a continuous line on a map of the airport vicinity that connects all the points of the same noise exposure level. Contour values usually range from less than 55Ldn for lightly impacted areas to more than 75Ldn for heavily impacted areas. The contours are then drafted on a map of the airport environs. Chapter 3 contains Exhibit 3-6 which illustrates the compatible land uses associated with the various DNL levels.

Appendix K

FAA Form 7460-1

Notice of Proposed Construction or Alternation

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U.S. Department of Transportation Federal Aviation Administration	<i>Failure To Provide All Requested Information May Delay Processing of Your Notice</i>	FOR FAA USE ONLY
<h2 style="margin: 0;">Notice of Proposed Construction or Alteration</h2>		Aeronautical Study Number - - -

1. Sponsor (*person, company, etc. proposing this action*) :

Attn. of: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

2. Sponsor (*person, company, etc. proposing this action*) :

Attn. of: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

3. Notice of: New Construction Alteration Existing

4. Duration: Permanent Temporary (months, days)

5. Work Schedule: Beginning _____ End _____

6. Type: Antenna Tower Crane Building Power Line
 Landfill Water Tank Other _____

7. Marking/Painting and/or Lighting Preferred:
 Red Lights and Paint Dual - Red and Medium Intensity White
 White - Medium Intensity Dual - Red and High Intensity White
 White - High Intensity Other _____

8. FCC Antenna Structure Registration Number (*If Applicable:*) _____

9. Latitude: _____ ° _____ ' _____ " "

10. Longitude: _____ ° _____ ' _____ " "

11. Datum: NAD 83 NAD 27 Other _____

12. Nearest: City _____ State _____

13. Nearest Public-use (not private-use) or Military Airport or Heliport:

14. Distance from #13. to Structure: _____

15. Direction from #13 to Structure: _____

16. Site Elevation (AGL): _____

17. Total Structure Height (AMSL): _____

18. Overall height (#16.+17.) (AMSL): _____

19. Previous FAA aeronautical Study Number (*If applicable:*) _____-OE

20. Description of Location: (Attach a USGS 7.5 minute Quadrangle Map with the precise site marked and any certified survey).

21. Complete Description of Proposal: 	Frequency/Power (kW)

Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of \$1,000 per day until the notice is received, pursuant to 49 U.S.C., section 46301 (a).

I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark and/or light the structure in accordance with established marking and lighting standards as necessary.

Date	Typed or Printed name and Title of Person filing Notice	Signature

INSTRUCTIONS FOR COMPLETING FAA FORM 7460-1

PLEASE TYPE or PRINT

ITEM #1. Please include the name, address, and phone number of a personal contact point as well as the company name.

ITEM #2. Please include the name, address, and phone number of a personal contact point as well as the company name.

ITEM #3. New Construction would be a structure that has not yet been built. Alteration is a change to an existing structure such as the addition of a side mounted antenna, a change to the marking and lighting, a change to power and/or frequency, or a change to the height. The nature of the alteration shall be included in **ITEM #21** "Complete Description of Proposal". Existing would be a correction to the latitude and/or longitude, a correction to the height, or if filing on an existing structure which has never been studied by the FAA. The reason for the notice shall be included in **ITEM #21** "Complete Description of Proposal".

ITEM #4. If Permanent, so indicate. If Temporary, such as a crane or drilling derrick, enter the estimated length of time the temporary structure will be up.

ITEM #5. Enter the date that construction is expected to start and the date that construction should be completed.

ITEM #6. Please indicate the type of structure. **DO NOT LEAVE BLANK.**

ITEM #7. In the event that obstruction marking and lighting is required, please indicate type desired. If no preference, check "other" and indicate "no preference". **DO NOT LEAVE BLANK.** **NOTE:** *High intensity lighting shall be used only for structures over 500'AGL.* In the absence of high intensity lighting for structures over 500' AGL, marking is also required.

ITEM #8. If this is an existing tower that has been registered with the FCC, enter the FCC Antenna Structure Registration number here.

ITEM #9. and **#10.** Latitude and longitude must be geographic coordinates, accurate to within the nearest second or to the nearest hundredth of a second if known. Latitude and longitude derived solely from **a hand-held GPS instrument is NOT acceptable.** A hand-held GPS is only accurate to within 100 meters (328 feet) 95 per cent of the time. This data, when plotted, should match the site depiction submitted under **ITEM #20.**

ITEM #11. NAD 83 is preferred; however, latitude/longitude may be submitted in NAD 27. Also, in some geographic areas where NAD 27 and NAD 83 are not available other datums may be used. It is important to know which datum is used. **DO NOT LEAVE BLANK.**

ITEM #12. Enter the name of the nearest city/state to the site. If the structure is or will be in a city, enter the name of that city/state.

ITEM#13. Enter the full name of the nearest public-use (not private-use) airport (or heliport) or military airport (or heliport) to the site.

ITEM #14. Enter the distance **from** the airport or heliport listed in **#13 to the structure.**

ITEM #15. Enter the direction **from** the airport or heliport listed in **#13 to the structure.**

ITEM #16. Enter the site elevation above mean sea level and expressed in **whole feet** rounded to the nearest foot (e.g. 17' 3" rounds to 17', 17'6" rounds to 18'). This data should match the ground contour elevations for site depiction submitted under **ITEM #20.**

ITEM #17. Enter the total structure height **above ground level** in **whole feet** rounded to the **next highest foot** (e.g. 17'3" rounds to 18'). **The total structure height shall include anything mounted on top of the structure, such as antennas, obstruction lights, lightning rods, etc.**

ITEM #18. Enter the overall height above mean sea level and expressed in **whole feet.** This will be the total of **ITEM #16 + ITEM #17.**

ITEM #19. If an FAA aeronautical study was previously conducted, enter the previous study number.

ITEM #20. Enter the relationship of the structure to roads, airports, prominent terrain, existing structures, etc. Attach an 8-1/2" X 11" non-reduced copy of the appropriate 7.5 minute U.S. Geological Survey (USGS) Quadrangle Map MARKED WITH A PRECISE INDICATION OF THE SITE LOCATION. To obtain maps, Contact USGC at 1-800-435-7627 or via Internet at "<http://mapping.usgs.gov>". If available, attach a copy of a documented site survey with the surveyor's certification stating the amount of vertical and horizontal accuracy in feet.

ITEM #21.

- For transmitting stations, include maximum effective radiated power (ERP) and all frequencies.
- For antennas, include the type of antenna and center of radiation (*Attach the antenna pattern, if available*).
- For microwave, include azimuth relative to true north.
- For overhead wires or transmission lines, include size and configuration of wires and their supporting structures (*Attach depiction*).
- For **each** pole/support, include coordinates, site elevation, and structure height above ground level or water.
- For buildings, include site orientation, coordinates of **each** corner, dimensions, and construction materials,
- For alterations, explain the alteration thoroughly,
- For existing structures, thoroughly explain the reason for notifying the FAA (*e.g. corrections, no record of previous study, etc.*).

Paperwork Reduction Work Act Statement: Filing this information with the FAA does not relieve the sponsor of this construction or alteration from complying with any other federal state or local rules or regulations. If you are not sure what other rules or regulations apply to your proposal, contact local/state aviation and zoning authorities.

Paperwork Reduction Work Act Statement: This information is collected to evaluate the effect of proposed construction or alteration on air navigation and is not confidential. Providing this information is mandatory for anyone proposing construction or alteration that meets or exceeds the criteria contained in 14 CFR , part 77. We estimate that the burden of this collection is an average 19 minutes per response. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless R displays a currently valid OMB control number. The OMB control number for this collection is 2120-0001. FAA Form 7460-1 (2-99) Supersedes Previous Edition NSN: 0052-00-012-0008

Appendix L

Publicly Owned Public Use Airports

with Three or More Based Aircraft

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<p align="center">Appendix L Publicly Owned Public Use Airports Registered, Licensed or Otherwise Recognized by the Department of Transportation on or Before December 31, 1994 with Three or More Based Aircraft</p>		
Airport	County	City
Albany Municipal	Linn	Albany
Arlington Municipal	Gilliam	Arlington
Ashland Municipal-Summer Parker Field	Jackson	Ashland
Astoria Regional	Clatsop	Astoria/Warrenton
Aurora State	Marion/Clackamas	Aurora
Baker City Municipal	Baker	Baker City
Bandon State	Coos	Bandon
Bend Municipal	Deschutes	Bend
Brookings	Curry	Brookings
Burns Municipal	Harney	Burns
Chiloquin State	Klamath	Chiloquin
Christmas Valley	Lake	Christmas Valley
Columbia Gorge Regional/ The Dalles Municipal	Wasco	The Dalles
Condon State/Pauling Field	Gilliam	Condon
Corvallis Municipal	Benton	Corvallis
Cottage Grove State	Lane	Cottage Grove
Creswell Hobby Field	Lane	Creswell
Enterprise Municipal	Wallowa	Enterprise
Eugene Mahlon Sweet Field	Lane	Eugene
Florence Municipal	Lane	Florence
Gold Beach Municipal	Curry	Gold Beach
Grant County Regional/ Ogilvie Field	Grant	John Day
Grants Pass	Josephine	Grants Pass
Hermiston Municipal	Umatilla	Hermiston
Hillsboro (Portland)	Washington	Hillsboro
Illinois Valley	Josephine	Cave Junction
Independence State	Polk	Independence
Joseph State	Wallowa	Joseph
Ken Jernstedt Airfield	Hood River	Hood River
Klamath Falls	Klamath	Klamath
La Grande/Union County	Union	La Grande
Lake Billy Chinook ¹	Jefferson	Culver
Lake County	Lake	Lakeview
Lakeside State	Coos	Lakeside
Lebanon State	Linn	Lebanon
Lexington	Morrow	Lexington
Madras City/County	Jefferson	Madras
Malin	Klamath	Malin
McDermitt State	Malheur/Humboldt, Nev.	McDermitt
McMinnville Municipal	Yamhill	McMinnville
Medford-Rogue Valley International	Jackson	Medford

Airport	County	City
Miller Memorial	Malheur	Vale
Mulino (Portland)	Clackamas	Mulino
Myrtle Creek Municipal	Douglas	Myrtle Creek
Newport Municipal	Lincoln	Newport
North Bend Municipal	Coos	North Bend/Coos Bay
Oakridge State	Lane	Oakridge
Ontario Municipal	Malheur	Ontario
Pacific City State	Tillamook	Pacific City
Eastern Oregon Regional-Pendleton	Umatilla	Pendleton
Portland International	Multnomah	Portland
Prineville	Crook	Prineville
Redmond Municipal/Roberts Field	Deschutes	Redmond
Roseburg Regional	Douglas	Roseburg
Salem McNary Field	Marion	Salem
Scappoose Industrial Airpark	Columbia	Scappoose
Seaside Municipal	Clatsop	Seaside/Gearhardt
Siletz Bay State	Lincoln	Gleneden
Tillamook	Tillamook	Tillamook
Troutdale (Portland)	Multnomah	Troutdale/Fairview
Vernonia Airfield	Columbia	Vernonia
Wasco State	Sherman	Wasco

Airport names have been revised to reflect changes that may have occurred since December 31, 1994.

¹Is now privately owned

Appendix M

Privately Owned Public Use Airports That:

**Provide Links in Essential Safety or
Emergency Services, or Are of Economic
Importance**

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Appendix M Privately Owned Public Use Airports That: Provide Links in Air Traffic in the State, Provide Essential Safety or Emergency Services, or Are of Economic Importance to the County Where the Airport is Located		
Airport	County	City
Chehalem Airpark	Yamhill	Newberg
County Squire Airpark	Clackamas	Sandy
Davis	Linn	Gates
George Felt	Douglas	Roseburg
Lenhardt Airpark	Clackamas	Hubbard
Sandy River	Clackamas	Sandy
Sportsman Airpark	Yahmill	Newberg
Starks Twin Oaks Airpark	Washington	Hillsboro
Sunriver	Deschutes	Sunriver
Valley View	Clackamas	Estacada

Airport names have been revised to reflect changes that may have occurred since December 31, 1994.

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Appendix N

Privately Owned Private Use Airports

with Three or More Based Aircraft

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<p align="center">Appendix N Privately Owned Private Use Airports Registered, Licensed or Otherwise Recognized by the Department of Transportation on or Before December 31, 1994 with Three or More Based Aircraft</p>		
Airport	County	City
Aeroacres	Clackamas	Oregon City
Apple Valley	Washington	Buxton
Auberge Des Fleurs	Clackamas	Sandy
Backachers Ranch	Josephine	Selma
Beagle Sky Ranch	Jackson	Medford
Beaver Oaks	Clackamas	Estacada
Burrill	Jackson	Medford
Chenoweth Airpark	Wasco	The Dalles
Cline Falls Airpark	Deschutes	Redmond
Croman Heliport	Jackson	White City
Crow-Mag	Lane	Elmira
Daniels Field	Linn	Harrisburg
Davidson Field	Marion	Jefferson
Dietz Airpark	Clackamas	Canby
Erickson Heliport	Jackson	Central Point
Fairways	Clackamas	Oregon City
Finlay Field	Marion	Salem
Flying Tom	Benton	Corvallis
Gilmour Agricultural	Marion	Jefferson
Glide Aero	Douglas	Glide
Grell's	Linn	Tangent
Harchenko Industrial	Marion	Brooks
Hatch	Marion	Stayton
Heli-Trade Heliport	Lane	Eugene
Hines	Harney	Hines
Jasper Ridge	Lane	Springfield
Juniper Air Park	Deschutes	Bend
Karpen's	Clatsop	Astoria
Kingston Airpark	Linn	Stayton
Lafayette Airstrip	Yamhill	Lafayette
Lafferty Field	Linn	Harrisburg
McKinnon Enterprises	Clackamas	Sandy
Meadowview Heliport	Lane	Eugene
Meyer's Riverside	Washington	Tigard
Nielsen's	Clackamas	Oregon City
North Plains Gliderport	Washington	North Plains
Ochs Private	Jefferson	Madras
Olinger Strip	Washington	Hillsboro
Pine Valley	Baker	Halfway
Pointers	Wasco	The Dalles
Propst	Linn	Albany
Reforestation Services Heliport	Marion	Salem

Appendix N (Continued)		
Airport	County	City
Rogue-Air	Jackson	Shady Cove
Roppair	Linn	Albany
Roseburg-Lookingglass	Douglas	Roseburg
S H Aircraft Painting	Linn	Sweet Home
Skydive Oregon	Clackamas	Molalla
Snider Creek	Jackson	Medford
St. Vincent Hospital Heliport	Washington	Beaverton
Strauch Field	Lane	Junction City
Sunnyville	Coos	North Bend
Sunset Airstrip	Washington	North Plains
Tallman	Linn	Lebanon
The Green Trees Ranch	Linn	Scio
Umpqua Sky Park	Douglas	Glide
Walker	Lane	Creswell
Wayne's	Linn	Halsey
Wenger's Flying W	Marion	Salem
West Buttercreek	Umatilla	Echo
White Oak	Clackamas	Estacada
Winn	Benton	Corvallis
Workman Airpark	Clackamas	Canby

Airport names have been revised to reflect changes that may have occurred since December 31, 1994.

Appendix O

Publicly Owned Public Use Airports

with Less Than Three Based Aircraft

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Appendix O		
Publicly Owned Public Use Airports		
Registered, Licensed or Otherwise Recognized		
by the Department of Transportation		
on or Before December 31, 1994		
with Less Than Three Based Aircraft		
Airport	County	City
Alkali Lake State	Lake	Alkali Lake
Beaver Marsh	Klamath	Beaver Marsh
Boardman	Morrow	Boardman
Burns Junction (BLM)	Malheur	Burns Junction
Cape Blanco State	Curry	Denmark
Cascade Locks State	Hood River	Cascade Locks
Crescent Lake State	Klamath	Crescent Lake
Juntura (BLM) ¹	Malheur	Juntura
McKenzie Bridge State	Lane	McKenzie Bridge
Memaloose (USFS)	Wallowa	Imnaha
Monument	Grant	Monument
Nehalem Bay State	Tillamook	Manzanita
Owyhee Reservoir State	Malheur	Owyhee Reservoir
Paisley	Lake	Paisley
Pinehurst State	Jackson	Pinehurst
Portland Heliport	Multnomah	Portland
Powers State	Coos	Powers
Prospect State	Jackson	Prospect
Red's Horse Ranch ¹	Wallowa	Cove
Rome State	Malheur	Rome
Santiam Junction State	Linn	Santiam Junction
Silver Lake USFS Strip	Lake	Silver Lake
Toketee State	Douglas	Clearwater
Toledo State	Lincoln	Toledo
Wakonda Beach State	Lincoln	Waldport

Airport names have been revised to reflect changes that may have occurred since December 31, 1994.

¹No longer public use airport

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Glossary

A-Weighted Sound Level (also referred to as dBA) - The sound pressure level which has been filtered or weighted to reduce the influence of the low and high frequency noise; designed to approximate the manner in which the human ear responds to sounds.

Advisory Circular (AC) - A document published by the Federal Aviation Administration (FAA) giving guidance on aviation issues, and which becomes binding on those airports receiving federal grant funding.

Acoustical - Relating to the deadening or absorbing of sound.

Aeronautical Study - A study performed pursuant to FAR Part 77 "Objects Affecting Navigable Airspace" concerning the effect of proposed construction or alternation on the use of air navigation facilities or navigable airspace by aircraft. The conclusion of each study is normally a determination as to whether the specific proposal studied would be a hazard to air navigation and/or a determination for marking and/or lighting.

Aircraft Operation - An aircraft arrival or departure from an airport. There are two types of operations: local and itinerant.

Air Traffic Control - Control of the airspace by an appropriate authority to promote the safe, orderly and expeditious movement of terminal air traffic.

Airport - Any area of land or water, within or without this state, that is used, or intended for use, for the landing and take-off of aircraft, and any appurtenant areas that are used, or intended for use, for airport buildings or other airport facilities or rights of way, together with all airport buildings and facilities located thereon.

Airport Approach Safety Zone - An element of either an Airport Impact Zone or an Airport Overlay Zone which consists of a portion of the Airport Approach surface as defined in FAR Part 77. The actual boundaries and land use provisions are determined by the local jurisdiction.

Airport Development Zone - A zone which replaces the existing zoning for the airport property encompassing the land presently owned by the airport and, if feasible, areas identified for future purchase, clear zones and areas with noise levels greater than DNL 70.

Airport Elevation - The highest point on an airports usable runway(s) expressed in feet above mean sea level.

Airport Environs - The land use and people in the areas surrounding an airport which can be directly affected by the operation of the airport.

Airport Hazard - Any structure or object of man-made or natural growth located on or near the airport, or any use of land near the airport that obstructs the airspace required for the flight of aircraft in landing or taking off, or is otherwise hazardous to such landing and taking off.

Airport Impact Zones - A zone used to place land use conditions on land impacted by airport operations. It establishes a new zone and provisions which replaces an existing zone and standards.

Airport Improvement Program - (AIP) - The AIP is authorized by the Airport and Airway Improvement Act of 1982 (P.L. 97-248, as amended). The Act's broad objective is to assist in the development of a nationwide system of public-use airports adequate to meet the current and projected growth of civil aviation. The Act provides funding for airport planning and development projects at airports included in the National Plan of Integrated Airport Systems. The Act also authorizes funds for noise compatibility planning and to carry out noise compatibility programs as set forth in the Aviation Safety and Noise Abatement Act of 1979 (P.L. 96-143).

Airport Layout Plan (ALP) - A scaled drawing of existing and proposed airside and landside facilities necessary for the operation and development of the airport. The ALP shows (1) boundaries and proposed additions to areas owned or controlled by the sponsor, (2) the location and nature of existing and proposed airport facilities and structures and (3) the location on the airport of existing and proposed non-aviation areas and improvements. The ALP may also depict those properties adjacent to the airport ownership that may have legal access to the airport.

Airport Layout Plan Set – This document typically contains a set of drawings which illustrate the existing and future development of the airport. An ALP set may often contain the following: (1) Airport Layout Drawing (Plan), (2) Airport Airspace Drawing, (3) Inner Portion of the Approach Surface Drawing, (4) Terminal Area Drawing, (5) Land Use Drawing and (6) Airport Property Map. The drawings depict existing and proposed airport facilities, land uses, approach zones and other defined areas of airspace, and environmental features that may influence airport usage and expansion capabilities.

Airport Manager - The person authorized by the airport sponsor to exercise administrative control of the airport.

Airport Master Plan - Long-term development plan for the airport adopted by the airport proprietor and local jurisdictions.

Airport Noise Abatement Program - A program designed to reduce noise around an airport through changes in the manner in which aircraft are flown, or changes in the operation or layout of the airport. (Compatible land use planning).

Airport Noise and Capacity Act of 1990 - This act required the establishment of a National Noise Policy and a requirement to eliminate Stage 2 aircraft weighing 75,000 pounds or greater operating in the contiguous United States by the year 2000.

Airport Obstruction Zoning Ordinance - A local height restriction ordinance which follows FAR Part 77, implements a local community's comprehensive plan and provides specific height standards for the area beneath the airport Imaginary Surface.

Airport Owner - Any person or authority having the operational control of an airport as defined in the ASNA Act. (See OAR 660-113)

Airport Overlay Zone - A zone intended to place additional land use conditions on land impacted by the airport while retaining the existing underlying zone.

Airport Reference Code (ARC) - The ARC is a FAA coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport.

Airport Reference Point - The latitude and longitude of the approximate center of the airport, based upon the runway facilities.

Airport Sponsor – The airport owner or tax-supported organization such as an airport authority, that is authorized to own and operate, to obtain property interests, to obtain funds, and to legally, financially and otherwise able to meet all applicable requirements of current laws and regulations related to the operation of an airport. (See OAR 660-13)

Airside - That portion of the airport facility where aircraft movements take place, airline operations areas, and areas that directly serve the aircraft, such as taxiway, runway, maintenance and fueling areas.

Airspace - Space above the ground in which aircraft travel. Often airspace is divided into corridors, routes and restricted zones.

Ambient Noise - All encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far.

Approach and Runway Protection Zone Map - The approach and Runway Protection Zone Map is compiled from the criteria in FAR Part 77, Objects Affecting Navigable Airspace. It shows the area affected by the Airport Obstructions Zoning Ordinance, and includes layout of runways, airport boundary, elevations and area topography. Applicable height limitation areas are shown in detail.

Approach Slopes - The ratios of horizontal to vertical distance indicating the degree of inclination of the Approach Surface. The various ratios include:

20:1 - For all utility and visual runways extended from the primary surface a distance of 5,000 feet.

34:1 - For all non-precision instrument runways extended from the primary surface for a distance of 10,000 feet.

50:1/40:1 - For all precision instrument runways extending from the primary surface for a distance of 10,000 feet at an approach slope of 50:1 and an additional 40,000 feet beyond this at a 40:1 Approach Slope.

Approach Surface - A surface defined by FAR Part 77 "Objects Affecting Navigable Airspace," that is longitudinally centered on the runway centerline and extends outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based on the type of approach available or planned for that runway end.

Attainment Area - An area in which the federal or state standards for ambient air quality are being achieved.

Attenuation - The lessening of the magnitude.

ASNA Act - The Aviation Safety and Noise Abatement Act of 1979, as amended (49 U.S.C. 2101 et seq.).

Average Sound Level - The level in decibels, of the mean square, A-weighted sound pressure during a specified period, with reference to the square of the standard reference sound pressure of 20 micropascals.

Average Day-Night Sound Level (DNL) - Average day-night sound level (DNL) is the FAA standard metric for determining the cumulative exposure of individuals to noise. DNL is the equivalent of noise levels produced by aircraft operations during a 24-hour period, with a ten decibel penalty applied to the level measured during nighttime hours (10:00 pm to 7:00 am).

Avigation Easement - A grant of a property interest in land over which a right of unobstructed flight in the airspace is established and which prohibits any structures, growth or other obstructions from penetrating the approach surface and provides a right of entry to remove, mark or light any structure or any such obstruction.

Based Aircraft - An aircraft permanently stationed at an airport by agreement between the aircraft owner and the airport management.

Building Codes - Codes, either local or state, that control the functional and structural aspects of buildings and/or structures. Local ordinances typically require proposed buildings to comply with zoning requirements before building permits can be issued under the building codes.

Commercial Service Airport - A public airport that has at least 2,500 passenger boardings each year and is receiving scheduled passenger aircraft service.

Compatibility - The degree to which land uses or types of development can coexist or integrate.

Compatible Land Use - As defined in FAR 150: The use of land (e.g. commercial, industrial, agricultural) that is normally compatible with aircraft and airport operations, or sound insulated land uses (e.g. sound insulated homes, schools, nursing homes, hospitals, libraries) that would otherwise be considered incompatible with aircraft and airports operations.

Comprehensive Plan - Similar to a Master Plan, the comprehensive plan is a governmental entity's official statement of its plans and policies for long-term development. The plan includes maps, graphics and written proposals, which indicate the general location for streets, parks, schools, public buildings, airports and other physical development of the jurisdiction.

Conditional Zoning - The imposition or exaction of conditions or promises upon the grant of zoning by the zoning authority.

Conformity (Air Quality) - No department, agency or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license, or permit, or approve, any activity which does not conform to a State Implementation Plan (SIP). There are two types of Air Quality Conformity: General Conformity and Transportation Conformity:

General Conformity - All federal actions (except those involving highways and transit projects) within non-attainment and maintenance areas that result in a net increase in emissions above specified levels.

Transportation Conformity - Federally funded or approved highway or transit projects; (and regionally significant non-federal highway and transit projects) within non-attainment and maintenance areas.

Decibel (dB) - A unit for describing the intensity or level of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to a standard reference pressure.

Easement - A grant of one or more of the property rights by the property owner to and/or for the use by the public, a corporation or another person or entity.

Enplanement - A passenger boarding of a commercial flight.

Environmental Assessment (EA) - A concise document that assesses the environmental impacts of a proposed federal action. The EA discusses the need for and environmental impacts of the proposed action and alternative actions. An EA should provide sufficient evidence and analysis for a federal determination whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact.

Environmental Impact Statement (EIS) - A document that provides full and fair discussion of the significant environmental impacts that would occur as a result of a proposed project and informs decision makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts.

Euclidean Zoning - A traditional legislative method or device for controlling land use by establishing districts with boundaries and providing for specific uniform regulations as to type of permitted land use, height, bulk and lot coverage of structure, setback and similar building restrictions. (Reference from 1929 U.S. Supreme Court landmark decision upholding zoning as a means of land use control in "City of Euclid, Ohio v. Ambler Realty:")

Federal Aviation Administration - A federal agency charged with regulating air commerce to promote its safety and development, encouraging and developing civil aviation, air traffic control and air navigation and promoting the development of a national system of airports.

Federal Aviation Regulations (FAR) - Regulations established and administered by the FAA that govern civil aviation and aviation-related activities.

FAR Part 36 - Regulation establishing noise standards for the civil aviation fleet.

FAR Part 91 - Regulation pertaining to Air Traffic and General Operating Rules, including operating noise limits.

FAR Part 150 - Regulation pertaining to Airport Noise Compatibility Planning.

FAR Part 161 - Regulation pertaining to notice and approval of airport noise and access restrictions.

Federal Aviation Regulations Part 77 - Objects Affecting Navigable Airspace - Part 77 (a) establishes standards for determining obstructions in navigable airspace; (b) defines the requirements for notice to the FAA Administrator of certain proposed construction or alteration; (c) provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace; (d) provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation; and (e) provides for establishing antenna farm areas.

Federal Grant Assurance - The terms and conditions of accepting Airport Improvement Program (AIP) grants from the Federal Aviation Administration for carrying out the provisions of Title 49 United State Code. The terms and conditions become applicable when the airport sponsor accepts a grant offer from the FAA.

General Aviation - Refers to all civil aircraft and operations that are not classified as air carrier, commuter or regional. The types of aircraft used in general aviation activities cover a wide spectrum from corporate multi-engine jet aircraft piloted by professional crews to amateur-built single engine piston acrobatic planes, balloons and dirigibles.

Hold Harmless Agreement - An agreement which holds airport sponsors or jurisdictions harmless for alleged damages resulting from airport operations. Such agreements are recorded in deeds or permits as a condition of approval of a regulatory land use decision.

Hubbing - A method of airline scheduling that times the arrival and departure of several aircraft in a close time period to allow the transfer of passengers between different flights of the same airline. Several airlines may conduct hubbing operations at an airport.

Housing Codes - The codes that usually apply to both existing and future living units. The codes include minimum standards of occupancy, and usually govern spatial, ventilation, wiring, plumbing, structural and heating requirements.

Imaginary Surfaces - Those areas established in relation to the airport and to each runway consistent with FAR Part 77 in which any object extending above these imaginary surfaces, by definition, is an obstruction.

Incompatible Land Use - The use of land, which is defined in Appendix A, Table 1 of FAR Part 150, which is normally incompatible with the aircraft and airport operations (such as homes, schools, nursing homes, hospitals and libraries).

Infrastructure - A community's built elements that establish the community's foundation for maintaining existing populations, activities, future growth and development. Infrastructure elements include airports, roads and highways, bridges, water and sewer systems, waste disposal facilities, utilities and telecommunications systems, schools, and governmental and community facilities.

Instrument Approach - A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually.

Instrument Flight Rules - (IFR) - Rules by which aircraft are operated without visual reference to the ground; in effect when cloud ceilings are equal to or less than 1,000 feet, or visibility is less than 3 miles.

Instrument Landing System - ILS - The instrument landing system is designed to provide electronic instrument guidance to the pilot to permit exact alignment and angle of descent of a properly equipped aircraft on final approach for landing.

Integrated Noise Model (INM) - FAA's computer model used by the civilian aviation community for evaluating aircraft noise impacts near airports. The INM uses a standard database of aircraft characteristics and applies them to an airport's average operational day to produce noise contours.

Itinerant Operation - Any aircraft arrival and/or departure other than a local operation.

Land Banking - The purchase of property by the government to be held for future use and development either by the government or for resale for the development of compatible uses.

Land Use Compatibility - The coexistence of land uses surrounding the airport with airport-related activities.

Land Use Controls - Measures established by state or local government that are designed to carry out land use planning. The controls include among other measures: zoning, subdivision regulations, planned acquisition, easements, covenants or conditions in building codes and capital improvement programs, such as establishment of sewer, water, utilities or their service facilities.

Land Use Management Measures - Land use management techniques that consist of both remedial and preventive measures. Remedial, or corrective, measures typically include sound insulation or land acquisition. Preventive measures typically involve land use controls that amend or update the local zoning ordinance, comprehensive plan, subdivision regulations and building code.

Landside - That part of an airport uses for activities other than the movement of aircraft, such as vehicular access roads and parking.

Lighting and Marking of Hazards to Air Navigation - Installation of appropriate lighting fixtures, painted markings or other devices to such objects or structures that constitute hazards to air navigation.

Limited Avigation Easement - An easement which provides right of flight above approach slope surfaces, prohibits any obstruction penetrating the approach slope surface, and provides right of entry to remove any structure or growth penetrating the approach slope surface.

Local Operation - Any operation performed by an aircraft that (a) operations in the local traffic pattern or within sight of the tower or airport, or (b) is known to be departing for, or arriving from, flight in local practice areas located within a 20-mile radius of the control tower or airport, or (c) executes a simulated instrument approach or low pass at the airport.

Maintenance Area - a geographical area which was once designated as nonattainment, but the pollution levels have met the National Ambient Air Quality standards for two consecutive years and has an approved maintenance plan which outlines how the geographical area will continue to meet these standards.

Mediation - The use of a mediator or co-mediators to facilitate open discussion between disputants and assist them to negotiate a mutually agreeable resolution. Mediation is a method of alternative dispute resolution that provides an initial forum to informally settle disputes prior to regulatory intervention on the part of the FAA.

Mitigation - The avoidance, minimization, reduction, elimination or compensation for adverse environmental effects of a proposed action.

Mitigation Measure - An action taken to alleviate adverse impacts.

National Environmental Policy Act of 1969 (NEPA) - The original legislation establishing the environmental review process.

National Plan of Integrated Airport Systems (NPIAS) - A primary purpose of the NPIAS is to identify the airports that are important to national transportation and, therefore, eligible to receive grants under the Airport Improvement Program (AIP). The NPIAS is composed of all commercial service airports, all reliever airports, and selected general aviation airports.

Nautical Mile - A measure of distance equal to one minute of arc on the earth's surface, which is approximately 6,080 feet.

Navigation Aids (NAVAIDS) - Any facility used by an aircraft for guiding or controlling flight in the air or the landing or take-off of an aircraft.

Noise - Defined subjectively as unwanted sound, the measurement of noise evaluates three characteristics of sound: intensity, frequency and duration.

Noise Abatement Procedures - Changes in runway usage, flight approach and departure routes and procedures, and vehicle movement, such as ground maneuvers or other air traffic procedures that shift aviation impacts away from noise sensitive areas.

Noise Compatibility Plan (NCP) - The NCP consists of an optimum combination of preferred noise abatement and land use management measures, and a plan for implementation of the measures. For planning purposes, the implementation plan also includes the estimated cost for each of the recommended measures to the airport sponsor, the FAA, airport users, and the local units of government.

Noise Compatibility Program - See "Part 150 Study"

Noise Exposure Contours - Lines drawn about a noise source indicating constant energy levels of noise exposure. DNL is the measure used to describe community exposure to noise.

Noise Exposure Map (NEM) - The NEM is a scaled map of the airport, its noise contours and surrounding land uses. The NEM depicts the levels of noise exposure around the airport, both for the existing conditions and forecasts for the five-year planning period. The area of noise exposure is designated using the DNL (Day-Night Average Sound Level) noise metric.

Noise Impact - A condition that exists when the noise levels that occur in an area exceed a level identified as appropriate for the activities in that area.

Noise Level Reduction (NLR) - The amount of noise level reduction in decibels achieved through incorporation of noise attenuation (between outdoor and indoor levels) in the design and construction of a structure.

Noise-Sensitive Area - Areas where aircraft noise may interfere with existing or planned use of the land. Whether noise interferes with a particular use depends upon the level of noise exposure and the types of activities that are involved. Residential neighborhoods, educational, health, and religious structures and sites, outdoor recreational, cultural and historic sites may be noise sensitive areas.

Non-attainment - Areas that exceeded the national ambient air quality standards for any of six pollutants (ozone, or smog; carbon monoxide; lead; particulate matter; or PM-10; or nitrogen dioxide).

Non-conforming Use - Any pre-existing structure, tree, or use of land that is inconsistent with the provisions of the local land use or airport master plans.

Non-precision Instrument Runway - A runway having an existing or planned instrument approach that is essentially aligned with the runway centerline and has horizontal information for guidance of the aircraft on course and relays altimeter and intermediate fixes for descent to the touchdown point on the runway.

Off-Airport Property - Property that is beyond the boundary of land owned by the airport sponsor.

Official Map - A legally adopted map that conclusively shows the locations and width of proposed streets, public facilities, public areas and drainage rights-of-way.

On-Airport Property - Property that is within the boundary of land owned by the airport sponsor.

Overlay Zone - A mapped zone that imposes a set of requirements in addition to those of the underlying zoning district.

Part 150 Study - Part 150 is the abbreviated name for the airport noise compatibility planning process outlined in Part 150 of the Federal Aviation Regulation (FAR) that allows airport owners to voluntarily submit noise exposure maps and noise compatibility programs to the FAA for review and approval. See "Noise Compatibility Plan."

Passenger Facility Charge (PFC) Program - The PFC Program, first authorized by the Aviation Safety and Capacity Expansion Act of 1990 and now codified under Section 40117 of Title 49 U.S.C., provides a source of additional capital to improve, expand and repair the nation's airport infrastructure. The legislation allows public agencies controlling commercial service airports to charge enplaning passengers using the airport a facility charge. The FAA must approve any facility charges imposed on enplaning passengers.

Performance Standards - Minimum acceptable levels of performance, imposed by zoning that must be met by each land use.

Precision Instrument Runway - A runway having an existing or planned instrument approach that is essential aligned with the runway centerline and has horizontal information for guidance of the descent of the aircraft to the touchdown point of the runway.

Primary Surface - A primary surface is longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway. When the runway has no specially prepared hard surface, or planned hard surface, the primary surface terminates at each end of the runway. The width of a primary surface ranges from 250 feet to 1,000 feet, depending on the existing or planned approach system. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.

Primary Runway - The runway used for the majority of airport operations. Large, high-activity airports may operate two or more parallel primary runways.

Proponent - Any person who proposes to erect or construct any object or structure that exceeds certain minimum altitudes that may be a potential hazard to air navigation and who may be responsible for lighting and marking such object or structure.

Public Use Airport - A publicly or privately owned airport that offers the use of its facilities to the public without prior notice or special invitation or clearance.

Reliever Airport - An airport that meets certain FAA criteria and relieves the aeronautical demand on a busier air carrier airport.

Runway Protection Zone (RPZ) - A trapezoidal-shaped area centered about the extended runway centerline that is used to enhance the protection of people and property on the ground. It begins 200 feet beyond the end of the runway or area usable for takeoff or landing. The RPZ dimensions are functions of the design aircraft, type of operation and visibility minimums.

Sound Attenuation - Acoustical phenomenon whereby a reduction of sound energy is experienced between the noise source and the receiver. This energy loss can be attributed to atmospheric conditions, terrain, vegetation, constructed features (e.g., sound insulation) and natural features.

Sound Exposure Level (SEL) - A measure of the physical energy of the noise event that takes into account both intensity and duration. By definition SEL values are referenced to a duration of one second. SEL is higher than the average and the maximum noise levels as long as the event is longer than one second. Sound exposure level is expressed in decibels (dB). People do not hear SEL.

Sound Transmission Class (STC) - A number rating of the sound that indicates the amount of noise attenuation in tested acoustical materials.

Special Exceptions - Land uses that are not specifically permitted as a matter of right, but can be permitted in accordance with performance standards and other local criteria. Also known as "conditional uses."

Stage 2 Aircraft - Aircraft that meet the noise levels prescribed by FAR Part 36 and are less stringent than noise levels established for the quieter designation State 3 aircraft. The Airport Noise and Capacity Act requires the phase-out of all State 2 aircraft by December 31, 1999, with case-by-case exceptions through the year 2003.

Stage 3 Aircraft - Aircraft that meet the most stringent noise levels set forth in FAR Part 36.

State Implementation Plan (SIP) - A detailed description of the programs a state will use to carry out its responsibilities under the Clean Air Act. State Implementation Plans are collections of the regulations used by a state to reduce air pollution.

Statute Mile - A measure of distance equal to 5,280 feet.

Terminal Area - A general term used to describe airspace in which airport traffic control or approach control service is provided.

Transfer of Development Rights (TDR) - The removal of the right to develop or build, expressed in dwelling units per acre, from land in one location to land in another location where such transfer is permitted.

Transitional Surface - An element of the Imaginary Surfaces extending outward and upward at right angles to the runway centerline and runway centerline

extended at a slope of 7:1 from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces.

Turbojet Aircraft - Aircraft operated by jet engines incorporating a turbine-driven air compressor to take in and compress the air for the combustion of fuel, the gases of combustion (or the heated air) being used both to rotate the turbine and to create a thrust-producing jet.

Turboprop Aircraft - Aircraft in which the main propulsive force is supplied by a gas turbine driven conventional propeller. Additional propulsive force may be supplied from the discharged turbine exhaust gas.

Urbanized Land - Lands within the urban growth boundary which are: (a) determined to be necessary and suitable for future urban areas; (b) served by urban services and facilities; and (c) needed for the expansion of an urban area.

Variance - An authorization for the construction or maintenance of a building or structure, or for the establishment or maintenance of a use of land that is prohibited by a zoning ordinance. A lawful exception from specific zoning ordinance standards and regulations predicated on the practical difficulties and/or unnecessary hardships on the petitioner being required to comply with those regulations and standards from which an exemption or exception is sought.

Visual Approach - An approach to an airport conducted with visual reference to the terrain.

Visual Approach Runway - A runway intended for visual approaches only, with no straight-in instrument approach procedure either existing or planned for that runway.

Visual Flight Rules (VFR) - FAA rules that govern procedures for flight under visual conditions.

Wetland Mitigation Banking - involves consolidating fragmented wetland mitigation projects into one large contiguous site. Units of restored, created enhanced or preserved wetlands are expressed as "credits" which may be withdrawn to offset "debits" incurred at a project development site.

Yearly Day-Night Average Sound Level (YDNL) - The 365-day average, in decibels, day-night average sound level. The symbol for YDNL is also Ldn.

Zoning - The partitioning of land parcels in a community by ordinance into zones and the establishment of regulations in the ordinance to govern the land use and the location, height, use and land coverages of buildings within each zone. The zoning ordinance usually consists of text and zoning map.

Zoning Ordinance - Primarily a legal document that allows a local government effective and legal regulation of uses of property while protecting and promoting the public interest.

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