1. INTRODUCTION

Oregon's system of airports consists of 97 airports ranging in size from large commercial service facilities to small rural airstrips. These airports are vital to Oregon's economic development by providing safe and efficient access to the state's communities, recreational areas, and abundant natural resources. Oregon's airports connect people and goods at local, national, and global levels. Airports move cargo and people on a wide range of aircraft types. In today's economy, this connectivity is critical to Oregon's economy. Airports also play an important role in the safety and welfare of residents, businesses, and visitors. Nearly every day aircraft operating at airports in Oregon are used in support of critical activities such as law enforcement, wildland fire suppression, commercial fishing, air ambulance, search and rescue, freight and mail transport, military and US Coast Guard activity, real estate tours, agriculture, wildlife management, and natural resource conservation.

From 2016 to 2018, the Oregon Department of Aviation (ODA) embarked on a three-phase study to update Oregon's Aviation Plan (OAP). The Oregon Aviation Plan (OAP or the Plan) provides guidance on preserving the state's system of airports and presents a framework for improving the system for continued support of communities and economic development. The Plan was last updated in 2007. Since the last plan, the state has experienced significant economic growth in some regions of the state and slow growth in others. Additionally, there have been changes in the aviation industry with the introduction of new aviation technologies, such as unmanned aerial vehicles (UAVs), and decreases in passenger air service for small markets due to increased fuel costs and airline pilot shortages. This update to OAP reflects changes in the state and the aviation industry that have taken place since the last plan was published.

1.1 Oregon Aviation Plan Title

The first OAP on record was completed in 1975. Since 1975 there have been six additional versions including this OAP. Previous versions of the OAP are as follows.

I. Oregon Aviation System Plan : Technical Report : Prepared for Oregon Department of Transportation and The Federal Aviation Administration, Publication Date, 1975
II. Oregon Aviation System Plan : Oregon. Aeronautics Division. United States. Federal Aviation Administration. Marjorie Hanley and Associates. Publication Date, 1981-1989
III. Oregon Continuous Aviation System Plan. Airport Technology and Planning Group. Oregon. Aeronautics Section. Publication Date, 1997
IV. Oregon Aviation Plan. Alternate Form of Title 2000 Oregon Aviation Plan Author Oregon. Aeronautics Division. Oregon Dept. of Transportation, Aeronautics Division, Publication Date 2000
V. Oregon Aviation Plan 2007 (OAP 2007), Author Mead and Hunt, Publication Date 2008
VI. Oregon Aviation Plan, (OAP) Author, Jviation, Inc., Publication Date 2019

Going forward titles of the Oregon Aviation Plan will be based on the version of the document rather than the publication year. This version of the Oregon Aviation Plan will recognize the five previous versions and is therefore titled Oregon Aviation Plan v6.0 (OAP v6.0). Should incremental changes be produced in coming years related to the OAP v6.0, one decimal point will be added to the report designation. For example, if the Forecast Chapter is modified, that document will be titled OAP v6.1. This will allow ODA flexibility in a continuous system planning process. When the OAP is updated in its entirety, it will be referred to as the Oregon Aviation Plan v7.0 (OAP v7.0).

1.2 Oregon Transportation Plan and Oregon Aviation Plan Goals

The Oregon Transportation Plan (OTP), a document required by Oregon and federal statutes, is a primary component of the State of Oregon's long-range transportation plan. The current OTP was last updated in 2006 and has a 25-year horizon. The OTP provides multimodal goals and policies, and a framework for prioritizing transportation programs, improvements and funding; but it does not identify specific projects for development.

Specifically, for the multimodal transportation system, the OTP establishes:

- A vision;
- Goals, policies and strategies to address core challenges and opportunities for transportation;
- A decision and implementation framework; and
- Investment scenarios and priorities.

In establishing these elements, the OTP provides guidance for modal and topic plans. Modal plans, such as this Oregon Aviation Plan v6.0 refine and provide more detail specific to their respective parts of system. In general, the OTP recommends that modal plans:

- Refine broad policy;
- Refine/define state role;
- Inventory the modal system; and
- Outline implementation/priorities.

The Oregon Transportation Plan (OTP) goals have been integrated into the OAP to provide a consistent foundation from which to evaluate and improve aviation infrastructure. The OTP outlines seven goals that will help guide the development of aviation infrastructure and all other transportation plans. Each goal is described below.

OTP Goal 1 – Mobility and Accessibility

To enhance Oregon's quality of life and economic vitality by providing a balanced, efficient, cost-effective and integrated multimodal transportation system that ensures appropriate access to all areas of the state, the nation and the world, with connectivity among modes and places.

OTP Goal 2 – Management of the System

To improve the efficiency of the transportation system by optimizing the existing transportation infrastructure capacity with improved operations and management.

OTP Goal 3 – Economic Vitality

To promote the expansion and diversification of Oregon's economy through the efficient and effective movement of people, goods, services and information in a safe, energy-efficient and environmentally sound manner.

OTP Goal 4 - **Sustainability**

To provide a transportation system that meets present needs without compromising the ability of future generations to meet their needs from the joint perspective of environmental, economic and community objectives. This system is consistent with, yet recognizes differences in, local and regional land use and economic development plans. It is efficient and offers choices among transportation modes. It distributes benefits and burdens fairly and is operated, maintained and improved to be sensitive to both the natural and built environment.

OTP Goal 5 – **Safety and Security**

To plan, build, operate and maintain the transportation system so that it is safe and secure.

OTP Goal 6 – **Funding the Transportation System**

To create a transportation funding structure that will support a viable transportation system to achieve state and local goals today and in the future.

OTP Goal 7 - **Coordination, Communication, and Cooperation**

To pursue coordination, communication and cooperation among transportation users, providers and those most affected by transportation activities to align interests, remove barriers and bring innovative solutions so that transportation system functions as one system.

The Oregon Aviation Plan v6.0 has been developed to address the elements of the OTP guidance and ensure that aviation system planning is in sync with the foundation provided by the OTP as well as follows guidance from FAA Advisory Circulars related to system planning and airport master planning.

There are two primary sets of goals for the OAP. An initial set looks at the goals related to aviation specific needs while the other set includes the goals of the Oregon Transportation Plan (OTP). The combination of these goals provides the framework for the OAP 2007.

Aviation Goals of the OAP

The primary goals of the OAP are:

OAP Goal 1 – To follow FAA Advisory Circular 150/5070-7 - The Airport System Planning Process as applicable to the 97 airports comprising the Oregon Aviation System.

OAP Goal 2 – To evaluate current system performance and identify airport facilities and service deficiencies and gaps

OAP Goal 3 – To determine the ability of each airport to meet its objectives to support its role in the system plan

OAP Goal 4 – To identify special considerations related to airports which support economic development and health and safety.

OAP Goal 5 – To provide guidance to support informed investment decisions on an airport by airport basis and by categories of airports

OAP Goal 6 – To establish a blueprint for Oregon's future airport system

1.3 Oregon Aviation Plan v6.0 Process

The update to OAP was accomplished through a series of separate but interrelated steps; these steps are described below.

Inventory: The 2016 update of the aviation inventory data is intended to reflect changes in conditions occurring since OAP 2007, and expand data where necessary. The inventory update was limited in scope and did not include site visits or individual facility evaluations, but instead relied on airport officials to update and verify their OAP 2007 facility data. A survey was distributed to airport managers at each airport in 2016, as well as a supplemental survey in 2018. Data from the Federal Aviation Administration (FAA) was also used to support development of the Plan. In addition to updating its state system plan, ODA also simultaneously updated the 2014 Statewide Economic Impact Study results for Oregon airports. The system plan's inventory chapter provides information on current facilities, services, and activity as well as changes to the airport facilities and services.

Forecasts: As part of the system plan update, 20-year projections (2015 to 2035) of aviation demand were developed for based general aviation aircraft, general aviation operations, commercial enplanements, commercial aircraft operations, and military aircraft operations. Airport master plan forecasts from 2008 to 2018 were included in the forecast analysis when applicable.

Airport Roles: ODA, as part of their prior statewide system plan, established five role categories for Oregon airports, shown in **Table 1-1**. Airport roles are based on factors such as facilities, activity, services, geographic location, and market area characteristics.

TABLE 1-1: OREGON AIRPORT ROLE CATEGORIES

Category I	**Commercial Service Airport:** These airports support some level of scheduled commercial airline service in addition to supporting a full range of general aviation aircraft activities. Commercial service includes both domestic and international destinations. Objectives call for a minimum runway length of 6,000 feet.
Category II	**Urban General Aviation Airport:** These airports support all general aviation aircraft and accommodate corporate aviation activity, including piston and turbine engine aircraft, business jets, helicopters, gliders, and other general aviation activity. The most demanding user requirements are business-related. These airports service a large/multi-state geographic region or experience high levels of general aviation activity. The minimum runway length objective for Category II airports is 5,000 feet.
Category III	**Regional General Aviation:** These airports support most twin and single-engine aircraft and may accommodate occasional business jet operations. These airports support regional transportation needs with a large and often sparsely populated service area. The minimum runway length objective for Category III airports is 4,000 feet.
Category IV	**Local General Aviation Airport:** These airports support primarily single-engine general aviation aircraft but are capable of accommodating smaller twin-engine general aviation aircraft. These airports support local air transportation needs and special-use aviation activities. The minimum runway length objective for Category IV airports is 3,000 feet.
Category V	**Remote Access/Emergency Services (RAES):** These airports support primarily single-engine general aviation aircraft, special-use aviation activities, access to remote areas, or provide emergency service access. These airports should have at least 2,500 feet of runway.

Since the last statewide system plan was published, airports and airport market areas have changed. This update examined each airport to consider changes that could signal the need for revising the airport's role assigned in the prior plan. All study airports were considered to identify recommended role changes, as appropriate.

System and Airports Evaluation: The OAP analyzes access to the system for residents of the state as well as evaluates facility improvement needs and airport service objectives. Some airports may meet nearly all the performance criteria for their assigned category while others may fall short on several facility and services performance criteria. The evaluation does not lessen the importance of airports based on improvement needs, but does list future improvements so that each airport can continue to serve their local community, businesses, and the state's pilot community. The analysis spells out improvements needed at Oregon's airports to guide the State decision makers and airport managers on where to improve the aviation system over the next ten years. Evaluating the Oregon airport system to identify its adequacies, deficiencies, and redundancies helps the state develop a plan that shapes a viable and balanced system of airports. Using a geographic information system (GIS) mapping tool, drive-time service areas for the airports were established to measure the population served by each airport. Performance criteria used to evaluate the system included accessibility to: airports with commercial airline service; airports with on-site weather reporting equipment; airports with a precision like approach; airports with a published approach, in addition to accessibility to any airport. As part of the prior OAP, various performance criteria were established to enable airports to best fulfill their assigned role in the state airport system. Facility and service objectives were developed for airports in each of the five role categories.

Special Considerations: The OAP addresses special considerations related to unique aspects of Oregon's system of airports. These considerations address new trends in Oregon aviation activity. Topics addressed in this chapter include:

- **Airport System Resilience:** The extensive aviation system in Oregon is a crucial asset to the state during times of emergency. Airports enable emergency rescue crews to quickly access remote or hard-hit areas, and supply resources to and evacuate areas that may otherwise be unreachable via roadway, boat, and rail. As such, this study included an inventory of airports that support emergency services. Further, this study inventoried airports located within the Cascadia subduction zone (CSZ) that may be impacted or destroyed during a zone event.
- **Airports with Scheduled Air Cargo Service:** There are 14 airports in Oregon that support regularly scheduled air cargo service that are critical links in connecting communities with the national and global economy. While passenger airlines do carry some cargo and mail, the clear majority of air cargo volume arrives and departs on dedicated air cargo aircraft. Portland International Airport is the only Oregon airport with dedicated cargo jet activities, which are operated by FedEx Express, DHL, Amazon Prime Air, and UPS. Thirteen other airports in the state support turboprop and piston engine cargo aircraft, many of which are contracted to "feed" air cargo to and from the cargo jets. This section identifies the airports and air cargo carriers operating within the state.
- **State-owned Airports:** Nearly 30 percent of the airports in the state's system are owned by ODA. These 28 airports range from Aurora State Airport, one of the busiest airports in Oregon with extensive corporate jet activity, to small rural airports and airports along the Oregon coast.
- **State Warning Airports:** Nine of the airports owned and operated by ODA have been designated as Warning Airports. These Warning Airports do not meet normal dimensional standards and have conditions that require specific pilot knowledge.
- **Gaps in Geographic Coverage:** Oregon has a land area consisting of 98,466 square miles that provides the aviation community with 95 system. This system provides alternate airports for landing during emergencies or poor weather conditions are critical to pilots when flying to a destination airport as

well as when traversing the state on long routes. Analysis of Oregon's system of airports indicates that there are two large geographic areas in the state that lack a system airport, Central Oregon and southeast/south-central Oregon. This section of the report provides an overview of gaps in airport coverage.

- **Aviation System Action Program (ASAP) and Rural Oregon Airport Relief Program (ROAR):** In 2015, the Oregon State Legislature passed House Bill 2075 to increase the fuel tax on Aviation Gas (AV Gas) and Jet Fuel by .02 cents per gallon to invest in aviation for specific purposes. This resulted in the Aviation System Action Program (ASAP) Fund. The ODA assists rural communities in commercial air service through the Rural Oregon Aviation Relief (ROAR) Program. ODA identifies rural airports as an imperative asset to the aviation system since they play a critical role in the economic development of the surrounding local communities.
- **Unmanned Aerial Vehicles (UAVs):** The Unmanned Aircraft Systems (UAS) is a rapidly growing sector within the aviation industry. As the name suggests, a UAS is an aircraft without a human on board; it is operated by a pilot on the ground or by a computer program. UAS are increasingly used by private businesses and recreational users. Businesses in Oregon are using UAS to survey forests and wildlife, monitor forest fires, photograph land, and mapping. Additionally, the US Coast Guard is also deploying UAVs in Oregon.

Costs and Funding: Costs to improve the system to meet all airport role related performance objectives are summarized in total and by type. Each airport also has its own capital improvement plan (SCIP); current SCIPs for each airport were compared to OAP deficiency costs to determine if any airports have planned projects that will enable them to resolve any noted deficiencies, as they relate to OAP objectives. ODA has recently completed a Statewide Pavement Management Plan; this plan identifies needed pavement maintenance and improvement projects for most system airports. The Costs and Funding analysis summarizes identified pavement related projects for the study airports. As part of the OAP , projects from the plan, SCIPs, and pavement management plan were reviewed in an attempt to identify and remove any duplicate projects to avoid double-counting financial requirements for the system. The recommended plan identifies estimated 10-year and average annual investment needs for Oregon airports.

Economic Impact: The economic contributions made by airports are generated from on-airport economic activities and off-airport spending by visiting air travelers. Visitor spending impacts benefit the hospitality industry. Economic impacts documented in the report also include business sectors reliant on airports for business travel and for shipping locally manufactured goods to domestic and international markets. Total impacts include the multiplier impact (direct and indirect/induced). When all impacts are considered, the analysis shows that the 97 Oregon system airports are responsible for significant annual economic impacts.

Compliance: The OAP considered Oregon and federal compliance regulations within three areas: Municipal and County Land Use and Zoning, FAA airport design standards, and Oregon Transportation Plan 2007 guidance.

- **Municipal and County Land Use and Zoning:** Regulating the development patterns surrounding airports is critical to preventing incompatible land uses, which are of concern to both airport operations and to the health, safety, and welfare of nearby communities. Oregon state law currently requires that airports be considered in locally-adopted comprehensive plans and be protected from incompatible uses through adopted zoning and land use development codes and ordinances. However, not all jurisdictions with land use authority over public use airports in the Oregon Department of Aviation (ODA) system sufficiently protect airport operations through their adopted ordinances.
- The 2007 OAP Update verified the status of airport-related land use planning and local regulations for each jurisdiction (both city and county) with land use authority over an ODA system airport. The OAP reviewed and analyzed local jurisdiction compliance with state regulations regarding land uses surrounding airports and make recommendations on how to better implement those regulations. This

Land Use Compatibility Compliance Report for the OAP details the steps taken to collect and analyze land use compatibility information for public use airports, explains how this data was analyzed, and identifies the extent to which jurisdictions comply with state laws. The report provides also guidance on prioritizing assistance for jurisdictions whose policies and land use regulations put airports and adjacent communities at risk. An Airport Land Use and Zoning database was also prepared for ODA staff to research land use and zoning ordinances impacting airports within the system.

- **FAA Airport Design Standard**: As part of the inventory, three additional investigative efforts were undertaken. These efforts included a runway protection zone (RPZ) analysis, an airport Object Free Area (OFA) analysis, and an analysis of Runway Safety Areas (RSA). Analysis of the primary runway for these three criteria were included, secondary runways were not analyzed.
- The first analysis examined the 190 RPZs for all study airports using aerial photographs. This effort reviewed all RPZs and identified incompatible land uses within the RPZ. RSAs and OFAs were also analyzed to identify nonstandard structures as well as impacts from land uses and terrain. All nonstandard issues in RPZs, OFAs, and RSAs were noted on an air photo of the airport. Parallel taxiway and runway separation distances were also analyzed. A list of airports and the number of issues found are provided in tabular form.
- **Oregon Transportation Plan 2006 Guidance:** The OAP has attempted to address each of the OTP goals to meet the intent of the OTP. Continual assessment of the goals and the OAP is recommended to provide a fresh evaluation of the ever-changing needs and demands placed on the system by the various aviation users. The foundation provided in the OAP is used to assess all state, regional, and local aviation facilities and services and creates a strategy that will guide transportation improvement decisions over the next 20 years.

Recommendations to the System: The OAP provides analysis and recommendations for changes to current State Airport Roles. Aviation is a dynamic industry and airports and the role airports play in meeting the state's transportation and economic needs and objectives can change over time. A review of current airport roles was undertaken to determine if changes appear to be appropriate. The need to change state airport roles identified in the OAP considered several factors which include:

- Outside influences on an airport
- Significant improvements in airport infrastructure
- Current aviation activity on the airport

An OAP Category Change Matrix was developed using a ranking by level of importance to determine whether an airport's OAP Category should be elevated. The three main factors had more than one component to address changes at an airport since the 2007 study. The OAP Category Change Matrix assigned points to each component. Results of the analysis recommends that La Grande/Union County Airport be assigned to the Category II – Urban General Aviation Airport. By assigning La Grande to Category II, the airport will be the only Category II airport in eastern Oregon on the Interstate 84 Corridor. La Grande has scheduled air cargo activity, an air ambulance based on the airport and the USFS has an Air Tanker Base located there. Capital improvements at the airport since the 2007 OAP include a runway extension and a GPS approach.

1.4 Oregon Aviation Plan v6.0 Deliverables

The primary output from the update to the OAP is a Technical Report that documents all study analysis, findings, and recommendations. An Executive Summary provides a high-level review of the detailed Technical Report.

An Individual Airport Report was prepared for each study airport. This report summarizes each airport's specific findings and recommendations from the OAP, and contains each airport's Report Card. The Report Cards provide a summary of projects and costs that the airport could anticipate in the next five to ten years. The Individual Airport Reports also provide detailed airport-specific information for the community-based land use compatibility analysis and the airport's economic impact. All Individual Airport Reports are available from ODA.