Kent Taylor Civic Hall
200 NE Second Street
McMinnville, OR 97128

City Council Work Session Meeting
Agenda
Wednesday, June 18, 2028
6:00 p.m. – City Council Work Session Meeting – (Immediately Following the Joint Work Session Mtg)
EXECUTIVE SESSION – to immediately follow the Regular Meeting (CLOSED TO THE PUBLIC)
REVISED 06/16/2025

Welcome! The public is strongly encouraged to participate remotely but there is seating at Civic Hall for those who are not able to participate remotely. However, if you are not feeling well, please stay home and take care of yourself.

CITY COUNCIL WORK SESSION:

You may join online via Zoom Webinar Meeting:
https://mcminnvilleoregon.zoom.us/j/87251150845?pwd=wBK6xGZvgRbxWP1Aa7ygKOeVaxJs92.1
Or you can call in and listen via Zoom: 1-253- 215- 8782
Webinar ID: 872 5115 0845

6:00 PM – CITY COUNCIL WORK SESSION MEETING – VIA ZOOM AND SEATING AT CIVIC HALL (IMMEDIATELY FOLLOWING THE JOINT WORK SESSION MEETING)

1. CALL TO ORDER
2. AIRPORT MASTER PLAN
3. ADJOURNMENT OF WORK SESSION MEETING

CITY COUNCIL EXECUTIVE SESSION – IMMEDIATELY FOLLOWING THE CITY COUNCIL WORK SESSION MEETING (NOT OPEN TO THE PUBLIC) (Added on 06.16.2025)

1. CALL TO ORDER
2. **EXECUTIVE SESSION PURSUANT TO ORS 192.660(2)(f):** To consider information or records that are exempt by law from public inspection.
3. ADJOURNMENT OF EXECUTIVE SESSION

Meeting Accessibility Services and Americans with Disabilities Act (ADA) Notice: Kent Taylor Civic Hall is accessible to persons with disabilities. A request for an interpreter for the hearing impaired or for other accommodations for persons with disabilities should be made a least 48 hours before the meeting to the City Recorder (503) 435-5702 or CityRecorderTeam@mcminnvilleoregon.gov.

STAFF REPORT

DATE: June 18, 2025
TO: Mayor and City Councilors
FROM: Geoff Hunsaker, Public Works Director and Willy Williamson, Airport Administrator
SUBJECT: Airport Master Plan Update

Report in Brief:

This report provides an update on the development of the McMinnville Municipal Airport (MMV) Master Plan. It outlines project background, known facility needs, the planning process underway, and the preferred alternative to guide improvements over the next 20 years.

Background:

The City of McMinnville, in partnership with the Federal Aviation Administration (FAA), is updating its Airport Master Plan to replace the outdated 2004 Airport Layout Plan (ALP). The Master Plan addresses short- and long-term development needs, ensures compliance with FAA design standards, and integrates considerations for land use, economic development, and environmental factors.

Project Funding

The Master Plan update is funded by multiple sources:

Funding Source	Amount	Percentage
FAA Airport Improvement Program (AIP) Grant	$450,000	89%
Oregon Department of Aviation (COAR Grant)	$37,500	7%
City of McMinnville (Local Match)	$18,059	4%
Total Project Cost	**$505,559**	**100%**

Planning Process

The plan is being developed through a three-phase process designed to maximize stakeholder and public engagement. The planning process includes a Planning Advisory Committee (PAC) composed of airport users, community representatives, and aviation experts. The process consists of technical studies, stakeholder meetings, and FAA coordination. The three main phases include:

Added on 06.13.2025

1. **Develop Understanding:** Inventory of existing facilities, aviation forecasts, and identification of community and operational needs.
2. **Explore Solutions:** Define facility goals, assess alternatives, and identify improvements.
3. **Implementation:** Prepare Capital Improvement Plan (CIP), Airport Layout Plan (ALP), and implementation strategies.

The PAC and public outreach components ensured transparency and community input throughout.

Existing Conditions

MMV currently supports two runways: Runway 4/22 and Runway 17/35. Runway 4/22 is the primary, instrument-capable runway and accommodates most business jet traffic. Runway 17/35 is a visual-only, secondary runway. The airport's infrastructure generally supports Aircraft Design Groups (ADG) I and II. Facilities include hangars, aircraft parking aprons, fueling stations, and FBO services. Some infrastructure, such as lighting systems and signage, is nearing the end of its useful life.

Issues and Opportunities

The following needs and opportunities were identified and evaluated:

- **Pavement Rehabilitation & Reconfiguration:** Terminal area apron rehabilitation.
- **Airfield Lighting:** Lighting upgrades for Runway 17/35 and Taxiway A.
- **Fencing:** Extension of airport perimeter fencing.
- **Fuel Storage:** Evaluation of future fuel facility needs.
- **Hangar Development:** Identification of near- and long-term hangar sites.
- **Helicopter Facilities:** Enhanced planning for helicopter operations.
- **Terminal Facilities:** Planning for potential upgrades to FBO/terminal building.
- **Aeronautical/Non-Aeronautical Development:** Evaluation of airport land uses for future development in compliance with FAA guidelines.

Discussion:

Aviation Forecasts

Over the 20-year planning horizon, MMV is forecast to grow from approximately 70,000 annual operations to over 81,000. Based aircraft are projected to increase by 23, including more single-engine pistons, helicopters, and a few jets. These forecasts influence planning for hangar development, parking, and taxiway access.

Facility Requirements

The facility evaluation identified several key needs to ensure the airport remains safe, efficient, and able to meet future demand. Maintaining the existing runway lengths is critical to accommodate the forecast mix of aircraft operations. To enhance safety and

improve aircraft movement efficiency, Taxiways A1 and A3 need to be reconfigured as 90-degree connectors, while high-energy crossings must be addressed to comply with updated FAA design standards. As demand increases, expanding hangar capacity and improving aircraft parking will be essential to serve based and transient aircraft. In addition, the relocation of fuel storage facilities is recommended to enhance safety and operational efficiency. Upgrades to navigational aids and lighting systems are also necessary as existing equipment approaches the end of its service life.

Alternatives Analysis

Multiple development alternatives were considered for airside and landside improvements, including a no-build scenario. Key challenges addressed include:

- Conformance with FAA design standards
- Safe and efficient aircraft circulation
- Optimal land use for aeronautical and non-aeronautical development

Alternatives were evaluated based on operational capability, FAA standards, airspace compatibility, and environmental considerations. Feedback from the PAC and public was integrated throughout the process.

Preferred Alternative

The preferred alternative includes:

- No runway extensions, but targeted taxiway improvements
- Upgrades to Taxiways A1, A2, and A3
- Closure of Cruickshank Road at the east end of Runway 4/22 for safety
- Expanded central terminal area and relocated aircraft hold positions
- Development of new west and east landside areas for hangars and transient parking
- Relocated public access and new internal roadways

This alternative best aligns with forecast demand, stakeholder input, and funding priorities. Implementation will be phased based on need and funding availability

Fiscal Impact

The capital improvement projects identified in the preferred alternative will be phased over 20 years and incorporated into the City's CIP and FAA grant application processes. Most projects will be eligible for FAA Airport Improvement Program (AIP) funding.

Next Steps:

As the planning process moves forward, the project team will complete remaining technical evaluations and finalize draft recommendations. Additional opportunities for public engagement, including a second public open house and follow-up PAC meetings,

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will be held to gather further input. Upon completion of this feedback phase, the updated Airport Layout Plan (ALP) and Capital Improvement Program (CIP) will be finalized and submitted for review by the FAA and City. The final Airport Master Plan is anticipated to be presented to the City Council for formal adoption in Summer 2025.

Website:

Additional information can be found on the project website:
https://www.mcminnvilleoregon.gov/airport/page/airport-master-plan

Attachments:

1. Draft Airport Master Plan

Chapter 1

Introduction

The City of McMinnville, Oregon is preparing an Airport Master Plan for McMinnville Municipal Airport (MMV) in cooperation with the Federal Aviation Administration (FAA) to address the Airport's needs for the next 20 years. This project will replace the 2004 Airport Layout Plan Report (Century West Engineering), which provided the most recent FAA-approved (signed) Airport Layout Plan (ALP) drawing for the Airport. The Airport Master Plan will provide specific guidance in making the improvements necessary to maintain a safe and efficient airport that is economically, environmentally, and socially sustainable.

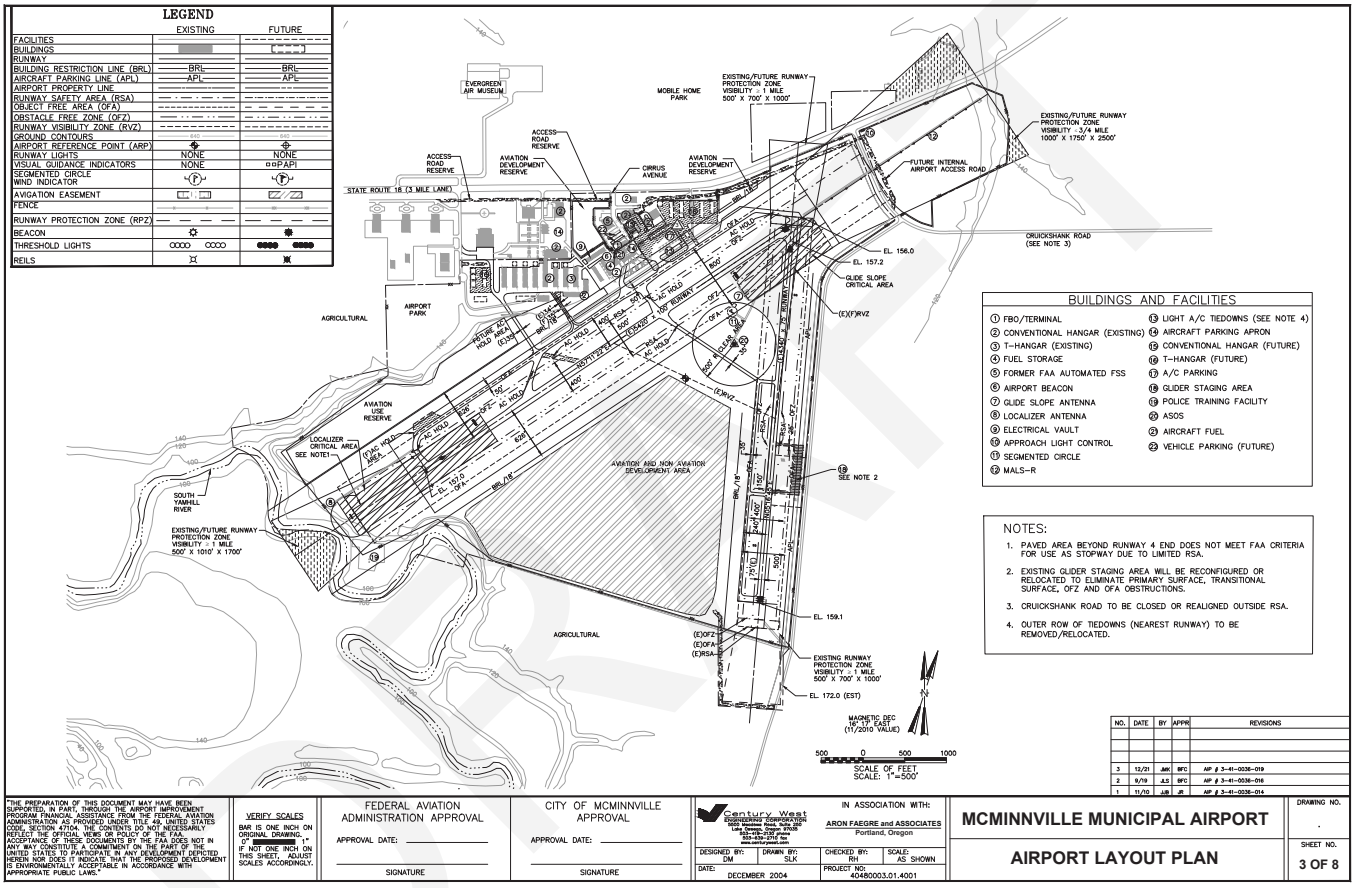
Study Purpose

The purpose of the Airport Master Plan is to define the current, near-term, and long-term needs of the Airport through a comprehensive evaluation of facilities, conditions and FAA airport planning and design standards. The study will also address elements of local planning (land use, transportation, environmental, economic development, etc.) that have the potential of affecting the planning, development, and operation of the Airport.

Project Need

The FAA requires airports to periodically update their master plans as conditions change to maintain current planning. Several "as-built" updates were prepared for the 2004 ALP drawing in conjunction with airfield projects completed in 2010, 2019, and 2021. The as-built drawings were coordinated with FAA, although they did not replace the signed 2004 ALP drawing currently on file in the FAA Seattle Airports District Office. However, the most recent (2021) as-built update shown in **Figure 1-1** is most consistent with existing conditions at the Airport.

Figure 1-1: 2021 As Built ALP



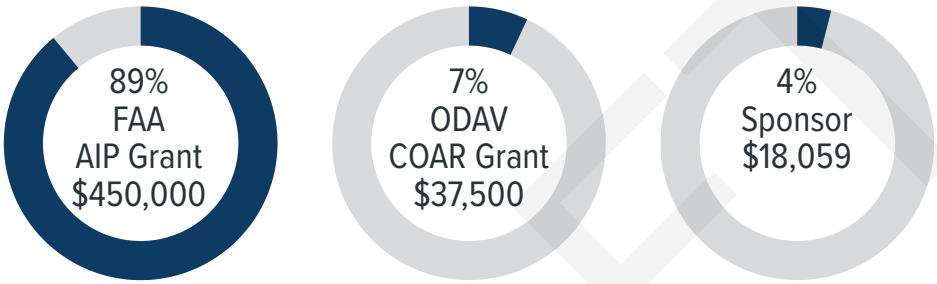
A detailed summary of major airfield improvement projects completed since the 2004 ALP Report will be provided in Chapter 2 (Existing Conditions), along with a summary of recent FAA grant history for the Airport. In addition to publicly funded projects at the Airport, significant private investment includes construction of several private commercial hangars located on airport property and on adjacent privately-owned property (with city-approved through the fence access agreement).

In order to maintain current planning as required by FAA, updated long-term planning for the Airport is needed to reevaluate/refresh several concepts presented in previous planning efforts. In addition to addressing changing local conditions, updated FAA standards and current trends within the aviation industry also need to be reflected in the updated airport master plan.

The 2004 ALP Report, although dated, serves as a primary source for inventory data. However, where available, more current, or comprehensive data are included in the report to illustrate current conditions. Existing airfield facilities were examined during on-site inspections to update facility inventory data. The consultants also worked closely with airport staff to review the current facility and operational data maintained by the City of McMinnville.

Project Funding

Funding for the Airport Master Plan Update was provided through an FAA Airport Improvement Program (AIP) grant of $450,000 (89%), and an Oregon Department of Aviation (ODAV) Critical Oregon Airport Relief (COAR) grant of $37,500 (7%), and a local match of $18,059 (4%) provided by the City of McMinnville. The total project cost of $505,559 includes City staff administration time to support the planning process. The AIP is a dedicated fund administered by FAA with the specific purpose of maintaining and improving the nation's public use airports. The AIP is funded exclusively through fees paid by users of general aviation and commercial aviation. The ODAV COAR grant program funding also relies exclusively on aviation user fees.



Total Project Cost: $505,559

Goals of the Airport Master Plan

The primary goal of the Airport Master Plan is to provide the framework and vision needed to guide future improvements at McMinnville Municipal Airport. The FAA sets out goals and objectives each master plan should meet to ensure future development will cost-effectively satisfy aviation demand and consider potential environmental and socioeconomic impacts.

Goal 1: Define the vision for the airport to effectively serve the community, airport users, and the region. Assess known issues including air traffic control, runway length, the ability to accommodate development, auto parking, fencing, and land use to develop a realistic sustainable plan to improve the airport.

Goal 2: Document existing activity, condition of airfield facilities, and policies that impact airport operations and development opportunities.

Goal 3: Forecast future activity based on accepted methodology.

Goal 4: Evaluate facilities and conformance with applicable local, state, and FAA standards.

Goal 5: Identify facility improvements to address conformance issues and accommodate demand.

Goal 6: Identify potential environmental and land use requirements that may impact development.

Goal 7: Explore alternatives to address facility needs. Work collaboratively with all stakeholders to develop workable solutions to address needs.

Goal 8: Develop an Airport Layout Plan to graphically depict proposed improvements consistent with FAA standards as a road map to future development. Prepare a supporting Capital Improvement Plan to summarize costs and priorities.

Goal 9: Provide recommendations to improve land use, zoning, and City oversight of the airport to remove barriers to appropriate growth at the airport.

Goal 10: Summarize the collective vision and plan for the airport in the Airport Master Plan report.

THE FAA ROLE IN THE AIRPORT MASTER PLAN

FAA *Advisory Circular (AC) 150/5070-6B Airport Master Plans* defines the specific requirements and evaluation methods established by FAA for the study. The guidance in this AC defines planning requirements for all airports, regardless of size, complexity, or role. However, each master plan study must focus on the specific needs of the airport for which a plan is being prepared.

The recommendations contained in an airport master plan represent the views, policies and development plans of the airport sponsor (City of McMinnville) and do not necessarily represent the views of the FAA. Acceptance of the master plan by the FAA does not constitute a commitment on the part of the United States to participate in any development depicted in the plan, nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public law. The FAA reviews all elements of the master plan to ensure that sound planning techniques have been applied. However, the FAA only formally approves the Aviation Activity Forecasts and Airport Layout Plan. The FAA is not directly involved in the local adoption of master plans.

Planning Process

A three-phase planning process is used to provide multiple feedback loops to maintain the flow of information and ideas for the community and project stakeholders, with the goal of maximizing public involvement.

DEVELOP UNDERSTANDING

A comprehensive understanding of the issues and opportunities, existing conditions, and an identified level of future aviation activity that would mandate facility improvements required to satisfy future demand.

Analysis
- Develop Scope of Work
- Public Involvement Strategy
- AGIS Survey
- Existing Conditions Analysis
- Aviation Activity Forecasts

Project Meetings
- Bi-Weekly Planning Team Meetings
- Project Kick-off Meeting
- Planning Advisory Committee (PAC) Meetings

Work Product
- Introduction
- Existing Conditions
- Aviation Activity Forecasts

EXPLORE SOLUTIONS

A collaborative exploration of local Airport needs, goals, and facility requirements in sequence with the development of community generated ideas, solutions, and development alternatives.

Analysis
- Define Updated Airfield Design Standards
- Perform Demand/Capacity Analysis
- Define Facility Goals and Requirements
- Identify & Prepare Development Alternatives
- Evaluate Development Alternatives

Project Meetings
- Bi-Weekly Planning Team Meetings
- Planning Advisory Committee (PAC) Meetings
- Public Open House

Work Product
- Facility Goals & Requirements
- Airport Development Alternatives

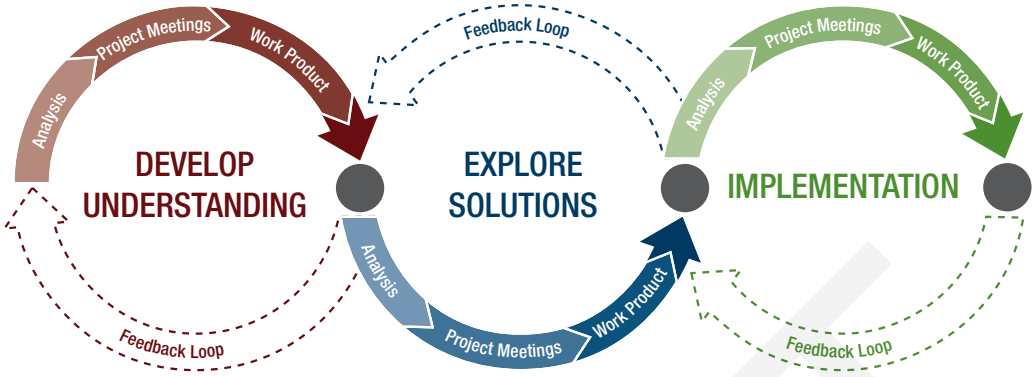
IMPLEMENTATION

An implementation program with recommended strategies and actions for future land use, transportation, and environmental requirements; a realistic and workable CIP; and current ALP drawings that graphically depict existing conditions at the airport as well as proposed development projects.

Analysis
- Develop Strategies & Actions
- Develop CIP/Phasing/Financial Plan
- Develop ALP Drawing Set

Project Meetings
- Bi-Weekly Planning Team Meetings
- Planning Advisory Committee (PAC) Meetings

Work Product
- Strategies & Actions
- Financial Plan (CIP/Phasing)
- ALP Drawing Set
- Draft Report
- Final Report



Framework of the Airport Master Plan

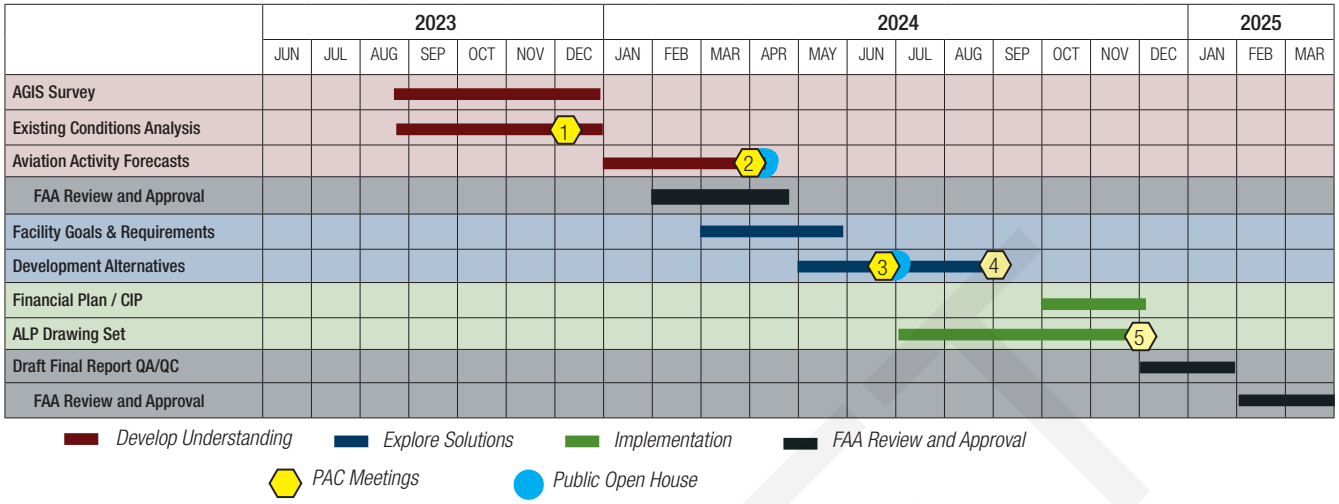
The framework of the Airport Master Plan provides a clear structure to inform and steer future planning decisions. The process allows the plan to take shape through flexibility, iteration, and adaptation. The framework reflects the Airport's regional setting, airside and landside elements, management, and administration functions. The framework provides guidance, while being flexible enough to adapt to changing conditions encountered during plan development. The process is used to develop understanding, explore solutions, and implement the preferred development alternative for the Airport that is complementary to its adjacent urban and rural environments.

	Regional Setting	Airside Elements	Landside Elements	Airport Administration
Develop Understanding	Location & Vicinity Socio-Economic Data Airport Role Airport History Area Airports Context Airport Operations Relevant Studies Environmental Data Local Surface Transportation Land Use/Zoning	Area Airspace Instrument Flight Procedures Navigational Aids Runway/Helipad Taxiways/Taxilanes Pavement Condition Airside Support Facilities	Aprons/Tiedowns FBO/Terminal Building Hangars Airport Fencing Airport Surface Roads Vehicle Parking Utilities Aircraft Fueling	Airport Ownership & Management Airport Financials Airport Rates and Charges Local Rules & Regulations Oregon Aviation Laws FAA Compliance Overview
Explore Solutions				
Implementation				

Project Schedule

The Airport Master Plan schedule depicted in **Figure 1-2** is expected to occur over the course of 18-24 months. FAA approvals can take anywhere from 3-6 months following the completion of the final draft narrative reports and drawings. FAA-funded master planning project grants cannot be amended to account for changes in project scope or level of effort. This contract requirement ensures that only work included in the FAA-approved project scope of work will be required by FAA for project completion.

Figure 1-2: Project Schedule



Known Issues & Opportunities

At the outset of the Airport Master Plan, several known issues and opportunities were identified by airport management, the consultant, the FAA, or users of the Airport. The issues and opportunities identified below are among the focus areas that will be addressed during the master plan. The goal of this examination is to ensure a comprehensive and thorough assessment that addresses and documents proposed solutions, potential constraints, and methods of implementation.

The Airport Sponsor has developed a prioritized list of near-term projects including pavement rehabilitation, a fencing project in the northern section of the Airport, and lighting for Runway 17/35. A range of issues and opportunities are summarized below and shown on **Figure 1-3**:

1 TERMINAL AREA PAVEMENT REHABILITATION/ RECONFIGURATION

Rehabilitation of several areas of apron (asphalt pavements) in the terminal area are included among the near-term CIP priorities. Future aircraft parking needs for locally based and transient aircraft (fixed wing and helicopter) will be evaluated during the master plan process.

2 AIRFIELD LIGHTING

Future projects identified include lighting Runway 17/35 and replacing the existing edge lighting on Taxiway A.

3 AIRPORT FENCE EXTENSION (NORTH SECTION)

A new section of airport fencing is planned to extend along the north section of the Airport. The project is currently in the environmental stage and construction is expected in 2024. The conceptual alignment of the fence will be evaluated in the environmental process and final fence and gate configurations will be determined during design. This project will be incorporated into the master planning evaluations as an existing condition.

4 AIRPORT FUEL STORAGE

Existing and future aircraft fueling needs will be included in the updated terminal area evaluations to ensure that adequate space is provided for bulk tank storage, mobile fuel trucks, and dispensing facilities.

5 HANGAR DEVELOPMENT AREAS

The updated terminal area evaluations will address near-term and long-term hangar development needs with a primary focus on identifying buildable hangar sites. Access to utilities, surface streets, and taxiways/taxilanes/aprons are key factors in siting both commercial and aircraft storage hangars. New or expanded aviation services including fixed base operator (FBO), flight training, specialized aircraft maintenance, and aviation support businesses are typically concentrated in central terminal areas, while aircraft storage hangars may be located throughout the landside area.

6 HELICOPTER FACILITIES AND OPERATIONS

MMV accommodates significant helicopter flight training activity. Currently, one local operator bases several small helicopters on the east side of the main apron, adjacent to their hangar and support buildings. Future helicopter-related evaluations are expected to address aircraft movement (hover-taxiing, etc.) within the terminal area, future building needs, aircraft parking, aircraft fueling, and general aircraft operations in conjunction with fixed-wing aircraft.

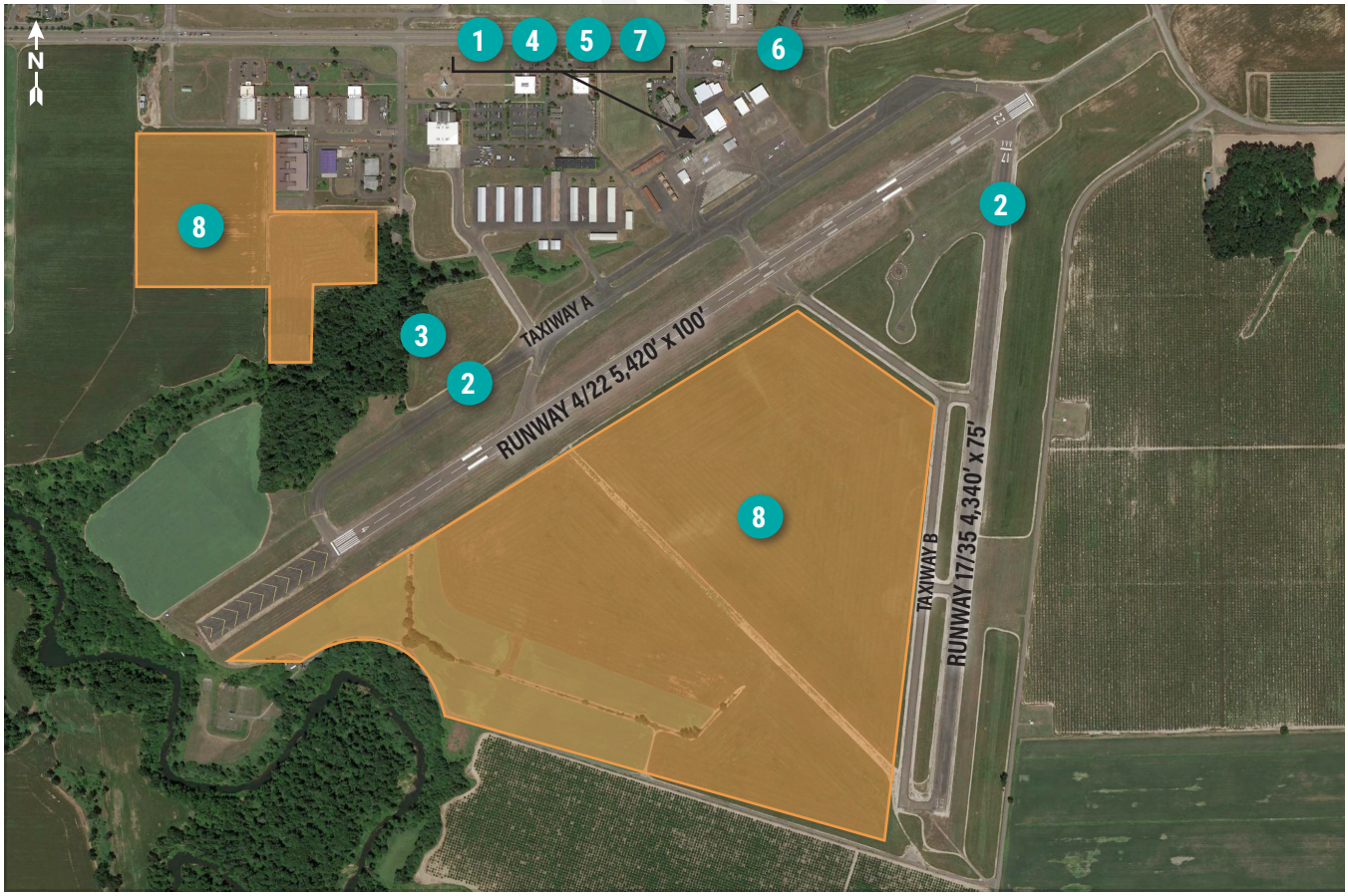
7 TERMINAL AREA FACILITIES (TERMINAL/FBO BUILDING)

A central component of the updated terminal area planning will be the evaluation of future FBO building/ general aviation terminal needs, vehicle circulation and parking.

8 AERONAUTICAL /NON-AERONAUTICAL DEVELOPMENT

The Airport has an extensive land area capable of accommodating a wide range of aeronautical and some areas for non-aeronautical uses. The process for FAA approval of non-aeronautical land uses was updated in the 2018 AIP Reauthorization Act. Section 163 of the Act provides guidance to facilitate appropriate non-aeronautical development while protecting the airport's primary aeronautical functions. An evaluation of aeronautical and non-aeronautical land uses will be performed as part of the master plan, and definitions will be assigned to all airport lands.

Figure 1-3: Known Issues & Opportunities



Chapter 2

Existing Conditions Analysis

The purpose of this chapter is to document current facilities and conditions that can affect airfield operations and the ongoing improvement of the McMinnville Municipal Airport; MMV (FAA Airport Identifier Code: MMV/KMMV), hereafter referred to as "the Airport" or "MMV," The assembled information is presented within the context of the Airport's regional setting, its airside and landside facilities, and its administrative functions. Available data sources including the previous airport layout/master planning effort (2004), airfield pavement inspections, design and environmental documents for several completed airfield projects, and current City of McMinnville and Yamhill County planning documents, codes and regulations are used to support this evaluation. The data collection is supplemented with meetings/contact with airport tenants, stakeholders, and City staff. The findings documented in this chapter will support subsequent elements of the master plan.

Regional Setting

The Regional Setting section is intended to provide a broader understanding of the geographic, social, economic, and environmental impacts airports can have in a region, county, and community. The primary focus in this section is to describe conditions that are specifically related to MMV and its surroundings.

LOCATION & VICINITY

MMV is owned and operated by the City of McMinnville in eastern Yamhill County, Oregon. The Airport is located approximately three miles southeast of the McMinnville city center, at the southeast edge of the city limits and urban growth boundary (UGB). Surface access to the Airport is provided via Highway 18 and SE Cirus Ave.

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Yamhill County is located in northwest Oregon, with a land area of 718 square miles, situated between the Willamette Valley and the Oregon Coast. The county is made up of predominantly forest and agricultural lands. Numerous small communities are located along county roads and state highways in the eastern section of the county, within about an hour's drive of Portland. The central and western sections of the county are more sparsely populated with large, forested areas, including the Siuslaw National Forest. McMinnville is the county seat and the largest among 10 incorporated cities in Yamhill County. McMinnville is located approximately 40 miles southwest of Portland and 26 miles northwest of Salem and is served by two main highways: Oregon Highways 18 and 99W.

The City of McMinnville's 2023 Economic Development Strategy notes the following in its key findings: *"McMinnville has the largest population and highest employment in Yamhill County, which positions the city as a subregional center, on the outskirts of the greater Portland region. McMinnville is expected to grow and capture more than half of projected population growth in Yamhill County in the coming years, thereby increasing its role as the commerce and population center of Yamhill County."*

The Airport's location plays a crucial economic role in providing efficient access to air transportation for McMinnville and the broader Yamhill County area. The Airport supports a variety of local businesses with direct and indirect employment in both general aviation and commercial activities, and a broad range of secondary economic activity. A location, vicinity and site map is provided in **Figure 2-1**.

COMMUNITY SOCIO-ECONOMIC DATA

Population

Population within an airport's service area is a key element in defining economic activity, which in turn heavily influences airport activity. Data from Portland State University Population Research Center (PRC) and U.S. Census data was reviewed to gauge recent changes in population within the Airport's service area.

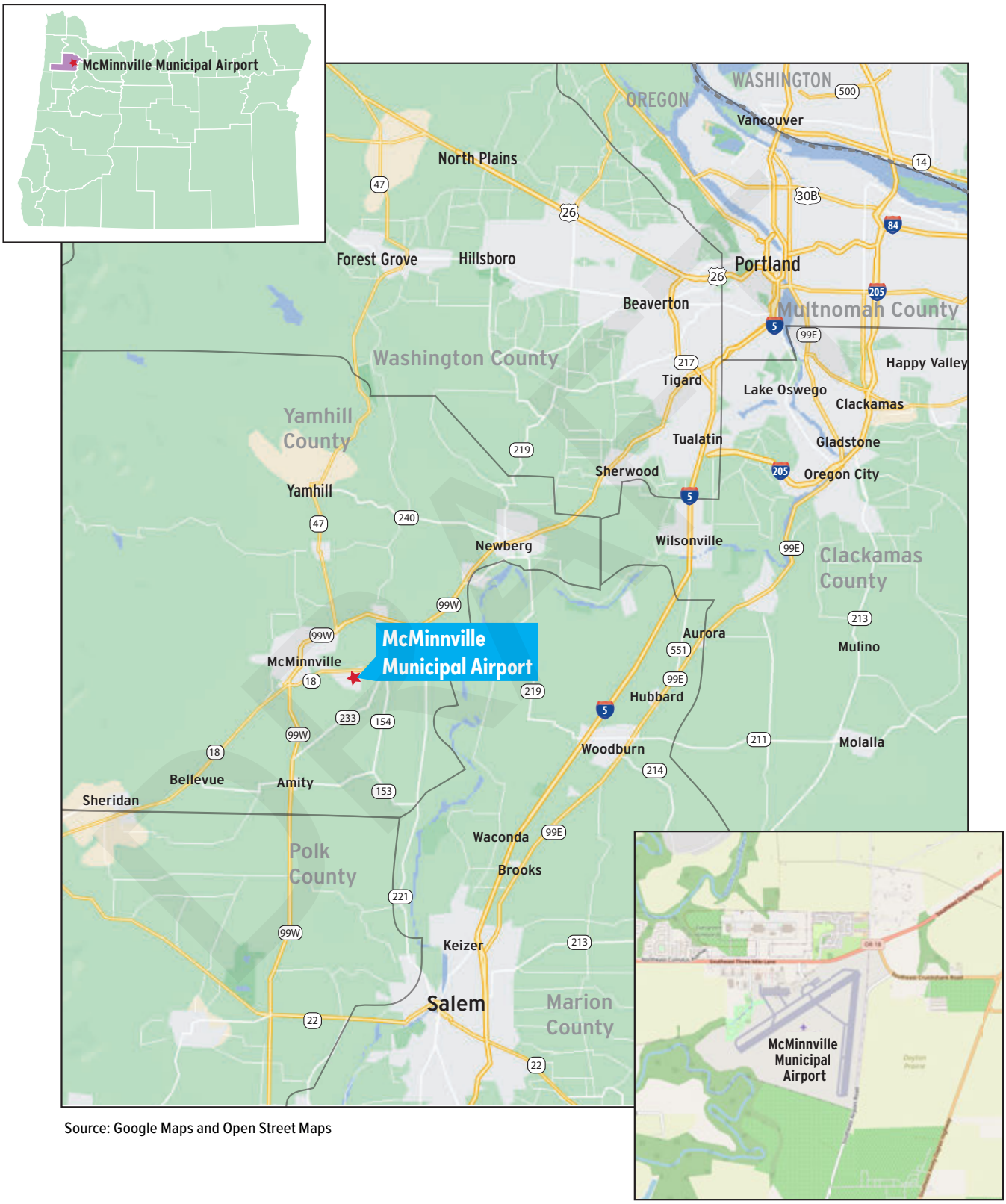
Population in the City of McMinnville has grown steadily over the last 20 years, outpacing the rates of growth for both Yamhill County and Oregon (statewide). During this period, population growth for the local/county/state averaged about 1 to 1.2% annually. Historical population data are summarized in **Table 2-1**. The distribution of population in Yamhill County is summarized in **Table 2-2**. It is noted that McMinnville's share of county population increased from around 27% to nearly 32% since 2000.

Table 2-1: Historical Population

	2000	2010	2018	2019	2020	2021	2023*
Oregon	3,421,399	3,831,074	4,183,538	4,216,116	4,237,256	4,263,581	4,291,525
CAGR (2000-2023)							0.99%
Yamhill County	84,992	99,193	106,390	106,927	107,722	108,311	109,743
CAGR (2000-2023)							1.12%
City of McMinnville (Incorporated Area)	26,499	32,187	34,434	34,674	34,319	34,263	34,612
CAGR (2000-2023)							1.17%

Source: Portland State University (PSU) Certified Population Estimates – McMinnville 2000-2023
*Portland State University (PSU) Certified Population Estimates December 15th 2023

Figure 2-1: Location and Vicinity Map



Source: Google Maps and Open Street Maps

Table 2-2: Historical Population – Local Area Distribution

	2000	2010	2018	2019	2020
Yamhill County	65,551 (100%)	84,992 (100%)	99,193 (100%)	107,722 (100%)	109,743(100%)
McMinnville	17,894 (27.3%)	26,499 (31.2%)	32,187 (34.5%)	34,319 (31.9%)	34,612 (31.54%)
Newberg	13,086 (20%)	18,064 (21.3%)	22,068 (22.3%)	25,138 (23.3%)	26,728 (24.36%)
Sheridan	3,979 (6.1%)	5,561 (6.6%)	6,127 (6.2%)	6,429 (6%)	5,987 (5.46%)
Lafayette	1,292 (2%)	2,586 (3%)	3,742 (3.8%)	4,423 (4.1%)	4,714 (4.3%)
Other Cities	8,800 (13.4%)	9,631 (11.3%)	11,521 (11.6%)	12,361 (11.5%)	12,521 (11.41%)
Unincorporated	20,500 (31.3%)	22,651 (26.7%)	23,548 (23.7%)	25,052 (23.3%)	25,181 (22.95%)

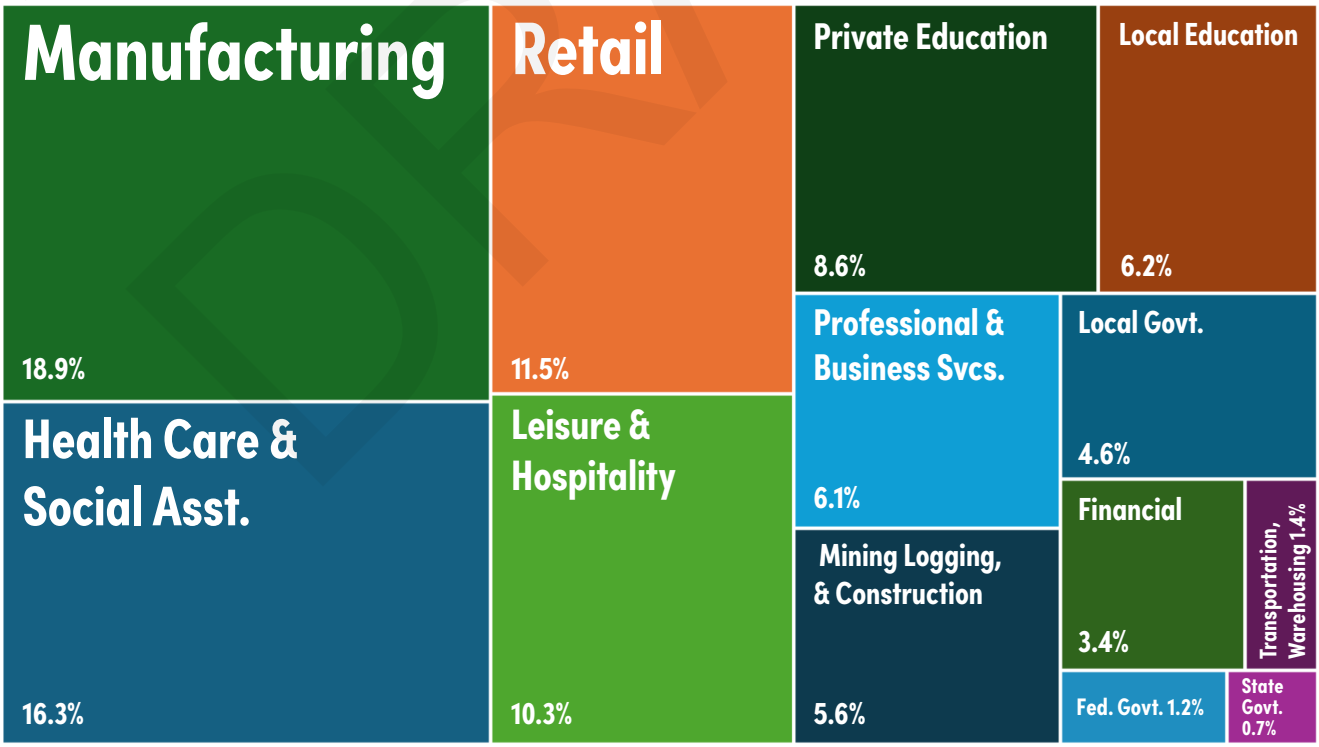
Source: US Decennial Census (1990-2020).
*Portland State University (PSU) Certified Population Estimates December 15th 2023

Income & Employment

U.S. Census data reports the 2022 median household income in the McMinnville census district was $66,215, trailing both Yamhill County ($77,267) and Oregon ($75,657). The December 2023 unemployment rate in Yamhill County was 3.4%, slightly lower than Oregon's statewide rate of 3.7%.

Figure 2-2 highlights the largest employment sectors in Yamhill County. The agency's December 2023 projection of industry employment in the four-county "Mid-Valley" region (Linn, Marion, Polk, and Yamhill Counties) projects a 10% net increase between 2022 and 2032. **Table 2-3** highlights demographic data for Yamhill County from the 2020 Census.

Figure 2-2: Employment Industries



Source: OR Department of Employment;Yamhill County

Table 2-3: Yamhill County Demographics[1]

Demographic	Data
Population (2020)	107,722 (2020 Census)[1]
Ethnicity (2020)	Caucasian (73.7%); Hispanic or Latino (16.5%); Black or African American (0.8%); American Indian and Alaska Native (1.3%); Asian (1.4%); Native Hawaiian and Other Pacific Islander (0.2%); Some Other Race (0.6%); two or more races (5.6%)
Median Household Income (2022)[2]	$77,267 (Yamhill County); $75,657 (Oregon)
Persons in Poverty (%)	11.1% (Yamhill County); 12.1% (Oregon)
Persons Under 18 (%)	20.8% (Yamhill County); 19.7% (Oregon)
Persons 65 and Over (%)	18.9% (Yamhill County); 19.2% (Oregon)
Total Workforce (December 2023)[3]	56,053 (Total Civilian Labor Force) 1,981 (Total Unemployed) 54,072 (Total Employed) 36,840 (Total Nonfarm) 32,170 (Total Private) 4,670 (Total Government)
Unemployment Rate (December 2023)[3]	3.4% (Yamhill County); 3.7% (Oregon)

1. U.S. Census Bureau QuickFacts State of Oregon, Yamhill County (2020 Census); other data and distributions are 2021.
2. United States Census Bureau. 2022 American Community Survey
3. State of Oregon Employment Department. Seasonally Adjusted

Additional socio-economic data and analysis is presented in Chapter 3: Aviation Activity Forecasts to supplement the projections of future aviation activity.

AIRPORT ROLE (NATIONAL, STATE, AND LOCAL)

The role of an airport may vary slightly within the context of the national, state, or local perspective. Understanding the existing roles of MMV is key to establishing the long-term vision and development of the facility.

National Role

The FAA maintains a current inventory of 3,287 existing U.S. aviation facilities in the National Plan of Integrated Airport Systems (NPIAS). The NPIAS lists airports significant to the air transportation of the United States, and thus are eligible for federal funding through the Airports Improvement Program (AIP), which currently covers 90% of eligible costs of planning and development projects. According to the 2022 *National Plan of Integrated Airport Systems (2023-2027) Report to Congress*, MMV is classified as a Regional General Aviation Airport and as such, supports regional economies by connecting communities to statewide and interstate markets.

State Role

The Oregon Department of Aviation (ODAV) has developed and regularly updates the Oregon Aviation Plan (OAP) to provide guidance on preserving the State's system of airports. The OAP presents a framework for improving the system for continued support of communities and economic development. The most recent update to the OAP (v.6.0) classifies MMV as a Category II - Urban General Aviation Airport. Category II airports support general aviation aircraft, business jets, helicopters, and gliders. Urban General Aviation Airports service a high level of general aviation activity while accommodating demanding user requirements of business-related activity.

AIRPORT HISTORY

The Airport was originally constructed as a national defense project during World War II. The airport property was acquired by the City of McMinnville in 1942 and the Federal Government constructed the airfield facilities. The original agreement, which remains in effect, requires that the airport *"be operated for the use and benefit of the public."* The existing dual runway-taxiway configuration is largely unchanged from the original construction although several improvement projects have been completed in recent years to upgrade the facilities.

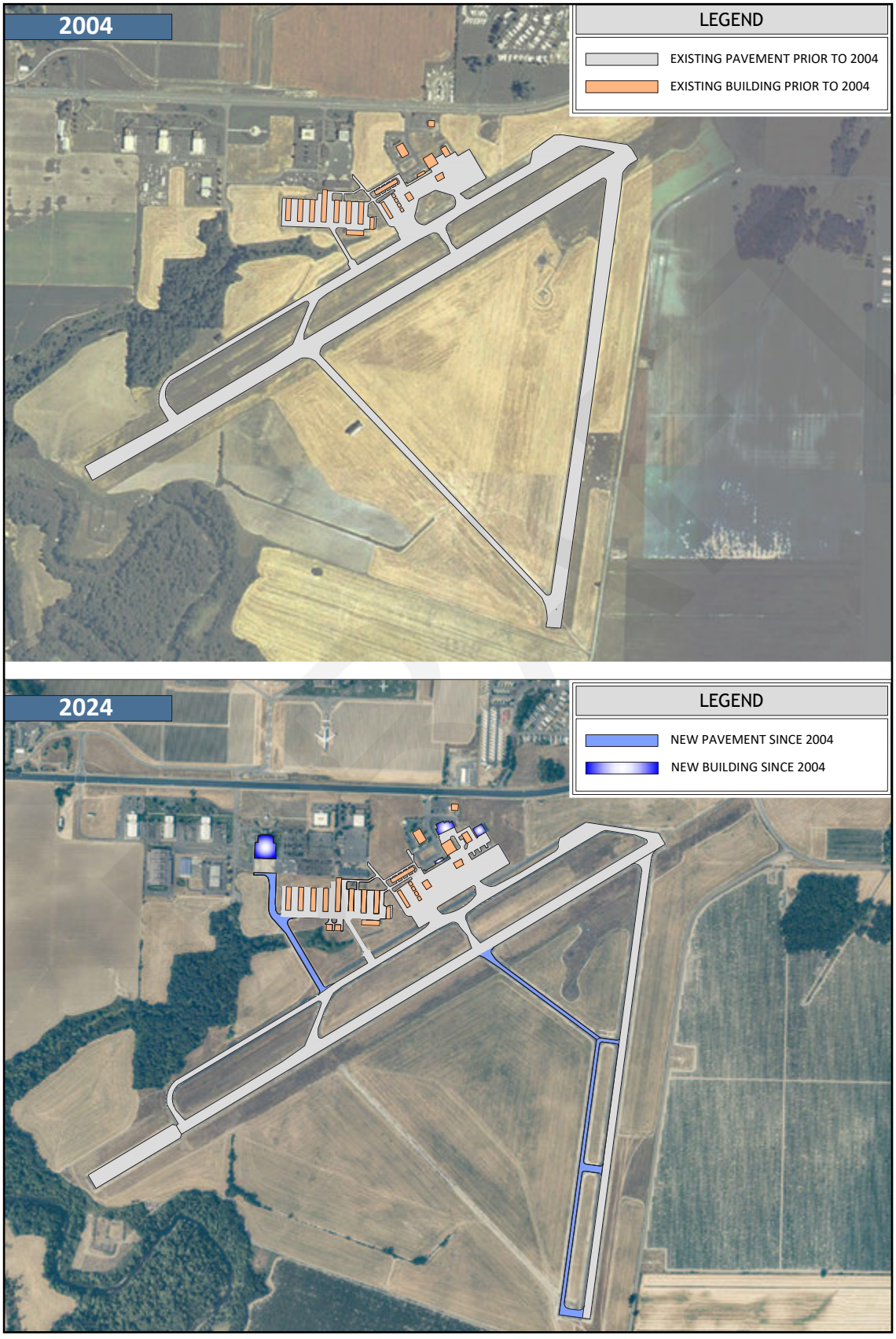
Several planning studies have taken place throughout the Airport's history, including multiple FAA-funded master planning efforts between 1973 and 2004. Several new construction and facility rehabilitation projects have been completed at the Airport over the past 20 years. Recent FAA funded (with local match) airfield projects are listed in **Table 2-4** including rehabilitation of the primary runway, construction of the Runway 17-35 parallel taxiway, expansion of the main apron, obstruction removal, and new taxiway construction. **Figure 2-3** depicts new airfield construction since the last plan was completed in 2004.

Table 2-4: 20-Year FAA Grant History

Fiscal Year	Project (MMV)	Entitlement	Discretionary	Other	Total Federal
2004	Expand Apron	$294,239	$0	$0	$294,239
2007	Rehabilitate Runway	$350,254	$0	$0	$300,000
2008	Construct Taxiway Rehabilitate Runway	$1,024,398 $100,000	$0 $0	$0 $0	$1,124,398
2008	Rehabilitate Runway	$0	$1,360,114	$0	$1,360,114
2009	Construct Taxiway	$68,073	$0	$0	$68,073
2009	Rehabilitate Runway Remove Obstructions Construct Taxiway	$15,682 $6,500 $98,505	$0 $0	$0 $0	$120,687
2009	Construct Taxiway	$0	$1,130,867	$0	$1,130,867
2014	Conduct Environmental Study	$248,667	$0	$0	$248,667
2015	Rehabilitate Runway	$492,230	$7,471	$0	$499,701
2016	Rehabilitate Runway	$828,526	$6,327,240	$0	$7,155,766
2018	Reconstruct Apron	$246,986	$0	$0	$246,986
2020	Reconstruct Apron	$435,941	$884,546	$146,720	$1,467,207
2020	CARES Act Funds	$0	$0	$69,000	$69,000
2021	CRRSA Act Funds	$0	$0	$23,000	$23,000
2022	General ARPA	$0	$0	$59,000	$59,000
2023	Conduct Airport Related Environmental Assessment/Plan/Study	$0	$0	$92,643	$92,463
2023	Update Airport Master Plan or Study	$450,000	$0	$0	$450,000
Total		$4,660,001	$9,710,238	$390,363	$14,760,602

Source: FAA AIP Grant Database; Note: State apportionment totals are not included in "Total Federal $"; "Other" includes BIL, ARPA, CARES, etc.

Figure 2-3: Airport Development Since 2004



Added on 06.13.2025

Revised on 06.16.2025

AREA AIRPORTS CONTEXTUAL ANALYSIS

Contextual analysis of the airport service area examines the impact that the airport has on its immediate geographic area. For general aviation airports, the majority of aviation activity can be directly linked to their service area boundaries defined by 30- and 60-minute driving times surrounding the airport. The airports and aviation activity within a defined service area may directly affect activity at any individual airport in the service area. This includes locally based aircraft and transient aircraft where operators choose airports based in part on proximity to their place of business or travel destination. The type and availability of facilities and services, and competition among airports, are key factors in the distribution of aviation activity within any particular service area.

The public use airports located within the service area defined for MMV are briefly summarized below, depicted in **Figure 2-4**, and listed in **Table 2-5**. These airports include both publicly owned and privately-owned facilities. December 2023 FAA Airport Master Record Form (5010) data is presented for these airports to provide common reporting of activity. It is noted that available 5010 data for individual airports may not be current or highly accurate. Activity data for these airports is not verified and is presented for reference only. For MMV, an updated based aircraft count and estimate of aircraft operations are provided later in this chapter and will be used as the 2023 baseline to develop the 20-year aviation activity forecasts (Chapter 3).

North/Northeast/East

Chehalem Airpark (17S)

Chehalem Airpark is a privately-owned, public-use airport located 8.5 nautical miles (NM) northeast of MMV. The Airport has a single lighted runway with visual approach capabilities. Available services include aviation fuel, hangars and parking, aircraft maintenance, flight training, and aircraft rental. The December 2023 FAA 5010 lists 31 based aircraft and 12,500 annual operations.

Sportsman Airpark (2S6)

Sportsman Airpark is a privately-owned, public-use airport located 9.8 NM northeast of MMV. The Airport has a single lighted runway with visual approach capabilities. Available services include aviation fuel, hangars and parking, aircraft maintenance, flight training, and aircraft rental. The airport also serves as a launching point for hot air balloon operations. The December 2023 FAA 5010 lists 44 based aircraft and 11,650 annual operations.

Aurora State Airport (UAO)

Aurora State Airport is a public-use airport owned and operated by ODAV, located 15.8 NM east of MMV. UAO has a single lighted runway with non-precision instrument approach capabilities and an air traffic control tower (ATCT). Available services include aviation fuel, hangars and parking, flight training, and aircraft rental. The December 2023 FAA 5010 lists 128 based aircraft and 63,500 annual operations.

Lenhardt Airpark (7S9)

Lenhardt Airpark is a privately-owned, public-use airport located 16.6 NM east of MMV. 7S9 has a single lighted runway with visual approach capabilities. Available services include aviation fuel, hangars and parking, aircraft maintenance, flight training, and aircraft rental. The December 2023 FAA 5010 lists 109 based aircraft and 6,000 annual operations.

Stark's Twin Oaks Airpark (7S3)

Stark's Twin Oaks Airpark is a privately-owned, public-use airport located 16.6 NM northeast of MMV. 7S3 has a single lighted runway with visual approach capabilities. Available services include aviation fuel, hangars and parking, aircraft maintenance, flight training, and aircraft rental. The December 2023 FAA 5010 lists 160 based aircraft and 25,000 annual operations.

Hillsboro Airport (HIO)

Portland-Hillsboro Airport, owned and operated by the Port of Portland, is a public-use airport located 22.3 NM north of MMV. HIO is a designated reliever GA airport for Portland International Airport (PDX) and serves the Portland Metro Area. The Airport has three lighted runways with instrument approach capabilities, an ATCT, and weather reporting. Available services include aviation fuel, hangars and parking, aircraft repair and maintenance, flight training, aircraft rental, and air taxi (charter) services. The December 2023 FAA 5010 lists 253 based aircraft and 253,847 annual operations.

Mulino State Airport (4S9)

Mulino State Airport is a public-use airport owned and operated by ODAV, located 23.1 NM east of MMV. 4S9 has a single lighted runway with visual approach capabilities. Available services include aviation fuel, hangars and parking, and aircraft maintenance. The December 2023 FAA 5010 data lists 59 based aircraft and 21,300 annual operations.

South

Salem Municipal Airport (SLE)

Salem McNary Field is a public-use airport, owned and operated by the City of Salem, located 18 NM south of MMV. Since the deregulation of the U.S. airline industry in 1978, SLE has periodically accommodated a variety of small air service providers, including charter flights, but current activity consists predominantly of GA and military operations (Oregon Army National Guard). SLE has two lighted runways, precision instrument approach capabilities, an ATCT, weather reporting, and a full range of services. The December 2023 FAA 5010 lists 161 based aircraft and 45,357 annual operations.

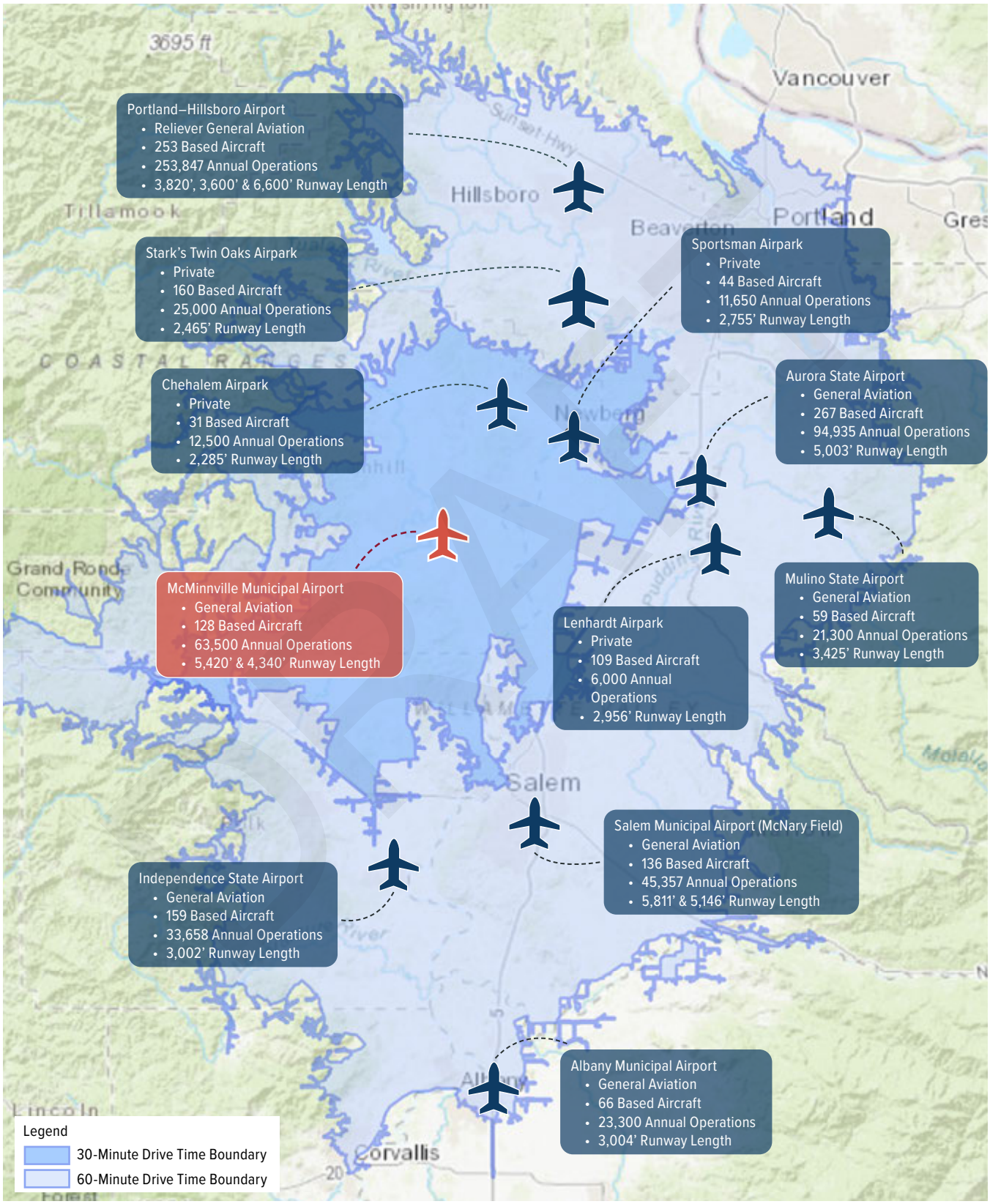
Independence State Airport (7S5)

Independence State Airport is a public-use airport owned and operated by ODAV, located 19.8 NM south of MMV. The Airport has a single lighted runway with visual approach capabilities. Available services include aviation fuel, hangars and parking, flight training, and aircraft rental. The December 2023 FAA 5010 lists 159 based aircraft and 33,658 annual operations.

Albany Municipal Airport (S12)

Albany Municipal Airport is a public-use airport owned and operated by the City of Albany, located 33.6 NM south of MMV. S12 has a single lighted runway with non-precision instrument approach capabilities. Available services include aviation fuel, hangars and parking, flight training and aircraft repair and maintenance. The December 2023 FAA 5010 lists 66 based aircraft and 23,300 annual operations.

Figure 2-4: Area Airports



Source: AirportIQ 5010, Esri, USGS, NOAA

A summary of the December 2023 5010 data for the area airports is presented in **Table 2-5**. As noted earlier, the 5010 data is provided for general reference only as a broad indication of activity. Relevant data to be updated in the aviation activity forecasts (Chapter 3).

Table 2-5: FAA 5010 Data (Public Use Airports in Vicinity)

	McMinnville	Lenhardt	Sportsman	Mulino State	Twin Oaks Airpoark	Aurora State	Portland-Hillsboro	McNary Field	Independence State	Albany	Chehalem	Total
Air Carrier	0	0	0	0	0	0	0	5	0	0	0	5
Air Taxi	0	0	100	0	0	7,909	9,561	3,466	1,121	650	500	23,307
GA Local	22,000	1,250	3,875	13,000	7,000	32,177	160,261	18,086	8,995	10,000	4,000	280,644
GA Itinerant	40,000	4,750	7,675	8,300	18,000	54,569	83,381	20,741	23,542	12,650	8,000	281,608
Military	1,500	0	0	0	0	280	644	3,059	0	0	0	5,483
TOTAL OPERATIONS	**63,500**	**6,000**	**11,650**	**21,300**	**25,000**	**94,935**	**253,847**	**45,357**	**33,658**	**23,300**	**12,500**	**591,047**
TOTAL BASED AIRCRAFT[1]	**128**	**109**	**44**	**59**	**160**	**267**	**253**	**161**	**159**	**66**	**31**	**1,428**
Single Engine	103	108	31	57	159	208	163	136	155	58	20	1,189
Multi Engine	7	1	2	2	1	15	26	10	4	6	2	76
Jet	2	0	0	0	0	35	41	6	0	2	0	87
Helicopters	16	0	11	0	0	9	23	9	0	0	9	76
Glider	4	0	0	2	0	3	5	2	5	0	0	21
Military	0	0	0	0	0	0	0	19	0	0	0	19
Ultra-Light	0[2]	4	0	0	1	1	0	0	0	0	0	6

Source: AirportIQ 5010 Airport Master Records and Reports (AirportIQ5010.com, Accessed 12/12/2023)
Notes:
1. *FAA does not include gliders, ultra-light, or military aircraft in its 5010 based aircraft totals.
2. Airport management reports 2 ultra-lights at MMV (3/2024).

SUMMARY OF AIRPORT OPERATIONS DATA

MMV accommodates a wide variety of aeronautical activity, ranging from small single-engine fixed-wing aircraft and helicopters to large corporate jets. The Airport's current based aircraft fleet and operational mix are similar, although MMV accommodates significant amounts of transient business turboprop and jet activity, in addition to the activity generated by locally based aircraft. The Airport also accommodates a significant amount of helicopter and fixed wing flight training activity—generated by both locally-based aircraft and aircraft from nearby airports.

As part of the FAA's National Based Aircraft Inventory Program, airport sponsors are required to periodically review and update their based aircraft data. MMV airport management completed a review of its based aircraft in December 2023, with a total of 128 validated aircraft. An additional 39 aircraft are listed in the database for MMV but are not included in the validated count due to a variety of issues. Most commonly, aircraft in this category are listed by more than one airport, or the aircraft may have an expired FAA registration or airworthiness certificate. When these types of conflicts occur in the database, the aircraft automatically default into the non-validated group. If adequate verification is provided, aircraft can be added to the validated count at any time.

Based on current counts, it appears that the number of based aircraft have declined since the last plan was completed in 2003. However, since the current based aircraft counting methodology (e.g., FAA Inventory database) was not in use when the last plan was completed, the accuracy of earlier counts cannot be verified. It is possible that a portion of 39 aircraft not included in the current validated count have been previously counted at MMV.

It is also noted that two commercial operations (Evergreen Aviation and Judy Newman's glider training operation) were active at MMV when the last plan was prepared. The 2004 ALP Report noted *"Evergreen currently bases a Gulfstream IV business jet at MMV, in addition to a variety of fixed wing aircraft and helicopters."* and *"...there were 150-based aircraft at MMV in 2003, including 19 aircraft based at Evergreen's facilities adjacent to the airport."* The ALP report also noted *"currently more than twenty locally based sailplanes/gliders."* The FAA no longer includes gliders in its Form 5010-1 based aircraft totals or in the validated based aircraft counts for airports, although these aircraft were included in the previous counts, as was common practice for aircraft with active FAA registrations ("N numbers"). MMV currently has seven gliders listed in its FAA count data that are not included in the airport inventory or validated inventory.

Based aircraft counts from the 2004 ALP Report, an October 2023 FAA 5010-1 form, and the December 2023 Validated Inventory count are presented for comparison in **Table 2-6**. For master planning purposes, the December 2023 Validated Inventory count will be used as the (2023) base year for the updated 20-year (2023-2043) aviation activity forecasts.

Table 2-6: Based Aircraft

	2004 Airport Layout Plan Report	FAA 5010-1 (10/10/2023)	2023 Updated Count
Single Engine	99	94	100
Multi Engine	9	7	7
Jet	2	3	2
Helicopter	19	15	19
Glider	21	4	7
Ultra-Light	-	0	0
Total	50	200	200
TOTAL BASED AIRCRAFT	**150**	**119**	**128**

Source: Updated Count provided by McMinnville Airport Management (12/2023) and 2004 Layout Plan (2003 base year).
*Glider and ultralight aircraft are not included in the FAA National Based Aircraft Inventory "Validated Inventory" or the FAA 5010 "Based Aircraft" totals.

As noted earlier, there are no actual counts of aircraft operations available for MMV. Aside from instrument flight plan filings, all other aircraft operations data are estimated. The current FAA Terminal Area Forecast (TAF) for MMV was issued in January 2024. The most recent historical year provided is 2022 (64,418 annual operations, 119 based aircraft; operations to based aircraft ratio (OPBA): 541).

The Oregon Department of Transportation (now ODAV) performed acoustical counts at non-towered airports statewide in the 1980s and 1990s. Six years of counts were conducted at MMV between 1987 and 1999, with an average (mean) of 57,909 annual operations. The average number of based aircraft during that period was 113, which yields an OPBA of 512. Although the age of the traffic counts limits highly relevant comparisons to more recent activity estimates, it is worth noting that they were developed using statistically-sound (four season) sampling methods, and that the similarity with current estimates presented in the TAF, appear to suggest that the TAF provides reasonable measures of activity.

Annual aircraft operations estimates from the 2004 ALP Report and the October 2023 FAA 5010-1 form are presented in **Table 2-7**. The 2023 5010-1 form provides an operations total for the 12 months ending 9/20/2021, which is identical to the TAF Total Operations reported for MMV in 2021.

Table 2-7: Estimated Aircraft Operations

	2004 Airport Layout Plan Report	FAA 5010-1 (10/10/2023)
General Aviation (Local)	28,682	22,000
General Aviation (Itinerant)	36,279	40,000
Air Taxi	-	0
Military	-	1,500
TOTAL OPERATIONS	65,961	63,500

Source: Estimates obtained from the 2004 ALP (2003 base year), and FAA 5010 Airport Master Record (Operations for 12 Months Ending 10/10/2023).

An updated estimate of aircraft operations will be prepared for 2023 for use as a baseline for the 2023-2043 master plan forecasts. The recent FAA 5010 and TAF data noted above are provided for reference.

ENVIRONMENTAL DATA

Physical Geography

MMV is located approximately three miles southeast of McMinnville, north of the South Yamhill River. The Airport site consists of approximately 670 acres, mostly located south of Highway 18. The published Airport elevation is 163 feet above mean sea level (MSL). The South Yamhill River extends from near Grand Ronde through McMinnville, before it becomes the Yamhill River and connects to the Willamette River east of Dayton. The Willamette River is the dominating natural physical feature within the Willamette Valley, which travels north toward Portland, connecting with the Columbia River. The Willamette Valley is bordered by high mountainous terrain to the east and lower elevation coastal mountains to the west. Terrain in the vicinity of McMinnville is characterized by level to moderately sloping irrigated farmland located within the basin valley. Irrigated farmland comprises the majority of the land surrounding McMinnville.

Local Climate/Wind Analysis

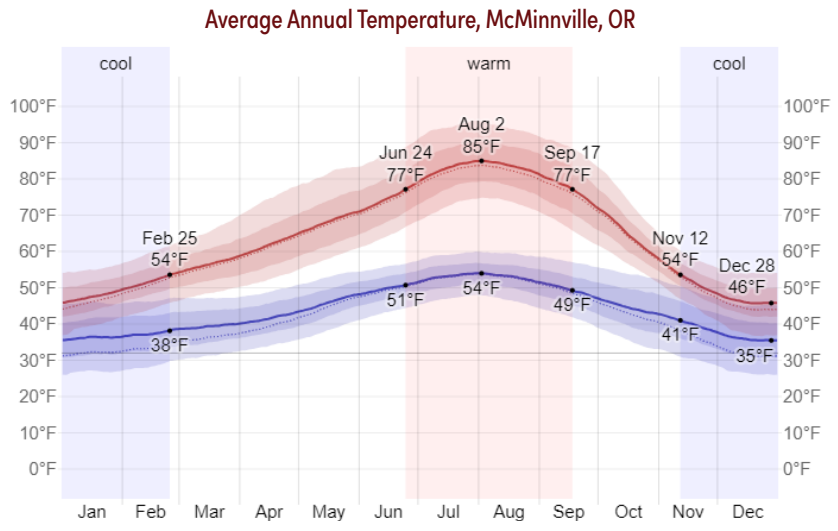
Yamhill County has a Mediterranean climate with relatively dry summers, wet and cold winters with moderate winter and summer temperature ranges. Temperature and precipitation vary with elevation and this region produces moderate amounts of winter snow.

Historical climatic data for McMinnville is maintained by the Western Regional Climatic Center. The local observation station (McMinnville, Station No. 355384) has data for a 121-year period (1894-2015).

The data for McMinnville indicate that July and August are typically the warmest months; December and January are the coldest. The average maximum temperature (July) is 82.9 degrees Fahrenheit, and the average minimum temperature (January) is 33.3 degrees. Annual precipitation averages 41.81 inches, with the three-month period November through January accounting for 50% of the annual total. Annual snowfall averages 6.7 inches. The range of typical monthly temperatures and precipitation are presented in the adjacent graphic. See **Table 2-8** for a summary of local historical weather data.

Figure 2-5: McMinnville Weather Patterns

The following graphics retrieved from weatherspark.com illustrate the typical temperature and precipitation patterns in McMinnville, based on an analysis of historical weather reports and model reconstructions.



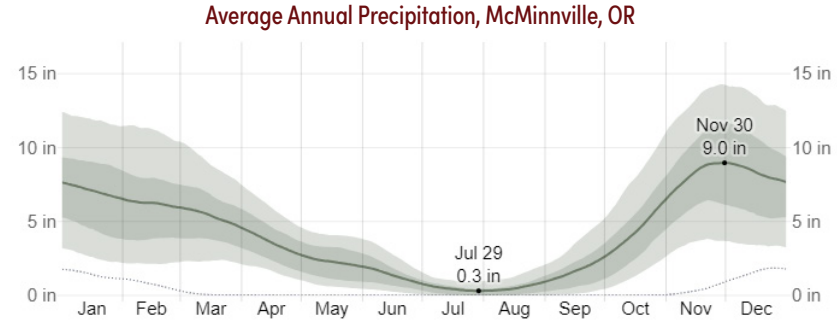


Table 2-8: Historical Weather Observations – Mcminnville (Station No. 355384)

Weather Station	Average Total Precipitation (inches) Annual	Average Maximum Temperature (F) Warmest Month	Average Minimum Temperature (F) Coldest Month	Average Total Snowfall (inches) Annual
McMinnville (355384)	41.81	82.9	33.3	6.7

Source: Western Regional Climate Center (WRCC) data; McMinnville 11/1894-4/2015

Available wind data for MMV indicates prevailing winds are generally northwest-southeast, which slightly favors the secondary runway (17/35), although Runway 4/22 is the primary runway and accommodates the majority of air traffic. An updated wind rose will be developed for the new ALP drawing set using 10 years (2013-2022) of wind data from the onsite Automated Weather Surface System (ASOS), consistent with FAA requirements. A preliminary review of data indicates that both runways appear to meet the FAA threshold of 95% wind coverage for large and small aircraft. A review of individual runway crosswind coverage will be included in the facility requirements evaluation (Chapter 4).

Airport Solid Waste and Recycling

Solid waste collection and recycling services for residential and commercial customers in McMinnville and Yamhill County are provided by Recology Western Oregon. Services include curbside pickup and self-drop off at the McMinnville Transfer Station and Recycling Depot at 2200 NE Orchard Avenue. Additional information about current programs and the regulatory requirements applicable within the community will be provided in Chapter 8 – Solid Waste and Recycling Plan. No state or federal requirements apply to the waste that is generated at the Airport. Individual tenants at MMV are responsible for the disposal of their own waste and any hazardous materials as required by local ordinance.

CULTURAL RESOURCES ANALYSIS

A Cultural Resources Review was completed as an element of the master plan. The full document is provided in Appendix A. The review noted that four cultural resource studies have been conducted within, or partially overlap with, the study area, and one archaeological isolate was identified in the north-central portion of the study area. The isolate consisted of five lithic flakes on the ground surface and two lithic flakes identified near the surface in two shovel tests. However, the isolate was determined to not be eligible for listing in the NRHP. The study noted the presence of 12 structures located within the study area (Airport) that were built more than 50 years ago (the age standard for historic structures). The report recommended that individual projects proposed in association with the Master Plan should include a compliance-level cultural resource investigation. This includes documenting historic resources within the study area on one or more Section 106 Documentation Forms and determining their eligibility for listing in the NRHP in consultation with the Federal Aviation Administration and the Oregon State Historic Preservation Office (SHPO).

ENVIRONMENTAL OVERVIEW (NEPA)

An environmental overview was completed as an element of the Master Plan. The full memo is provided in **Appendix B**, and a brief summary of key issues is provided below. The screening highlights existing or potential conditions that may be affected by the future use or proposed development of the Airport. Each project that involves federal funding will require a project-specific environmental evaluation, with differing levels of detailing determined by the degree of potential impacts to be addressed or the overall complexity of the project. A brief summary of the NEPA-defined specific impact categories most relevant for the site are summarized below:

- Air Quality
- Biological Resources
- Climate
- Coastal Resources
- Department of Transportation Act, Section 4(f)
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Natural Resources and Energy Supply
- Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risk
- Visual Resources
- Water Resources

Section 4(F) of the US Department of Transportation Act

Under section 4(F) of the U.S. Department of Transportation Act publicly owned and accessible parks, recreation areas, and wildlife and waterfowl refuges and historic sites are protected. The city owned Galen McBee Airport Park is located on Airport property and is entitled to the protections defined in section 4(F) of the US Department of Transportation Act.

Biological Resources

Biological resources include sensitive plants, fish, wildlife, and their respective habitats. There are no recorded sightings of any federally or state-listed protected species within the immediate vicinity of the Airport. However, a few species have the potential to be found in the area, including Marbled murrelet, Northern spotted owl, Streaked Horned Lark, Fender's Blue Butterfly, Monarch Butterfly Willamette daisy, Kincaid's lupine, and the Nelson's checker-mallow.

Several migratory bird species covered by the Migratory Bird Treaty Act are known to occur in the vicinity of the Airport. Please consult the full report in Appendix B for the complete list and note that the species listed are representative of species found in the area of the Airport, not necessarily on the property. MMV falls within the USFWS Birds of Conservation Concern (BCC) Zone 9 (USFWS 2022b). Of the 34 avian species listed under BCC, six species have the potential to occur within the surrounding area of the Airport. These species are the Evening Grosbeak, Wrentit, Olive-sided, and the Rufous hummingbird. The environmental review notes that there is no designated critical habitat on the Airport for any terrestrial species.

It is unlikely that any federally or state-protected fish species will occur on airport property. However, steelhead head trout are known to spawn in Agency Creek in the upper South Yamhill Watershed. The species was granted a threatened status in 1999 and reaffirmed in 2011. Due to their threatened status, the South Yamhill River is designated as critical habitat for steelhead trout..

Wetlands and Waters of the U.S.

Two wetlands have been identified on Airport property. These wetlands were products of the Apron Rehabilitation Project wetland survey in 2018. The 2018 survey classifies these wetlands as "Depressional Emergent" as they result from depressions in the soil and water buildup displaced from the tarmac. Stormwater structures prevent the wetlands from directly sharing hydrology with any protected species found in the South Yamhill River.

Floodplains

The Federal Emergency Management Agency administers the National Flood Insurance Program to reduce the impact of flooding on private and public structures. The proposed project is not located within, would not encroach upon, and would not otherwise affect a floodplain (FEMA 1989). The land adjacent to the South Yamhill River (near the southwest corner of Airport) is designated as a Special Flood Hazard Area.

Stormwater and Water Quality

Stormwater from impervious surfaces at the Airport is collected in a series of vegetated ditches for treatment and infiltration. Bioswales located adjacent to the runways and taxiways are used for treatment of stormwater and subsurface infiltration. Campbell Creek has been channelized and modified for past agricultural purposes and no longer connects with downstream waters. No stormwater is discharged to the water of the state or US. Consequently, no water quality issues have been identified at the Airport.

The Airport relies on a combination of infiltration and stormwater management infrastructure (inlets, storm pipe, and manholes) for site drainage. The airfield area has a system of perforated underdrains buried beneath the surface. The underdrains were installed to allow for the conveyance of subsurface stormwater. These underdrains connect to the storm drain system, which also collects surface runoff via inlets, and transports the stormwater to the west. Generally, the Airport has been graded to avoid the collection of surface waters, in an effort to avoid the creation of waterfowl habitat.

Air Quality

The Airport is located within a portion of Yamhill County that attains National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: ozone (O3), carbon monoxide (CO), sulfur dioxide (SO2), nitrogen oxide (NOx), particulate matter (PM10 and PM2.5), and lead (Pb), demonstrating a generally good level of air quality.

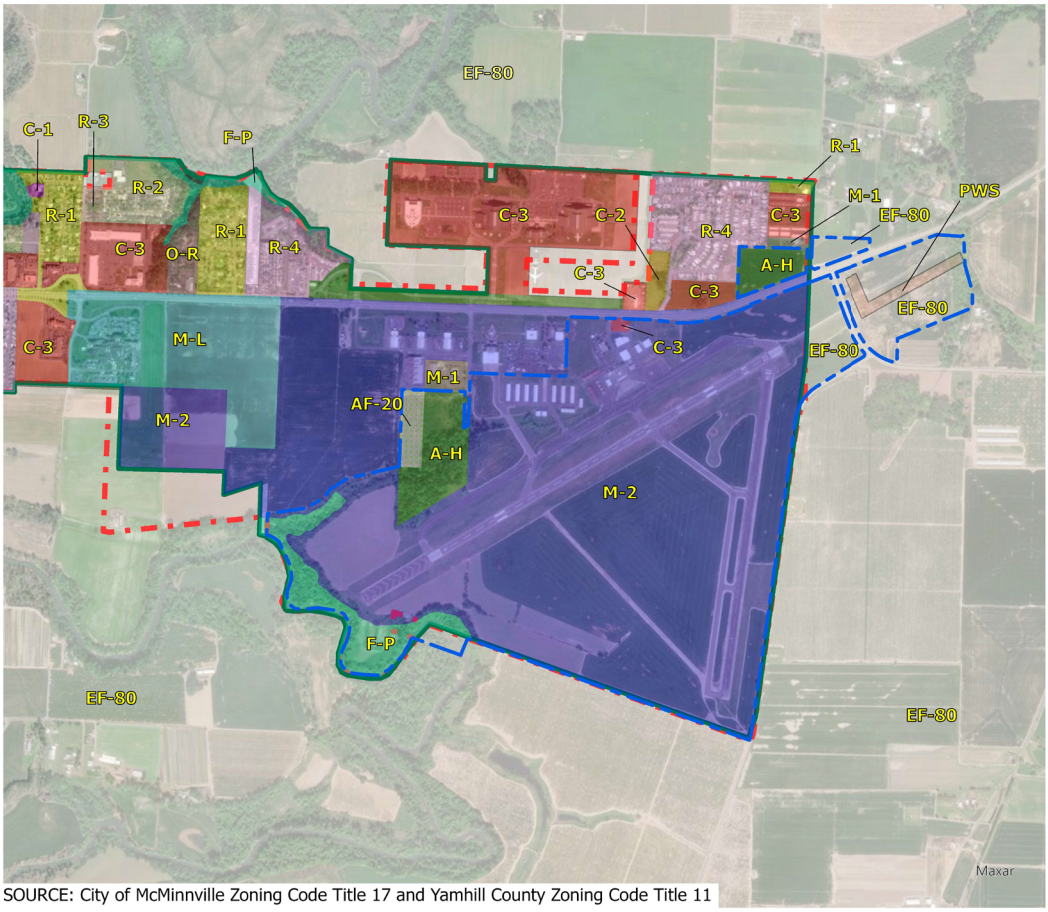
Noise Contours

Included in this planning effort for the 2023 Airport Master Plan noise contours will be completed as a part of the alternatives analysis described in Chapter 5.

LAND USE & ZONING ANALYSIS

Most land use actions related to the Airport are subject to City of McMinnville development regulations (City of McMinnville Code Title 17), with the exception of the city-owned parcels located outside the city limits (Yamhill County Code, Title 11). The current zoning for the Airport and its immediate surroundings is depicted in **Figure 2-6**. These zones are briefly summarized below and the full zoning ordinances are provided in **Appendix C**.

Figure 2-6: Airport Zoning



SOURCE: City of McMinnville Zoning Code Title 17 and Yamhill County Zoning Code Title 11

Legend

Yamhill County Zoning
- EF-80,Exclusive Farm Use
- PWS,Public Works/ Safety
- AF-20, Agricultural Forestry 20 Acres

City of McMinnville Zoning
- R-1 Low Density Residential
- R-2 Low Density Residential
- R-3 Medium Density Residential
- R-4, Medium Density Residential
- O-R, Office/Residential
- C-1, Neighborhood Business
- C-2, Travel Commercial
- C-3 General Industrial
- M-L, Limited Light Industrial
- M-1, Light Industrial
- M-2, General Industrial
- A-H, Agricultural Holding
- F-P, Flood Plain

Jurisdictional Boundaries
- Property Line MMV
- City Boundary
- UGB Yamhill County

Airport Zoning

City of McMinnville

As noted above, the majority of the land area associated with MMV is subject to the land use jurisdiction of the City of McMinnville, with smaller areas subject to Yamhill County land use jurisdiction.

General Industrial (M-2). The majority of MMV, including all airfield pavements, aircraft parking, aircraft hangars and landside support facilities are located in the M-2 zone. M-2 zoning supports a broad range of industrial land uses, including all permitted uses in lower density industrial zones (M-L, M-1). Airports are identified as permitted and accessory uses in the M-2 zone. These designations are consistent with both the overall land use and common airport development features such as airfield facilities and aircraft hangars. A wide range of non-airport industrial uses are also permitted in M-2 zones, including manufacturing, repair, fabricating, processing, packaging, or storage uses. However, the purpose of the Airport Overlay Zone (Chapter 17.52), which also applies to MMV, is to protect the aeronautical function of the Airport by prohibiting incompatible land uses, regardless of underlying zoning.

Agricultural Holding (AH). MMV currently has two areas of AH zoning including Galen McBee Airport Park and a parcel located on the north side of Highway 18 near the end of Runway 22. Although the AH zone is often used to *"provide for the continued practice of agriculture in areas where municipal sewer and water service exists"* it's potential applications also include parks (conditional use) and for other public lands without defined development needs.

Flood Plain Zone (F-P). The southwest corner of the Airport is located within the F-P zone defined for the South Yamhill River. This area of the Airport accommodates a local law enforcement shooting range and does not support any aeronautical development. Access to the facility is provided by an unpaved road connection to SE Airport Road, which runs parallel to Runway 17/35, on its east side. The purpose of the F-P zone is to define and regulate land uses in areas designated as hazardous due to periodic flooding. Permitted uses include farming, public park and recreation facility not requiring the use of any structure, and a sewage pump station.

General Commercial (C-3). A small area of C-3 zoning is located along the east side of the airport entrance (SE Cirrus Ave.) on Highway 18. This area currently accommodates one two-story commercial office building, which is consistent with the "office" use that is among more than 70 permitted uses defined for the zone.

Yamhill County

The areas of the Airport that are located outside the McMinnville city limits (in unincorporated Yamhill County) have mostly agricultural zoning. Two small areas are located near the northeast corner of the Airport near the Cruickshank Road connection with Highway 18—the Runway 22 approach lighting system, protected areas beyond the end of Runway 22, and a small parcel located on the north side of the highway. A small area of public facility zoning is located east of Cruickshank Road (for the Runway 22 approach lighting system). One additional parcel (island) of unincorporated Yamhill County-zoned land is located on the Airport, inside the overall McMinnville city limits.

Agriculture/Forestry Large Holding District (AF). A narrow parcel of AF zoned land is located on the west side of Galen McBee Airport Park and is actively planted. The parcel is zoned AF-20, which corresponds to mixed agricultural and forest management operations, with a 20-acre minimum lot size. Permitted uses include a variety of farm and forest uses. Other incidental uses vary but are consistent with the rural nature of the zone. The City of McMinnville Comprehensive Plan future land use designation for the parcel is industrial, consistent with the general and light industrial uses in the vicinity, and the parcel's physical location within the McMinnville city limits and UGB.

Public Works/Safety (PWS). A small parcel of PWS zoned land located east of Cruickshank Road, beyond the east end of Runway 4/22, accommodates a runway approach lighting system. The Yamhill County Code (Section 802.00) notes that *"the purpose of the PWS District is to accommodate the present foreseeable demand for public works and safety facilities and utility facilities and uses to serve local needs and to serve regional needs, when appropriate."*

Exclusive Farm Use (EF). With the exception of the AWS zone noted above, the land areas located at the northeast corner of the Airport, located in unincorporated Yamhill County, are zoned EF-80. The Yamhill County Code (Section 402.01) notes *"the purpose of the Exclusive Farm Use District is to identify and protect land designated as Exclusive Farm Use on the Comprehensive Plan that is suitable and desirable for commercial agricultural operations and other uses which are compatible with such operations. Properties in the Exclusive Farm District are primarily large, contiguous relatively flat terrace, valley-floor or low foothill holdings."*

Airport Vicinity Zoning

As noted earlier, MMV is located near the southeast corner of the McMinnville city limits and UGB. As a result, the Airport is surrounded by lands in both city and county jurisdiction. In general, the zoning and land uses within the city limits are consistent with urban levels of density. Nearby lands located outside the McMinnville city limits and UGB are rural.

City of McMinnville

Parcels located in the vicinity of MMV, within city jurisdiction, include an assortment of industrial, commercial, residential, agricultural holding, and flood plain zones described in the City of McMinnville Zoning Code - Title 17. Most of the higher density zones are located along the Highway 18 corridor that connects the Airport to the city center. The city's airport overlay zone, described later in this section, is applied over these adjacent areas based on the footprint of the Airport's defined airspace surfaces and the requirement to avoid development that could create a hazard to air navigation.

The nearest area of residential zoning and development is a manufactured home neighborhood located on the north side of Highway 18, about ¼-mile (north) of the closest runway end. This area is zoned **Multiple Family Residential (R-4)**, which permits a variety of dwelling types including single family, two-family, multi-family, accessory dwelling unit, condominium, and other uses defined in Chapter 17.06. The maximum building height permitted is 60 feet and the area is subject to the City's airport overlay zone. A variety of general, limited, and light industrial zones are also located adjacent to the Airport along the south side of the Highway 18 corridor.

Yamhill County

Virtually all of Yamhill County-zoned lands located south, east and north of MMV are designated **Exclusive Farm Use District EF-80** (80 acre minimum). The same agricultural definitions described earlier for the EF-80 zoned areas of MMV also apply to the surrounding EF-80 zoned parcels.

Comprehensive Planning

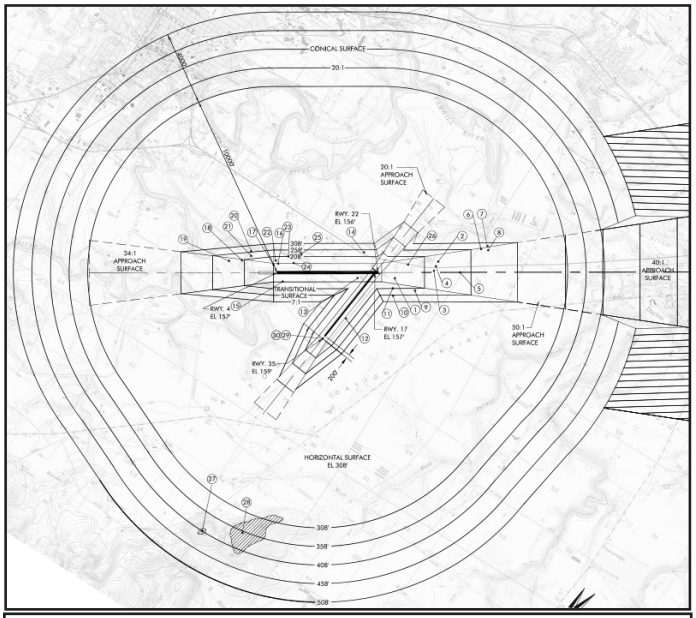
The long-term land development patterns for the City of McMinnville and the adjoining areas of unincorporated Yamhill County are defined in their respective comprehensive plans. The McMinnville city limit and Urban Growth Boundary (UGB) lines in the vicinity of McMinnville Municipal Airport are closely aligned, with only small areas of unannexed land remaining within the UGB in this part of the community. This indicates that the current urban and rural land designations are largely in place, and that changes through future development are expected to be consistent with those designations.

Compatible Land Use Planning

The Oregon Department of Aviation's *Airport Land Use Compatibility Guidebook* identifies land uses that are considered generally compatible or incompatible within airport safety areas and Part 77 airspace surfaces for airports. **Figure 2-7** depicts a land use compatibility matrix defined for these areas, based on compatibility criteria developed by FAA and other federal agencies, including Housing and Urban Development (HUD) and the Environmental Protection Agency (EPA).

PART 77 Airspace

Federally defined airspace for MMV is established under *Title 14 of the Code of Federal Regulations (CFR), Part 77 – Safe, Efficient Use, and Preservation of the Navigable Airspace*. The regulations are commonly known as Part 77. The graphics below are the 2004 Part 77 airspace plan developed for MMV. It is important to note that Part 77 surfaces have both flat and sloped surfaces that begin at runway elevation. In general, airspace surfaces located farther from a runway are elevated above their associated airports. Obstacle clearing standards apply to both natural terrain and built items.



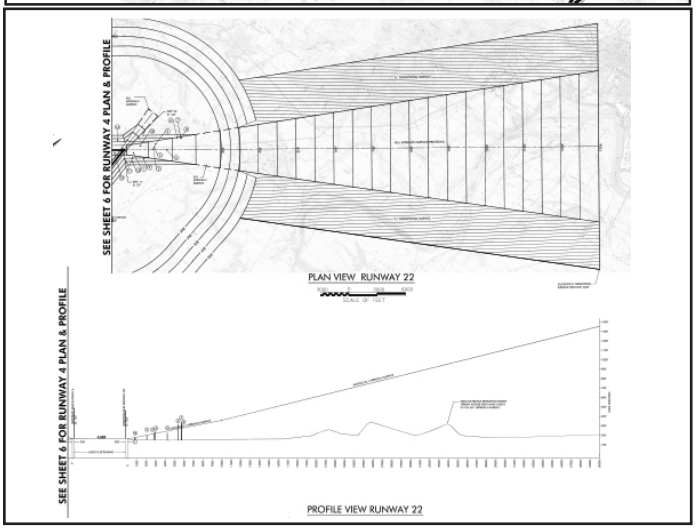


Figure 2-7: ODAV Land Use Matrix

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 park, resorts and camps	NC	NC	C	C	NC	NC
Golf courses	NC	NC	C	C	NC	NC
Parks	NC	•	•	•	•	•

Airport Overlay Zoning

The City of McMinnville and Yamhill County have each adopted airport overlay zoning that is applicable to MMV, in accordance with Oregon state law (OAR 660-013-0070). The responsibility for adopting airport overlay zoning specific to MMV rests with each local government entity located within the footprint of federally defined airspace for MMV, under *Title 14 of the Code of Federal Regulations (CFR), Part 77 – Safe, Efficient Use, and Preservation of the Navigable Airspace*. **Figure 2-8** depicts the Part 77 airspace surfaces for MMV and identifies local jurisdictional boundaries within the defined airspace.

The airspace associated with MMV primarily extends over the City of McMinnville and Yamhill County, but also extends over the cities of Dayton, Dundee, and Newberg, and Marion County, where the precision instrument approach surface for Runway 22 extends about 9.5 miles (50,000 feet) east of the runway end. A review of current zoning codes for these cities did not identify existing airport overlay zoning ordinances. The Marion County code includes airport overlay zoning, but its applicability to an airport physically located outside the county is not explicitly stated. Local government coordination with the Oregon Department of Aviation (ODAV) is recommended to determine future land use planning updates within these jurisdictions.

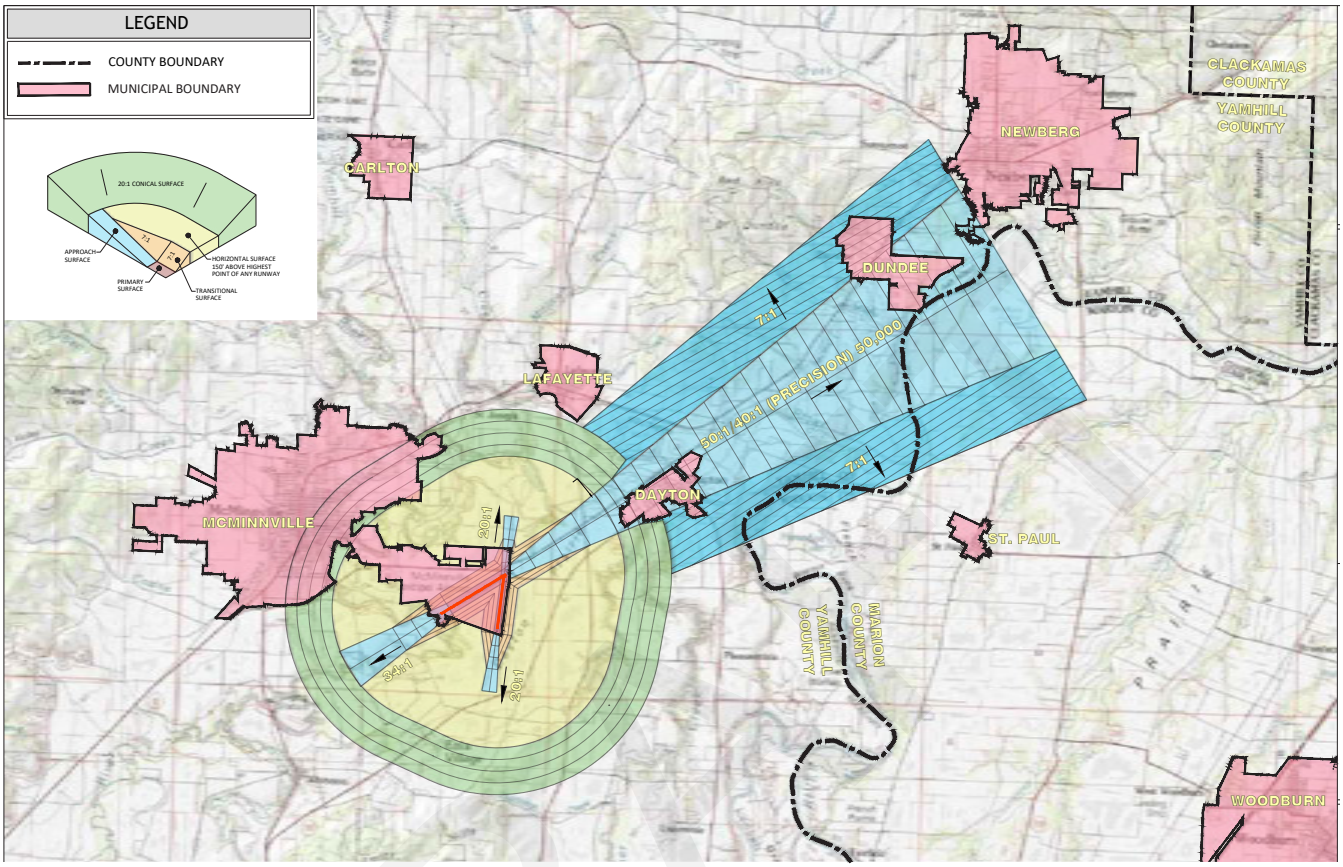
City of McMinnville

Title 17 of the City of McMinnville Code includes **Airport Overlay Zoning** (Chapter 17.52). The ordinance is specifically written to *"enhance the utility of the McMinnville Municipal Airport by preventing the establishment of any structure or use of land which unreasonably obstructs the safe flight of aircraft in landing or taking off. Further, this overlay zone is intended to prevent the establishment of airspace obstructions through height restrictions and other land use controls, as deemed essential to protect the public health, safety, and welfare consistent with Federal Aviation Regulations (FAR), Part 77."* It is noted that the terminology used to describe federal airspace regulations has been changed from "FAR Part 77" to "14 CFR, Part 77" (Code of Federal Regulations, Title 14, Part 77). Although the local code references to "FAR Part 77" are obsolete, there were no changes in standards that would affect is application.

Yamhill County

The Yamhill County Code includes an **Airport Overlay District** (Section 907.00) which is established to protect three public use airports located in Yamhill County (McMinnville, Sheridan, and Sportsman Air Park). Overlay zoning is intended to protect the airports from obstructions, hazards and incompatible land uses. Similar to the overlay zoning adopted by the City of McMinnville, the county's overlay zone defines protections for federally defined airspace, per the Code of Federal Regulations (14 CFR, Part 77). The federal regulation terminology issue noted for the City of McMinnville's code, also applies to Yamhill County.

Figure 2-8: Part 77 Airspace

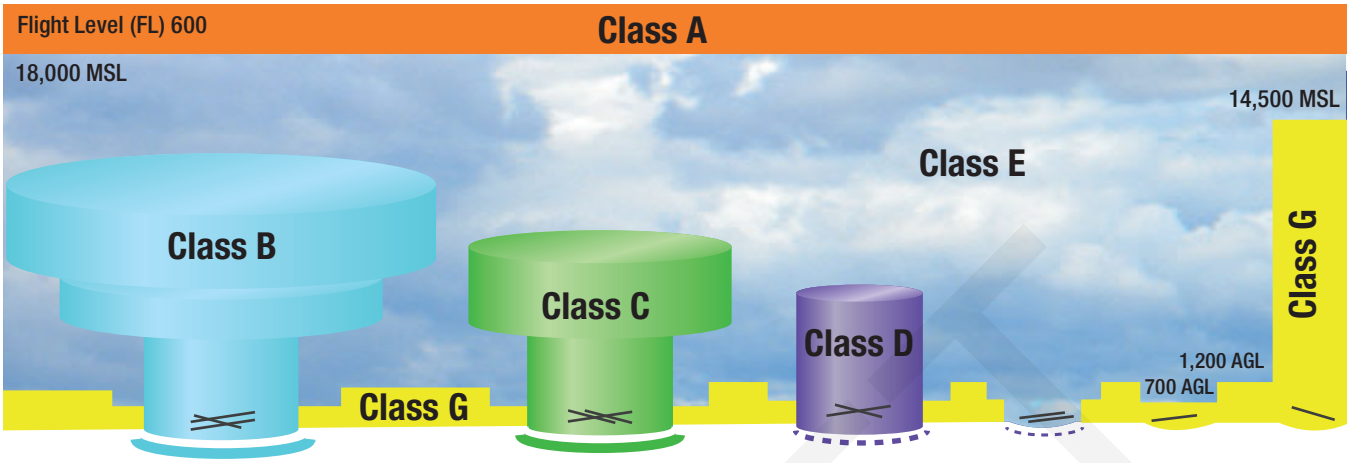


U.S. AIRSPACE CLASSES

Airspace within the United States is classified by the FAA as "controlled" or "uncontrolled" with altitudes extending from the surface upward to 60,000 feet above mean sea level (MSL). Controlled airspace classifications include Class A, B, C, D, and E. Class G airspace is uncontrolled. **Figure 2-9** depicts these airspace classes.

Aircraft operating within controlled airspace are subject to varying levels of positive air traffic control that are unique to each airspace classification. Requirements to operate within controlled airspace vary, with the most stringent requirements associated with very large commercial airports in high traffic areas. Uncontrolled airspace is typically found in remote areas or is limited to a 700 or 1,200-foot above ground level (AGL) layer above the surface and below controlled airspace.

Figure 2-9: FAA Airspace Classifications



COMMUNICATION REQUIREMENTS AND WEATHER MINIMUMS

	Class A	Class B	Class C	Class D	Class E	Glass G
Airspace Class Definition	Generally airspace above 18,000 feet MSL up to and including FL 600.	Generally multi-layered airspace from the surface up to 10,000 feet MSL surrounding the nation's busiest airports	Generally airspace from the surface to 4,000 feet AGL surrounding towered airports with service by radar approach control	Generally airspace from the surface to 2,500 feet AGL surrounding towered airports	Generally controlled airspace that is not Class A, Class B, Class C, or Class D	Generally uncontrolled airspace that is not Class A, Class B, Class C, Class D, or Class E
Minimum Pilot Qualifications	Instrument Rating	Student*	Student*	Student*	Student*	Student*
Entry Requirements	IFR: ATC Clearance VFR: Operations Prohibited	ATC Clearance	IFR: ATC Clearance VFR: Two-Way Communication w/ ATC	IFR: ATC Clearance VFR: Two-Way Communication w/ ATC	IFR: ATC Clearance VFR: None	None
VFR Visibility Below 10,000 MSL**	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	3 Statute Miles	Day: 1 Statute Mile Night: 3 Statute Miles
VFR Cloud Clearance Below 10,000 MSL***	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal***
VFR Visibility 10,000 MSL and Above**	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	5 Statute Miles	5 Statute Miles
VFR Cloud Clearance 10,000 MSL and Above	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	1,000 Below 1,000 Above 1 Statute Mile Horizontal	1,000 Below 1,000 Above 1 Statute Mile Horizontal

* Prior to operating within Class B, C, or D airspace (or Class E airspace with an operating control tower), student, sport, and recreational pilots must meet the applicable FAR Part 61 training and endorsement requirements. Solo student, sport, and recreational pilot operations are prohibited at those airports listed in FAR Part 91, appendix D, section 4.
** Student pilot operations require at least 3 statute miles visibility during the day and 5 statute miles visibility at night.
*** Class G VFR cloud clearance at 1,200 agl and below (day); clear of clouds.
Source: Federal Aviation Administration (FAA) & Century West Engineering

LOCAL AREA AIRSPACE STRUCTURE

The FAA Seattle Sectional Aeronautical Chart depicts nearby airports, notable obstructions, special airspace designations, and instrument airways in the vicinity of MMV. **Figure 2-10** depicts the local airspace structure.

MMV is in an area of Class E airspace with a floor 700 feet above ground level (AGL); the airspace from the surface to 700 feet AGL is class G (uncontrolled). The local airspace is located near the southwest corner of the large block of Class E airspace that encompasses the greater Portland-Vancouver metro area. A rectangular section of this airspace extends further southwest of MMV to accommodate its defined instrument procedures. This extended section also abuts an area of Class E airspace associated with Salem McNary Field, southeast of MMV. Radio communication is not required for visual flight rules (VFR) operations in Class E airspace, although pilots are encouraged to use the common traffic advisory frequency (CTAF) when operating at the Airport. Aircraft are required to obtain an air traffic control (ATC) clearance prior to operating in Class E airspace during instrument flight rules (IFR), since the airspace is intended to protect inbound and outbound aircraft in non-visual conditions.

Areas of Class D airspace are in effect at several nearby airports with operating air traffic control towers including Salem, Aurora, and Hillsboro. Class D airspace extends from the surface upward and requires two-way radio contact with air traffic control for aircraft to enter or operate. Portland International Airport (33 NM NE) has Class C airspace that extends as far south as Lake Oswego. Class C airspace also requires air traffic control clearances for aircraft to enter or operate.

Figure 2-10: Area Airspace – Seattle Sectional Chart

LEGEND			
○	Airports with other than hard-surface runways		Compass Rose (VOR/DME or VORTAC)
⊕	Airports with hard-surfaced runways 1,500 ft. to 8,069 ft.		Enroute Airways
✈	Airports with hard-surfaced runways greater than 8,069 ft. or some multiple runways less than 8069 ft.		Class D Airspace (surface)
			Class E Airspace with floor 700' above surface
⬡	VOR/ VORTAC		National Wilderness Area

Source: SkyVector.com

CONTROLLED & UNCONTROLLED AIRSPACE

MMV is an uncontrolled field and pilots use the airport Unicom/common traffic advisory frequency (CTAF) for communications on the ground and in the vicinity of the Airport. The CTAF frequency assigned to MMV is 123.0 MHz. Pilots are responsible for traffic monitoring, communications, and operations as defined by FAA.

AIRSPACE – PART 77, TERMINAL INSTRUMENT PROCEDURES (TERPS), AND RUNWAY END SITING SURFACES

In addition to the airspace classifications and operating environment pilots are more familiar with (described in the previous section above) there are a variety of rules, regulations, design standards, and policies associated with the protection of airspace, evaluation of proposed objects on and near airports, and their effects on navigable airspace. *Airport Cooperative Research Program (ACRP) Report 38 - Understanding Airspace, Objects, and Their Effects on Airports* provides a comprehensive description of the regulations, standards, evaluation criteria, and processes designed to protect the airspace surrounding airports. The most commonly used technical guidance sources are summarized below.

Part 77 – Safe, Efficient Use, and Preservation of the Navigable Airspace

14 CFR, Part 77 (described earlier) is the central federal regulation governing airspace protection, with cross-references to many other criteria documents. It sets forth the requirements for notifying the FAA of proposed construction; defines obstruction criteria; and describes aeronautical studies required to assess hazard status. Part 77 airspace surfaces, also known as “imaginary surfaces,” are defined for designated runways or helicopter landing pads, in accordance with FAA requirements. These surfaces are commonly used in local land use planning to define airport overlay zoning.

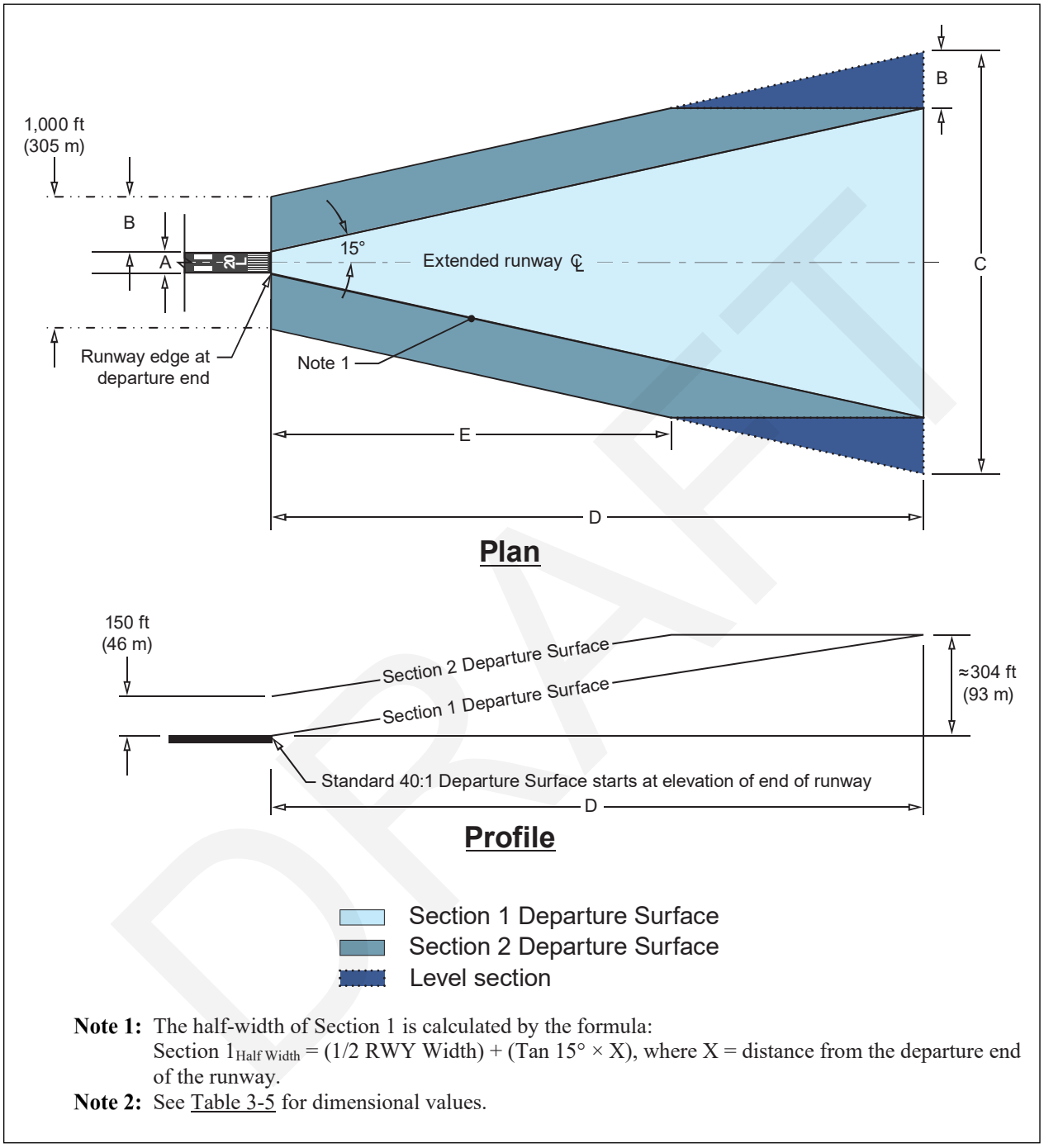
FAA Order 8260.3B – United States Standard for TERPS

This Order, along with several derivative orders in the 8260 series and other related orders, define criteria that FAA airspace designers utilize when designing instrument flight procedures at airports. Airspace protection requirements (obstacle clearance)for inbound and outbound instrument flight procedures are one of the items analyzed for hazard status in aeronautical studies. Other TERPS surfaces are associated with aircraft approaches and maneuvering in the vicinity of a runway or airfield. While Part 77 airspace surfaces are broadly defined by runway category, aircraft type, and the type of approach, the dimensions and features of TERPS surfaces correspond to a particular procedure design and the transition between enroute and terminal airspace. **Figure 2-11** depicts the TERPS departure surface, which is required for any runway end that supports departures in instrument conditions. This common surface has also been incorporated in the FAA’s primary airport design advisory circular (AC), described below.

FAA AC 150/5300-13B – Airport Design

This advisory circular (AC) is the principal document utilized by the FAA, airport sponsors, and planning consultants when planning and designing new airports, or modifications to existing airports. Airspace clearances for key runway end features are defined in the AC’s discussion of Runway End Siting Surfaces.

Figure 2-11: Instrument Departure Surface



Note 1: The half-width of Section 1 is calculated by the formula:
Section $1_{\text{Half Width}}$ = (1/2 RWY Width) + (Tan 15° × X), where X = distance from the departure end of the runway.

Note 2: See Table 3-5 for dimensional values.

Source: FAA AC 150-5300/13B - Airport Design

INSTRUMENT FLIGHT PROCEDURES

Instrument approach and departure procedures are developed by the FAA, using electronic guidance from ground based navigational aids and satellite navigation systems, to guide aircraft through a series of prescribed maneuvers in and out of an airport's terminal airspace. The procedures are designed to enable continued airport operation during instrument meteorological conditions (IMC), but are also used during visual conditions, particularly in conjunction with flight training or the completion of an instrument flight plan (in visual conditions). The capabilities of each instrument approach are defined by the technical requirements of the procedure, including the vertical and lateral airspace clearances required for nearby obstacles for each segment of a procedure. These factors combined with aircraft performance limitations, affect the minimum cloud ceiling and visibility required for the approach, the permitted descent altitude for the approach, and the routing for both the approach and missed approach procedure segments.

MMV currently has four published instrument approaches, including one precision approach and three non-precision approaches. These approach procedures provide various levels of electronic guidance. Precision instrument (PI) approaches provide course and descent path guidance. Non-precision instrument (NPI) procedures provide course guidance only and pilots are responsible for altitude control based on published "step down" guidance defined by the procedure. All existing instrument approaches are authorized for category A-D aircraft, with varying approach minimums.

Three of the MMV instrument approaches are classified as "straight-in" since they are designed to direct aircraft to a specific runway end. The ILS/LOC approach to Runway 22 also supports a "circling" procedure to allow aircraft to land on another runway once the pilot has established visual contact with the airport environment. One approach (VOR/DME-B) only provides a "circling" procedure as it does not electronically guide aircraft to a particular runway end, but rather the airport environment.

The procedures are briefly described below and summarized in **Table 2-9**. The values listed in the table include the "ceiling" which represents the lowest descent altitude permitted for the aircraft and "visibility," which indicates the minimum required visibility measured on the airfield (in statute miles) for the procedure. See **Appendix D** for copies of instrument procedures and related requirements established by FAA for instrument operations at the Airport.

Instrument Landing System (ILS) or Localizer (LOC) Runway 22. The ILS approach provides the lowest approach minimums available at MMV. The LOC and circling procedures available for this approach have incrementally higher minimums. The circling procedure requires aircraft to establish and maintain visual contact with the runway/airport environment before proceeding visually to a particular runway end for landing.

RNAV (GPS) Runway 22. The approach is supported by satellite navigation and uses a series of GPS waypoints to guide aircraft. This procedure is straight-in only with three specific performance levels: LPV DA, LNAV/VNAV DA, and LNAV MDA. The LPV approach minimums are higher than the Runway 22 ILS minimums, but lower than the localizer approach minimums.

RNAV (GPS) Runway 4. The approach is supported by satellite navigation and uses a series of GPS waypoints to guide aircraft. This procedure is straight-in only.

VOR/DME-B. The VOR/DME approach provides an inbound course from the south to the center of the airfield (midway between the two runways). This procedure is circling only. The procedure relies on the Newberg VOR/DME located approximately 17 nautical miles north of MMV.

Table 2-9: Approach Procedure Minimums

Approach	Approach Category A		Approach Category B		Approach Category C		Approach Category D	
	Ceiling*	Visibility	Ceiling*	Visibility	Ceiling*	Visibility	Ceiling*	Visibility
RNAV (GPS) RWY 17								
S-ILS 22	200	0.5	200	0.5	200	0.5	200	0.5
S-LOC 22	439	0.5	439	0.5	439	0.75	439	1
Circling	497	1	677	1	757	2.25	1157	3
RNAV (GPS) 4								
LNAV MDA	439	1	439	1	439	1.25	439	1.25
RNAV (GPS) 22								
LPV DA	313	0.75	313	0.75	313	0.75	313	0.75
LNAV/VNAV DA	482	1.25	482	1.25	482	1.25	482	1.25
LNAV MDA	579	0.75	579	0.75	579	1.25	579	1.25
VOR/DME-B								
Circling	677	1	677	1	757	2.25	1157	3

Source: FAA U.S. Terminal Procedures. * Expressed as aircraft minimum descent altitude values, expressed in feet above ground level, or equivalent.

Airfield Facilities

Existing airfield facilities are described in the following sections. **Figure 2-12** provides an overview of existing airside facilities and **Figure 2-13** provides additional detail for terminal area (landside) area facilities.

Figure 2-12: Existing Conditions Airfield

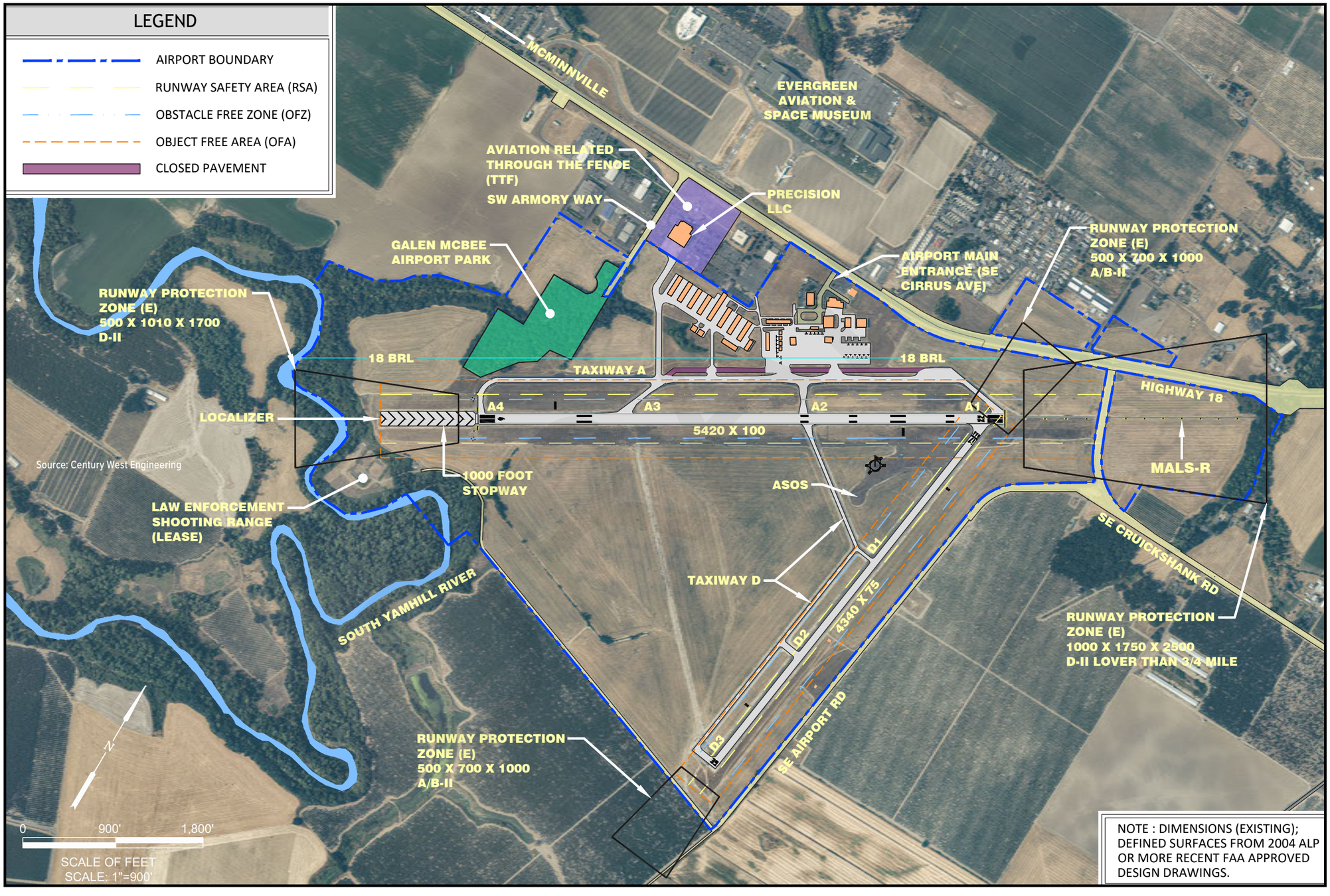
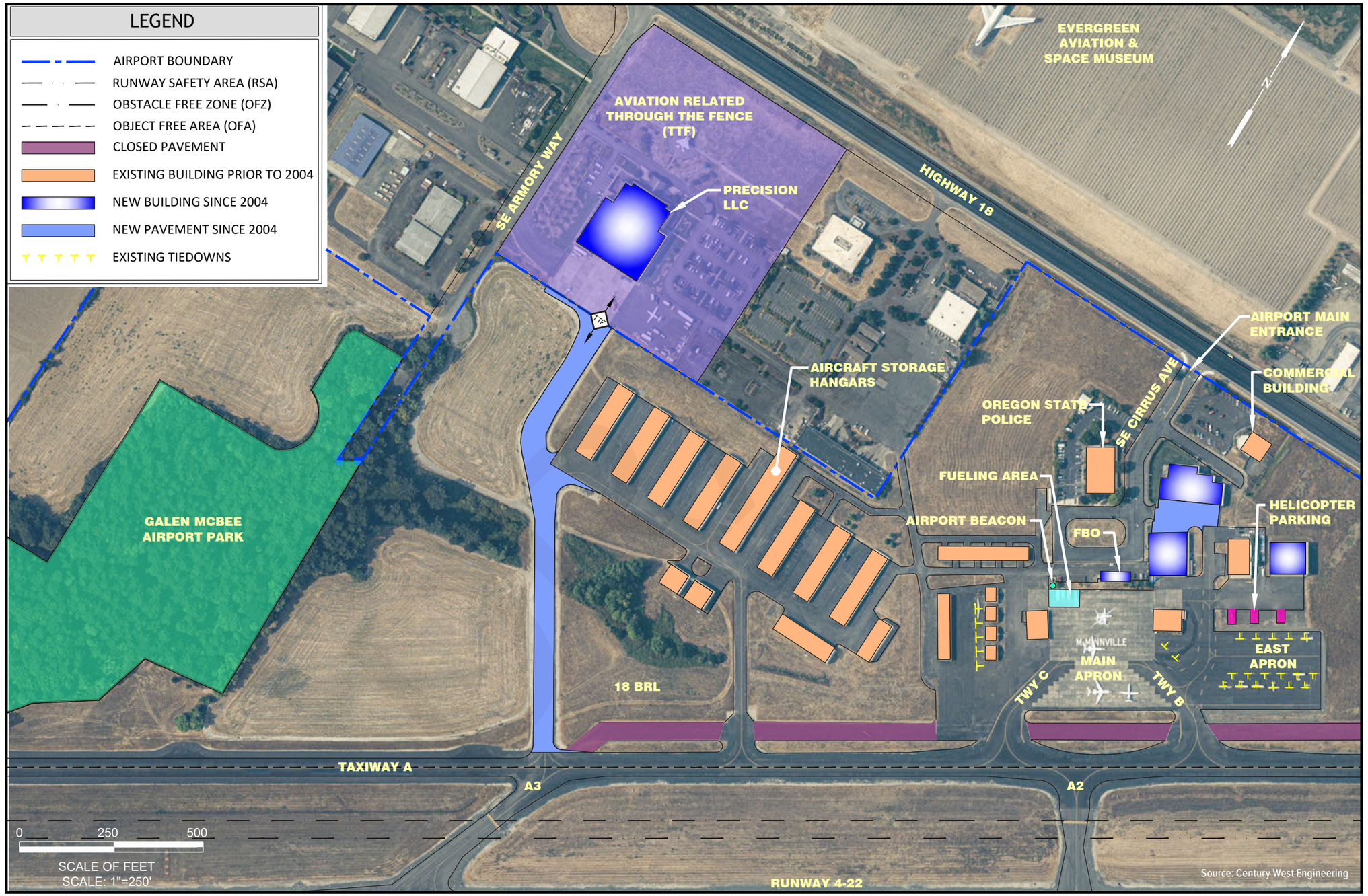


Figure 2-13: Existing Conditions Terminal Area



Added on 06.13.2025

Revised on 06.16.2025
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Airside Elements

Airside Elements are comprised of facilities that facilitate the movement and operation of aircraft on the ground and in the air. This section includes a discussion of the existing airfield facilities including runways, taxiways, airfield lighting, pavement condition, visual and electronic navigation aids. The evaluation of FAA design standards, including required protected surfaces/setbacks and their dimensions, will be included in the facility requirements section of the airport master plan (Chapter 4).

RUNWAYS

MMV has two paved runways (4/22 and 17/35) oriented in northeast-southwest (040/220 degrees magnetic) and north-south (170/350 degrees) directions. The two runways form an "open V" configuration. The runways converge at the closed (north) end of the "V," but do not intersect. Originally, the runways intersected at the 17 and 22 ends. This configuration was depicted on the 2004 ALP, but the physical intersection of the runways was eliminated in a subsequent runway rehabilitation project. Both runways are served by an extensive taxiway system. A brief summary of each runway is provided below and additional detail is provided in **Table 2-11**. Additional information is provided later in this section.

Based on its configuration and instrumentation, and its proximity to terminal area and landside facilities, Runway 4/22 has historically accommodated the largest share of air traffic at MMV, including fixed wing and helicopter flight training. The Airport's helicopter flight training operations utilize both Runway 4/22 and Taxiway A within a common traffic pattern, with aircraft reporting "runway or taxiway." Runway 17/35 serves as a crosswind runway, particularly during periods of strong southerly winds, and historically has been the primary runway used by local glider operations.

MMV is a non-towered airport, which effectively limits operations to one runway at a time. The runways utilize standard left traffic patterns for fixed wing aircraft. Pilots use the airport Unicom/common traffic advisory frequency (CTAF) for communications on the ground and in the vicinity of the airport.

Runway 4/22

Runway 4/22 is the primary runway at MMV. The 5,420' x 100' asphalt runway has a 1,000' x 150' paved overrun located beyond the end of Runway 4. The overrun is not included in the published runway length dimension. The overrun is marked with yellow chevrons as a non-movement area, effectively providing paved runway safety area. The 2004 ALP contains a note indicating that the paved area does not meet FAA criteria for use as stopway due to limited runway safety area (beyond the pavement end).

The runway is categorized as a precision instrument runway (PIR), based on its highest approach capability. The runway markings, edge lighting and approach lighting, and signage are consistent with PIR standards. The Runway 22 end has PIR markings and the Runway 4 end has non-precision instrument (NPI) markings based on their respective approach types. The existing runway markings are in good condition and meet FAA standards for configuration and color. The runway has a full-length parallel taxiway (Taxiway A) on its north side, with four connecting exit taxiways (A1-A4). Two exit taxiways have 90-degree connections with the runway, and two are acute-angled exits.

Runway 4/22 has pavement strength ratings that are generally consistent with current aircraft usage. A 2023 pavement inspection for the runway rated its condition as "Good." Additional pavement condition information for the airfield is provided later in the chapter.

The runway and associated taxiways have lighted signage that convey a variety of important directional, location, and clearance information to pilots. Existing signage includes directional and holding position signs at the boundaries of critical areas, such as the ILS critical area, or the runway obstacle free zone (OFZ) boundary. Runway 4/22 is also equipped with lighted distance remaining signs that are placed in 1,000-foot increments to inform pilots of the amount of runway remaining during takeoff and landing operations.

Runway 17/35

Runway 17/35 is the secondary runway at MMV. The unlighted runway is 4,340' x 75', with an asphalt surface and basic (visual) markings. The runway has a partial length parallel taxiway (Taxiway D) located on its west (infield) side that provides access to the Runway 35 end and two additional connections on the southern 2/3 of the runway. The north end of the runway (Runway 17) may be accessed from Taxiway A4 and crossing Runway 4/22.

Overview – Runway Lighting/Marking

A summary of runway conditions is summarized below:

- **Runway Markings**: As noted earlier, Runway 22 has PIR markings; Runway 4 has NPI markings; and Runway 17/35 has visual markings at both ends. Common runway markings include threshold bars, runway designation markings, and centerline stripe. Runway 4/22 (instrument runway) also has threshold markings, aiming point markings, touchdown zone markings, and edge stripes. During recent site visits, the runway markings were observed to be in good or fair condition. All runway markings are consistent with FAA standards for configuration, color (white paint), and approach type.

- **Runway Lighting**: Runway 4/22 is equipped with a High Intensity Runway Lighting (HIRL) system, which includes white edge lights (with amber lights located near the runway ends to indicate runway remaining) and threshold lights. The threshold lights consist of two sets of four fixtures near each corner of the runway ends. The fixtures have split lenses (green/red) indicating the beginning and end of the runway. The HIRL is pilot-activated using the CTAF (123.0 MHz). The current HIRL system was installed in 2016 as part of a runway reconstruction project. Runway 17/35 is unlighted.

- **Approach Lighting System (ALS)**: Runway 22 is equipped with a Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR), the standard for ILS runways. The Runway 22 MALSR extends approximately 2,500 feet beyond the runway end. The MALSR is pilot activated using the CTAF (123.0 MHz). The MALSR is FAA-owned and was installed in 2001.

The FAA provides the following description of MALSR systems:

> *The MALSR is a medium-intensity approach lighting system (ALS) installed in airport runway approach zones along the extended centerline of the runway. MALSRs consist of a combination of steady burning light bars and flashers that provide pilot's visual information on runway alignment, height perception, roll guidance, and horizontal references to support the visual portion of an instrument approach.*
>
> *The MALSR system consists of a Threshold Light, Steady Burning Light, and Sequenced Flasher. The threshold light array consists of 18 to 33 aviation green steady burning lights depending on runway width, arranged in a line at and parallel to the threshold of the runway. The steady burning light array consists of nine (9) sets of five (5) aviation white steady burning light sources called light bars. Seven (7) of the light bars are located at 200-foot intervals, in the direction of the approach and along the extended runway centerline, starting beyond the runway threshold. The remaining two steady burning light bars are offset to the left and right of the extended centerline at the 1,000-foot bar. The threshold light array and steady burning light array are collectively referred to as the approach light field. The sequenced flasher array consists of five (5) white flashing lamps, commonly referred to as flashers. The flasher are located at 200-foot intervals, in the direction of the approach and along the extended runway centerline, starting at 200 feet beyond the last steady burning light bar beginning at 1600 feet from the runway threshold. The collective flashing of all lights in the sequenced flasher array gives the appearance of a ball of light traveling toward the runway.*

- **REIL**: Runway 4 is equipped with Runway End Identifier Lights (REIL), which consist of two high-intensity sequenced strobe lights located near the corners of the runway end. For runways without an approach lighting system, REILS assists pilots in establishing visual contact with the runway environment during periods of darkness or reduced visibility. The REIL is pilot activated using the CTAF. The current REIL was installed in 2017.

- **Precision Approach Path Indicators (PAPI)**: Runway 4/22 is equipped with 4-box PAPIs on both runway ends. The PAPIs consist of four light boxes that project a pattern of red and white lights that provide visual approach slope information. The PAPI is pilot activated using the CTAF. The PAPIs were replaced in 2016, during the Runway 4/22 rehabilitation project.

With the exception of the MALSR, all existing airfield lighting systems are airport-owned.

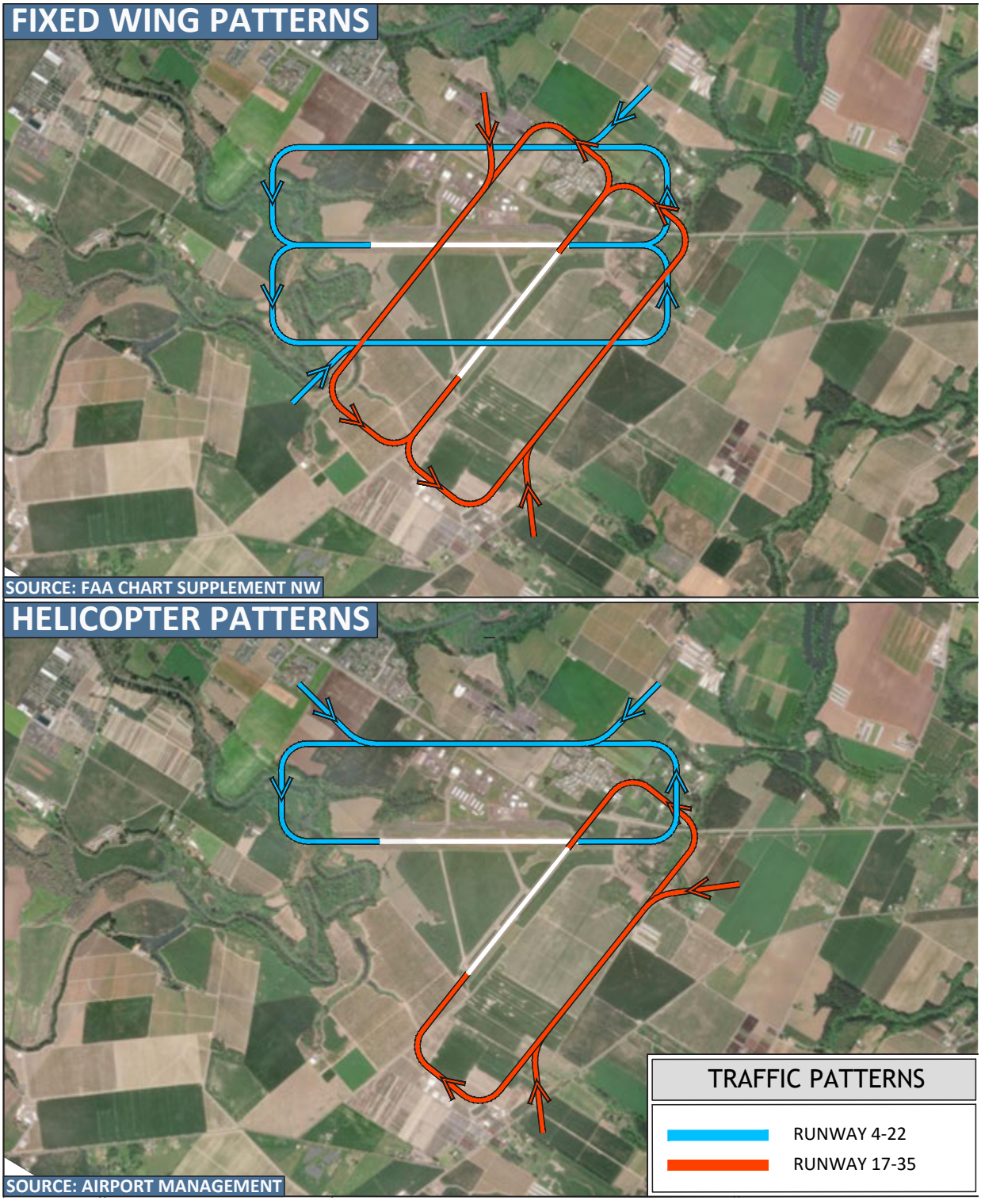
Table 2-10: Runway Details (MMV)

	Runway 4/22	Runway 17/35
Dimensions	5,420' x 100'	4,340' x 75'
Bearing (true)	N 57° 11'22" E	N 05° 16'45" E
Effective Gradient	0.02%	0.04%
Surface Condition	Asphalt/Good	Asphalt/Satisfactory
Weight Bearing Capacity	40,000 pounds – Single Wheel Gear 50,000 pounds – Double Wheel Gear 80,000 pounds – Tandem Double Gear	30,000 pounds – Single Wheel Gear
Markings	RWY 4: NPI – fair condition RWY 22: PIR – fair condition	RWY 17 & 35: Basic (Visual) – good condition
Lighting	High Intensity Runway Edge Lights (HIRL) 4 Light PAPI (3.0-degree glide path) (RWY 4 & 22) RWY 4: Runway End Identifier Light (REIL) RWY 22: MALSR (ALS)	None
Signage	Lighted Mandatory, Location, Directional, Destination, and Distance Remaining Signs	Retro-Reflective Mandatory, Location, Directional, Destination Signs

AIRPORT TRAFFIC PATTERNS

Standard traffic patterns (left traffic) are in effect for Runway 4/22 and Runway 17/35 (as published in the 25 Jan 2024 FAA Chart Supplement). The patterns are used by fixed wing aircraft with a traffic pattern altitude (TPA) of 800 to 1,000 feet AGL. The Airport also has locally-established helicopter traffic patterns (Left/Right Traffic) for both runways. The helicopter pattern for Runway 4/22 is located on the north side of the runway; the helicopter pattern for Runway 17/35 is located on its east side. The helicopter patterns are used extensively for helicopter flight training with a 500-foot TPA. The location and altitudes of the helicopter patterns are intended to separate MMV's helicopter and fixed wing traffic on opposite sides of a runway, consistent with FAA guidance. Some updates to the traffic pattern data contained in the FAA Chart Supplement are recommended to clarify the left/right traffic guidance for the fixed-wing and helicopter patterns. **Figure 2-14** depicts the existing traffic patterns, noted above.

Figure 2-14: Airport Traffic Patterns



TAXIWAYS & TAXILINES

MMV has an extensive taxiway system that provides access to all runway ends. Figure 2-12, presented previously, depicts all existing taxiways and their designations.

Runway 4/22 has a full-length parallel taxiway (Taxiway A) with four connecting exit taxiways (A1-A4). Runway 17/35 has a partial-length parallel taxiway (Taxiway D) with three connecting exit taxiways (D1-D3). The northern section of Taxiway D is an access taxiway that extends from Taxiway D1 to Runway 4/22 at Taxiway A2. The north end of Runway 17/35 (Runway 17) is accessed from Taxiway A1 by crossing Runway 4/22.

All MMV taxiways have yellow centerline stripes. Aircraft hold line markings are painted on all taxiway connections to the runways. The hold line locations are based on the applicable runway safety area, object free area, or obstacle free zone setbacks, 200 or 250 feet from runway centerline. The aircraft hold lines are co-located with required airfield signage.

In 2001, the eastern two-thirds of Taxiway A (from Taxiway A1 to A3) was relocated 100 feet closer to the runway to provide a standard 400-foot runway separation for the full length of the taxiway. This relocation enabled the terminal apron to be expanded and reconfigured to better accommodate larger itinerant aircraft. The original section of parallel taxiway remains in place (closed) but is occasionally used for temporary parking for large aircraft or helicopters.

Taxiway A

Taxiway A is the north parallel taxiway for Runway 4/22. The taxiway is 50 feet wide with a runway separation of 400 feet. The main section of the taxiway was reconstructed in 2001, with some sections of the exit taxiways (A1-A4) reconstructed or rehabilitated in 2017 (in conjunction with runway reconstruction). The parallel taxiway has four connections (Taxiways A1-A4) to the runway. Taxiways A1 and A3 have acute angled (45-degree) runway connections. Taxiways A2 and A4 have 90-degree connections to the runway. The number and location of the exit taxiways allow efficient aircraft movement in the runway-taxiway system. The west end of Taxiway A has two small pullout areas located between exits A3 and A4. The east end of Taxiway A has an adjacent 375’ x 50’ aircraft hold area near exit A1. The taxiway markings include aircraft hold lines, centerline, and lead-in line striping on the runway. The existing taxiway markings were observed to be in very good condition during fall 2023 site visits.

Taxiway D

The southern section of Taxiway D is a partial length parallel taxiway located on the west side of Runway 17/35. The taxiway is 35 feet wide with a runway separation of 240 feet. Taxiway D has three 90-degree connections to the runway (Taxiways D1-D3). The taxiway was constructed in 2009 and is currently rated “satisfactory”; Taxiways D1 and D2 were reconstructed in 2017 and are currently rated “good” (ODAV 2023). The taxiway markings include aircraft hold lines, centerline, and lead-in line striping on the runway. The existing taxiway markings were observed to be in good condition during fall 2023 site visits.

Taxiway D (Infield)

The northern section of Taxiway D is an infield access taxiway that connects the northern end of the parallel section of Taxiway D to Runway 4-22 at Taxiway A2. The taxiway is 35 feet wide. The main section of the taxiway was constructed in 2009 and is currently rated “satisfactory”; the north 220 feet of the taxiway was reconstructed in 2017 and is currently rated “good” (ODAV 2023). The existing taxiway markings were observed to be in good condition during fall 2023 site visits, and include aircraft hold lines, centerline, and lead-in line striping on the runway.

The current Taxiway D replaced the previous infield taxiway, which connected the end of Runway 35 to Runway 4/22, at Taxiway A3. The new infield taxiway route, combined with the parallel taxiway segment provides a more direct connection between Runway 17/35 and the terminal area.

Taxiway B and C

Taxiways B and C are the diagonal access taxiways connecting Taxiway A to the Terminal Apron. These taxiways were reconstructed in 2001, as part of the Taxiway A reconstruction project.

Taxiway Lighting

All major taxiways at MMV are equipped with reflective edge markers (stake-mounted blue 8-inch diameter cylinder reflectors). None of the existing taxiways are equipped with edge lighting.

PAVEMENT CONDITION

The Oregon Department of Aviation (ODAV) Pavement Evaluation Program (PEP) systematically identifies maintenance, repair, and rehabilitation projects required to sustain functional pavements at Oregon airports. The PEP provides a periodic evaluation of current conditions and future projections of condition in terms of pavement condition indices (PCI) for all eligible (public use) airfield pavements across the state. For NPIAS airports that receive federal funding, the PEP assists in meeting FAA grant assurances.

The most recent PEP survey for MMV was performed in July 2023. The survey was performed using the Pavement Condition Index (PCI) methodology developed by the U.S. Army Corps of Engineers and outlined in the current edition of *ASTM D-5340, Standard Test Method for Airport Condition Index Surveys*. The condition for the major runway, taxiway, and apron pavements surveyed in 2023 was "Fair" to "Good." Several small pavement sections, including hangar taxilanes or aprons, were rated "Poor, Very Poor, Serious, or Failed" in 2023:

- Multiple sections west of the Main Apron (Failed, Serious, Poor);
- Several of the west T-hangar taxilanes (Poor); and
- A small section of Taxiway A – east end (Poor).

Table 2-11 summarizes the 2023 PCI ratings for individual airfield pavements. **Figure 2-15** depicts the 2023 PCI ratings.

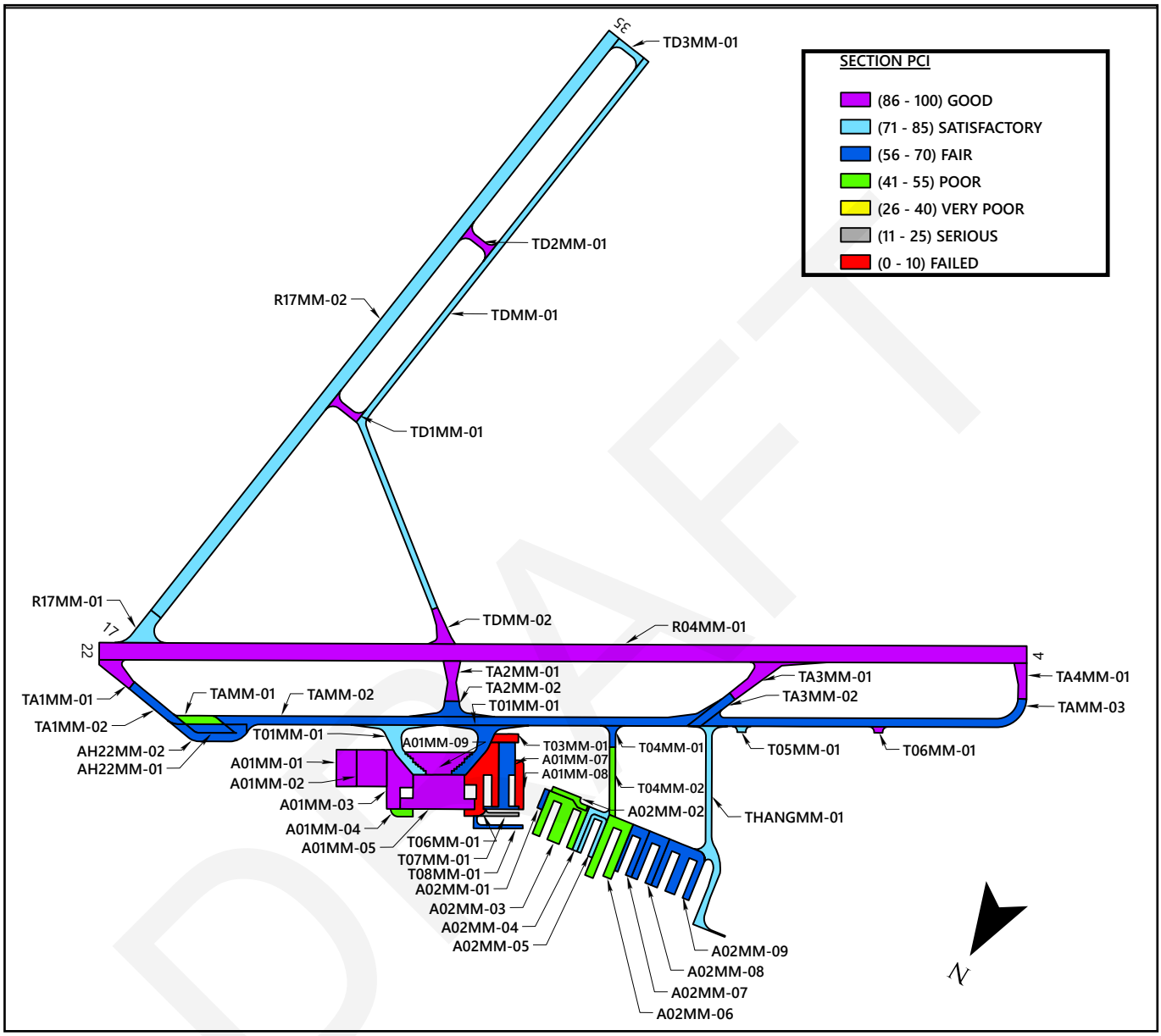
City staff are working with the FAA Seattle ADO to identify funding and schedule the necessary work to address the areas where pavement is in the worst condition. For pavement that is considered "ineligible" for FAA funding, other funding sources including ODAV PMP, grant funds and local funds may be used.

Table 2-11: 2023 PCI Inspection (MMV)

Pavement Section	2023 PCI
Runway 4/22	90
Runway 17/35	77-82
Runway 22 Hold Area	58-67
Taxiway A	50-64
Exit Taxiway A1-A4	63-94
Taxiway A Pull-Outs	74-89
Taxiway B and C	70-78
West T-Hangar Access Taxilanes	41-71
West T-Hangar Taxilanes	43-78
Main Apron	86-88
West Apron	0-61
East Apron (tiedowns)	94
NW T-Hangar Taxilanes (NW of Main Apron)	23-70

Source: Oregon Department of Aviation (2023 Pavement Evaluation/Maintenance Management Program)

Figure 2-15: Pavement Conditions (2023 Inspection)



Source: 2023 ODAV Pavement Evaluation/Maintenance Management Program

AIRFIELD SUPPORT FACILITIES

Support facilities generally include airside support facilities such as airport lighting, fueling facilities, weather reporting equipment and visual aids. MMV accommodates day and night operations in both visual and instrument meteorological conditions (IMC). The primary runway is equipped with lighting systems that are consistent with current instrument approach requirements and runway use. The runway-taxiway system has extensive signage that conveys directional, location, and runway clearance information to pilots. All airfield lighting observed during recent site visits appeared to be in good condition and fully operational.

Airport Lighting

The Airport has a rotating beacon mounted on a tower near the northwest corner of the main apron, on the north side of the airfield. The beacon operates on a dusk-dawn photocell switch and reportedly functions normally. Rotating beacons are used to indicate the location of an airport to pilots at night or during reduced visibility. The beacon provides sequenced white and green flashing lights (representing a lighted land airport) that rotate 360 degrees to allow pilots to identify the airport from all directions for several miles.

As noted earlier, the primary runway (4/22) has high intensity runway lighting (HIRL) with an MALSR approach lighting system on Runway 22, precision approach path indicators (PAPI) on both runway ends, and runway end identifier lights (REIL) on Runway 4. Runway 4/22 is also equipped with lighted distance remaining signs and extensive lighted and reflective directional/informational signage. Runway 17/35 is not lighted. The taxiways at the airport are not lighted, although the main taxiways are equipped with reflective edge markers. Overhead lighting is available in the terminal area, fueling area, and adjacent to most aircraft hangars.

Airfield Signage

The airfield has mandatory instruction signs (red background with white letters/numbers) marking the aircraft holding positions at each of the taxiway connections with the runway [4-22, 17-35]; the two-panel signs also include taxiway designations [A1, A2, etc.] with yellow background and black numbers/letters. The runway-facing side of each sign depicts the exit taxiway designation.

The signs are located to coincide with the painted aircraft hold lines on each taxiway that connects to the runway. The signs for Taxiway A are internally illuminated and were installed new in 2009; the signs for Taxiway D are reflective and were installed in 2009.

Weather Reporting

The Airport has an Automated Surface Observation System (ASOS-3) that provides 24-hour weather information. ASOS-3 provides on-site altimeter setting, wind data, temperature, dew point, density altitude, visibility, and cloud/ceiling data.

Landside Elements

Landside facilities support airport operations, including aircraft parking aprons, fueling aprons and fuel storage, hangars, and taxilanes. Other facilities including utilities, fencing, surface access roads, vehicle parking, and fixed base operator (FBO)/terminal facilities are also addressed. **Figure 2-13**, presented earlier depicts existing landside facilities at MMV. Existing apron facilities are described below and summarized in **Table 2-12**.

AIRCRAFT APRONS

The existing public-use aircraft aprons at MMV are located on the north side of Runway 4/22 and the parallel taxiway (Taxiway A). Three apron sections are consolidated in the terminal area with taxiway access provided by two diagonal taxiways (Taxiways B and C), which connect to Taxiway A. These include the main apron, the west apron, and the east apron. The aprons are used for a variety of activities including large aircraft parking, small airplane tiedowns, aircraft fueling, and provide access to the fixed base operator (FBO), aircraft hangars, aircraft maintenance providers, and other tenants. The main apron is the primary parking area available for large transient aircraft. The east apron is the primary location for small airplane tiedowns, and the west apron is used primarily to access adjacent hangars.

Main Apron

The main apron is approximately 102,890 square feet and is constructed of Portland Cement Concrete (PCC). The apron was originally constructed in 1943 and expanded (south section) in 2004. A review of the design indicates that the south section of the apron is constructed of 8-inch PCC over an 8-inch aggregate base. Historical pavement records indicate that the 1943 section of the apron is 6-inch PCC and 6-inch subbase.

The main apron accommodates large and small transient aircraft parking, aircraft fueling, and passenger loading/unloading at the FBO building. Four small airplane tiedowns are located along the north edge of the apron, directly in front of the FBO building and east of the fueling area. These tiedowns are serviceable, but are not regularly used, with the area kept clear for passenger access to the FBO and for staging aircraft fueling and passenger service vehicles. The main section of the apron does not have fixed parking positions, but the FBO directs transient aircraft parking within the apron. The existing taxiway configuration allows aircraft up to large business jets to enter/exit the apron from either direction, with drive-through parking. The Airport's aircraft fuel storage and dispensing area is located at the northwest corner of the apron. Two commercial Quonset hangars are located on the east and west sides of the apron. The main apron has a painted compass rose that is used to calibrate wet compasses, as required by FAA.

East Apron

The east apron is located adjacent to Taxiway B (east diagonal taxiway). The east apron was expanded, reconfigured, and reconstructed in 2021, in conjunction with improvements to the taxilane used to access adjacent hangars in the northeast section of the terminal area. The east apron is asphalt with a total area of approximately 104,000 square feet. A review of the design indicates that the apron is constructed of 3-inch asphalt (AC) over a 4-inch aggregate base and 6-inch subbase. According to available pavement records, the east apron was originally constructed in two sections in 1977 and 1996 (62,881 square feet).

The east apron has three stub taxilanes that connect to Taxiway B. Two east-west taxilanes access the main tiedown rows, and one north-south taxilane extends to the north end of the apron, to access hangars and privately developed aprons and three helicopter parking positions. The east apron has a total of 19 small aircraft tiedowns configured in two east-west rows and individual tiedowns located near the west edge of the apron, south of the adjacent Quonset hangar. The northern tiedown row consists of 5 south-facing tail-in positions; the southern tiedown row is double-sided, with 12 nested tail-in positions.

West Apron

The west apron is located adjacent to Taxiway C (west diagonal taxiway). Available pavement records indicate that the apron (3 sections) was originally constructed in 1950, with the center section being overlaid in 1995 and full-depth (3-inch) patching done in 2005. Historical records indicate that the apron thickness varies—from 1-inch to 3-inch over a 6-inch aggregate base, with an overall area of approximately 92,881 square feet.

The west apron area accommodates a row of five aircraft tiedowns on the west side (back) of the four small conventional hangars located west of the main apron and the west Quonset hangar. Four additional tiedowns located are south of the hangar row, adjacent to Taxiway C. These tiedowns are not regularly used, due in part to their proximity to Taxiway C, and the taxiway object free area. This area is also directly west of the southern section of the main apron, directly in line with jet blast created by aircraft taxiing in and out of east facing parking. It is also noted that the asphalt pavement for this portion of the west apron was rated "failed" in the 2023 pavement inspection.

Table 2-12: Apron Details

East Tiedown Apron	
Surface/Condition	Asphalt Concrete / Multiple Sections: Good
Markings	Tiedown and Taxilane Striping (good condition)
Aircraft Parking	19 small airplane tiedowns
Main Apron	
Surface/Condition	Portland Cement Concrete / 2 sections: Good
Markings	Limited taxilane centerline striping (fair condition)
Aircraft Parking	Transient Parking (2-3 large aircraft) 4 small airplane tiedowns (north end in front of FBO)
Other Facilities	Aircraft Fueling Area (Avgas and Jet-A) 3 Aboveground Storage Tanks and Dispensing Fuel Truck Parking FBO Access
West Apron	
Surface/Condition	Asphalt Concrete: Failed – Fair
Markings	Tiedown and taxilane centerline striping (poor condition)
Aircraft Parking	9 small airplane tiedowns
Other Facilities	None

Source: Oregon Department of Aviation (2023 Pavement Evaluation/Maintenance Management Program)

HANGARS AND AIRPORT BUILDINGS

MMV accommodates a variety of buildings including aircraft hangars and commercial buildings. The Airport currently has 24 hangars, including 12 conventional hangars and 12 multi-unit hangars. Other buildings include a modular FBO office and two commercial (non-aeronautical) office buildings. **Figure 2-16** and **Table 2-13** depict/list the existing buildings at the Airport. A common numbering system is used for each building listed/depicted.

The Airport currently has one authorized "through-the-fence" (TTF) operation (Precision, LLC), and aircraft maintenance and charter operators, located northwest of the west hangar area. Precision has a large conventional hangar and an aircraft parking apron that is accessed from the west hangar access taxiway connection to Taxiway A/A3. Precision's facility accommodates both fixed wing aircraft and helicopters.

Figure 2-16: Existing Aviation Use Buildings

Added on 06.13.2025

Revised on 06.16.2025
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Table 2-13: Existing Airport Buildings (MMV)

Figure 2-16 Building No.	Building	Existing Use
1	FBO Building	Restrooms, Office, Pilot/ Passenger Waiting Area
2	Conventional Hangar (main terminal area) Potcake Aviation	Commercial Use
3	Conventional Hangar (main terminal area) Northwest Air Repair	Commercial Use
4	Conventional Hangar (main terminal area) Northwest Air Repair	Commercial Use
5	Conventional Hangar (east apron area) Jerry Trimble Helicopters	Commercial Use
6	Conventional Hangar (east apron area) Jerry Trimble Helicopters "New"	Commercial Use
7	Conventional Hangar (east hangar area) Potcake Aviation	Commercial Use
8	T-Hangar "Alpha" (8-units) (NW corner of terminal area)	Aircraft Storage
9	Conventional Hangars (4 -Units) (west end of terminal area)	Aircraft Storage
10	T-Hangar "Charlie" (6-units) (west end of terminal area)	Aircraft Storage
11	One-Sided Hangar "X-ray" (2-units) (west hangar area)	Aircraft Storage
12	One-Sided Hangar "X-ray" (3-units) (west hangar area)	Aircraft Storage
13	Conventional Hangar "Lima" (west hangar area) "new"	Aircraft Storage
14	Conventional Hangar "Mike" (west hangar area) "new"	Aircraft Storage
15	T-hangar "Delta" (10-units) (west hangar area)	Aircraft Storage
16	T-hangar "Echo" (10-units) (west hangar area)	Aircraft Storage
17	T-hangar "Foxtrot" (10-units) (west hangar area)	Aircraft Storage
18	T-hangar "Golf" (9-units) (west hangar area)	Aircraft Storage
19	T-hangar "Hotel" (9-units) (west hangar area)	Aircraft Storage
20	T-Hangar/conventional "India" (9-hangar units) (west hangar area)	Aircraft Storage
21	T-Hangar "Juliet" (10-units) west hangar area)	Aircraft Storage
22	T-Hangar "Kilo" (9-units) (west hangar area)	Aircraft Storage
23	Precision Air (Through the Fence)	Commercial Use
-	Commercial Building (Oregon State Police)	Office/Commercial Use
-	Office Building	Office/Commercial Use
-	Localizer Building (FAA)	Airfield Operations
-	Glide Slope Building (FAA)	Airfield Operations

AIRPORT PERIMETER FENCING

Fencing at the airport consists of sections of chain link in the terminal area and adjacent developed areas with keypad vehicle gates located at key access points in the terminal area. Beyond the terminal area, the majority of the airport perimeter is fenced with three or four strand wire fencing. A 2024 project will replace sections of existing fencing and add fencing in key locations to increase the security of airside and landside areas of the Airport. The fencing upgrades will extend from near the west end of Runway 4/22, along the south side of Galen McBee Airport Park, then continue through the terminal area and along Highway 18 and SE Cruickshank RD.

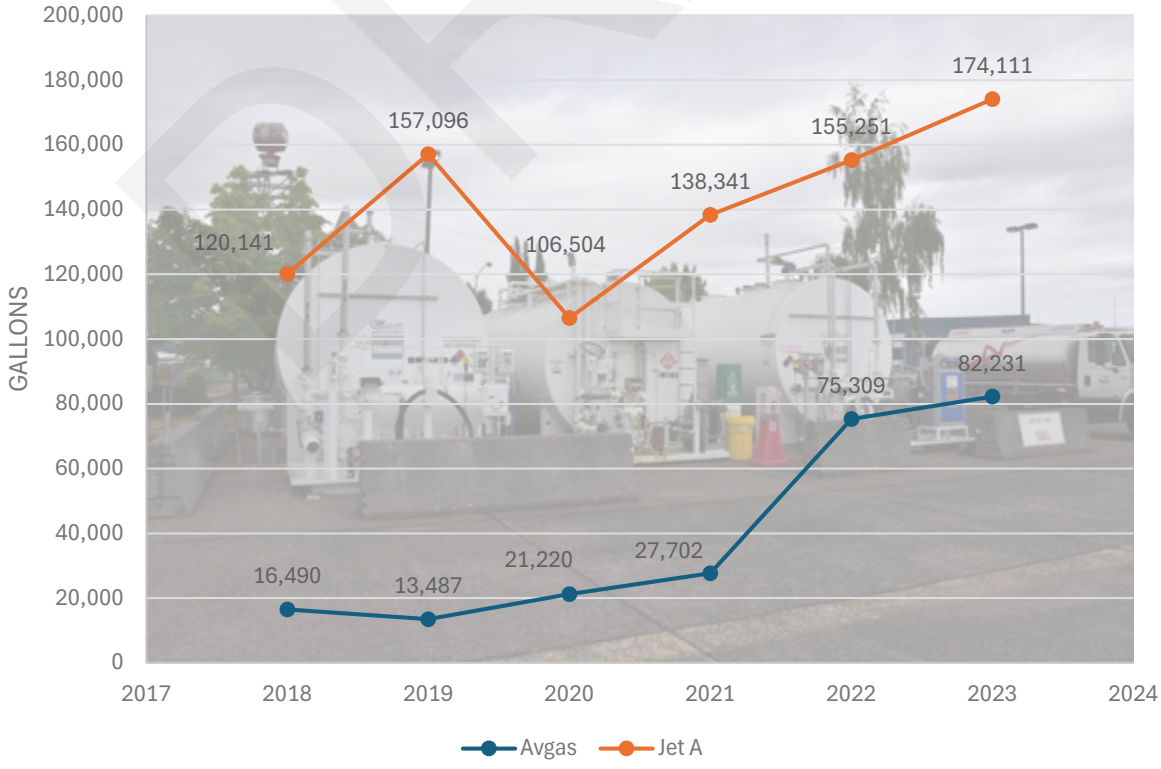
SURFACE ACCESS AND VEHICLE PARKING

Vehicle access to the Airport is provided via SE Cirrus Avenue, which connects directly to Highway 18. Cirrus Avenue serves the terminal area and all landside facilities on the north side of Runway 4/22. Designated vehicle parking areas are located adjacent to the FBO/terminal building, individual hangars, and the non-aviation buildings on the Airport. Cruickshank Road, located beyond the end of Runway 22, also connects to Highway 18, and provides access to the east side of Runway 17/35 via SE Airport Road. A gated unpaved road used to access a law enforcement shooting range connects to SE Airport Road at the southern corner of the Airport. SE Armory Way connects the Airport's Galen McBee Park to Highway 18.

AIRCRAFT FUEL

A summary of the Airport's recent fuel sales provided in **Figure 2-17** indicates an increase in both AVGAS and jet fueling activity. An analysis of recent fueling activity will be provided in the aviation activity forecasts (Chapter 3). MMV has 100-octane low lead (100LL) aviation gasoline (AVGAS) and jet fuel (Jet-A) available for sale through the local FBO, Potcake Aviation. The City of McMinnville owns and maintains the Airport's fuel storage and dispensing system that includes three 12,000 gallon above ground double-wall tanks and a 24-hour credit card payment system for self-fueling. The fixed-point fueling system is located immediately adjacent to the Potcake Aviation FBO building. Potcake also operates mobile trucks for aircraft fueling. Jerry Trimble Helicopters maintains their own fuel trucks.

Figure 2-17: Historical Aviation Fuel Sales (MMV)



Airport Administration

The Airport Administration section provides a summary of Airport Ownership & Management, Airport Finance, Rates and Charges, Rules and Regulations, and overview of FAA Grant Assurances and Compliance.

AIRPORT OWNERSHIP & MANAGEMENT

MMV is owned and operated by the City of McMinnville. The majority of the Airport's land area is within the McMinnville city limits. Current staffing includes the airport administration and a contractor (Potcake Aviation) to provide operations and maintenance support. Potcake also provides several fixed base operator (FBO) services, including aircraft fueling.

City of McMinnville staff provide finance, legal, human resources, information technology, and administration services for the Airport.

Airport lessees are responsible for managing their facilities and leased areas to meet the requirements defined in their leases and the Airport's Minimum Standards document.

AIRPORT FINANCE

The Airport operates as an enterprise fund with all revenue generated by the Airport remaining in the Airport's budget. This is required by FAA to prevent revenue diversion from Airport operations to general city services. The primary revenue generating sources for the Airport include hangar and ground lease rents and fuel sales. The primary expenditures for the Airport include airport administration, maintenance, and facility improvements. Many airport administration responsibilities such as human resources, finance, and legal services are provided by City internal service departments. The Airport's capital improvement projects are typically funded through FAA grants with a local (Airport Enterprise Fund) match that may be supplemented by ODAV grants.

The 2021-2022 actual revenue and expenses for MMV are summarized in **Table 2-14**.

Table 2-14: Airport Revenue/Expense Summary (MMV)

	Airport Revenue
Charge For Services	$343,768
Intergovernmental	$49,344
Miscellaneous	$12,728
Transfers In	$0
Total Airport Revenues	**$405,840**

	Airport Expenses
Materials and Services	$159,418
Capital Outlay	$158,306
Transfers Out	$98,190
Contingencies	$0
Total Airport Operating Expenses	**$415,914**
Net Operating Income (Loss)	**$(10,074)**

2021-2022 Actual expenses and revenue as reported in the 2022-2023 City of McMinnville proposed budget.

CITY OF MCMINNVILLE RULES AND REGULATIONS

The City of McMinnville Code provides the legal framework and authority for actions regulated by the City of McMinnville as the sponsor of the MMV. The City operates the Airport for the use and benefit of the public in order to make it available to all types, kinds, and classes of aeronautical activity on fair and reasonable terms and without unjust discrimination.

FAA COMPLIANCE OVERVIEW

A management program based on the FAA's "Planning for Compliance" guidance and the adoption of additional airport management "Best Practices" is recommended to address FAA compliance requirements and avoid noncompliance, which could have significant consequences.

Airport management "Best Practices" are developed to provide timely information and guidance related to good management practices and safe airport operations for airport managers and sponsors. The practices outlined herein are designed for use by the City of McMinnville for evaluating and improving their current and future operation and management program.

Airport sponsors must comply with various federal obligations through agreements and/or property conveyances, outlined in *FAA Order 5190.6B, Airport Compliance Manual*. The contractual federal obligations a sponsor accepts when receiving federal grant funds or transfer of federal property can be found in a variety of documents including:

- Grant agreements issued under the Federal Airport Act of 1946, the Airport and Airway Development Act of 1970, and Airport Improvement Act of 1982. Included in these agreements are the requirement for airport sponsors to comply with:
  - » Grant Assurances;
  - » Advisory Circulars;
  - » Application commitments;
  - » FAR procedures and submittals; and
  - » Special conditions.
- Surplus airport property instruments of transfer;
- Deeds of conveyance;
- Commitments in environmental documents prepared in accordance with FAA requirements; and
- Separate written requirements between a sponsor and the FAA.

Airport Compliance with Grant Assurances

As a recipient of both federal and state airport improvement grant funds, the City of McMinnville is contractually bound to various sponsor obligations referred to as "Grant Assurances", developed by the FAA and the Oregon Department of Aviation. These obligations, presented in detail in federal and state grants and state statute and administrative codes, document the commitments made by the airport sponsor to fulfill the intent of the grantor (FAA and State of Oregon) required when accepting federal and/or state funding for airport improvements. Failure to comply with the grant assurances may result in a finding of noncompliance and/or forfeiture of future funding. Grant assurances and their associated requirements are intended to protect the significant investment made by the FAA, State, and City to preserve and maintain the nation's airports as a valuable national transportation asset, as mandated by Congress.

FAA Grant Assurances

The FAA's Airport Compliance Program defines the interpretation, administration, and oversight of federal sponsor obligations contained in grant assurances. The Airport Compliance Manual defines policies and procedures for the Airport Compliance Program. Although it is not regulatory or controlling with regard to airport sponsor conduct, it establishes the policies and procedures for FAA personnel to follow in carrying out the FAA's responsibilities for ensuring compliance by the sponsor.

The Airport Compliance Manual states the FAA Airport Compliance Program is: "...designed to monitor and enforce obligations agreed to by airport sponsors in exchange for valuable benefits and rights granted by the United States in return for substantial direct grants of funds and for conveyances of federal property for airport purposes. The Airport Compliance Program is designed to protect the public interest in civil aviation. Grants and property conveyances are made in exchange for binding commitments (federal obligations) designed to ensure that the public interest in civil aviation will be served. The FAA bears the important responsibility of seeing that these commitments are met. This order addresses the types of commitments, how they apply to airports, and what FAA personnel are required to do to enforce them." According to the FAA, cooperation between the FAA, state, and local agencies should result in an airport system with the following attributes:

- Airports should be safe and efficient, located at optimum sites, and be developed and maintained to appropriate standards;
- Airports should be operated efficiently both for aeronautical users and the government, relying primarily on user fees and placing minimal burden on the general revenues of the local, state, and federal governments;
- Airports should be flexible and expandable, able to meet increased demand and accommodate new aircraft types;
- Airports should be permanent, with assurance that they will remain open for aeronautical use over the long-term;
- Airports should be compatible with surrounding communities, maintaining a balance between the needs of aviation and the requirements of residents in neighboring areas;
- Airports should be developed in concert with improvements to the air traffic control system;
- The airport system should support national objectives for defense, emergency readiness, and postal delivery;
- The airport system should be extensive, providing as many people as possible with convenient access to air transportation, typically not more than 20 miles of travel to the nearest NPIAS airport; and
- The airport system should help air transportation contribute to a productive national economy and international competitiveness.

The airport sponsor should have a clear understanding of and comply with all assurances. The following sections describe the selected assurances in more detail.

Project Planning, Design, And Contracting
Sponsor Fund Availability (Assurance #3)

Once a grant is given to the City of McMinnville (airport sponsor), the city commits to providing the funding to cover their portion of the total project cost. Currently this amount is ten percent of the total eligible project cost, although it may be higher depending on the particular project components or makeup. Once the project has been completed, the receiving airport also commits to having adequate funds to maintain and operate the airport in the appropriate manner to protect the investment in accordance with the terms of the assurances attached to and made a part of the grant agreement.

Consistency with Local Plans (Assurance #6)

All projects must be consistent with city and county comprehensive plans, transportation plans, zoning ordinances, development codes, and hazard mitigation plans. The City of McMinnville (airport sponsor) should familiarize themselves with local planning documents before a project is considered to ensure that all projects follow local plans and ordinances.

Accounting System Audit and Record Keeping (Assurance #13)

All project accounts and records must be made available at any time. Records should include documentation of cost, how monies were spent, funds paid by other sources, and any other financial records associated with the project at hand. Any books, records, documents, or papers that pertain to the project should be available at all times for an audit or examination.

General Airport Assurances
Good title (Assurance #4)

The City of McMinnville (airport sponsor) must have a Good Title to affected property when considering projects associated with land, building, or equipment. Good Title means the sponsor can show complete ownership of the property without any legal questions or show it will soon be acquired.

Preserving Rights and Powers (Assurance #5)

No actions are allowed, which might take away any rights or powers from the sponsor, which are necessary for the sponsor to perform or fulfill any condition set forth by the assurance included as part of the grant agreement.

Airport Layout Plan (ALP) (Assurance #29)

The City of McMinnville should maintain an up-to-date ALP, which should include current and future property boundaries, existing facilities/structures, locations of non-aviation areas, and existing and proposed improvements. FAA requires proposed improvements to be depicted on the ALP in order to be eligible for FAA funding. If changes are made to the Airport without authorization from the FAA, the FAA may require the airport to change the alternation back to the original condition or jeopardize future grant funding.

Disposal of Land (Assurance #31)

Land purchased with the financial participation of an FAA grant cannot be sold or disposed of by the airport sponsor at their sole discretion. Disposal of such lands are subject to FAA approval and a definitive process established by the FAA. If airport land is no longer considered necessary for airport purposes, and the sale is authorized by the FAA, the land must be sold at fair market value. Proceeds from the sale of the land must either be repaid to the FAA or reinvested in another eligible airport improvement project.

Airport Operations and Land Use
Pavement Preventative Maintenance (Assurance #11)

Since January 1995, the FAA has mandated that it will only give a grant for airport pavement replacement or reconstruction projects if an effective airport pavement maintenance-management program is in place. The Oregon Department of Aviation prepares and updates pavement reports for MMV. These reports identify the maintenance of all pavements funded with federal financial assistance and provides a pavement condition index (PCI) rating (0 to 100) for various sections of aprons, runways, and taxiways, including, a score for overall airport pavements.

Operations and Maintenance (Assurance #19)

All federally funded airport facilities must operate at all times in a safe and serviceable manner and in accordance with the minimum standards as may be required or prescribed by applicable Federal, State, and Local agencies for maintenance and operations.

Compatible Land Use (Assurance #21)

Land uses around an airport should be planned and implemented in a manner that ensures surrounding development and activities are compatible with the airport. The Airport is located inside the McMinnville city limits. Portions of the protected Part 77 airspace for the Airport extend into unincorporated Yamhill County, Marion County, and over other nearby municipalities. The City of McMinnville, as airport sponsor, should work with Yamhill and Marion counties, and other local govenments to ensure zoning laws are in place that protect the Airport from incompatible land uses.

Day-To-Day Airport Management
Economic Non-Discrimination (Assurance #22)

Any reasonable aeronautical activity offering service to the public should be permitted to operate at the Airport as long as the activity complies with airport established standards for that activity. Any contractor agreement made with the airport will have provisions making certain the person, firm, or corporation will not be discriminatory when it comes to services rendered including rates or prices charged to customers.

Exclusive Rights (Assurance #23)

No exclusive right to the use of the Airport by any person providing, or intending to provide, aeronautical services to the public. However, an exception may be made if the airport sponsor can prove that permitting a similar business would be unreasonably costly, impractical, or result in a safety concern, the sponsor may consider granting an exclusive right.

Leases and Finances

Fee and Rental Structure (Assurance #24)

An airport's fee and rental structure should be implemented with the goal of generating enough revenue from airport related fees and rents to become self-sufficient in funding the day-to-day operational needs. Airports should update their fees and rents on a regular basis to meet fair market value, often done through an appraisal or fee survey of nearby similar airports. Common fees charged by GA airports include fuel flowage fees, tie-down fees, and hangar or ground lease rents.

Airport Revenue (Assurance #25)

Revenue generated by airport activities must be used to support the continued operation and maintenance of the Airport. Use of airport revenue to support or subsidize non-aviation activities or to fund other departments who are not using the funds for airport specific purposes is not allowed and is considered revenue diversion. Revenue diversion is a significant compliance issue for FAA.

A summary of Oregon aviation laws is provided below.

OREGON AVIATION LAWS

The Oregon Department of Aviation (ODAV) has created both the Oregon Administrative Rules (OAR) and Oregon Revised Statutes (ORS) to govern airports within the state.

Oregon Administrative Rules (OAR)

- OAR Chapter 660, Division 13 – Airport Planning
- OAR Chapter 660, Division 13 – Exhibits
- OAR Chapter 738 – ODA
- Non-Commercial Leasing Policy
- Commercial Leasing Policy
- Category II Minimum Standards Policy
- Category IV Minimum Standards Policy
- Category V Minimum Standards Policy
- Insurance Requirements

Oregon Revised Statutes (ORS)

- ORS 197 – Land Use Planning I
- ORS 197A – Land Use Planning II
- ORS 319 – Aviation Fuel Tax
- ORS 835 – Aviation Administration
- ORS 836 – Airports and Landing Fields
- ORS 837 – Aircraft Operations
- ORS 838 – Airport Districts

For additional information on FAA Grant Assurances, please go to:
https://www.faa.gov/airports/aip/grant_assurances

Chapter 3

Aviation Activity Forecasts

Introduction and Overview

This chapter provides a summary of historical aviation activity and new aviation activity forecasts for McMinnville Municipal Airport (MMV) for the 20-year master plan horizon (2023-2043). The most recent Federal Aviation Administration (FAA) approved aviation activity forecasts for MMV were developed in the 2004 Airport Layout Plan Report.

The new aviation activity forecasts use calendar year 2023 as the baseline, the last full year of data available when the preliminary forecasts were developed. The base year will be maintained for consistency in any subsequent forecast revisions required to obtain final FAA forecast approval. The forecast covers a 20-year period with 5-year reporting intervals. Multiple forecasting methodologies are used in this analysis and the models that provide the most valid outlooks are presented for comparison.

The forecasts are unconstrained and assume the City of McMinnville (City) will be able to make the facility improvements necessary to accommodate the anticipated demand, unless specifically noted. The City will consider if any unconstrained demand will not or cannot be reasonably met through the evaluation of airport development alternatives later in the master plan.

STATE AIRPORT SYSTEM

As described in Chapter 2, MMV is designated as a **Category II – Urban General Aviation Airport** in the 2019 Oregon Aviation Plan (OAP v6.0). The definition for Category II airports is:

"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."

Oregon currently has a total of 11 Category II airports, which includes one public-use heliport (Portland Downtown Heliport). The distribution of Category II airports throughout Oregon reflects the state's physical geography, population centers, and the underlying market conditions required to support the full range of GA activity common to this type of airport. More than half (6 of 11) of Oregon's Category II airports are located within 40 nautical miles of MMV. The concentration of Category II airports is consistent with the region's overall population and economic characteristics.

MMV is capable of accommodating a full range of general aviation activity, including business class turboprops, business jets and helicopters. This capability expands the Airport's role beyond local community needs and accommodates users throughout the region.

FEDERAL AIRPORT SYSTEM

As described in Chapter 2, MMV is included in the federal airport system, referred to as the National Plan of Integrated Airport Systems (NPIAS). The NPIAS currently includes 3,304 public-use airports in all 50 states. Fifty-seven of Oregon's 97 public-use airports are included in the NPIAS.

MMV is classified as a **"Regional" Nonprimary General Aviation** airport. The role of regional airports is defined as follows: *"Support regional economies by connecting communities to regional and national markets. Generally located in metropolitan areas and serve relatively large populations. Regional airports have high levels of activity with some jets and multiengine propeller aircraft. The metropolitan areas in which regional airports are located can be Metropolitan Statistical Areas or Micropolitan Statistical Areas."*

OVERVIEW OF RECENT EVENTS

As noted above, the last full master planning exercise completed for MMV was in 2004. Over the next 20 years, several improvement projects were completed at the Airport including rehabilitation, reconstruction, and new construction of runway, taxiway, and apron facilities, and construction of several new privately funded hangars. As noted in the existing conditions chapter, most of the major runway-taxiway components at the Airport have been refreshed or upgraded since the last plan was completed in 2004.

Potcake Aviation provides fixed base operator (FBO) services to transient and local aircraft. NW Air Repair is an MMV-based maintenance provider specializing in single-engine and multi-engine piston aircraft, serving both locally based aircraft and customers located at other airports.

Activity at the Airport experienced some specific changes during this period, including an increase in flight training generated by locally based flight schools and from several flight schools located at nearby airports. The majority of the flight training conducted at MMV consists of pattern work (touch and goes, etc.) for both fixed-wing aircraft and helicopters. The Airport's instrument landing system (ILS) is also heavily used for practice precision instrument approaches (typically in VFR conditions). One of the locally based flight schools (Jerry Trimble Helicopters) offers both helicopter and fixed wing training. Potcake Aviation provides fixed wing flight training. Although their fleet numbers fluctuate, the two operators reported a combined 14 active locally based aircraft at the end of 2023. Overall, it is estimated that flight training accounted for nearly 70% of aircraft operations at MMV in 2023. MMV has also experienced steady growth in transient business aviation activity, consisting of turboprop and jet aircraft. Most of these aircraft operate on instrument flight plans, and a summary of the last 10 years of instrument flight plan data by aircraft type is provided later in the chapter.

MMV has accommodated through-the-fence (TTF) aviation users dating back to the early 1960s. Starting with Evergreen Helicopters and evolving into Evergreen International Aviation, a global on-demand air services provider, the company headquarters were located in McMinnville, adjacent to the Airport. Evergreen operated helicopters and business class fixed wing aircraft at MMV for more than 50 years. The company ceased operations in 2013 and has since been liquidated. The Evergreen Aviation & Space Museum, launched in 1991 by Evergreen founder Delford Smith and his son Captain Michael King Smith, currently operates as an independent non-profit organization. The museum is located directly across Highway 18 from MMV.

Precision, LLC, a diversified aviation services company, provides on-demand and support services for manned and unmanned aircraft systems (UAS). Precision currently operates a fleet of 7 rotor and 1 fixed wing aircraft used in their on-demand air service from its hangar and apron complex located adjacent to MMV. Precision has an approved TTF agreement with the City to access MMV via a taxiway that connects to Taxiway A. Since they are located off airport property, Precision's aircraft are not included in the FAA's validated based aircraft count for MMV, however, the operations they generate from the runway-taxiway system are included in the Airport's totals. The company also provides aircraft maintenance services as a FAR Part 145 Repair Station. Their services include turbine and piston helicopter maintenance and complex avionics installations. Precision reports their maintenance capabilities under the Repair Station certificate include Airbus Helicopters, Guimbal, MD Helicopters, Bell Helicopter, Schweizer, Pilatus, and Textron.

The Airport has also experienced a change in glider activity since the last plan was completed in 2004. At that time, MMV had approximately 21 locally based gliders. The local FBO/airport manager (Judy Newman) owned several aircraft and provided a variety of glider activities including flight instruction, passenger rides, and organized soaring events. Ms. Newman relocated her aircraft and operations to Hood River in the late 2000s. The most recent FAA 5010-1 Airport Record Form (9/20/2021) lists four gliders at MMV. As noted in the existing conditions chapter, MMV is a designated "Glider Operations" facility on the current Seattle Sectional Aeronautical Chart.

FAA Forecasting Process

The FAA provides aviation activity forecasting guidance for airport master planning projects. *FAA Advisory Circular (AC) 150/5070-6B*, *Airport Master Plans*, outlines seven standard steps involved in the forecast process:

1. Identify Aviation Activity Measures: The level and type of aviation activities likely to impact facility needs. For general aviation, this typically includes based aircraft and operations.
2. Previous Airport Forecasts: May include the FAA Terminal Area Forecast (TAF), state or regional system plans, and previous master plans.
3. Gather Data: Determine what data are required to prepare the forecasts, identify data sources, and collect historical and forecast data.
4. Select Forecast Methods: There are several appropriate methodologies and techniques available, including regression analysis, trend analysis, market share or ratio analysis, exponential smoothing, econometric modeling, comparison with other airports, survey techniques, cohort analysis, choice and distribution models, range projections, and professional judgment.
5. Apply Forecast Methods and Evaluate Results: Prepare the actual forecasts and evaluate for reasonableness.
6. Summarize and Document Results: Provide supporting text and tables as necessary.
7. Compare Forecast Results with FAA's TAF: Follow guidance in *FAA Order 5090.5, Field Formulation of the National Plan of Integrated Airport Systems and Airport Capital Improvement Program*. In part, the Order indicates that forecasts should not vary significantly from the TAF. When there is more than 10% variance in the 5-year term, or 15% in the 10-year term, documentation will be provided for careful consideration by the FAA. The aviation demand forecasts are then submitted to the FAA for their approval.

Key Activity Elements

As noted above, general aviation airport activity forecasting focuses on two key activity segments: based aircraft and aircraft operations (takeoffs & landings). Detailed breakdowns of these activity segments include:

- Aircraft fleet mix;
- Peak activity;
- Distribution of local and itinerant operations; and
- Determination of the design aircraft (also referred to as the critical aircraft).

The design aircraft represents the most demanding aircraft type or family of aircraft that uses an airport on a regular basis (a minimum of 500 annual takeoffs & landings per year). Per AC 150/5000-17, Critical Aircraft and Regular Use Determination, the design aircraft is used to establish a variety of FAA design categories, which then establish design standards for airfield facilities. FAA airport design standard groupings reflect the physical requirements of specific aircraft types and sizes. Design items, such as runway length evaluations, are determined by the requirements of current/future design aircraft. The activity forecasts also support the evaluation of several demand-based facility requirements including runway and taxiway capacity, aircraft parking, and hangar capacity.

Table 3-1 describes the data sources used in this chapter.

Table 3-1: Forecasting Data Sources

Source	Description
FAA National Based Aircraft Inventory Program	The FAA National Based Aircraft Inventory Program database assigns all eligible active civilian aircraft to individual airports, as reported and verified by airport owners. Aircraft reported by more than one airport are researched by airport management, with the final resolution approved by FAA. Inactive and other aircraft that do not meet FAA criteria may be listed, but they are not included in the airport's current "validated count." The FAA requires airport owners to update their counts periodically to reflect changes in activity. The accuracy of based aircraft counts at individual airports has improved significantly with more consistent airport verification and reporting. The current level of verification was not common in previous airport master plan data.
FAA Terminal Area Forecast (TAF)	The FAA TAF, published in January 2024, was used in this forecast evaluation. The TAF provides historical data and long-term projections for annual operations and based aircraft at all NPIAS airports, including MMV. The forecasts are based on overall growth rates assigned by FAA and do not necessarily correspond to the previous airport master plan, or other existing forecasts. The airport master plan's recommended based aircraft and operations forecasts will be compared to the TAF as part of the FAA forecast review/ approval process.
FAA National Aerospace Forecast	The 2023-2043 Aerospace Forecast was referenced in this forecast evaluation. The FAA Aerospace Forecast is a national level forecast of civil aviation activity that helps guide local forecasts by serving as a point of comparison between local and national trends.
Traffic Flow Management System Counts (TFMSC)	The TFMSC includes data collected from FAA instrument flight rules (IFR) flight plan filings. This activity is categorized by aircraft type and it provides airport origin-destination and time of day information for all flights. The advantage of the TFMSC data is its degree of detail and insights into the more demanding aircraft operating at the Airport, such as jets and turboprops, that regularly file IFR flight plans. TFMSC data is the most reliable indicator of business aviation activity at the Airport, which is critical in documenting activity required for design aircraft designation and the operations fleet mix.
State Aviation System Plans	The Oregon Aviation Plan (OAP v6.0) is the current state aviation system plan for Oregon, adopted in 2019. OAP v6.0 includes facility data, activity forecasts, system-wide minimum standards and performance measures for Oregon's public-use airports.

Table 3-1: Forecasting Data Sources

Source	Description
Socioeconomic Data	Socioeconomic data is provided by data vendor Woods & Poole, Inc. (W&P). Population data are provided by the Portland State University - Population Research Center (PRC). The PRC produces the annual population estimates and long-term forecasts for Oregon and its counties and cities, as well as the estimates by age and sex for the state and its counties. These estimates are used by the state and local governments, various organizations, and agencies for revenue sharing, funds allocation, and planning purposes. The 2023-2073 PRC population forecast is the primary resource for evaluating changes in local area population during the airport master plan 20-year planning horizon. The W&P datasets for Yamhill County were used for this analysis. The W&P data provides 124 data categories with historical records from 1970 to 2019 and forecasts through 2050. Data categories considered include population, employment, earnings and income, and gross regional product.
Previous Airport Planning	The 2004 Airport Layout Plan Report provides the most recent FAA-approved airport layout plan (ALP) drawing for the Airport. More recent project design and environmental documents also provide valuable information.
Fixed Base Operator (FBO)	Historical fuel flowage data provided to airport management by the airport tenants providing aircraft services was reviewed. This information was consulted when developing aircraft operations forecasts.

Source: Century West Engineering

FAA Forecast Terminology

Aircraft Operation
A count of a takeoff, landing, or touch-and-go. Each time an aircraft touches the runway to takeoff or land, it counts as an operation.

Aircraft Approach Category (AAC)
Classification of an aircraft by approach speed, with A being the slowest and E being the fastest.

Airplane Design Group (ADG)
Classification of an aircraft by its size (wingspan and tail height) with I being the smallest and VI being the largest.

Airport Reference Code (ARC)
Used to determine facility size and setback requirements. The ARC is a composite of the AAC and ADG of the critical aircraft. ARC is no longer used in FAA Advisory Circulars. Instead AAC and ADG are identified independently. Though the term is no longer in use, previous studies described in this document may reference ARC.

Based Aircraft
Aircraft that are stored at the Airport either full-time or seasonally (more than half a calendar year).

Design Aircraft
The most demanding aircraft, or family of aircraft (in terms of size and/or speed) generating at least 500 annual operations at an airport. The design aircraft is used to establish the applicable AAC and ADG (for existing and forecast activity).

General Aviation (GA)
Aviation activities conducted by recreational, business, and charter users not operating as airlines under FAR Part 121, Part 135, or military regulations.

Air Taxi
Aviation activities conducted by on-demand or scheduled operators certified under FAR Part 135. The majority of air taxi activity is conducted with aircraft also operated by general aviation users.

Itinerant Operation
An operation that originates at one airport and terminates at a different airport. For example, an aircraft flying from the Airport to another airport.

Local Operation
An operation that originates and terminates at the same airport. For example, an aircraft takes off from the Airport, remains near the airport to practice flight maneuvers, and then lands at the Airport. Touch-and-go operations occur in the airport traffic pattern and they are categorized as local operations.

Touch-and-Go
A maneuver where an aircraft lands and takes off without leaving the runway. A touch-and-go is counted as two aircraft operations.

Source: Century West Engineering, FAA and industry terminology.

Population and Economic Conditions

POPULATION

Historical population and economic data for the region was presented in Chapter 2. This section describes existing long-term population and economic forecasts for reference. Long-term population and economic forecasts are summarized in **Tables 3-2 and 3-3**.

The Population Research Center at Portland State University (PRC-PSU) prepares long-term population forecasts for the state of Oregon, counties, and cities. These data are used by local government to project future demand for services, housing, and to effectively manage growth as required by the State of Oregon land use planning law. The current PSU Coordinated Preliminary Population Forecast for Yamhill County was published in December 2023. The forecast provides projections for the county, its established Urban Growth Boundaries (UGB) for incorporated cities, and the unincorporated areas outside UGBs. The forecast uses a 2023 base year and provides projections through 2070. The 2043 projection coincides with the end of the current airport master planning period and provides relevant information about long term expectations for the population of the McMinnville UGB and Yamhill County.

The population within an airport's service area, in broad terms, affects the type and scale of aviation facilities and services that can be supported. Changes in population often reflect broader economic conditions that may also affect airport activity. The service area for MMV extends beyond McMinnville and includes greater Yamhill County. Although the McMinnville UGB currently represents nearly one-third of Yamhill County population, it is apparent that the Airport's primary service area extends beyond the local community. For the purpose of forecasting aviation activity, an evaluation of both Yamhill County and City of McMinnville population provides the best indication of future changes that may affect the Airport.

The PSU forecast projects similar long-term growth trends for both Yamhill County and the McMinnville UGB, with annual population growth averaging just under 1% through 2043. The projected net increase in population for these areas during the next 20 years is about 18%. Several other nearby communities are also expected to experience similar, or slightly higher growth rates.

The State of Oregon's population is forecast to increase at annual rate of approximately 0.58% during the next ten years, or about 6% overall. A detailed summary of the population forecasts for the State, County, UGBs, and the area outside UGBs is presented in **Table 3-2**.

Table 3-2: Population Forecast Summary

	AAGR[1]	2023[4]	2028	2033	2038	2043	Percent Change
Oregon[2]	0.57%	4,296,626	4,408,000	4,546,600	-	-	5.82% (10 years)
Yamhill County	**0.85%**	**109,743**	**115,972**	**121,263**	**125,879**	**129,870**	**18.34%**
Amity UGB	1.02%	1,826	1,964	2,071	2,162	2,236	22.45%
Carlton UGB	1.11%	2,425	2,541	2,715	2,877	3,023	24.66%
Dayton UGB	0.80%	2,704	2,981	3,061	3,122	3,172	17.31%
Dundee UGB	0.62%	3,265	3,420	3,519	3,607	3,695	13.17%
Gaston UGB[3]	-7.03%	674	151	150	152	157	-76.71%
Lafayette UGB	1.19%	4,714	4,923	5,259	5,605	5,976	26.77%
McMinnville UGB	**0.83%**	**34,612**	**37,043**	**38,510**	**39,773**	**40,873**	**18.09%**
Newberg UGB	1.51%	26,728	29,421	31,768	34,003	36,102	35.07%
Sheridan UGB	0.56%	5,987	6,460	6,588	6,665	6,695	11.83%
Willamina UGB	1.30%	1,371	1,497	1,608	1,702	1,775	29.47%
Yamhill UGB	0.65%	1,226	1,287	1,334	1,369	1,395	13.78%
Outside UGB Areas	-0.02%	24,879	24,283	24,680	24,841	24,771	-0.43%
Total		109,743	115,972	121,263	125,879	129,870	18.34%

Source: Population Research Center, Portland State University, December 2023.
1. AAGR 2023-2043, except Oregon (2023-2033)
2. Oregon's Annual Population Forecast 2023-2033
3. Gaston City is located within Yamhill and Washington County
4. 2023 Annual Population Report April 16, 2024

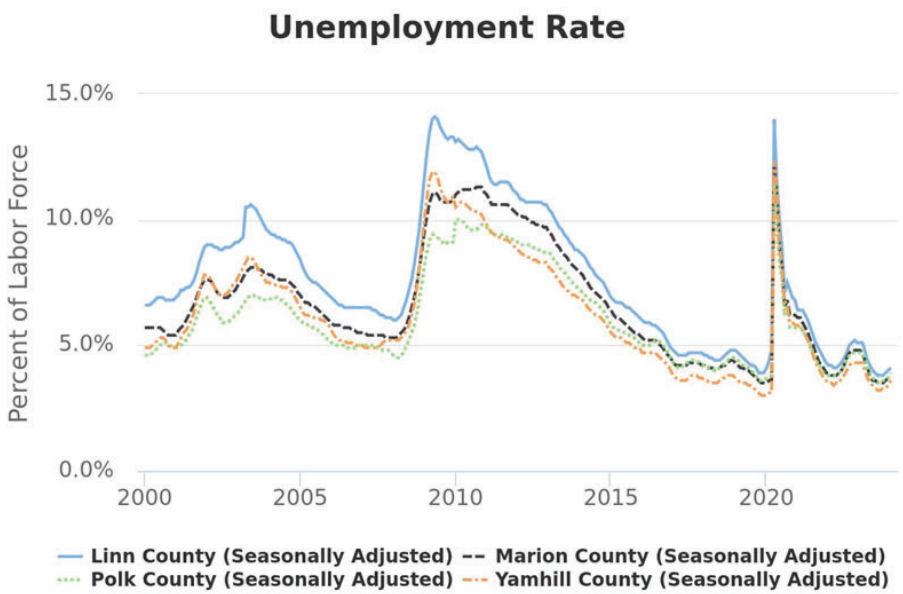
Added on 06.13.2025
Revised on 06.16.2025

EMPLOYMENT

Oregon Employment Department (OED) data indicates the total employment for Yamhill County in 2022 was 37,852. OED data indicate that between 2013 to 2022 nonfarm employment in Yamhill County increased at an average of 1.64% per year, with nearly all employment sectors experiencing growth. Annual employment levels fluctuated within a range of 32,173 to 37,852 during the ten-year period, within a moderate growth trend. Average income among all industries was $52,160, compared to the Oregon average of $66,342. As noted in Chapter 2, the leading employment sectors in Yamhill County include manufacturing, health care, retail, leisure and hospitality, and education. The county's employment base is relatively diverse and has experienced contractions and recoveries similar to Oregon as a whole during economic downturns. During the post-COVID period, unemployment levels have ranged from 3% to 4.5%. Peak unemployment levels during the height of the Great Recession and the COVID-19 pandemic were similar at 13.3% and 11.9% respectively. Historical unemployment rates for the local four-county region are presented in **Figure 3-1**.

The December 2023 OED Industry Employment Projection for the local four county region (Linn, Marion, Polk, and Yamhill) is presented in **Figure 3-2**. OED predicts a 10% increase in employment for the region between 2022 and 2032, which mirrors its employment forecast for Oregon (statewide). Based on current forecasts, employment levels will grow at just under 1% annually during the 10-year period. The forecast population and economic growth within the region (service area for MMV) is expected to contribute to increased aviation demand in the master planning horizon.

Figure 3-1: Historical Unemployment (Yamhill and Adjacent Counties)



Source: Oregon Employment Department Qualityinfo.org

Added on 06.13.2025
Revised on 06.16.2025

Figure 3-2: Projected Employment by Industry

Industry Employment Projections, 2022-2032 Linn, Marion, Polk, and Yamhill Counties	2022	2032	Change	% Change
Total employment	**297,600**	**326,400**	**28,800**	**10%**
Total payroll employment	277,500	304,900	27,400	10%
Total private	222,800	247,700	24,900	11%
Natural resources and mining	18,900	20,300	1,400	7%
Mining and logging	1,100	1,100	0	0%
Construction	18,200	20,900	2,700	15%
Manufacturing	26,900	28,600	1,700	6%
Durable goods	16,300	17,600	1,300	8%
Wood product manufacturing	4,600	4,800	200	4%
Nondurable goods	10,600	11,100	500	5%
Food manufacturing	5,100	5,300	200	4%
Trade, transportation, and utilities	46,200	50,300	4,100	9%
Wholesale trade	6,600	7,100	500	8%
Retail trade	28,200	28,900	700	2%
Transportation, warehousing, and utilities	11,500	14,200	2,700	23%
Information	2,200	2,500	300	14%
Financial activities	10,700	10,900	200	2%
Professional and business services	22,100	24,700	2,600	12%
Administrative and support services	11,000	11,600	600	5%
Private educational and health services	45,900	53,300	7,400	16%
Health care and social assistance	39,500	46,100	6,600	17%
Health care	29,400	34,200	4,800	16%
Leisure and hospitality	23,000	26,800	3,800	17%
Accommodation and food services	20,700	23,900	3,200	15%
Accommodation	1,500	1,800	300	20%
Other services	8,700	9,400	700	8%
Government	54,700	57,200	2,500	5%
Federal government	2,100	2,100	0	0%
Federal government post office	800	700	-100	-13%
State government	24,100	25,400	1,300	5%
Local government	28,500	29,700	1,200	4%
Local government education	16,000	15,900	-100	-1%
Self-employment	20,100	21,500	1,400	7%

Source: Oregon Employment Department, Workforce and Economic Research Division; Published: December 21, 2023

National General Aviation Activity Trends

The first quarter of the 21st Century has presented numerous challenges for the General Aviation (GA) industry. On a national level, most measures of GA activity declined sharply during the Great Recession, rebounded, then declined and rebounded again during and after the COVID-19 pandemic.

Aircraft manufacturing, for example, hit a low point in 2010 after several years of growth, then rebounded and experienced relatively stable year-over-year growth through 2023 with one notable exception. The COVID-19 pandemic abruptly slowed worldwide deliveries of GA aircraft in 2020, yielding a 11.8% (418 aircraft) decrease compared to 2019. During this period, business jet deliveries declined by 18.5% (247 aircraft), turboprops by 15.6% (82 aircraft), and helicopters by 19.2% (168 aircraft), while piston-powered aircraft declined by less than 1% (3 aircraft). Deliveries for 2023 continued to show signs of recovery with four consecutive years of net increases. 4,070 civil aircraft deliveries were recorded in 2023, which represents a 30.6% increase (953 aircraft) over the recent low from 2020[1].

The FAA performs an annual assessment of U.S. civil aviation through its FAA Aerospace Forecast. The 20-year forecasts are updated annually by evaluating recent events and established trends affecting a wide range of commercial and GA segments. Broad economic conditions and current forecasts are examined in order to provide reasonable expectations for aviation within the broader U.S. and global economy. The FAA forecasts examine in detail several key aviation industry indicators including fuel prices, production, and supply; aircraft manufacturing trends; aircraft ownership trends; fleet and pilot attrition; flight training trends; advances in fuel, engine, avionics, and airspace technology (ADS-B NextGen, etc.); and on-demand air travel. This array of factors is reflected in the FAA's overall assessment of future U.S. aviation activity. The 2024-2044 forecast factored in the post-COVID-19 pandemic response period (through 2023) in both historical data and forecasts. Overall, the long-term outlook for general aviation is notably stronger than presented in the 2023-2043 forecast.

The active U.S. GA fleet has fluctuated within a slight overall decline since 2001. This trend coincides with other GA industry trends including aviation fuel consumption, hours flown, IFR enroute air traffic, operations at towered airports, active pilots, etc. The total U.S. GA fleet in 2023 was 209,730, down about 6% since 2010. However, it is worth noting that GA fleet has experienced four consecutive years of modest growth since 2020. The strongest growth among aircraft segments is for turbojets and light sport aircraft.

The FY 2024-2044 Aerospace Forecast predicts that the active GA aircraft fleet will grow at an average annual rate of approximately 0.4% through 2044 (forecast assumptions summarized below). Although the FAA maintains a favorable long-term outlook for general aviation, many of the activity segments associated with piston engine aircraft and aviation gasoline (AVGAS) consumption are not projected to return to "pre-Great Recession" levels within the 20-year forecast.

Key takeaways from the FAA 2024-2044 Aerospace Forecast Highlights are summarized below:

Positive Activity Indicators

- Turbine aircraft (turboprop, turbojet, helicopter) fleet and hours flown will grow.
- Sport and Experimental aircraft fleet and hours flown will grow.
- Piston Rotorcraft fleet and hours flown will grow.
- Jet fuel consumption will grow.
- The number of active Sport, Commercial, Airline Transport, Rotorcraft only, and Instrument rated pilots will grow.
- Total GA fleet will grow.
- GA Enroute IFR air traffic will grow.
- GA Operations at towered airports will grow.

1 GAMA Aircraft Shipment Report (2023 year end).

Negative Activity Indicators

- Fixed-wing Piston aircraft fleet and hours flown will decline.
- AVGAS consumption will decline.
- The number of active Private pilots will decline.

The cited measures of national general aviation activity are intended to reflect the broad expectations defined by FAA, which have varying relevancy to MMV. A growing percentage of the single-engine aircraft based at the Airport are kit-built or light-sport aircraft (LSA). These aircraft have very similar facilities and operational requirements as traditional single-engine piston (SEP) aircraft, and for planning purposes are included in the SEP group.

It is recognized that trends experienced at individual airports often deviate from system wide trends, and generally reflect localized factors. In its current forecast, the FAA expects general aviation to experience modest growth overall. The FAA's annual growth assumptions for individual general aviation activity segments are summarized in **Table 3-3**.

Table 3-3: FAA Long Range Forecast Assumptions (U.S. General Aviation)

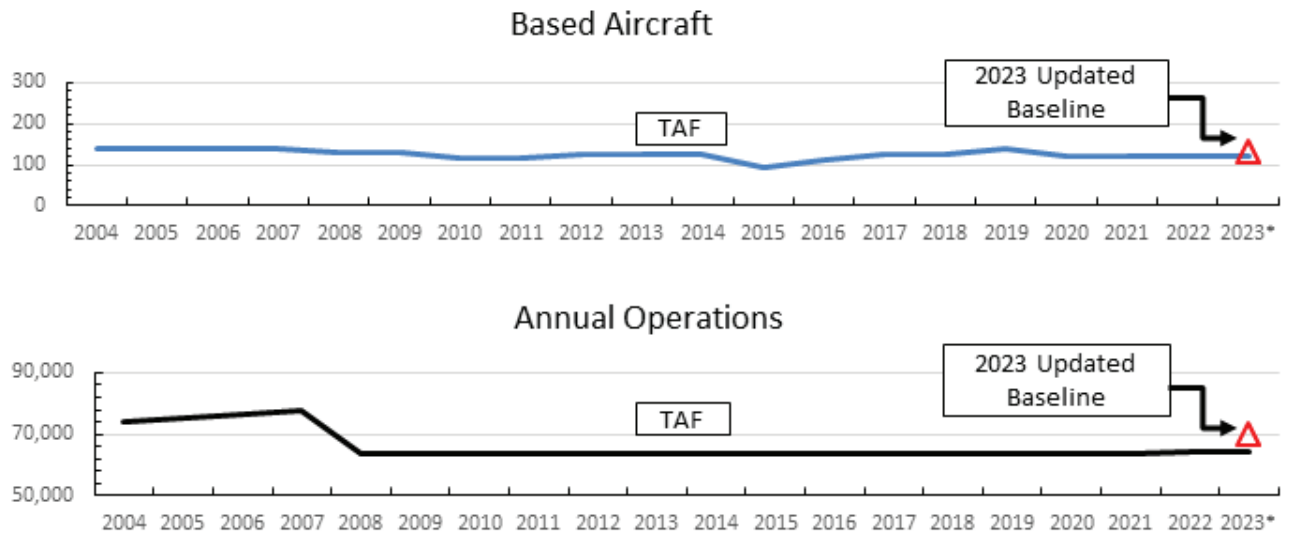
Activity Component	Forecast Average Annual Growth Rate (2024-2044)
Aircraft in U.S. Fleet	
Single Engine Piston Aircraft in U.S. Fleet	-0.20%
Multi-Engine Piston Aircraft in U.S. Fleet	-0.30%
Turboprop Aircraft in U.S. Fleet	1.00%
Turbojet Aircraft in U.S. Fleet	2.60%
Experimental Aircraft in U.S. Fleet	0.70%
Light Sport Aircraft in U.S. Fleet	3.00%
Piston Helicopters in U.S. Fleet	0.80%
Turbine Helicopters in U.S. Fleet	2.00%
Active GA Fleet (# of Aircraft)	0.40%
Active Pilots in U.S.	
Sport Pilots	2.40%
Private Pilots	-0.10%
Commercial Pilots	0.10%
Airline Transport Pilots	0.70%
Instrument Rated Pilots	0.40%
Student Pilots (Indicator of flight training activity)	-- (SEE NOTE 1)
Active GA Pilots (All Ratings, Excluding Student Pilots)	0.40%
Hours Flown in U.S.	
Fixed Wing Piston Aircraft	-0.70%
Fixed Wing Turbine Aircraft	2.10%
Rotorcraft Piston Aircraft	1.50%
Rotorcraft Turbine Aircraft	2.20%
Experimental Aircraft	1.20%
Light Sport Aircraft	3.50%
Total GA Fleet Hours	0.80%
Fuel Consumption in U.S.	
AVGAS (Gallons consumed - GA only)	-0.50%
Jet Fuel (Gallons consumed - GA only)	1.70%

Source: FY 2024-2044 FAA Aerospace Forecast
1. Change in FAA certificate expiration; now excluded from forecast

TERMINAL AREA FORECAST

The FAA Terminal Area Forecast (TAF) for MMV, published January 2024, provides historical and forecast data for the period 1990-2050. Historical TAF based aircraft and annual aircraft operations data for the period following the last master plan (2004-2023) are presented in **Figure 3-3**. It is noted that historical TAF data are not verified but provide a general frame of reference for the current planning evaluation. The 2023 baseline activity levels developed for the master plan (see **Table 3-6**) are depicted for reference.

Figure 3-3: FAA Terminal Area Forecast (MMV) - 2004-2023 Historical Data



INSTRUMENT FLIGHT PLAN DATA (TFMSC)

The FAA tracks flight activity for aircraft operating under instrument flight rules (IFR) in the national airspace system using Traffic Flow Management System Counts (TFMSC). The TFMSC data captures all filed civil aircraft instrument flight plans by originating or destination airports. For planning purposes, military aircraft are not included in the FAA instrument flight plan data.

A 10-year summary of TFMSC instrument flight plan data for MMV is provided in **Table 3-4**. The data are summarized by aircraft approach category (AAC) and airplane design group (ADG). These designations are similar to those previously used by FAA to define Airport Reference Code (ARC). See T**able 3-10**, presented later in this chapter, for information about the AAC and ADG categories.

TFMSC data provides a reliable accounting of instrument flight plans filed to and from an airport and includes relevant aircraft-specific data such as type, AAC and ADG. However, TFMSC data only includes aircraft that have an active instrument flight plan filed on arrival or departure to/from the facility. This means that operations by aircraft that cancel their IFR flight plan enroute and proceed under VFR, or aircraft that depart an airport VFR and file an IFR flight plan enroute are not included in the count. To account for those operations, FAA directs planners to normalize the data by examining TFMSC-reported arrivals and departures, identify the higher of the arrival or departure count by aircraft type and multiply by two, effectively balancing arrivals and departures by aircraft type. This accounts for any operations performed under VFR and not included in the TFMSC data.

For non-towered airports such as MMV, TFMSC data provides the only tabulated operational data specifically attributed to the airport. Although IFR flight plans account for only a small percentage of aircraft operations at most non-towered airports, they reliably capture the majority of activity generated by turbine business-class aircraft, which operate predominantly on IFR flight plans. At MMV, this data provides the best indication of business class turbine aircraft activity for the purposes of defining the design aircraft for the primary runway.

Table 3-4: MMV – Instrument Flight Plan Data – Annual Aircraft Operations (2014-2023)

AAC/ADG	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	10-year Average
A-I	922	910	1072	566	758	1184	1390	1310	1622	1454	1119
A-II	78	76	114	176	130	240	106	202	226	284	163
B-I	332	462	458	288	314	390	236	312	340	426	356
B-II	428	358	408	184	284	424	392	402	416	370	367
C-I	38	34	30	8	44	26	6	22	6	22	24
C-II	156	182	128	82	98	166	90	142	208	284	154
C-III	4	4	32	26	28	16	20	16	32	26	20
D-I	0	0	0	0	0	0	0	0	0	0	0
D-II	8	32	4	0	4	4	0	6	0	6	6
D-III	0	4	2	12	4	4	10	6	0	2	4
TOTAL	1,958	2,026	2,242	1,330	1,656	2,446	2,240	2,406	2,850	2,866	2,202

Source: FAA TFMSC Report – 04/15/24 (McMinnville Municipal Airport)

Details about aircraft usage will be provided in the aircraft fleet mix and design aircraft sections, later in the chapter. However, the 2023 data presented in **Table 3-4** indicates that MMV accommodated 972 operations by ADG II or larger aircraft, and 1,128 operations from AAC B or above aircraft. This level of activity is sufficient to support a B-II design aircraft for the primary runway. The volume of AAC C or D operations in 2023 totaled 340, which is below the FAA-defined threshold of 500 annual operations required for design aircraft designations. It is assumed that the majority of the AAC B, C, and D instrument activity at MMV is accommodated on Runway 4/22.

Current Aviation Activity

New aviation activity forecasts are required for the master plan's 20-year planning period (2023-2043). Calendar year 2023 was used as the baseline to define current activity and the projections of based aircraft and aircraft operations (takeoffs and landings). Detailed breakouts of fleet mix and other operational factors will be applied to the recommended forecasts.

BASED AIRCRAFT

An updated count of 128 based aircraft at MMV was verified by airport management and FAA in January 2024 following a detailed review of the FAA's National Based Aircraft Inventory (www.basedaircraft.com). This update provides the "validated count" based aircraft, using FAA criteria, to represent the baseline activity level for the master plan evaluations. It is noted that an additional 40 aircraft are listed in the airport inventory but are not included in the validated count for a variety of reasons. These include invalid registrations, expired airworthiness certificates, or duplicate listings (aircraft shown at more than one airport). In the event that a significant number of these aircraft are returned to active service or otherwise are verified on site in the future, it could result in growth that may exceed the recommended forecast rate.

A total of 7 gliders are noted "below the line" in the inventory report, but based on current FAA counting criteria, gliders (and ultra lights) are not included in either the airport inventory or validated counts. Lastly, it is important to note that aircraft located off airport property (e.g., TTF aircraft) are not included in the Airport's based aircraft inventory, based on current FAA criteria.

For the purpose of comparing current based aircraft with activity documented in the 2004 ALP Report, it is noted that gliders (21) and TTF aircraft (19 - Evergreen) were previously included in the 150 based aircraft total for 2003 (baseline).[2] Using current FAA counting criteria, the total would be 110 aircraft. This indicates that the number of

2 2004 McMinnville Municipal Airport ALP Report – Table 3-3 MMV Based Aircraft (2003)

based aircraft at MMV increased by 18 aircraft (+16.4%) between 2003 and 2023. The 2023 based aircraft total for MMV is summarized in T**able 3-5**.

The new validated based aircraft count for the Airport was approved and accepted by FAA in January 2024. The FAA requires that the (2023) validated count serve as the common baseline for all based aircraft forecast models in the Airport Master Plan. Other existing FAA data sources reporting based aircraft (5010-1 Airport Record Form, Terminal Area Forecast, etc.) will be updated for consistency with the current validated count.

Table 3-5: Based Aircraft And Fleet Mix (2023)

Aircraft Type	
Single-Engine	100
Multi-Engine	7
Jet	2
Helicopter	19
Total	**128**

Source: FAA National Based Aircraft Inventory Report – 01/15/24 (Validated Count McMinnville Municipal Airport)

Aircraft Operations

Since MMV is a non-towered airport, actual air traffic counts are not generated. Based on limited data availability, developing an estimate of current operations by reviewing known activity segments is recommended. The baseline estimate represents a combination of locally based and transient activity, which includes instrument flight plan data (TFMSC). The (2023) baseline will be used for all forecast operations models developed for the master plan. Additional operational details are summarized below and in **Table 3-6**.

FAA Automatic Dependent Surveillance – Broadcast (ADS-B) data is becoming increasingly available as a source to verify actual aircraft activity, including activity at specific airports. However, current ADS-B applications are limited and do not provide fully detailed datasets for airports like MMV. It is anticipated that in the future, ADS-B will provide increasingly accurate assessments of aircraft activity that are compiled system wide.

FLIGHT TRAINING

MMV accommodates fixed wing and helicopter flight training activity, from both locally based flight schools and transient flight training aircraft from several nearby airports. The MMV-based flight schools were surveyed to provide information about their aircraft fleets, volume of flight activity, active students, etc. Their flight training activities include pattern work (touch and goes), local area flight training, itinerant flight training (cross country flights, etc.), and practice instrument approaches. Off-airport flight schools were contacted to provide basic information about their use of MMV. These operators do not maintain detailed activity data specific to MMV, so estimates of activity were made based on reported typical weekly or daily use. The majority of this flight training consists of pattern work and practice instrument approaches.

Jerry Trimble Helicopters (JTH)

Jerry Trimble Helicopters (JTH) provides helicopter and fixed wing flight training from their MMV base. JTH's current fleet consists of 11 aircraft including piston and turbine helicopters, and single-engine and multi-engine piston aircraft. In 2023, JTH averaged 25 active students and 10 certified flight instructors (CFI). Their current activity split is approximately 75% helicopter/25% fixed wing. JTH indicates that the current ratio of students / instructors / aircraft at their MMV base is near optimal in efficiency and there are no current plans to expand operations. Hangar capacity at MMV is also cited as factor limiting growth in JTH's operations. In calendar year 2023, JTH reported a total of 5,368 logged flight hours, with 3,956 flight hours for helicopters and 1,412 flight hours for fixed wing aircraft. The hourly flight activity is translated into aircraft operations by using average utilization ratios in **Table 3-6**, at the end of this section.

Potcake Aviation

Potcake Aviation, the local fixed base operator (FBO), provides fixed wing aircraft flight training with two single-engine piston aircraft, with plans to add a multi-engine piston aircraft. In 2023, Potcake averaged 2 to 3 active students and 1 to 2 certified flight instructors (CFI). Potcake reported a total of 127 logged flight hours in its single-engine aircraft fleet in 2023. As with JTH, this flight activity was also translated into aircraft operations by using average utilization ratios in **Table 3-6**.

Area Flight Schools

As part of the master plan data collection, local users reported significant flight training activity at MMV generated by off-airport flight schools. The consultant identified 11 area flight schools located within 25 nautical miles of MMV. The use of multiple airports is common practice among area flight schools to effectively manage their aircraft fleets and avoid over-congestion. When contacted, five of the eleven schools were either non-responsive or indicated that they do not regularly operate at MMV. The remaining six schools indicated that they regularly operate at MMV for fixed wing aircraft flight training. The operators reported multiple trips daily/weekly from airports including Aurora State, Independence State, Albany, Twin Oaks, Chehalem Airpark, and Hillsboro. Since MMV is not the primary airport for these operators, detailed records of aircraft activity at MMV are not maintained. The evaluation focused on their typical use and estimated volumes for specific types of training activities. The operators report using MMV primarily for pattern work (touch and go landings, etc.) and practice instrument approaches. The operators report that MMV is an ideal airport for flight training, and the simplified airspace associated with a non-towered airport is a major factor in its use and convenience.

For planning purposes, the volume of transient aircraft flight training activity at MMV is estimated at 400 operations per week, or about 21,000 operations annually. The fleet of transient flight training aircraft that regularly operate at MMV is estimated to be greater than 50. This flight activity is included in the baseline operations estimated in **Table 3-6**.

AIRCRAFT OPERATIONS – BASELINE (2023)

The estimate of current aircraft operations at MMV is based on six activity segments: three flight training groups (locally based helicopter, locally based fixed wing, and transient fixed wing); locally based commercial operators; other general aviation flight activity; and military activity.

Locally based flight school operators were surveyed about their current volume of flight activity. Based on survey responses, activity was estimated using the reported flight hours and an average of 5 operations per flight hour. This hourly average captures the combination of multiple touch and go landings when aircraft are conducting pattern work, and individual takeoffs or landings on training flights outside the pattern (VFR practice area, cross country flights, etc.). The combination of MMV-based fixed wing and helicopter flight training activity is currently estimated to exceed 27,000 annual operations.

The annual activity generated by area flight schools noted above is based on an estimate of 400 operations per week on a year-round basis. This flight volume reflects regular use of the Airport, which consists primarily of pattern work and practice instrument approaches in visual conditions. Although daily or seasonal peaks may exceed these levels, the weekly average reflects variable weather-related and seasonal reductions, common with flight training. Overall, this activity is currently estimated to exceed 21,000 annual operations.

Locally based commercial users at MMV (Precision, and NW Air Repair) generate activity through their own aircraft and transient maintenance customers. This fixed wing and helicopter activity is estimated at 1,000 operations per year. Precision reports that a large percentage of their fleet's flight activity is not generated at MMV since their aircraft are often assigned to extended contracts away from the Airport. NW Air Repair reports a steady volume of transient piston engine aircraft service customers on a weekly basis, in addition to their MMV-based customer base.

The input used to estimate general user activity involves assigning a common aircraft utilization factor to the non-duplicated based aircraft. The operations to based aircraft (OPBA) ratio is a common method of estimating air traffic at non-towered airports. With flight training accounted for, this OPBA captures other activity from locally based aircraft and transient aircraft, including the 2,866 operations documented in the FAA's TFMSC instrument flight plan data for 2023. Based on the 2023 non-duplicated validated based aircraft count (128-14=114) and an OPBA of 175, this activity is estimated at 19,950 annual operations. It is noted that the equivalent full OPBA in 2023 for all MMV based aircraft, including flight training aircraft is 543 (excluding military activity).

Military activity at MMV is limited and typically consists of helicopters and fixed wing aircraft, including Oregon Air National Guard aircraft. The FAA Terminal Area Forecast (TAF) currently lists 1,500 annual military operations for MMV, although there is no record of specific activity. For planning purposes, 500 annual operations are assumed, which includes common training activities, search and rescue flights and responses to extreme weather events or natural disasters. It is noted that a variety of military aircraft, including large transports, conduct practice instrument approaches at MMV without completing full landings. These flights are not included in the aircraft operations totals.

Table 3-6 summarizes the estimate of MMV aircraft operations for 2023. It is noted that the updated baseline (69,942) is 8.6% higher than the FAA TAF annual operations total (64,418) for 2023.

Table 3-6: Baseline – MMV Air Traffic Estimate (2023)

	Activity Segment	Base Metric (Aircraft Fleet) (1)	Factor 1 Flight Hours (2)	Factor 2 Multiplier (3)	Total Operations
A	MMV-Based Flight Training (HELI)	8	3,956	5	19,780
B	MMV-Based Flight Training (FW)	6	1,539	5	7,695
C	Other Area Flight Schools Training (FW/HELI)				21,017
D	MMV Commercial Tenant Activity (FW/HELI)				1,000
E	Non-Duplicated MMV-Based Aircraft OPBA (4)	114		175	19,950
F	Military				500
	Total Aircraft Operations (2023)				**69,942**

1. Number of active aircraft (2023), reported by operators.
2. 2023 flight hours reported by MMV-based operators.
3. Average operations per flight hour (estimated by CWE) based on common aircraft utilization in flight training.
4. OPBA Ratio, consistent with FAA NPIAS guidance, includes TFMSC activity.

MMV AVIATION FUEL ACTIVITY

Aircraft fueling data provides a general indication about an airport's activity trends over time. The ability to compare overall fueling volumes and volumes by grade often provides some insight into aircraft-specific activity. **Table 3-7** summarizes the MMV aviation gasoline (AVGAS) and jet fuel sales for 2018-2023 previously presented in Chapter 2.

Table 3-7: Historical Fuel Sales (MMV)

	2018	2019	2020	2021	2022	2023
AVGAS	16,490	13,487	21,220	27,702	75,309	82,231
Jet Fuel	120,141	157,096	106,504	138,341	155,251	174,111
Total	**136,631**	**170,583**	**127,724**	**166,043**	**230,560**	**256,342**

Source:

AVGAS

The fuel data highlight a significant increase in volume during the 6-year period that is partly due to the addition of reporting by Jerry Trimble Helicopters beginning in 2022. To illustrate this, the AVGAS volume in 2022 increased by 172% (+47,607 gallons) over 2021, but increased by 9% (+6,922) in 2023. Assuming similar AVGAS volumes in the preceding four years, MMV would have likely experienced mostly single-digit percentage annual increases during this period.

This is important to note since it represents a stronger local trend compared to national AVGAS consumption during this period (+0.3% annual average growth 2010-2023), and it significantly outperforms the current FAA long-term forecast decline (-0.5% annual average) in AVGAS consumption through 2044. It is evident that local AVGAS consumption is heavily influenced by MMV-based flight instruction (piston fixed wing aircraft and helicopters) that is combined with demand generated by other based aircraft (90%+ piston) and transient piston aircraft. The large volume of piston engine flight training activity generated by aircraft based at other nearby airports does not appear to significantly affect AVGAS demand at MMV since most of the aircraft fuel at their home airports.

It is recognized that future AVGAS consumption will be affected by external regulatory changes, the ability to bring the next generation AVGAS blend(s) to market for full adoption, and growth in aircraft electrification adoption or use of alternate fuels. However, the recent historical AVGAS trend at MMV documents strong underlying aeronautical demand that is expected to continue during the current 20-year planning period.

Jet Fuel

Jet fuel sales at MMV during this period reveals strong growth in business aviation activity driven by turbine aircraft. The linear trend line projection for 2018-2023 jet fuel sales reflects an average annual growth rate (AAGR) of approximately 6.38% with moderate year-to-year fluctuations, and one year of significant drop during the COVID-19 pandemic, both of which are consistent with industry trends.

The documented increase in jet fuel sales at the Airport during this period is consistent with the growth in turbine aircraft instrument flight plan activity presented in **Table 3-4**. The TFMSC data indicate that while all jet activity at MMV increased, larger business jet flights increased at a higher rate than smaller jets. In general, increased large aircraft activity would be expected to increase fueling volume overall and on a per-transaction basis.

Updated Aviation Activity Forecasts

The updated (2023) based aircraft count and aircraft operations estimate presented in **Tables 3-5** and **3-6** are used as the base for all new forecasts presented in this chapter. Since the baseline data were developed independently, they do not necessarily correspond to the TAF for 2023. TAF projections for 2023-2043 for based aircraft and annual aircraft operations are provided for FAA comparison, as required in their review and approval of master plan forecasts.

BASED AIRCRAFT

Four new based aircraft forecast models were developed by using a variety of methods, including application of historical trends (at MMV), FAA national general aviation fleet forecast rates, FAA TAF regional based aircraft forecast rates, and forecast growth in local economic output. The annual growth rates established by each of these models were applied to the 2023 based aircraft count to develop 2023-2043 forecasts. The based aircraft forecast models are briefly described below and summarized at the end of this section; **Table 3-8** and **Figure 3-4** present the preliminary based aircraft forecasts.

20-year Historical Trend

The 20-Year Historical Trend Model provides a simple evaluation of historical based aircraft at MMV over the last 20 years. As noted earlier in the chapter, the counting method currently used by FAA to determine an airport's based aircraft number is different than the method used in the 2004 ALP Report forecasts. In this case, the previous count included gliders and aircraft that operated at the Airport but were physically stored off airport property (known as TTF aircraft). These two groups of aircraft (now excluded) accounted for more than one-quarter (40 of 150) of the based aircraft listed at MMV in 2003. With these aircraft accounted for, the "adjusted" based aircraft total for 2003 was 110. The 2023 validated based aircraft count is 128, which shows a net increase of 18 aircraft (+16.4%) between 2003 and 2023. When evaluated over the 20-year period, annual growth averaged 0.7%.

The change in historic based aircraft totals for MMV from 2004 to 2023, although small, appears to be relatively consistent with actual based aircraft counts and documented hangar construction at the Airport. Significant changes have occurred at the Airport since the last master plan that are important to recognize. Evergreen a large through-the-fence operator has ceased operations at MMV. Evergreen accounted for 19 of the total based aircraft of 150 in 2004. Through-the-fence aircraft and gliders are not included in validated based aircraft counts, based on current FAA policy. A total of 21 gliders were included in the 2004 baseline for based aircraft. After subtracting Evergreen's based aircraft and the gliders, the remaining 111 aircraft may be compared to the 2023 validated based aircraft count.

Data anomalies (repeated years with no changes in aircraft totals) both before and subsequent to this period make valid assessments of those years challenging. Based on these factors, a two point 20-year (2004-2023) historic trend analysis was developed for MMV, which reflects an annual growth rate of 0.72%; and an increase of 17 aircraft (15.32% overall increase).

FAA Aerospace Forecast - General Aviation (GA) Fleet Model

The FAA produces a national forecast of commercial and general aviation (GA) activity that is updated annually. The current version, **FAA Aerospace Forecast - Fiscal Years 2024-2044**, provides 20-year projections of key activity segments from a 2023 base year. The FAA forecasts of the active GA aircraft fleet and flight activity are relevant for analysis and application to the master plan forecasting exercise for MMV.

The FAA forecast projects the active national GA and air taxi fleet by aircraft category beginning with forecast year 2024, 5-year increments from 2025 to 2040, then a final projection for 2044. The projections reflect expectations within the fleet including factors such as new aircraft manufacturing trends and fleet attrition, and broad national economic assumptions.

This forecast provides a "bottom-up" model that reflects growth expectations (raw numbers and annual growth rates) for each aircraft category independently, with the net increases/decreases tallied into totals. The forecast differentiates fixed wing aircraft, rotorcraft, experimental, and light sport aircraft. For fixed wing aircraft, the fleets are further categorized as single engine piston, multi engine piston, turboprop, and turbojet. Rotorcraft are categorized as piston or turbine.

The **FAA Aerospace Forecast GA Fleet Model** was developed by applying the forecast growth rates for each aircraft type included in the MMV based aircraft fleet over the 20-year planning period.

The model reflects long-term FAA assumptions that include declines in the single- and multi-engine piston aircraft fleet over the next 20 years, averaging -0.2% and -0.3% annually, respectively. The forecast projects the piston fleet to lose 6,280 aircraft by 2044. However, the outlook for other aircraft segments shows net increases across the board, with annual growth rates ranging from 0.7% to 3% during the forecast period. It is noted that the projected decline in the single-engine piston fleet appears to be offset by growth in light sport aircraft (LSA) and or experimental aircraft—the majority of which are single-engine piston (or electric) fixed wing aircraft. The FAA projects that fixed wing piston fleet will lose 6,280 aircraft by 2044, but the number of LSA and experimental aircraft will increase by 6,920. It is noted that approximately 16% of MMV's current single engine piston fleet are aircraft that are in the LSA or experimental category.

Reflecting the mix of aircraft types based at MMV, a composite annual growth rate of 0.27% is generated in this model. The **FAA Aerospace Forecast GA Fleet Model has an average annual growth rate (AAGR) of 0.27%**, which projects an increase of 7 aircraft, from 128 to 135, during the 20-year planning period (2023-2043). This model produced a 5.5% net increase in based aircraft over the 20-year planning period.

This composite fleet model reflects modest growth expectations for the national GA fleet during the next 20 years. However, it is important to note that MMV has largely avoided the national declines documented systemwide by FAA over the last 20 years for piston aircraft activity, in part due to growth in locally based flight training. This suggests that local or regional factors may not completely align with national trends and future expectations in the industry.

Non-Towered FAA Northwest Mountain Region Trend

The FAA Terminal Area Forecast (2023-2043) for the Northwest-Mountain Region (OR, WA, ID, MT, WY, UT, CO) projects that the based aircraft fleet will grow at an average annual rate of 0.82% between 2023 and 2043 for all GA non-towered airports. This indicates that although the forecast rate of growth is modest, the seven-state region is expected to be among the strongest in the nation for GA based aircraft growth over the next 20 years.

The **FAA TAF Northwest Region Model has an average annual growth rate (AAGR) of 0.82%**, which projects an increase of 23 aircraft, from 128 to 151, during the 20-year planning period (2023-2043). This model produced an 18% net increase in based aircraft over the 20-year planning period.

Yamhill County Gross Regional Domestic Product Forecast

Woods & Poole Economics, Inc. (W&P) forecasts[3] of Gross Regional Domestic Product (GDP) for Yamhill County and the state of Oregon were reviewed to gauge long term economic expectations as a potential indicator of airport activity trends. The use of regional socioeconomic conditions as a broad indicator of aviation activity is a generally accepted practice in instances where historical aviation data are limited. Although this model does not assume a statistical correlation between airport activity and regional economic output, it does assume that changes in airport activity will be similar to the anticipated growth in the local area. This growth is driven by increases in employment,

The W&P forecast indicates GDP in Yamhill County is expected to grow at average annual rate of 1.80% between 2021 and 2050, which closely trails the 1.86% annual growth rate projected for Oregon during the same period. The W&P forecasts suggest Yamhill County will experience modest growth in GDP that provides positive economic conditions.

The **Yamhill County GDP Forecast Model** has an **average annual growth rate (AAGR) of 1.77%**, which projects an increase of 54 aircraft, from 128 to 182, during the 20-year planning period (2023-2043). This model produced a 42% net increase in based aircraft over the 20-year planning period.

FAA TERMINAL AREA FORECAST (TAF) 2023-2043

The current TAF (APO Terminal Area Forecast Detail Report, Issued January 2024) projects an increase of 40 based aircraft at MMV in the period coinciding with the master plan's 20-year planning period (2023-2043). Based aircraft are projected to increase from 123 to 163 (+42%), which reflects an average annual growth rate (AAGR) of 1.42% over 20 years. As noted earlier, the TAF is provided for reference only and is not presented as one of the preliminary forecasts in the master plan. As an existing forecast, its base year number for 2023 has not been revised to match the updated baseline number used in each of the forecast models. It is noted that the recently updated 2023 validated based aircraft count for MMV is 4.1% higher than the 2023 TAF total.

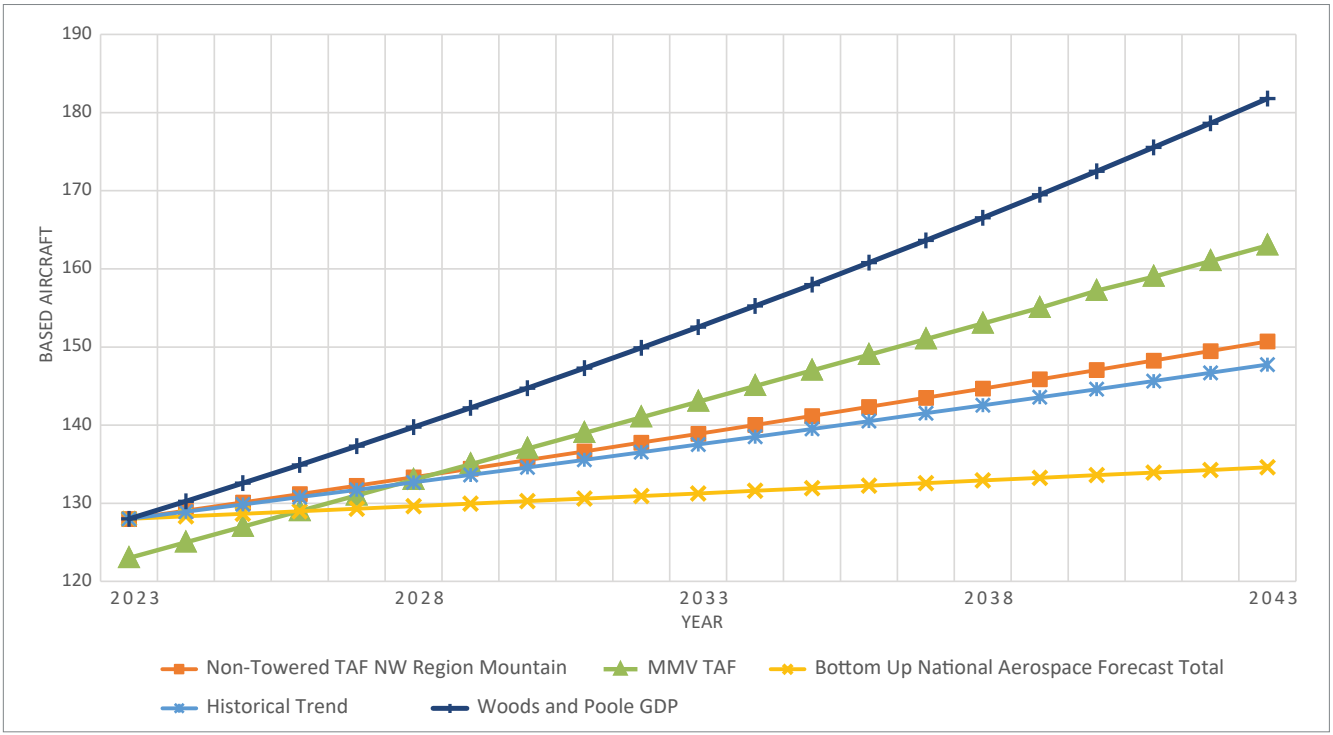
Table 3-8: Based Aircraft Forecast Models (MMV)

Aircraft Type	Growth Rate	2023	2028	2033	2038	2043
Yamhill County Forecast GDP 2019-2050	1.77%	128	140	153	167	182
Non-Towered NW-Mountain Region TAF 20-year (Recommended Forecast)	**0.82%**	**128**	**133**	**139**	**145**	**151**
Bottom-Up FAA National Aerospace Forecast	0.27%	128	130	131	133	135
Historical 20-Year Trend (MMV)	0.73%	128	133	138	143	148
TAF (2023-2043)	1.42%	123	133	143	153	163

Source: Century West Engineering

3 2021 State Profile - Idaho, Oregon and Washington, Woods & Poole Economics, Inc. © 2021 ISSN 800-1915

Figure 3-4: Based Aircraft Forecast Models (MMV)



Source: Century West Engineering

RECOMMENDED BASED AIRCRAFT FORECAST SUMMARY

The four based aircraft forecast models described above projected a range of 7 to 54 additional based aircraft at MMV by 2043. The average annual growth rates for three of the projections fell below 1%, while one projection nearly doubled the next highest growth rate.

The **FAA TAF Northwest-Mountain Region Model** is recommended as the based aircraft forecast for use in the MMV Master Plan. The forecast reflects an expectation that future growth in based aircraft at MMV will be consistent with the FAA's NPIAS forecast growth for the Northwest-Mountain region of the country. **The recommended forecast results in a net increase of 23 based aircraft over the 20-year planning period, which reflects an average annual growth rate of 0.82%**. The definition of based aircraft fleet mix is derived from the recommended based aircraft forecast.

Based aircraft forecasts are primarily intended to identify future facility needs in forthcoming sections of the master plan, particularly aircraft storage – apron parking and hangar space. Identifying development reserves is recommended for defining activity-dependent facility needs that may exceed forecast growth. To protect these needs, a development reserve that accommodates a number equal to the 20-year forecast increase of based aircraft (+23) is recommended. Accordingly, the long-term planning of landside facilities at MMV should be capable of accommodating 46 additional based aircraft (forecast + reserve) over the next 20 years.

BASED AIRCRAFT FLEET MIX

As noted in **Table 3-6**, the current based aircraft fleet at MMV includes single-engine and multi-engine piston aircraft, helicopters and jets. The Airport also accommodates a small number of conventional or powered gliders that are not included the FAA-recognized validated based aircraft count. Single-engine piston aircraft currently account for the majority (78%) of MMV based aircraft, followed by helicopters (15%), multi-engine piston aircraft (5%) and jets (2%). These distributions are expected to remain relatively unchanged during the 20-year planning, although as noted below, it is likely that changes within these aircraft groups will continue to occur. Local factors including fixed wing and helicopter flight training are expected to contribute to maintaining and growing the number of single-engine piston aircraft.

Added on 06.13.2025

Revised on 06.16.2025
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The ongoing system-wide retirement of legacy general aviation piston aircraft will continue through the planning period. The addition of new LSA and experimental aircraft as replacements to traditional piston aircraft is also expected to continue. The industry wide strength of fixed wing and rotor turbine aircraft production is also expected to affect the local based aircraft fleet at MMV, since many of these types of aircraft are already present. Operational fleet mix projections, presented later in the chapter, are expected to experience changes driven in part by transient aircraft, rather than exclusively by based aircraft. **Table 3-9** summarizes the current and forecast based aircraft fleet mix for the planning period.

Table 3-9: Based Aircraft Forecast - Fleet Mix Summary (MMV)

Aircraft Type	Updated Aircraft Count (2023)	2028	2033	2038	2043	20-year AAGR (2023-2043)
Single Engine Piston*	100	108	109	112	116	0.75%
Multi Engine Piston	7	8	8	8	8	0.67%
Jet	2	2	2	2	3	2.1%
Helicopter	19	20	21	22	24	1.18%
TOTAL	**128**	**138**	**139**	**145**	**151**	**0.82%**

Source: Century West Engineering
*Includes Experimental (Single Engine Piston) and Light Sport Aircraft

AIRCRAFT OPERATIONS

As noted in the description of current airport activity, nearly 70% of MMV's annual aircraft operations are related to fixed-wing and helicopter flight training. The Airport also currently generates more than 800 annual jet operations, most of which are from transient aircraft. The locally based aircraft fleet (128 in 2023) is responsible for generating a significant portion of flight training and general flight activity at MMV.

Three new aircraft operations forecast models were developed by using a variety of methods, including applying FAA national general aviation forecast rates and FAA TAF regional forecast rates, and a hybrid model that combines several different inputs. The annual growth rates established by each of these models were applied to the 2023 baseline aircraft operations total (presented earlier in **Table 3-6**) to develop 2023-2043 forecasts. The limited availability of historical airport operations data does not support complex statistical analyses such as regression analysis to identify potential correlations between airport activity and other external events.

All of the projections assume that existing activity segments, including the current volume of transient and locally generated flight training, are established at a level that can be sustained or grow incrementally during the planning period at rates comparable to other general aviation airports. The growth in business aviation activity, which is documented in turbine aircraft operating under instrument flight plans and increases in annual jet fuel sales volumes, reveals a strong business aviation component. This activity reflects the local area economy and the services provided to corporate aircraft at MMV.

The operations forecast models were prepared for comparison to the Terminal Area Forecast (TAF). The current TAF for MMV (APO TAF Detail Report 2023-2050, Issued January 2024) is provided for comparison only, as the TAF is not considered an acceptable forecast by FAA for master planning purposes. The TAF is presented as published and was not adjusted to match the updated baseline operations total.

The aircraft operations forecast models are briefly described below and summarized at the end of this section; **Table 3-10** and **Figure 3-5** present the preliminary aircraft operations forecasts.

FAA National Aerospace GA Hours Flown Growth Rate

The **FAA Aerospace Forecast - Fiscal Years 2024- 2044**, described earlier, projects a 0.8% average annual increase in general aviation hours flown within the FAA system through 2044. This growth rate was applied to the 2023 base year operations estimate for MMV to develop projections for the 20-year master planning period. This model assumes that aircraft activity at MMV will be consistent with FAA national expectations over the next 20 years.

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The **FAA Aerospace Forecast GA Fleet Model has an average annual growth rate (AAGR) of 0.8%**, which projects annual operations to increase from 69,942 to 80,108, during the 20-year planning period (2023-2043).

FAA Non-Towered NW Mountain Region TAF

The FAA Terminal Area Forecast (2023-2043) for the Northwest-Mountain Region projects that aircraft operations (all airports) will grow at an average annual rate of 1.19% between 2023 and 2043. By filtering out airports with air traffic towers, the remaining facilities include general aviation airports more similar to MMV. The resulting model projects a 1.36% average annual growth through 2043. This indicates that although the forecast rate of growth is modest, the seven-state region is expected to be among the strongest in the nation for growth in GA aircraft flight activity over the next 20 years.

The **FAA Non-Towered NW Mountain Region TAF Model** has an **average annual growth rate (AAGR) of 1.36%**, which projects annual operations to increase from 69,942 to 91,637, during the 20-year planning period (2023-2043).

HYBRID TFMSC JET/FAA NATIONAL AEROSPACE FORECAST/ FLIGHT TRAINING MODEL

Acknowledging the distinct activity segments at MMV, a hybrid forecast model (**Hybrid Traffic Flow Management System Counts (TFMSC) Jet/FAA National Aerospace Forecast/ Flight Training Model**) was developed to capture three different sources of aircraft operations at MMV:

1. General Aviation Flight Training

With approximately 70% of current air traffic at MMV generated through flight training, it is evident that the activity has an outsized impact on overall flight activity. A review of FAA data related to new flight students was performed to help gauge recent trends in the industry. These FAA data are considered particularly relevant because of the extended period of coverage (20 years), which contained two significant negative events more than ten years apart (The Great Recession and COVID-19 Pandemic). FAA Civil Airmen Statistics (2004-2024) indicate that annual growth averaged 0.88% for new Student Pilot Certificates issued over the period. The number of student pilot certificates is a primary indicator of flight training trends in the U.S. It is reasonable to assume that this trend is reflected in the volume of local and transient flight training aircraft currently operating at MMV daily.

2. Business Aviation (Business Jet Trends)

The FAA's TFMSC captures all civilian aircraft movements conducted on instrument (IFR) flight plans. Business class turbine aircraft are flown predominantly on IFR flight plans. For MMV, the current volume of business jet activity documented in TFMSC data is sufficient to support the design aircraft designation for the primary runway. These aircraft represent the most demanding aircraft currently operated at MMV on a regular basis. A review of 10 years of TFMSC data for MMV documents historical jet activity and defines the average annual growth rate at 3.35%. 812 jet operations were recorded at MMV in 2023, which is assumed to be an accurate baseline representation of jet activity at the Airport. Although these aircraft represent a small portion of total MMV operations (<1.2% in 2023), available data indicate a distinctly different historical trend exists that would support higher growth expectations in the future than might otherwise be experienced in other general aviation (GA) segments.

As noted earlier in the chapter, jet fuel sales at MMV during the last six years is consistent with strong growth in business turbine aircraft activity. Between 2014 and 2023, the volume of Jet A (gallons sold) appears to outpace jet and turboprop operations documented in TFMSC. During this period, annual jet fuel sales increased at an average annual growth rate of approximately 6.38% with moderate year-to-year fluctuations, and one year of significant drop during the COVID-19 pandemic, both of which are consistent with industry trends. The review of TFMSC data also confirmed that growth in larger, high-performance jets was higher than smaller jets. It is believed that the increase in larger aircraft activity at MMV accounts for much of the overall increase in jet fuel sales, which would be reflected in an increase in volume per sales transaction. Based on the variability in fueling activity, it appears reasonable to project future jet activity at MMV based on the 3.35% average annual growth rate (AAGR) from the most recent 10-year period documented in TFMSC. The differentiation in types of jet aircraft activity documented through TFMSC data should be reflected in the forecast operations fleet mix, regardless of the selected forecast model.

3. Other General Aviation Activity

A composite growth rate was defined for all other general aviation activity at MMV based on the FAA Aerospace Forecast - Fiscal Years 2024- 2044 (Active General Aviation and Air Taxi Hours Flown). This segment of activity excludes the flight training and TFMSC activity noted above and captures the remaining non-duplicated locally based and transient aircraft activity. Single engine and multi engine piston hours flown in 2023 accounted for 52% of the total hours for active GA and Air Taxi, which drops to 38% by 2044. Due to the negative growth rates assigned nationally to single-engine and multi-engine piston aircraft in the FAA Aerospace Forecast, the resulting projected growth rate for this segment of activity at MMV is approximately 0%. This input tempers the projected growth identified for the other two segments in the model.

Summary

With flight training, TFMSC activity, and the remaining general aviation activity accounted for proportionally, the resulting average annual growth rate (AAGR) for the **Hybrid TFMSC Jet/FAA National Aerospace Forecast/ Flight Training Model is 0.68%**. This model projects annual operations to increase from 69,942 to 80,108, during the 20-year planning period (2023-2043).

TAF 2023-2043

The current TAF (APO Terminal Area Forecast Detail Report, Issued January 2024) projects MMV annual operations to increase from 64,418 to 85,894 operations in the period coinciding with the master plan's 20-year planning period (2023-2043), which reflects an average annual growth rate (AAGR) of 1.45% over 20 years. As noted earlier, the TAF is provided for reference only and is not presented as one of the preliminary forecasts in the master plan. As an existing forecast, its base year number for 2023 has not been revised to match the updated baseline number used in each of the forecast models. It is noted that the 2023 baseline aircraft operations estimate for MMV is 8.6% higher than the 2023 TAF total.

RECOMMENDED AIRCRAFT OPERATIONS FORECAST SUMMARY

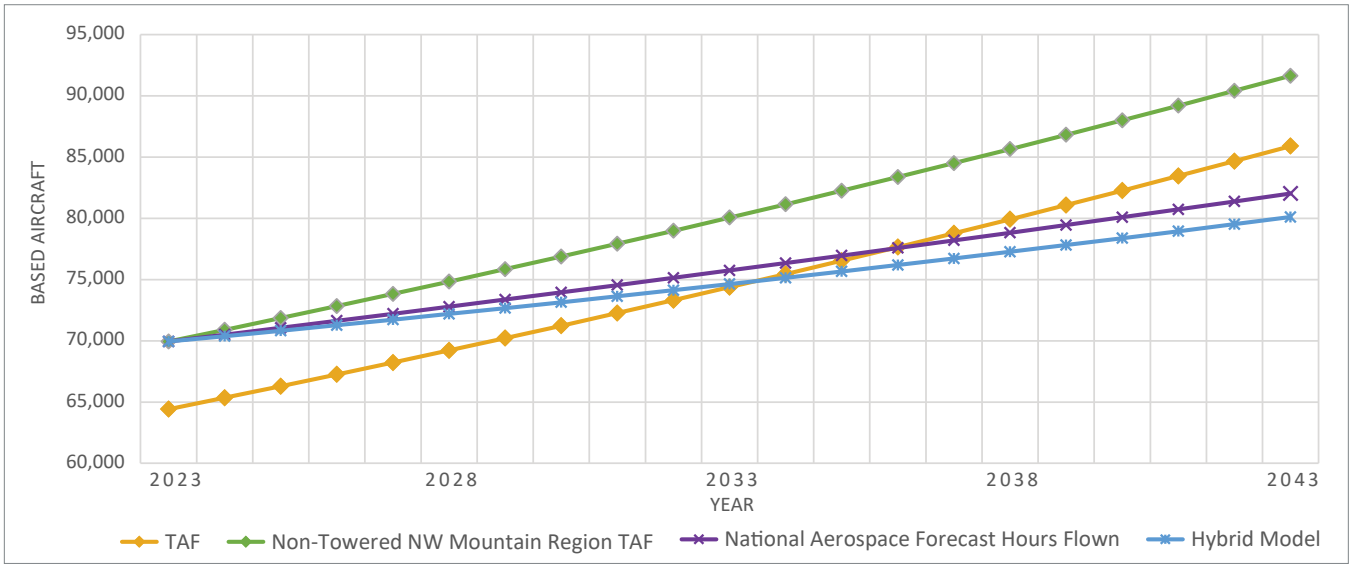
Based on a review of the preliminary forecast models, the **Hybrid TFMSC Jet/FAA National Aerospace Forecast/ Flight Training Model** is recommended as the preferred aircraft operations forecast for use in the MMV Master Plan. The model has an **average annual growth rate (AAGR) of 0.68%**, which projects annual operations to increase from 69,942 to 80,108, during the 20-year planning period (2023-2043). This model best captures the current and recent historical growth in flight training and business aviation at the MMV, which is expected to continue and provides a reasonable basis to project future activity. The aircraft operations forecast models that were evaluated, including the recommended model, are summarized in **Table 3-10** and depicted on **Figure 3-5**.

Table 3-10: Forecast Annual Operations Rates (MMV)

Forecast Model	AAGR	2023	2028	2033	2038	2043
National Aerospace Forecast Hours Flown	0.80%	69,942	72,785	75,743	78,822	82,025
Non-Towered NW Mountain Region TAF	1.36%	69,942	74,829	80,058	85,652	91,637
Hybrid Model (Recommended Forecast)	**0.68%**	**69,942**	**72,040**	**74,412**	**77,089**	**80,108**
TAF (2023-2043)	1.45%	64,418	69,216	74,374	79,923	85,894

Source: Century West Engineering
Note: Each forecast model includes a static number (500) military operations.

Figure 3-5: Aircraft Operations Forecast Models (MMV)



Source: Century West Engineering

LOCAL AND ITINERANT OPERATIONS

Aircraft operations consist of aircraft takeoffs and landings that are classified as local or itinerant. Local operations are conducted in the vicinity of an airport and include flights that begin and end at the airport. These may include flights to local practice areas for flight training, touch and go operations in the airport traffic pattern, sightseeing and other flights that do not involve a landing at another airport. Itinerant operations include flights between airports, including cross-country flights. Itinerant operations are also associated with business and personal travel.

The 2023 baseline aircraft operations estimate presented earlier in **Table 3-6** indicates that flight training accounts for approximately 70% of total operations, and the majority of this activity consists of local operations. The high volume of local operations at MMV is attributed to significant flight training traffic pattern work for both fixed wing aircraft and helicopters. These operations are generated by aircraft based at MMV and transient aircraft based at other nearby airports. Itinerant traffic is estimated to account for 30% of total MMV operations. The 2004 ALP Report estimated a 45%/55% split for local/itinerant aircraft operations.

A 70%/30% local/itinerant air traffic distribution is recommended for forecast aircraft operations during the planning period. The recommendation assumes that the current operational split will be maintained at approximately the same proportion of traffic during the planning period. This assumption is based on the well established presence of flight training at MMV, the type and number of area airports and flight schools currently involved in flight training, and the expectation that MMV will continue to attract significant flight training volume in the future. The local and itinerant distribution for each forecast year is summarized in **Table 3-11**.

Table 3-11: Itinerant/Local Operations Mix (MMV)

Forecast Model	2023	2028	2033	2038	2043
Total Itinerant Operations (30%)	20,983	21,612	22,324	23,127	24,033
Local Operations (70%)	48,859	50,428	52,088	53,962	56,075
Total Local & Itinerant Operations (100%)	**69,942**	**72,040**	**74,412**	**77,089**	**80,108**

Source: Century West Engineering

It is noted that the FAA TAF operational splits for MMV do not reflect current flight training activities, as described. The TAF's local and itinerant distributions are almost exactly opposite the traffic breakouts used to develop the 2023 baseline operations estimated. The TAF percentages for 2023 (65% itinerant and 35% local) are maintained through 2050.

AIRCRAFT OPERATIONS FLEET MIX

Based on available data, it estimated that small single-engine piston aircraft, multi-engine piston aircraft , and helicopters account for approximately 97% of current MMV operations. Fixed wing turbine aircraft (turboprops and jets) account for the remaining 3% of operations. Some shifts in activity are anticipated in the current planning period, consistent with national trends and local conditions. For national trends, aircraft activity segments are expected to follow the FAA's hours flown forecast for GA and air taxi aircraft in the FAA National Aerospace Forecast during the 20-year planning period. This includes modest declines in fixed wing piston activity, while helicopters and jet operations are expected to increase in both overall levels and in their portion of total activity. The upward trend for jet operations reflects the local trend observed over the last 10 years of TFMSC data. Helicopter operations are also projected to increase, in part driven by local flight training activities.

The aircraft operations fleet mix forecast is summarized in **Table 3-12**. Additional information about the current and future design aircraft for MMV's two runways is provided in the following section.

Table 3-12: Operations Fleet Mix (MMV)

Forecast Model	2023	2028	2033	2038	2043
Single Engine Piston[1]	44,273 (63%)	44,028 (61%)	43,685 (58%)	43,339 (56%)	42,990 (54%)
Multi Engine Piston	3,418 (5%)	3,447 (5%)	3,475 (5%)	3,504 (5%)	3,534 (4%)
Turbo Prop	803 (1%)	853 (1%)	906 (1%)	962 (1%)	1,020 (1%)
Jet	812 (1%)	950 (1%)	1,116 (2%)	1,318 (2%)	1,563 (2%)
Helicopters	20,036 (29%)	22,262 (31%)	24,730 (33%)	27,466 (36%)	30,501 (38%)
Military[2]	500 (1%)	500 (1%)	500 (1%)	500 (1%)	500 (1%)
Total Operations	**69,942 (100%)**	**72,040 (100%)**	**74,412 (100%)**	**77,089 (100%)**	**80,108 (100%)**

Source: Century West Engineering
1. Includes LSA and Experimental AC
2. Includes Fixed Wing (100) and Helicopter (400)
Percentages may not sum due to rounding

AIRCRAFT OPERATIONS FLEET MIX (DESIGN AIRCRAFT DETAIL)

The historical TFMSC instrument flight plan data for MMV presented earlier in **Table 3-6** documented the activity for the Aircraft Approach Category/Airplane Design Group (AAC/ADG) groupings used to determine the current design aircraft for the primary runway. As noted previously, the combined volume of B-II and greater jet aircraft activity (e.g., B-II + AAC C&D aircraft) at MMV, currently exceeds the FAA's regular use threshold of 500 annual operations. C&D jet operations currently fall below the design aircraft threshold. The majority of jet activity at MMV is accommodated on Runway 4/22 and this discussion applies to the current/future design aircraft for that runway.

Figure 3-6 depicts MMV's 10-year historical TFMSC activity for B-II jets and all C/D jets. The data indicate minor fluctuations in B-II or greater jet activity between 2014 and 2023, above and below the 500 annual operations threshold. However, it is noted that this activity has exceeded the B-II threshold in 6 of the last 10 years, and for the last 3 years, which coincided with the post-COVID pandemic recovery. It is also important to recognize that these minor fluctuations occurred within a significant (+43.6%) net increase of B-II and greater jet activity during the period.

While all TFMSC-documented jet activity at MMV increased by 39% between 2014 and 2023, activity generated by larger, or high-performance jets included in AAC C and D increased at a faster rate than AAC B jets (see **bold**). A review of the data suggests continued growth in higher performance jet activity at MMV has the potential to reach the FAA regular use threshold of 500 annual operations required to define the design aircraft (for Runway 4/22) during the current 20-year planning period.

2014 and 2023 TFMSC Jet Operations (MMV)			
	2014	2023	2014 - 2023
All Jets	(584 operations)	(812 operations)	(+39.0%/3.73% AAGR)
B-I Jets	(148 operations)	(184 operations)	(+24.3%/2.45% AAGR)
B-II Jets	(230 operations)	(286 operations)	(+24.3%/2.45% AAGR)
B-II+ Jets	(436 operations)	(626 operations)	(+43.6%/3.68% AAGR)
C-II+ Jets	**(168 operations)**	**(318 operations)**	**(+89.3%/7.35% AAGR)**
All C/D Jets	**(206 operations)**	**(340 operations)**	**(+65.1%/5.73% AAGR)**

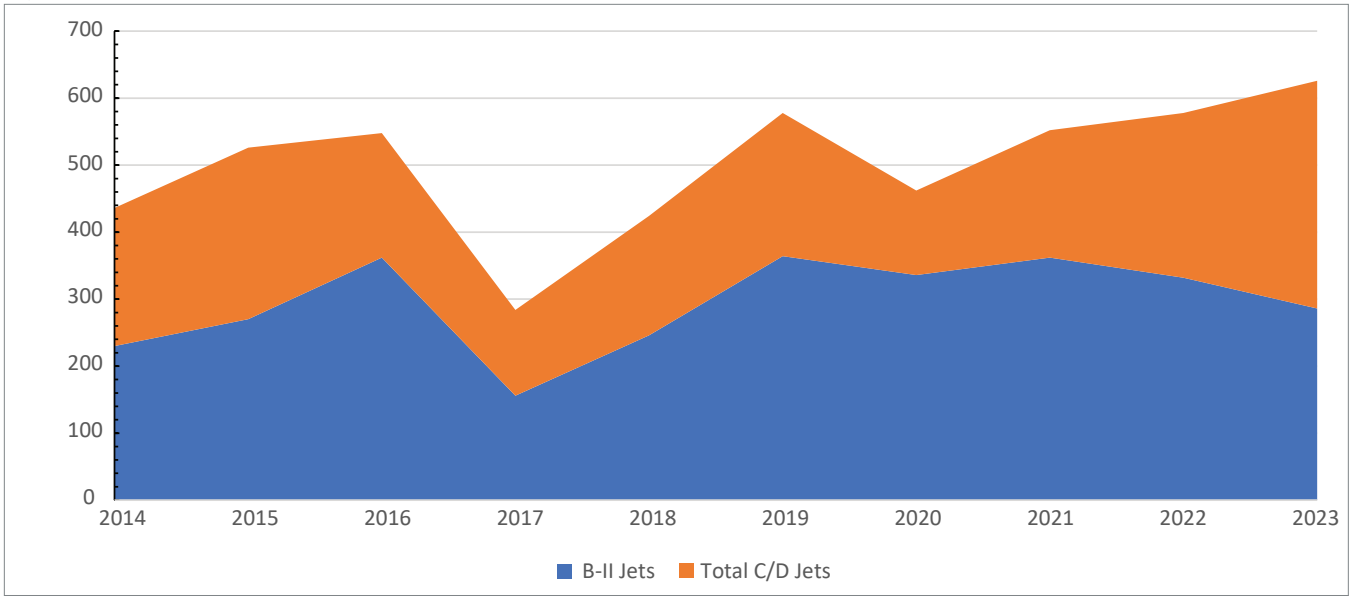
Table 3-13 summarizes TFMSC jet activity for this period associated with the applicable design aircraft categories (B-II, C/D-I, C/D-II, and C/D-III). **Figure 3-7** depicts MMV's TFMSC B-II and C&D jet activity for the most recent five years (2018-2023). The graph illustrates the noted upward trend for C&D jet operations and the modest net increase in B-II jet operations experienced during the period.

Table 3-13: TFMSC Historical Data: B-II Jet and C/D Jet Operations (MMV)

Activity	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2018-2023 AAGR	2014-2023 AAGR
B-II Jet	230	270	362	156	246	364	336	362	332	286	3.06%	2.45%
C/D-I	38	34	24	8	44	24	6	20	6	22	-12.94%	-5.89%
C/D-II	164	214	132	82	102	170	90	148	208	290	23.24%	6.54%
C/D-III	4	8	30	38	32	20	30	22	32	28	-2.64%	24.14%
Total C/D	**206**	**256**	**186**	**128**	**175**	**214**	**126**	**190**	**246**	**340**	**13.82%**	**5.73%**

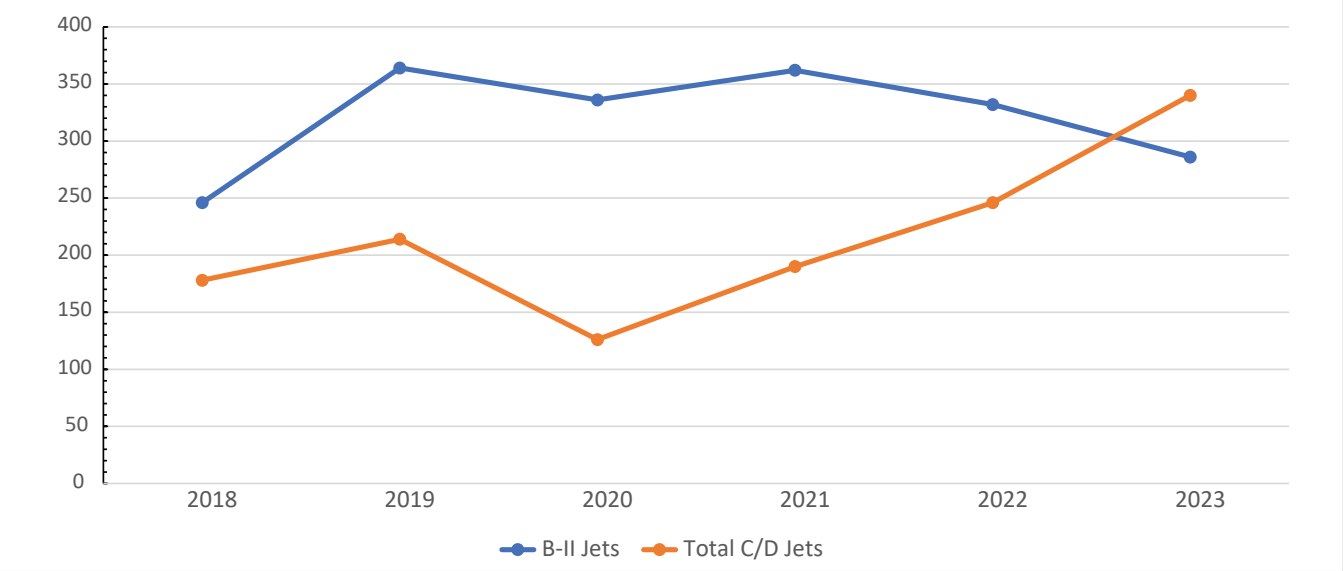
Source: TFMSC McMinnville Municipal Airport 2014-2023.

Figure 3-6: TFMSC B-II (Jets) and C/D (Jets)



Source: Century West Engineering

Figure 3-7: TFMSC B-II (Jets) and C/D (Jets)



Source: Century West Engineering

Design Aircraft

The selection of design standards for airfield facilities is based upon the characteristics of the most demanding aircraft that are expected to use the airport. This group of aircraft or aircraft type is designated as the "design aircraft" (also referred to as "critical aircraft" by FAA in certain applications). For airports with multiple runways, each runway is assigned a design category based on its design aircraft. The FAA provides the following definitions:

> *"The critical aircraft is the most demanding aircraft type, or grouping of aircraft with similar characteristics, that make regular use of the airport. Regular use is 500 annual operations, including both itinerant and local operations, but excluding touch-and-go operations. An operation is either a takeoff or landing." (FAA AC 150/5000-17)*

The FAA groups aircraft into five categories (A-E) based upon their approach speeds. Aircraft Approach Categories (AAC) A and B include small propeller aircraft, many small or medium business jet aircraft, and some larger aircraft with approach speeds of less than 121 knots (nautical miles per hour). Categories C, D, and E consist of the remaining business jets, and larger jet and propeller aircraft generally associated with commercial and military use with approach speeds of 121 knots or more. The FAA also establishes six (I-VI) Airplane Design Groups (ADG), based on the wingspan and tail height of the aircraft. The categories range from ADG I, for aircraft with wingspans of less than 49 feet, to ADG VI for the largest commercial and military aircraft.

The combination of ADG and AAC for the design aircraft creates the Runway Design Code (RDC), which is used to define applicable airfield design standards. This aircraft-specific designation was previously identified as the Airport Reference Code, or "ARC" on FAA-approved airport layout plan (ALP) drawings.

Table 3-14 summarizes FAA technical criteria used to determine the applicable AAC/ADG for aircraft based on physical characteristics; representative aircraft are also depicted.

Table 3-14: Representative Design Aircraft by AAC and ADG

Aircraft Approach Category (AAC)	Aircraft Approach Speed knots	Airplane Design Group (ADG)	Aircraft Wingspan
A	LESS THAN OR EQUAL TO 91	I	LESS THAN OR EQUAL TO 49'
B	92 TO 121	II	50' TO 79'
C	122 TO 141	III	80' TO 118'
D	142 TO 166	IV	119' TO 171'

A-I (small) 12,500 lbs. or less

Beech Baron 55
Beech Bonanza
Cessna 182
Piper Archer

B-I (small) 12,500 lbs. or less

Beech Baron 58
Beech King Air C90
Cessna 402
Cessna 421

A-II, B-II (small) 12,500 lbs. or less

Super King Air 200
Pilatus PC-12
DCH Twin Otter
Cessna Caravan

B-II Greater than 12,500 lbs.

Super King Air 300, 350
Beech 1900
Cessna Citation
Falcon 20, 50

A-III, B-III Greater than 12,500 lbs.

DHC Dash 7, Dash 8
Q-200, Q-300
DC-3
Convair 580

C-I, D-I

Lear 25, 35, 55, 60
Israeli Westwind
HS 125-700

C-II, D-II

Gulfstream II, III, IV
Canadair 600
Canadair Regional Jet
Lockheed JetStar

C-III, D-III

Boeing Business Jet
Gulfstream 650
B 737-300 Series
MD-80, DC-9

C-IV, D-IV

B - 757
B - 767
DC - 8-70
DC - 10

Source: Century West Engineering

CURRENT/FUTURE DESIGN AIRCRAFT

The identification of the current and future design aircraft for each runway is required to define the appropriate design standards for the facilities. A review of 2023 FAA TFMSC data for MMV provides a detailed indication of instrument flight plan activity. Based on the Airport's existing instrument capabilities, it is assumed that Runway 4/22 accommodates virtually all TFMSC activity at MMV. Runway 17/35 is capable of accommodating small single and multi-engine aircraft in visual conditions. Evaluations of applicable design standards will be conducted for both runways in the facility requirements chapter. **Table 3-15** summarizes current and forecast aircraft operations by various RDC groupings. Examples of the design aircraft are provided at the end of this section.

Table 3-15: Operations Fleet Mix By RDC/Type

	2023	2028	2033	2038	2043	20-Year AAGR%
TOTAL OPS - A/B-I (SEP)	44,373	44,028	43,685	43,339	42,990	-0.16%
TOTAL OPS - A/B-I (MEP)	3,347	3,375	3,403	3,431	3,460	0.17%
TOTAL OPS - A/B-I (Turboprop)	143	151	159	168	177	1.07%
TOTAL OPS - A/B-I (Jet)	186	210	238	269	305	2.50%
TOTAL OPS - C/D-I (Jet)	22	19	17	15	13	-2.60%
TOTAL OPS - A/B-II (MEP)	71	72	72	73	74	0.21%
TOTAL OPS - A/B-II (Turboprop)	760	802	847	894	943	1.09%
TOTAL OPS - A/B-II (Jet)	286	324	366	414	469	2.50%
TOTAL OPS - C/D-II (Jet)	290	366	461	582	734	4.75%
TOTAL OPS – C/D-III (Jet)	28	31	34	38	42	2.05%
TOTAL OPS – HELI	20,436	22,662	25,130	27,866	30,901	2.09%
TOTAL OPS - ALL A/C	**69,942**	**72,040**	**74,412**	**77,089**	**80,108**	**0.68%**
All AAC A/B Operations	49,166	48,962	48,770	48,588	48,418	-0.08%
All AAC C/D Operations	340	416	512	635	789	4.30%
All ADG II and Greater Operations	1,435	1,595	1,780	2,001	2,262	2.30%
RDC A/B-II Operations (see note)	**1,117**	**1,198**	**1,285**	1,381	1,486	1.44%
RDC C/D-II and Greater Operations (see note)	318	397	495	**620**	**776**	**4.56%**

Source: Century West Engineering
SEP: Single-Engine Piston, including Experimental and Light Sport Aircraft (LSA)
MEP: Multi-Engine Piston
Turboprop: Fixed Wing Turbine (propeller)
Jet: Fixed Wing Turbine (turbofan)
Heli: Helicopter/Rotor (turbine and piston)
Note: **Bold** indicates design aircraft RDC for primary runway (RWY 4/22)

Added on 06.13.2025
Revised on 06.16.2025

Runway 4/22

According to historical instrument flight plan data, business jets represent the most demanding aircraft type using Runway 4/22 on a regular basis. When evaluated individually, Runway 4/22 currently accommodates sufficient ADG II operations to establish that component of the current RDC. The runway also currently accommodates sufficient AAC B operations to justify that component of the RDC. Since the volume of the two component groups individually exceed the 500 annual operations threshold required by FAA for defining the design aircraft, the appropriate existing RDC reflects the combination of the two standards. **Based on this, the existing RDC for Runway 4/22 is B-II.** A representative aircraft in this category is the Cessna Citation Sovereign (CE-680), an 8-12 passenger medium business jet with a range of approximately 3,000 nautical miles.

As noted earlier in the chapter, the evaluation of TFMSC data specific to business jet traffic at MMV over the last 10 years confirmed that growth within the aircraft type is segmented. Over the period, activity generated by larger, high-performance jets has increased at a faster rate than smaller jets operating at MMV. The majority of the higher performance jets are included in ADG II and many of them are AAC C or D aircraft. Based on the updated aviation activity forecasts, a change in design aircraft is anticipated for Runway 4/22 during the current 20-year planning period. For operations fleet mix forecasting purposes, it is assumed that the annual rate of growth for C & D jet aircraft will continue to outpace growth in A & B jet activity. It is projected that C-II operations will exceed the 500 annual operations threshold required for the design aircraft near just beyond the midpoint of the current 20-year planning period. A representative aircraft in this category is the Bombardier Challenger 601, a 9-passenger large business jet with a range of approximately 3,680 nautical miles. Based on the future design aircraft, **the future RDC for Runway 4/22 is C-II**.

Runway 17/35

Runway 17/35 accommodates primarily small single engine aircraft and helicopters. Although the runway is physically capable of accommodating larger aircraft (runway dimensions and pavement strength), wind conditions, lighting, and instrumentation favor use of Runway 4/22 by larger aircraft. Based on current and projected use, RDC A-I (small) is recommended for Runway 17/35. A representative design aircraft in a 4-passenger Cessna 182, single engine piston.

Based on current and forecast activity, the recommended Runway Design Codes (RDC) for MMV are:

- *Runway 4/22 (Existing RDC): B-II*
- *Runway 4/22 (Future RDC) : C-II*
- *Runway 17/35: (Existing/Future RDC): A-I (small)*

Added on 06.13.2025

Revised on 06.16.2025

Runway 4/22: Current Design Aircraft (RDC B-II) (not to scale)

Cessna Citation Sovereign (CE680)

Runway 4/22: Future Design Aircraft (RDC C-II) (not to scale)

Bombardier Challenger 601

Runway 17/35: Existing/Future Design Aircraft (RDC A-I – Small) (not to scale)

Cessna 182 (Skylane)

Operational Peaks

Activity peaking is evaluated to identify potential capacity related issues that may need to be addressed through facility improvements or operational changes. The Peak Month represents the month of the year with the greatest number of aircraft operations (takeoffs and landings). The peak month for most general aviation airports occurs during the summer when weather conditions and daylight are optimal. For planning purposes, traffic at MMV, a peak month operations are estimated to be 15% of annual operations during the planning period.

Peak Day operations are defined by the average day in the peak month (Design Day) and the busy day in the typical week during peak month (Busy Day). The Design Day is calculated by dividing peak month operations by

30. For planning purposes, the Busy Day is estimated to be 25% higher than the average day in the peak month (Design Day x 1.25), based on common activities generating surges in flight activity.

The peak activity period in the Design Day is the Design Hour. For planning purposes, the Design Hour operations are estimated to account for 20% of Design Day operations (Design Day x 0.20).

The operational peaks for each forecast year are summarized in **Table 3-16**. This level of peaking is consistent with the mix of airport traffic and is expected to remain relatively unchanged during the planning period. These measures of activity are considered when calculating runway/taxiway capacity and transient aircraft parking requirements. No significant runway or taxiway capacity issues have been identified based on current or forecast peak activity levels. However, the concentration of transient business jets on the main apron during peak periods contributes to congestion in the terminal area.

Table 3-16: Peak Operations (MMV)

Aircraft Type	2023	2028	2033	2038	2043
Annual Operations	69,942	72,040	74,412	77,089	80,108
Peak Month Operations (15%)	10,491	10,806	11,162	11,563	12,016
Design Day Operations (average day in peak month)	350	360	372	385	401
Busy Day Operations (assumed 125% of design day)	437	450	465	482	501
Design Hour Operations (assumed 20% of design day)	70	72	74	77	80

Source: Century West Engineering

Military Activity

The FAA Terminal Area Forecast (TAF) lists 1,500 annual itinerant military operations at MMV for 2023, and maintains this level of activity through 2050. The 2023 baseline estimate of aircraft operations presented in **Table 3-6** included 500 military operations, which is considered to represent a typical level of military activity at the Airport, including flight training, search and rescue, emergency response, etc. For planning purposes this level of military activity will be maintained during the current planning period.

Air Taxi Activity

Air taxi activity includes for-hire charter flights, medevac flights, and some scheduled commercial air carriers operating under FAR Part 135. The current FAA TAF lists 0 annual air taxi operations at MMV in 2023, with no activity projected through 2050.

Based on the updated (2023) estimate of air traffic for the Airport, current air taxi activity is estimated to account for less than 1% of overall airport operations. Based on a review of instrument flight plan data, 244 air taxi operations were estimated at MMV for 2023. Air Taxi operations are projected to increase at approximately the same rate as overall airport activity over the planning period.

Forecast Summary

A summary of the based aircraft and annual aircraft operations forecast is presented in **Table 3-17**. The forecast projects moderate growth over the 20-year planning period that is consistent with FAA's long-term expectations for general aviation in the region.

Table 3-17: Forecast Summary

Activity	2023	2028	2033	2038	2043
Itinerant Operations					
General Aviation	20,239	20,859	21,562	22,356	23,252
Air Taxi	244	253	262	271	281
Military	500	500	500	500	500
Total Itinerant Operations	**20,983**	**21,612**	**22,324**	**23,127**	**24,033**
Local Operations	48,959	50,428	52,088	53,392	56,075
Total Local & Itinerant Operations	**69,942**	**72,040**	**74,412**	**77,089**	**80,108**
Based Aircraft	128	133	139	145	151
Operations Per Based Aircraft[1]	543	539	537	529	527

Source: Century West Engineering
1. OPBA calculation excludes military operations

TERMINAL AREA FORECAST (TAF) COMPARISON

Per FAA forecasting guidelines, the FAA will review the based aircraft and the aircraft operations forecasts comparison to the current TAF. A comparison of the based aircraft and aircraft operations forecasts and the current TAF is provided in **Tables 3-18** and **3-19**.

The current TAF based aircraft and annual aircraft operations data at MMV differ by no more than 10% with updated airport management-based aircraft counts or the updated estimate of current aircraft operations prepared for the master plan. As a result, a comparison of the recommended master plan forecasts with the current TAF provides a valid basis for gauging the reasonableness of the forecasts.

Table 3-18: TAF Comparison

Based Aircraft	2023	2028	2033	2038	2043
Preferred Forecast	128	138	139	145	151
TAF	123	133	143	153	163
Percent Difference	**+4.1%**	**+3.8%**	**-2.8%**	**-5.2%**	**-7.4%**
Aircraft Operations	**2023**	**2028**	**2033**	**2038**	**2043**
Preferred Forecast	69,942	72,195	74,631	77,264	80,108
TAF	64,418	69,216	74,374	79,923	85,894
Percent Difference	**+8.6%**	**+4.1%**	**+0.1%**	**-3.6%**	**-6.7%**

Source: Century West Engineering

Table 3-19: Airport Planning and TAF Forecast Comparison

Activity	Year	Airport Forecast	TAF	AF/TAF (% Difference)
Passenger Enplanements				
Base yr.	2023	0	0	0.0%
Base yr. + 5yrs.	2028	0	0	0.0%
Base yr. + 10yrs.	2033	0	0	0.0%
Base yr. + 15yrs.	2038	0	0	0.0%
Commercial Operations				
Base yr.	2023	0	0	0.0%
Base yr. + 5yrs.	2028	0	0	0.0%
Base yr. + 10yrs.	2033	0	0	0.0%
Base yr. + 15yrs.	2038	0	0	0.0%
Total Operations				
Base yr.	2023	69,942	64,418	8.6%
Base yr. + 5yrs.	2028	72,040	69,216	4.1%
Base yr. + 10yrs.	2033	74,412	74,374	0.1%
Base yr. + 15yrs.	2038	77,089	79,923	-3.6%

Source: Century West Engineering
Note: TAF data is on a U.S. government fiscal year basis (October through September).

FIFTY-YEAR FORECAST

Fifty-year demand forecasts were prepared as required in the FAA-approved master plan scope of work by extrapolating the average annual growth rates (AAGR) for the recommended 20-year (2023-2043) based aircraft and aircraft operations forecasts. The purpose of the 50-year projection is to provide an estimate of demand that can be used to approximate long-term aviation use land requirements for the Airport. **Table 3-20** summarizes the 50-year forecast, in addition to the intermediate 30- and 40-year projections.

Table 3-20: 50-Year Forecast (MMV)

	2023	2043	2053	2063	2073
Annual Operations	69,942	80,108	85,732	91,751	98,192
Based Aircraft	128	151	164	175	194

Source: Century West Engineering

Next Steps

Draft Chapter 3 - Aviation Activity Forecasts will be submitted to the FAA Seattle Airports District Office (ADO) for review. Upon completion of their review, the FAA will provide comments, including requests for clarification, additional information, or revisions, if needed. Once the FAA accepts the forecasts, a letter of approval will be provided to the Airport. As noted in the chapter, a critical item related to the forecast approval is the selection of the current and future design aircraft. These designations will confirm the appropriate design criteria, including Runway Design Code (RDC), and Taxiway Design Group (TDG) to be used for each runway in the airport master plan.

The draft aviation activity forecasts are used to evaluate the aeronautical facility requirements for the Airport in the following chapter (Chapter 4 – Facility Requirements). If any substantive changes to the forecasts result from FAA review and approval, adjustments will be made to specific demand-based facility requirements, as appropriate. The facility requirements evaluation will quantify current and future facility needs in general terms and volume.

Chapter 4

Airport Facility Requirements

The evaluation of airport facility requirements is intended to determine the facility needs for McMinnville Municipal Airport (MMV) for the current 20-year planning period based on updated aviation activity forecasts and conformance to established airport design criteria.

Introduction

The evaluation of airport facility goals and requirements combines the results of the inventory and forecasts, and application of established planning criteria to determine the future facility needs for the Airport during the 20-year planning period. All airfield facility requirements definitions are based on Federal Aviation Administration (FAA) airport design and airspace planning standards, and locally defined goals for the Airport. The facility requirements evaluation identifies the adequacy of existing facilities and identifies what new facilities may be needed based on forecast demand or conformance to FAA standards. Potential options for accommodating current and future facility needs will be evaluated in Chapter 5 – Airport Development Alternatives.

The preliminary aviation activity forecasts, presented in Chapter 3, were used to identify the current and future critical aircraft for each runway and the corresponding design standards. The evaluation of demand-driven elements will quantify facility needs such as runway length, hangar space, and aircraft parking requirements based on forecast demand and the type of aircraft being accommodated. Items such as lighting, navigational aids, and approach capabilities are evaluated based on overall airport activity and facility classification.

Airside facilities focus on the movement of aircraft associated with operations, which includes runways, taxiways, navigational aids and lighting systems. **Landside** facilities provide for aircraft storage and support, which includes hangars, aircraft parking apron(s), terminal and fixed base operator (FBO) facilities. Support facility needs include aviation fuel storage and dispensing, security/perimeter fencing, surface access, automobile parking, and utilities.

Demand/Capacity Analysis

The evaluation of runway capacity is used to identify existing or future operational constraints that may require specific facility improvements such as taxiways, aircraft hold areas, etc. As noted earlier, Runway 4/22 has a full-length parallel taxiway and four exit taxiways. This configuration provides a high level of functionality and operational capacity for general aviation (GA) runways. For capacity planning purposes, the FAA assumes that non-towered airports with multiple runways will have only one runway actively in use at any given time, which defaults to single runway capacity.

Annual service volume (ASV) is a broad measure of airport capacity and delay used for long-term planning as defined in *FAA Advisory Circular (AC) 150/5060-5, Airport Capacity and Delay*. Although the generic ASV calculation assumes optimal conditions (air traffic control, terminal radar, etc.) that do not exist at MMV, it provides a reasonable basis for approximating existing and future capacity for master planning purposes.

The FAA estimates the ASV for a single runway with no air carrier traffic is approximately 230,000 annual operations. Hourly capacity is estimated to be 98 operations during visual flight rules (VFR) conditions and 59 operations during instrument flight rules (IFR) conditions.

The existing and future demand-capacity ratios for Runway 4/22 (the Airport) are presented below:

Existing Capacity: 69,942 Annual Operations / 230,000 ASV = 30% (demand/capacity ratio)

Future Capacity: 81,108 Annual Operations / 230,000 ASV = 35% (demand/capacity ratio)

Based on these ratios, the annual capacity of Runway 4/22 exceeds demand through the current 20-year planning period. Hourly capacity is also expected to be adequate to accommodate normal demand. The average delay per aircraft would be expected to remain below one minute throughout the planning period.

Critical Aircraft and Airport Design Standards Discussion

CRITICAL AIRCRAFT AND DESIGN CODES

Critical aircraft are determined for each runway based on the current and projected level of flight activity described in Chapter 3, Aviation Activity Forecasts. The applicable design standards for each runway and their associated facilities are determined by aircraft use, consistent with FAA criteria.

A critical aircraft is defined for each runway and it represents the most demanding aircraft using the runway on a regular basis (defined by FAA as ≥ 500 annual operations). Each aircraft has an Aircraft Approach Category (AAC) and Airplane Design Group (ADG) based on their physical and performance characteristics. These two components are combined to create the Runway Design Code (RDC). This definition was formerly referred to as the Airport Reference Code (ARC). For the purposes of this evaluation, the RDCs now defined for each runway are compared to the ARCs listed on the 2004 ALP. The RDC designation does not necessarily mean that larger aircraft cannot operate on that runway, but it does define the design guidance to be used for FAA-funded improvements. The more demanding RDC associated with the individual runways is also typically applied to the overall Airport and is referenced in state and federal airport listings.

The 2004 ALP listed the existing and future critical aircraft for Runway 4/22 as a Gulfstream IV (ARC D-II), a large business jet, representative of aircraft commonly operated at MMV. A summary of current and recent historical jet activity at MMV used to determine appropriate critical aircraft designations for this master plan is provided later in this section. The 2004 ALP listed critical aircraft for Runway 17/35 was a Cessna Citation Excel (ARC B-II), a medium size business jet.

Runway 17/35's length and pavement strength is capable of accommodating this type of aircraft under certain conditions, but the absence of lighting and instrumentation effectively limit its use by larger aircraft. The wind coverage provided on Runway 4/22 favors its use by most high-performance aircraft operating at MMV. Runway 17/35 is an unlighted runway that accommodates predominantly single-engine piston and small multi-engine piston aircraft and helicopters in day-time visual conditions.

Per FAA planning guidelines, the existing and future RDC designations for Runways 4/22 and 17/35 were updated to reflect current and forecast air traffic and common runway use, as documented in Chapter 3 – Aviation Activity Forecasts. As noted earlier, a change in critical aircraft for both runways is reflected in the forecasts, which results in a change between previous, current and future RDCs. A summary of the RDCs for each runway is provided below.

RUNWAY DESIGN CODE (RDC)

The RDC defines the design standards used for runway construction. For airports with more than one runway, each runway will have its own RDC. The RDC is comprised of the two inputs related to (current/future) critical aircraft, combined with approach visibility minimums for the runway:

- **Aircraft Approach Category (AAC)** – based on the approach speed of the aircraft
- **Airplane Design Group (ADG)** – based on the wingspan and tail height of the aircraft
- The lowest **Approach Visibility Minimums** established for the runway:
  - » Approach visibility minimums are determined by FAA for each runway based on the category of approach (visual, non-precision instrument, or precision instrument) and the most capable existing or future approach procedure. Lower visibility minimums generally correspond to instrument approaches that allow aircraft to descend to lower altitudes before requiring visual contact to be established with the runway environment prior to landing.
  - » RDC visibility minimums for each runway end are expressed in Runway Visual Range (RVR). Ground-based RVR transmitters project horizontal beams of light near the runway to measure forward visibility levels. The RVR values (measured in feet) correspond to visibility measurements commonly expressed in fractions of statute miles (e.g., 1-mile, 3/4-mile, etc.). The RVR for a runway reflects the most capable approach type or procedure for either runway end.

RUNWAY DESIGN CODES (RDC)

Runway 4/22

- The **existing RDC is B-II-2400** (not lower than 1/2-mile)
- The future **RDC is C-II-2400** (not lower than 1/2-mile)

Runway 17/35

- The **existing and future RDC is A-I-VIS** (visual)

The current and forecast air traffic activity documented in Chapter 3 – Aviation Activity Forecasts, is used to define the applicable AAC and ADG designations for each runway. For more information see *FAA AC 150/5000-17, Critical Aircraft and Regular Use Determination*, and applicable airport planning & design standards summarized in greater detail below.

Runway 4/22

The majority of MMV's instrument flight activity is accommodated on Runway 4/22, and this segment of activity includes the most demanding aircraft types (business jets) using the Airport on a regular basis. This activity supports the RDC designation for Runway 4/22, representing the most demanding aircraft type meeting the FAA's regular use criteria. **As noted in Chapter 3, (Table 3-13), FAA instrument flight plan data documented a total of 626 B-II or larger jet operations at MMV in 2023**. Table 3-13 also summarized B-II and larger jet activity at MMV during the last ten years, which frequently surpassed the 500 annual operations threshold required for critical aircraft designation. During the last five years, B-II or greater jet activity fell below 500 annual operations only once—in 2020, during the first full year of the Covid 19 pandemic. Additional B-II activity at MMV is generated by multi-engine turboprops both on visual and instrument flight plans.

Current RDC: As noted in Chapter 3, the Cessna Citation Sovereign (CE-680), a 9-12 passenger medium business jet (30,500 lb. MTOW), is representative of the aircraft operating on Runway 4/22 that currently meet the FAA's critical aircraft criteria. The RDC for this aircraft is based on AAC B and ADG II (**RDC B-II**).

Future RDC: The updated aviation activity forecast (see Table 3-15) projects an increase in AAC/ADG C & D – II or larger operations during the 20-year planning period, reaching the C-II critical aircraft threshold in the 2033-2038 time period. Based on forecast activity, AAC C and ADG II represent the future RDC components (**RDC C-II**) for Runway 4/22. The Canadair 601 (CL-60), an 11-passenger large business jet (43,100 lb. MTOW), is a representative RDC C-II aircraft and is appropriate as the of the future critical aircraft for Runway 4/22.

Runway 17/35

The majority of activity on Runway 17/35 is generated by Approach Category A (fixed wing and helicopter) and ADG I (fixed wing) aircraft. This activity most closely corresponds to **RDC A-I (Small)**.

Current and Future RDC: Based on current and forecast activity presented in Chapter 3, **RDC A-I (Small)** is recommended as the current and future RDC for Runway 17/35. A Cessna 182, a representative small single-engine piston aircraft, is recommended as the current and future critical aircraft for Runway 17/35. The RDC designation is consistent with aircraft that weigh less than 12,500 pounds, which corresponds to a Part 77 "utility" designation for the runway.

APPROACH AND DEPARTURE REFERENCE CODE

The Approach and Departure Reference Codes (APRC and DPRC, respectively) represent the current operational capabilities of each specific runway end and adjacent taxiways. Specifically, the APRC and DPRC identify the most demanding aircraft by Aircraft Approach Category (AAC), and Airplane Design Group (ADG) that may operate (approach or depart) on a runway in specific conditions without generating ATC operational controls (this does not typically occur at airports without air traffic control towers).

The APRC is a three-component code that describes the most demanding aircraft by AAC and ADG that may operate concurrently with other aircraft on the airfield in certain visibility conditions without generating ATC operational controls. Since MMV is a non-towered airport ATC operational controls are not applicable. The APRC uses the performance characteristics of the critical aircraft (approach speed and wingspan/tail height) and the approach visibility minimums (expressed in RVR values) and runway-to-taxiway separation on the airfield to define specific standards. The DPRC uses only the physical characteristics of the critical aircraft and runway-to-taxiway separation. For more detailed information on determining APRC and DPRC see *FAA AC 150/5300-13B, Airport Design (Appendix L)*.

Since the APRC considers both AAC and ADG, it is possible for an airport to have two APRCs, where one represents the most demanding aircraft by AAC (paired with a lower ADG), and the other represents the most demanding aircraft by ADG (paired with a lower AAC). The DPRC is similar to the APRC but is a two-component code (AAC and ADG) and does not consider a visibility component. The DPRC describes the type of aircraft that can depart a runway while any other aircraft is on the parallel taxiway. Like the ARPC, a runway may have two DPRCs to account for both AAC and ADG.

Runway 4/22

The existing parallel taxiway separation for Runway 4/22 is 400 feet and the approach visibility minimums are not lower than 1/2-mile, based on the Instrument Landing System (ILS) precision approach for Runway 22. This combination identifies two **APRCs (D/IV/2400 and D/V/2400)** and similar codes for **DPRC (D/IV and D/V)**. The current 400' parallel taxiway separation exceeds the APRC and DPRC standards required for both the current and future critical aircraft associated with the runway.

The APRCs and DPRCs identified above indicate that the following aircraft may land, or depart on the runway, and taxi on the parallel taxiway at MMV without operational restrictions:

- Within Approach Categories A and B, Airplane Design Groups I-III
- Within Approach Categories C and D, Airplane Design Groups I-V

The ability to accommodate aircraft larger than the current and future critical aircraft indicates that the existing runway-parallel taxiway system exceeds the associated B-II and C-II dimensional standards.

Runway 17/35

The existing parallel taxiway separation for Runway 17/35 is 240 feet and the approach visibility minimums are visual. The nearest corresponding visibility threshold used to define APRC is "Not lower than ¾ mile [4000 RVR)." This combination identifies **APRC B/II/4000** and **DPRC B/II** for Runway 17/35. The current 240' parallel taxiway separation exceeds the APRC and DPRC standards required for both the current and future critical aircraft (A-I Small) for the runway.

The APRCs and DPRCs identified above indicate that the following aircraft may land, or depart on the runway, and taxi on the parallel taxiway at MMV without operational restrictions:

- Within Approach Categories A and B, Airplane Design Groups I(S), I, & II.

FAA DESIGN STANDARDS

FAA AC 150/5300-13B, Airport Design, serves as the primary reference in establishing the geometry of airfield facilities. The existing condition dimensions and design standards for each runway is summarized in **Table 4-1 and 4-2**.

DESIGN STANDARDS

Specific design standards and conditions applicable to McMinnville Municipal Airport facilities are presented in the following sections of this chapter and the "FAA Design Standards" text boxes. For additional information reference appropriate sections in AC 150/5300-13B.

Table 4-1: Runway 4/22 Design Standards Summary (Dimensions In Feet)

FAA Standard	Runway 4/22 Existing Conditions[1]	Runway 4/22 RDC B-II Lower Than 3/4-Mile (Existing Standard)	RUNWAY 4/22 RDC C-II Lower Than 3/4-Mile (Future Standard)[2]
Runway Length	5,420	See Runway Length Analysis Discussion	
Runway Width	100	100	100
Blast Pad Width Blast Pad Length	N/A[3] N/A[3]	120 150	120 150
Paved Overrun	1,000[3]	No Standard	No Standard
Runway Shoulder Width	10	10	10
Runway Safety Area • Width • Beyond RWY End • Prior to Landing Threshold	 500 1,000/987[4] 1,000/950	 300 600 600	 500 1,000 600
Runway Obstacle Free Zone • Width • Beyond RWY End • Prior to Landing Threshold	 400 200 200	 400 200 200	 400 200 200

Continued on next page

Table 4-1: Runway 4/22 Design Standards Summary (Dimensions In Feet)

FAA Standard	Runway 4/22 Existing Conditions[1]	Runway 4/22 RDC B-II Lower Than 3/4-Mile (Existing Standard)	RUNWAY 4/22 RDC C-II Lower Than 3/4-Mile (Future Standard)[2]
Precision Obstacle Free Zone[5] • Width • Beyond RWY End • Prior to Landing Threshold	 800 200 200	 800 200 200	 800 200 200
Inner-approach OFZ[5]	Rwy 22: Begins 200' beyond runway end, extending 200' past last ALS unit at a slope of 50:1	Begins 200' beyond runway end, extending 200' past last ALS unit at a slope of 50:1	Same
Inner-transitional OFZ[5]	Rwy 22: Begins at the edges of the ROFZ and inner-approach OFZ then rises laterally at a slope of 6:1 to a height of 150 feet above the airport elevation.	Begins at the edges of the ROFZ and inner-approach OFZ then rises laterally at a slope of 6:1 to a height of 150 feet above the airport elevation.	Same
Object Free Area • Width • Beyond RWY End • Prior to Landing Threshold	 800 1,000/897[4] 600	 800 600 600	 800 1,000 600
Approach Runway Protection Zone -Length[8]	RWY 4: 1,700 RWY 22: 2,500	RWY 4: 1,000 RWY 22: 2,500	RWY 4: 1,700 RWY 22: 2,500
Approach Runway Protection Zone -Inner Width[8]	RWY 4: 500 RWY 22: 1,000	RWY 4: 500 RWY 22: 1,000	RWY 4: 500 RWY 22: 1,000
Approach Runway Protection Zone - Outer Width[8]	RWY 4: 1,010 RWY 22: 1,750	RWY 4: 700 RWY 22: 1,750	RWY 4: 1,510 RWY 22: 1,750
Departure Runway Protection Zone - Length[8]	RWY 4: 1,700 RWY 22: 2,500	RWY 4: 1,000 RWY 22: 1,000	RWY 4: 1,700 RWY 22: 1,700
Departure Runway Protection Zone - Inner Width	RWY 4: 1,000 RWY 22: 1,000	RWY 4: 500 RWY 22: 1,000	RWY 4: 1,000 RWY 22: 500
Departure Runway Protection Zone -Outer Width[8]	RWY 4: 1,010 RWY 22: 1,750	RWY 4: 700 RWY 22: 1,000	RWY 4: 1,010 RWY 22: 1,010
Runway Centerline to: Parallel Taxiway/Taxilane CL Aircraft Hold Position Aircraft Parking Area 18' Building Restriction Line (BRL)[7]	 400[6] 250 570/625[9] 626	 300[6] 250 570/647[10] 626	 400 250 570/647[10] 626

Source: FAA AC 150/5300-13B Airport Design

Table 4-1 Notes:

1. As depicted on as-built ALP and documented on site; some published dimensions cited in current FAA Chart Supplement and 5010 Airport Record Form
2. RDC C-II (future standard), representing the future critical aircraft for the runway in the updated forecast (Chapter 3).
3. The 1,000' x 150' paved overrun at the Runway 4 end exceeds FAA dimensional standards for B-II and C-II blast pads.
4. Airport fence adjacent to Cruickshank Road is located approximately 897 feet from runway end, its nearest point, in the southeast corner of the RSA and OFA.
5. Runway 22 is a precision instrument runway that has an **Inner-approach OFZ**, an **Inner-transitional OFZ**, and a **Precision Obstacle Free Zone (POFZ)**. The **inner-approach OFZ** begins 200 feet from the runway threshold at the same elevation as the runway threshold and extends 200 feet past the last unit in the ALS. Its width is the same as the ROFZ and rises at a slope of 50:1. The **inner-transitional OFZ** begins at the edges of the ROFZ and inner-approach OFZ then rises laterally at a slope of 6:1 to a height of 150 feet above the airport elevation.
6. Runway 4/22 centerline to east parallel taxiway (Taxiway A) centerline is 400 feet.
7. The existing 626-foot east BRL (for Runway 4/22) depicted on the 2004 ALP can accommodate up to 18-foot structures at the BRL without airspace surface penetration. Maximum allowable building heights are determined by zoning, but penetrations to airspace not permitted without FAA approval.
8. Existing RPZ dimensions corresponding the current approach visibility minimums or as depicted on previous ALP. RPZ dimensions were not differentiated as approach and departure RPZ by FAA when the last ALP was approved. Future Rwy 4 RPZ assumes NLT 3/4-mile visibility. Portions of existing RPZs extend off airport property; public roads located in Rwy 22 RPZ.
9. Nearest Aircraft Parking (Main Apron/East Tiedown Apron).
10. Greater of PIR (Rwy 4/22) transitional surface clearance for 10' and 21' aircraft tail heights or TOFA clearance for Taxiway A; smaller aircraft parking may be accommodated if clear of TOFA and do not penetrate transitional surface.

Added on 06.13.2025
Revised on 06.16.2025

Table 4-2: Runway 17/35 Design Standards Summary (Dimensions In Feet)

FAA Standard	Runway 17/35 Existing Conditions[1]	Runway 17/35 RDC A/B-I (Small) Not Lower Than 1-Mile Or Visual Existing/Future Standard[2]
Runway Length	4,340	See Runway Length Analysis Discussion
Runway Width	75	60
Blast Pad Width/Length	None	80/60[9]
Runway Shoulder Width	10	10
Runway Safety Area • Width • Beyond RWY End • Prior to Landing Threshold	 150 300 300	 120 240 240
Runway Obstacle Free Zone • Width • Beyond RWY End • Prior to Landing Threshold	 400 200 200	 250 200 200
Object Free Area • Width • Beyond RWY End • Prior to Landing Threshold	 500 300 300	 250 240 240
Approach/Departure Runway Protection Zone - Length	RWY 17 & 35: 1,000[10]	RWY 17 & 35: 450
Approach/Departure Runway Protection Zone - Inner Width	RWY 17 & 35: 500[10]	RWY 17 & 35: 450
Approach /Departure Runway Protection Zone - Outer Width	RWY 17 & 35: 700[10]	RWY 17 & 35: 450
Runway Centerline to: Parallel Taxiway/Taxilane CL Aircraft Hold Position Aircraft Parking Area 18' Building Restriction Line (BRL)	 240 200[3] 300[5] 376[8]	 150 125[4] 195/284.5[6] 251[8]

Source: FAA AC 150/5300-13B, Airport Design
Table 4-2 Notes:

1. As depicted on as-built ALP and documented on site; some published dimensions cited in current FAA Chart Supplement and 5010 Airport Record Form.
2. RDC A-I (small aircraft) is the current and future standard, representing the current/future critical aircraft for the runway in the updated forecast (Chapter 3).
3. Distance from Runway 17/35 centerline to aircraft hold line on access taxiways (Taxiways D1-D3).
4. This standard applies to runways or sides of runway without a parallel taxiway.
5. As depicted on 2004 ALP: 300-foot Aircraft Parking Line (APL) for Runway 17/35 (east side of runway) to clear a 500' wide (B-II) OFA. The grass surfaced area on the east side of the runway (opposite Taxiway D2) was previously used for glider staging.
6. Utility visual runway (Rwy 17/35) transitional surface clearance for 10' aircraft tail height (east side of runway); smaller aircraft parking may be accommodated if clear of Runway OFA and do not penetrate transitional surface. / A-I TOFA clearance for Taxiway D (west side of runway), which can accommodate 22' tail heights.
7. As depicted on 2004 ALP: 376-foot BRL for Runway 17/35 (infield side of runway). This distance is required for an 18-foot structure without transitional surface penetration based on a 500' wide primary surface. No BRL depicted on east side of Runway 17/35.
8. A 251-foot BRL can accommodate up to 18-foot structures at the BRL without transitional or primary surface penetrations, based on 250' wide utility visual runway primary surface.
9. FAA recommends blast pads are provided for "Runways with ADG-III as the critical aircraft." (AC 150/5300-13B, Section 3.7.4.2).
10. Existing RPZ dimensions corresponding the current approach visibility minimums or as depicted on previous ALP. RPZ dimensions were not differentiated as approach and departure RPZ by FAA when the last ALP was approved. Portions of existing Runway 17 and 35 RPZs extend off airport property with roads located in the RPZs.

TAXIWAY DESIGN GROUP

Taxiway Design Group (TDG), see **Figure 4-1**, is based on the dimensions of the aircraft landing gear, including distance from the cockpit to the main gear (CMG) and main gear width (MGW). These dimensions affect an aircraft's ability to safely maneuver around the airport taxiways and dictate pavement fillet design. Taxiways and taxilanes can be constructed to different TDGs based on the expected use of that taxiway/taxilane by aircraft type.

The major taxiways at the Airport (A, A1-A4, B, and C) are designed based on ADG II aircraft, which corresponds to TDG-2A or -2B. Several of these taxiways are 50' wide with 20' gavel shoulders, which exceeds the TDG 2A and -2B width standards. The taxiways associated with Runway 17/35 (Taxiway D, D1,-D3) are designed based on ADG II aircraft, which corresponds to TDG-2A.

Based on the updated critical aircraft designated for each runway noted in Chapter 3, the corresponding TDG standard for the associated taxiways are:

- **Taxiway A, B, C: TDG-2A (existing) and -2B (future)**
- **Taxiway D: TDG-1A (existing and future)**

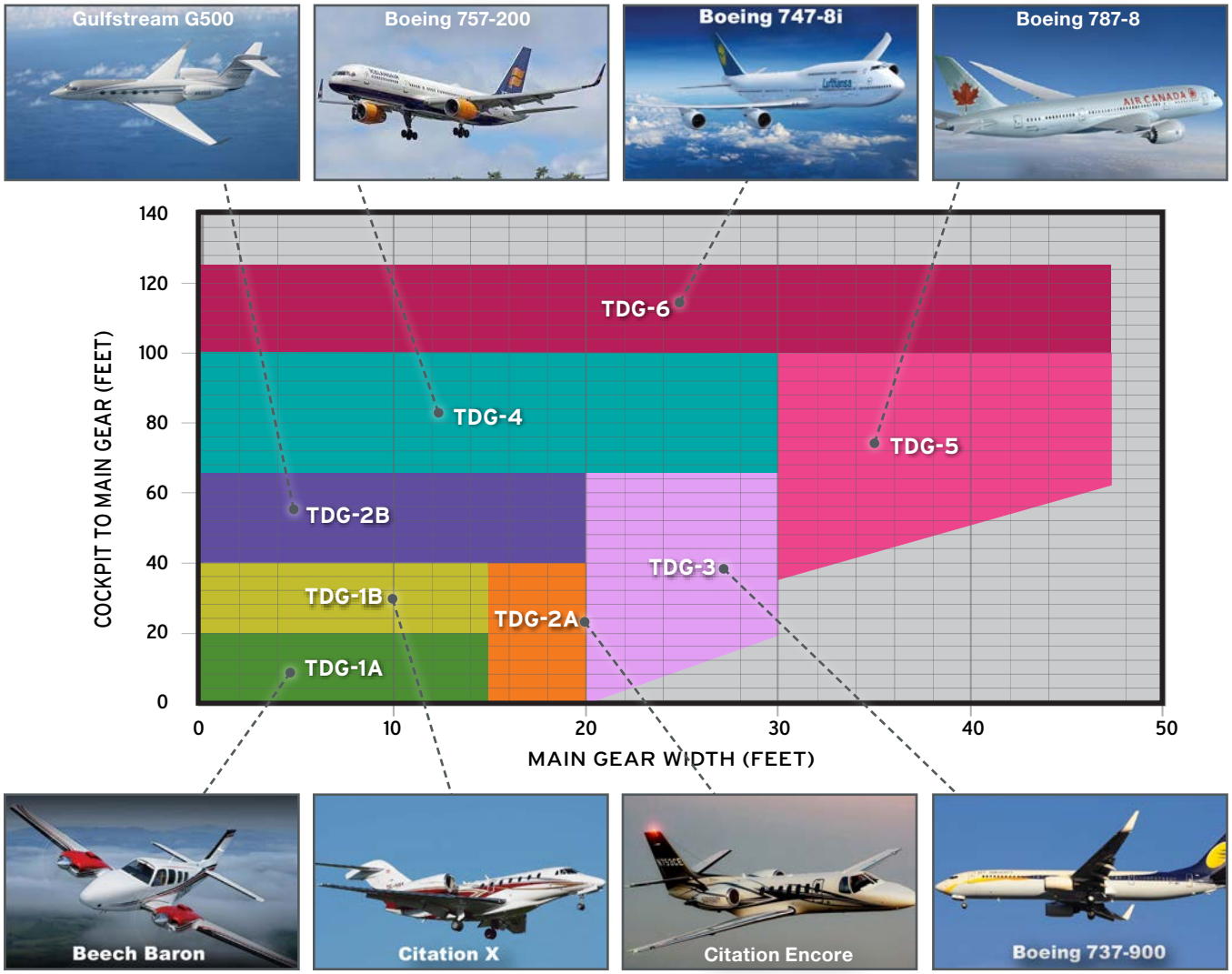
See **Table 4-3** for applicable TDG dimensions.

Table 4-3: Taxiway Design Standards (dimensions in feet)

	Current Conditions	Current Standard	Future Standard
Taxiway A, A1-A4		**ADG II / TDG 2A**	**ADG II / TDG 2B**
Taxiway Width	50	35	35
Taxiway Shoulder Width	20	15	15
TSA Width	79	79	79
TOFA Width	124	124	124
Taxiway B,C		**ADG II / TDG 2A**	**ADG II / TDG 2A**
Taxiway Width	50	35	35
Taxiway Shoulder Width	15	15	15
TSA Width	79	79	79
TOFA Width	124	124	124
Taxiway D, D1-D3		**ADG I / TDG 1A**	**ADG I / TDG 1A**
Taxiway Width	35	25	25
Taxiway Shoulder Width	10	10	10
TSA Width	79	49	49
TOFA Width	124	89	89

Source: Century West Engineering

Figure 4-1: Taxiway Design Group Components



Source: Century West Engineering

Airport Facilities Analysis

Based on the updated inventory of facilities presented in Chapter 2, an evaluation for conformance with applicable FAA standards was performed. The FAA's primary airport planning guidance advisory circular has undergone two major updates since the 2004 ALP Report was adopted. Additional standards have been defined, with others combined or eliminated. Additional information about these items will be provided in the relevant sections of the chapter.

- A small number of conformance issues were identified for the existing runways, taxiways and apron/taxilanes at MMV. Options for mitigating the items will be included in the airside/landside alternatives evaluation (Chapter 5).
- Taxiway A2 and Taxiway D create a crossing in the middle one-third of Runway 4/22, which is defined by FAA as a "high energy crossing." Current FAA design guidance discourages high energy crossings on runways.
- Taxiways A1 and A4 are acute angled taxiway connectors to Runway 04/22. Current FAA design guidance encourages 90-degree exit taxiway geometry, except for high speed exits for runways with significant air traffic and capacity issues.
- The Runway Protection Zones (RPZ) for all four runway ends (Runways 4, 22, 17, 35) extend off airport property. The FAA recommends airport control of RPZs through fee simple ownership or avigation easements. Avigation easements for portions of the Runway 22 RPZ were acquired by the City of McMinnville in the early 1980s. These easements will be reflected in updated ALP set drawings, including the "Exhibit A" Property Plan. The remaining portions of the RPZ not in airport ownership will be evaluated as noted above.
- Public roads (SE Cruickshank Road and Highway 18) are located in the RPZs for Runway 22 and 17. An unimproved road extends through the Runway 35 RPZ, along the southern edge of airport property, from a connection to SE Airport Road (controlled access with gate). The FAA's current design guidance identifies roads in RPZs as incompatible land uses.
- The east end of the Runway Safety Area (RSA) and Object Free Area (OFA) for Runway 4/22 has a small encroachment (100 feet ±) created by SE Cruickshank Road and an airport fence. These non-conforming items were evaluated in 2015, prior to the most recent reconstruction of Runway 4/22. The FAA permitted the existing Runway 22 threshold, road and fence conditions to be maintained in the runway reconstruction project, with the requirement that declared distances (-100 feet) be published for Runway 4 operations. The current declared distances reduce the Runway 4 Accelerate-Stop Distance Available (ASDA) and the Landing Distance Available (LDA) from 5,420 to 5,320 feet.

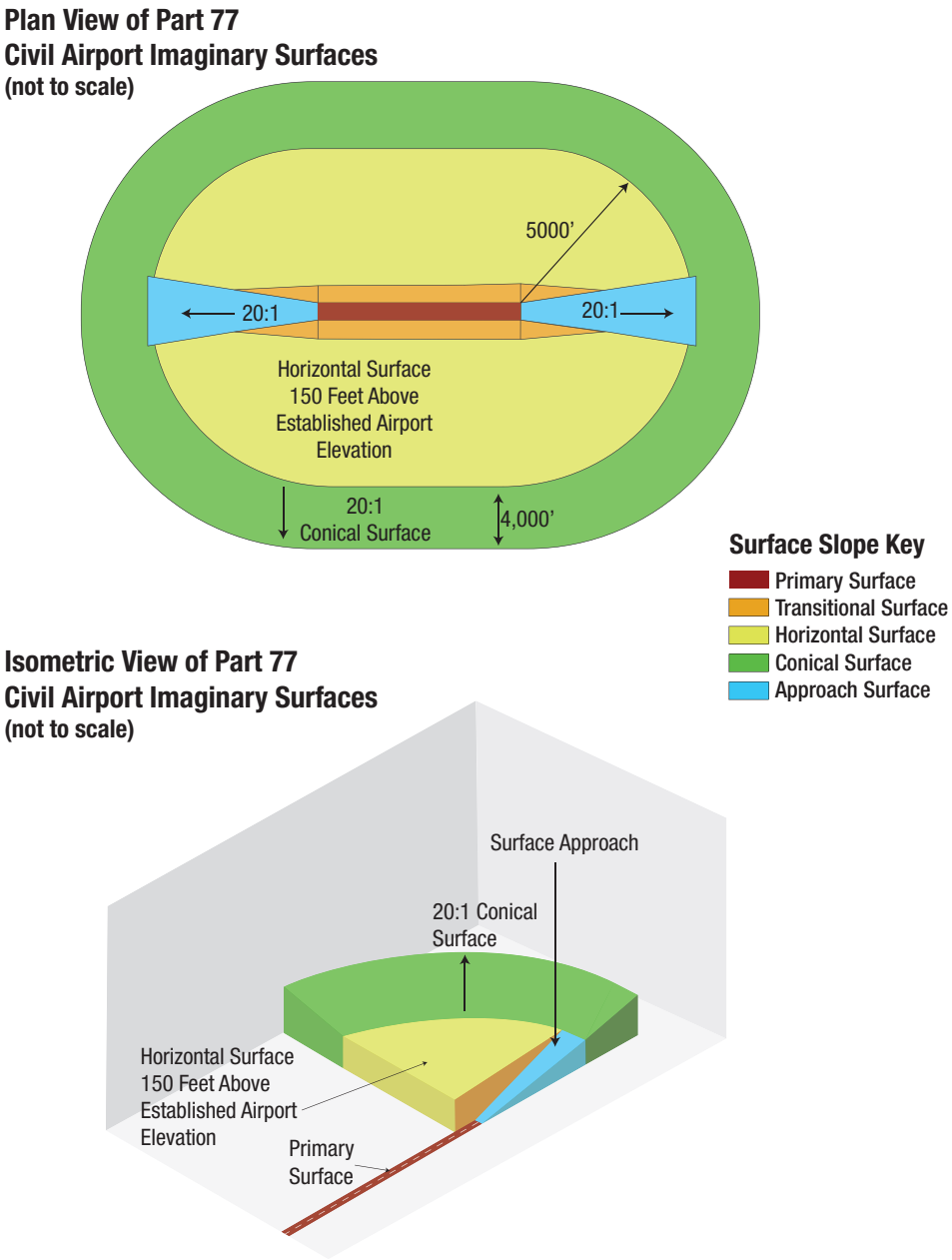
  As part of the ongoing coordination for the airport master plan, the FAA has indicated that standard RSA and OFA conditions should be achieved for the runway. Unrelated to the master plan, the ODOT Three Mile Lane project reconfiguring a section of the Highway 18 corridor that runs adjacent to the north side of the airport, plans to eliminate the existing SE Cruickshank Road connection to Highway 18 and re-route traffic east. The planned closure of this section of the roadway will allow the road to be vacated (ROW deeded to Airport), the RSA and OFA corner to be re-graded, and the fence relocated outside the protected areas. Emergency and maintenance access to this area may be provided through locked gates.
- Some taxilanes in the terminal area and adjacent small aircraft hangar areas do not meet FAA standards for ADG I taxilane object free areas (TLOFA) (minimum 39.5 feet from taxilane centerline to adjacent structure). However, in many cases, the adjacent hangars (including T-hangars) have common 40-foot door widths. This limits the hangars to smaller aircraft with wingspans less than the upper limit of ADG I aircraft wingspan (49 feet) used to define the OFA standard, which effectively mitigates the non-conforming conditions.
- Hangar "X-Ray" (Two buildings - 5 units total) located near the southeast corner of the west hangar area, have door widths (53-57 feet ±) capable of accommodating smaller ADG II aircraft. Similar to as noted above, the taxilane OFA clearances adjacent to these hangars do not meet either ADG I or II standards (ADG II = minimum 55' feet from taxilane centerline to adjacent structure). Marking (signage) the limited wingspan clearances for these taxilane sections are recommended. If the hangars are replaced at the end of their useful lives, replacement hangars should be sited to meet the applicable TLOFA clearance requirements.

Airside Facility Requirements

PART 77 AIRSPACE

U.S. airport airspace is defined by Title 14, Code of Federal Regulations (CFR) Part 77 – Safe, Efficient Use, and Preservation of the Navigable Airspace1. Part 77 defines airport imaginary surfaces that are established to protect the airspace immediately surrounding a runway. The airspace surfaces and ground areas surrounding a runway should be free of obstructions (i.e., structures, parked aircraft, trees, etc.) to the maximum extent possible to provide a safe aircraft operating environment. A generic Part 77 diagram illustrating each type of airspace surface is provided in **Figure 4-2**.

Figure 4-2: Part 77 Airspace (Generic)



Source: Century West Engineering, Airspace Plan; Part 77

The definition of Part 77 surfaces at an airport reflects a variety of factors, but a primary defining factor is runway category (visual, non-precision instrument, or precision instrument). Runway 4/22 is designated as a precision instrument runway, with straight-in ILS procedures to Runway 22. Runway 4 supports non-precision instrument approaches. Runway 17/35 is designated as a visual runway and it does not support instrument procedures.

The air traffic on Runway 4/22 is consistent with airspace planning standards for "large" aircraft (above 12,500 pounds); the standards defined for "small" aircraft (12,500 pounds and less) are appropriate for Runway 17/35. The applicable Part 77 surfaces for MMV are summarized in **Table 4-4**.

Table 4-4: Part 77 Airspace Summary (MMV)

	Runway 4/22	Runway 17/35
Part 77 Runway Designation	**Larger than Utility Precision Instrument (PIR)**	**Utility Visual (VIS)**
Width of Primary Surface	1,000 feet	250 feet
Approach Surface Length	50,000 feet (Rwy 22) 10,000 feet (Rwy 4 – NPI)	5,000 feet
Approach Surface Width (Outer End)	16,000 feet (Rwy 22) 3,500 feet (Rwy 4 – NPI)	1,250 feet
Approach Surface Slope	50:1/40:1 (Rwy 22) 34:1 (Rwy 4 – NPI)	20:1
Transitional Surface	7:1 Slope to 150 feet above runway	Same
Horizontal Surface Elevation	150 feet above airport elevation	Same
Horizontal Surface Radius	10,000 feet	5,0001
Conical Surface	20:1 for 4,000 feet	Same

Source: Code of Federal Regulations (CFR), Title 14, Subpart E, Part 77

1. For airports with both utility and larger than utility runways, the runway horizontal surface dimensions are combined, and the more demanding surface takes precedence.

PART 77 AIRSPACE SURFACES AND OBSTRUCTIONS

This section provides descriptions of Part 77 airspace surfaces and obstructions for Runway 4/22 and 17/35 depicted on the 2004 Airspace Plan drawing, based on the runway configuration in place at the time. The subsequent reconstruction of Runway 4/22 did not change length or airspace surfaces. However, a reconstruction of Runway 17/35 shifted the runway south (breaking the intersection with 4/22) while maintaining its existing length (4,340'). Two items (fence and private service road) located 380' and 430' from the south end of Runway 17/35 listed for reference were identified as non-obstructions. These items will be reevaluated based on the current (shifted) runway end in the updated assessment of AGIS survey data.

The 2004 Airspace Plan identified 25 obstructions and 4 non-obstructing items for reference. These items were identified for Runway 4/22 approach surfaces, transitional surface, and primary surface, in addition to surfaces for Runway 17/35 and the overall airfield (conical, horizontal). Three built items (building, rods on glide slope and electrical box) associated with the airfield were identified as obstructions. 19 trees and 1 bush were identified as obstructions (or potential obstructions). An area of terrain penetration was identified for the horizontal and conical surface, about 2 miles south of the airfield. The drawing noted the available obstruction data were limited (1993 and 2002 survey projects). The majority of obstructions were recommended to be removed or lighted.

Updated AGIS obstruction survey data was acquired from a fall 2023 mapping flight as part of the master plan. The AGIS data has been accepted by FAA and is currently being incorporated into the updated Part 77 Airspace Plan, and related drawings. The ALP and Airspace drawings will be updated to reflect the AGIS obstruction analysis, prior to submitting to FAA. An updated table will be included for all identified obstructions, with precise location and elevation data. The updated ALP drawing set will serve as the primary reference for any future obstacle removal projects to be identified in the Airport Capital Improvement Plan (ACIP).

Approach Surface

Approach Surfaces extend outward and upward from each end of the primary surface, along the extended runway centerline. The dimensions and slope of the approach surfaces are determined by the type of aircraft intended to use the runway, and the most demanding approach type planned for the runway.

Runway 4/22

The 2004 Airspace Plan identified 2 obstructions to the Runway 4 approach surface and 5 obstructions to the Runway 22 approach surface.

Runway 17 /35

No approach surface obstructions were identified for Runway 17/35 on the 2004 Airspace Plan. As noted above, the Runway 17/35 approach surfaces were shifted south as part of a runway reconstruction project. An updated obstruction evaluation will be performed for the current runway configuration using 2023 AGIS survey data.

Primary Surface

The Primary Surface is a rectangular plane longitudinally centered on the runway (at centerline elevation) extending 200 feet beyond each runway end. The width of the primary surface depends on runway category, approach capability, and approach visibility minimums. The primary surface should be free of any penetration, except items with locations fixed-by-function (i.e., approach lighting, runway or taxiway edge lights, etc.). The outer ends of the primary surface connect to the inner portion of the runway approach surfaces.

Runway 4/22

Three primary surface penetrations are identified on the 2004 Airspace Plan. Two obstructions were identified near the Runway 4 end (tree, bush), recommended to be removed, and one obstruction near the Runway 22 end (rod on the glide slope - no mitigation recommended).

Runway 17/35

No primary surface obstructions were identified for Runway 17/35 on the 2004 Airspace Plan.

Transitional Surface

The transitional surface is located along the lateral edges of the primary surface for each runway and is represented by a plane rising perpendicularly to the runway centerline at a slope of 7 to 1. The transitional surfaces extend outward and upward to an elevation 150 feet above the airport elevation. The outer edges of the transitional surface connect with the horizontal surface. The transitional surface should be free of obstructions (i.e., parked aircraft, structures, trees, terrain, etc.).

Runway 4/22

Twelve transitional surface obstructions (trees) are identified on the 2004 Airspace Plan. The obstructions were clustered in two main areas: the west end of Runway 4/22 (north side, mostly within the boundary of the Galen McBee Airport Park); the east end of Runway 4/22 (north and south sides of approach/primary surfaces). The recommended disposition for the trees was “top/remove.”

Runway 17/35

One obstruction (building) to the Runway 17/35 Transitional Surface was identified in the 2004 Airspace Plan. The building has been removed.

Horizontal Surface

The Horizontal Surface is a flat plane located 150 feet above the airport elevation. The horizontal surface boundaries are defined by the radii constructed from each runway end (10,000 feet for Runway 4/22; 5,000 feet for Runway 17/35). The outer edges of the radii for each runway end are connected with tangent lines, which taken together define the horizontal surface. The 2004 Airspace Plan identified one area of terrain penetration (37 feet) in the horizontal surface, near its outer edge, south of the Airport. No mitigation was recommended.

Conical Surface

The Conical Surface is an outer band of airspace that encircles the horizontal surface. The conical surface begins at the outer edge of the horizontal surface and extends outward 4,000 feet and upward at a slope of 20:1. The 2004 Airspace Plan identified one area of terrain penetration (8 feet) in the conical surface, south of the Airport. No mitigation was recommended.

Airfield Pavement Strength and Condition

Airfield pavements are considered to be the single most important asset at an airport. Monitoring and planning for future improvements to the strength and condition of airfield pavements is critical to satisfying existing and future aeronautical demand.

AIRFIELD PAVEMENT STRENGTH

Pavement strength ratings for the runways at MMV are published for pilot use in the FAA Chart Supplement.

Runway 4/22

- 40,000 pounds (single wheel landing gear)
- 50,000 pounds (dual wheel landing gear)
- 80,000 pounds (double dual wheel landing gear in tandem)

Runway 17/35

- 30,000 pounds (single wheel landing gear)

The pavement strength for both runways appears to be adequate to accommodate their respective critical aircraft. It is noted that in 2023, TMFSC instrument flight plan data indicates that MMV accommodated 28 operations by aircraft with maximum operating weights above the 50,000-pound dual wheel pavement strength rating for Runway 4/22. Although limited use of runways by heavier aircraft is not uncommon, airport management may consider options for managing these events with the goal of optimizing the functional life cycle of the pavement. Use by heavier aircraft may accelerate pavement wear and increase the frequency of runway rehabilitation projects.

The pavement sections for major taxiways and the primary aircraft parking aprons should correspond to the runways they serve. The main apron is constructed of Portland Cement Concrete (PCC), which is common for aircraft parking aprons or hardstands that accommodate heavier aircraft. Small aircraft aprons and hangar taxilanes are typically designed to accommodate aircraft weighing 12,500 pounds or less.

AIRFIELD PAVEMENT CONDITION

An updated Pavement Evaluation Program (PEP) inspection, performed by the Oregon Department of Aviation (ODAV), was conducted at MMV in July 2023. A summary of airfield pavement conditions documented in the 2023 report is provided below.

> *"The area-weighted average PCI for all airport pavements at McMinnville Municipal Airport is approximately 75. The section PCIs ranged from a low of 0 to a high of 94.*
>
> *The primary distresses observed during the inspection were weathering, longitudinal and transverse cracking, fatigue (alligator) cracking, block cracking, depression, and raveling on AC surfaced pavements, and linear cracking, joint spalling, patching, and joint seal damage on PCC pavements."*

The PEP report (Appendix B, Table 2B) reports that the overall (area weighted) condition of the runway, taxiway, and apron pavements at MMV are consistent with project history and recent site visit observations:

- Runway: 85 (Good) – Runway 4/22 (90), Runway 17/35 (77)
- Taxiway: 72 (Satisfactory) – varies widely (7-93)
- Apron: 64 (Fair) – varies widely (0 - 100)

A summary of the recommended projects in the 2023 PEP Five-Year Global Maintenance and Rehabilitation Plan (2023-2028) is provided in **Table 4-5**.

Table 4-5: 2023 PEP – Recommended MMV Pavement Projects (2023-2028)

Recommended Year	Pavement Section	Recommended Work
--	Main Apron (PCC Sections)	Routine Maintenance
--	East Apron (AC)	Routine Maintenance
2024	West Apron (Middle Section)	Fog Seal
2024	Runway 22 Run up Apron	Fog Seal
2024	Runway 4/22	Slurry Seal
2024	Runway 17/35	Slurry Seal
2024	Taxiway A (East 2/3)	Slurry Seal
2024	Taxiway B	Slurry Seal
2024	Taxiway C	Slurry Seal
2024	Taxiway D	Slurry Seal
2024	West Hangar Area Taxilanes (West Section)	Fog Seal
2024	West Hangar Area Access Taxiway (@ A2)	Fog Seal
2025	West Apron (Outer (W/E) Sections)	Reconstruction
2026	Taxiway A (West 1/3)	Overlay
2026	West Hangar Area Access Taxiway (east of A2)	Reconstruction
2027	West Hangar Area Taxilanes (Middle Section)	Reconstruction
2028	West Hangar Area Taxilanes (East Section)	Overlay

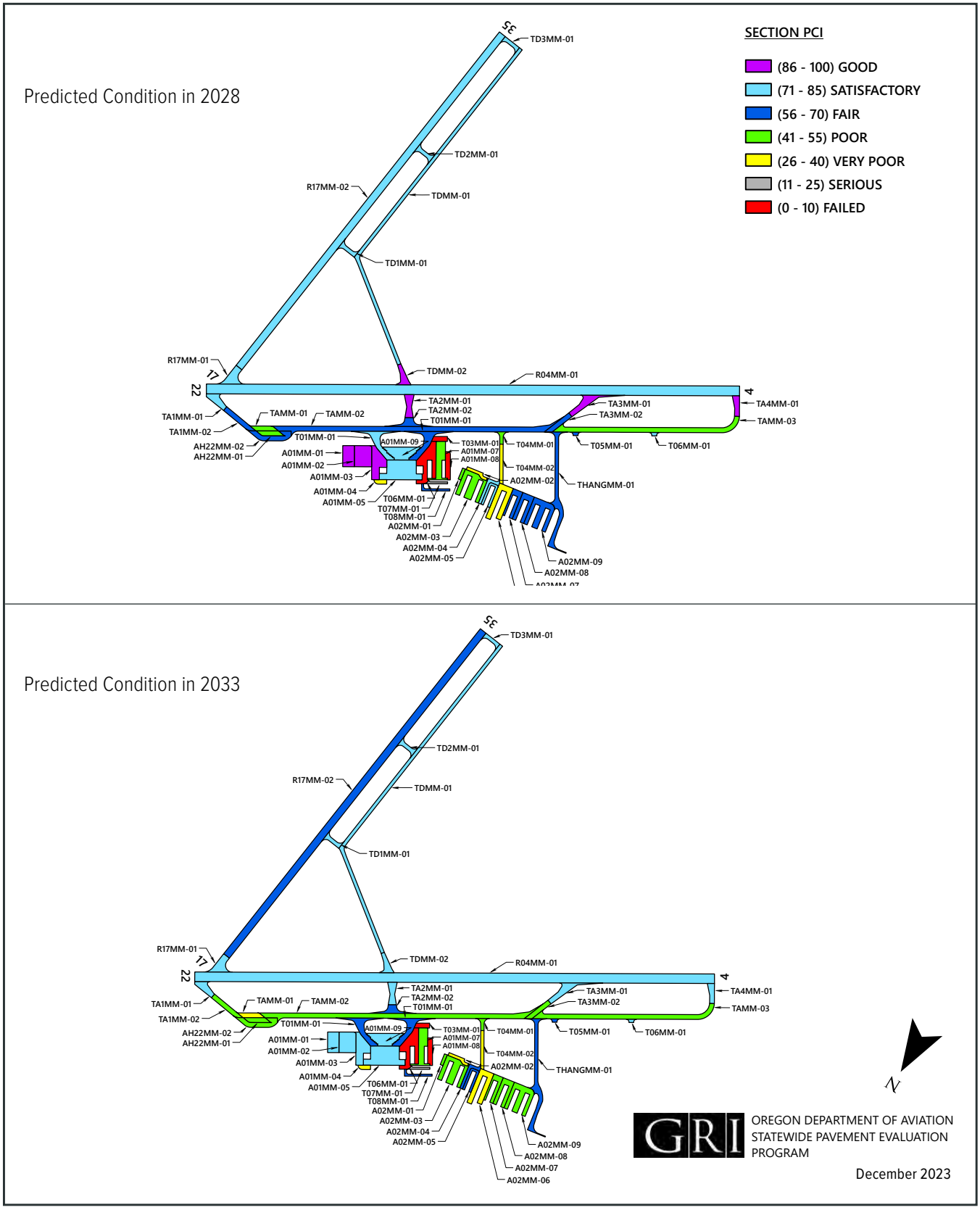
PCC = Portland Cement Concrete; AC = Asphaltic Concrete (Asphalt)

SUMMARY

It is expected that all runways, apron, taxiway, and taxilane pavements on the airfield will require rehabilitation or reconstruction during the current 20-year planning period. A prioritized list of pavement rehabilitation or reconstruction projects will be provided in the updated capital improvement program. It is recommended that ongoing maintenance, including vegetation removal, crack filling, sealcoats, and joint repairs be conducted on a regular basis and consistent with the ODAV PEP to maximize the longevity of airfield pavements through the planning period.

The PEP predicted 2028 and 2033 PCI ratings (assuming no intervening maintenance or rehabilitation is performed) for MMV are presented graphically in **Figure 4-4**.

Figure 4-4: Predicted Pavement Conditions



Source: Oregon Department of Aviation – 2023 Pavement Evaluation/Maintenance Management Program

Airfield Facilities

RUNWAYS

The runways were analyzed relative to orientation, length and width, and conformance to FAA design standards. Runway 4/22 is designated as the “primary” runway. Runway 17/35 is designated as a “secondary” runway, based on the wind coverage of the primary runway (see below). By FAA definition, a crosswind runway designation only applies when primary runway wind coverage is below 95%.

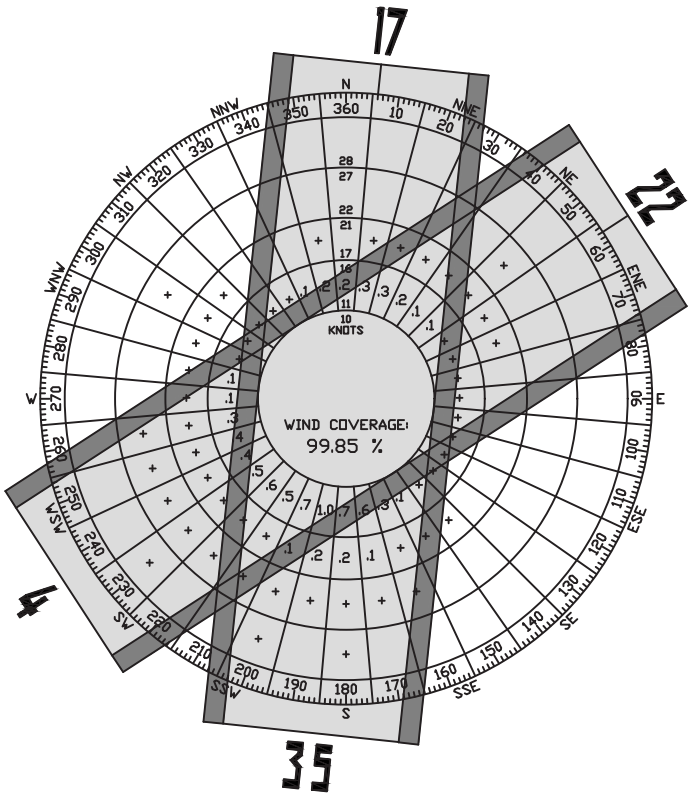
Runway Orientation and Crosswind Coverage

The preferred orientation of runways is a function of wind velocity, combined with the ability of aircraft to operate under given conditions. FAA has defined the maximum allowable direct crosswind (90-degrees) for small aircraft as 10.5 knots (12 mph) and 13 knots (15 mph) for larger general aviation aircraft. The FAA recommends that primary runways accommodate at least 95% of wind conditions. When this level of wind coverage is not provided, the FAA recommends consideration of a crosswind runway.

A new wind rose was created for MMV based on 10-years of historical data collected on site by the Airport’s Automated Surface Observing System (ASOS). The data indicate that wind coverage for Runway 4/22 exceeds 95% for both 10.5 and 13 knots in each of the three operational groupings (VFR, IFR, and All -Weather). The wind coverage for Runway 17/35 also exceeds 95% for both 10.5 and 13 knots. When combined, the two runways accommodate more than 99.8% of total wind conditions within the defined crosswind components.

Figure 4-5 depicts the all-weather wind rose for MMV that was built with 2013-2022 data. A table of wind coverages for each runway and runway end is also provided for the defined wind speeds and weather conditions described above.

Figure 4-5: All Weather Wind Rose (MMV)



ALL WEATHER WIND ROSE

SOURCE:
FAA AIRPORT DATA AND INFORMATION PORTAL
STATION 726881 MCMINNVILLE MUNICIPAL AIRPORT
PERIOD OF OBSERVATIONS : 2013-2022
NUMBER OF OBSERVATIONS : 117,663

RUNWAY 4-22/17-35 WIND COVERAGE				
RUNWAY ALIGNMENT	CROSSWIND COMP. (KNOTS)	ALL-WEATHER WIND COVERAGE	VFR WIND COVERAGE	IFR WIND COVERAGE
COMBINED 4-22	10.5	96.73%	96.05%	99.10%
	13	98.49%	98.18%	99.54%
	16	99.67%	99.61%	99.89%
COMBINED 17-35	10.5	98.39%	98.06%	99.59%
	13	99.28%	99.15%	99.78%
	16	99.87%	99.86%	99.92%
ALL RUNWAYS	10.5	99.85%	99.82%	99.94%
	13	99.96%	99.96%	99.99%
	16	99.99%	99.99%	100%

RUNWAY LENGTH

Runway length requirements are based primarily on airport elevation, mean maximum temperature of the hottest month, runway gradient, and the aircraft expected to use the runway. For general aviation airports, the FAA recommends using a "family of design aircraft" approach for defining runway length requirements. *FAA AC 150/5325-4B, Runway Length Requirements for Airport Design*, provides the length analysis requirements for different segments of large and small aircraft fleets.

2004 Airport Layout Plan Report

The runway length analysis evaluated the requirements for a variety of operational configurations for both runways. An FAA computer model commonly in use at the time was used to define the runway lengths required at MMV to accommodate various aircraft groupings.

For Runway 4/22, the most applicable grouping for the current and forecast business jets activity was 100% of the large aircraft fleet (aircraft under 60,000 pounds). This grouping was consistent with C/D-II business jets, then identified as the future critical aircraft. The model indicated that a runway length of 5,500 feet was needed at MMV to accommodate 100% of the large aircraft fleet at a 60% useful load. A slightly shorter runway length (5,310') was required to accommodate 75% of the large airplane fleet at a 60% useful load. The existing length of Runway 4/22 (5,420') falls between the two lengths, indicating a high level of capability.

For Runway 17/35, the model indicated that a runway length of 3,600' was required to accommodate 100% of the small airplane fleet (aircraft under 12,500 pounds). At the time, Runway 17/35 was 4,676' long, which exceeded this length by 30%. The runway was later shifted south to increase separation with Runway 4/22 and shorten to 4,340' (+20% longer than the model-defined requirement).

The 2004 ALP depicted future no extensions for Runway 4/22 or Runway 17/35.

Updated Assessment of Runway Length Requirements

The planning methodology used to define runway lengths capable of satisfying existing and future demand at MMV is established by the *FAA: AC 150/5325-4B, Runway Length Requirements for Airport Design*. This methodology is consistent with FAA planning criteria that correlates the needs of the existing and future critical aircraft to approval of the Airport Layout Plan drawing and project eligibility for FAA funding. The specific design criteria applied to a runway does not preclude use by larger aircraft. However, airport management approval is typically required for use by heavier aircraft based on the operational limits of the airfield, particularly pavement strength.

Using FAA planning methodologies, the evaluation of runway length requirements begins with the operational requirements of the critical aircraft, or family of aircraft, expected to use each runway. Several airfield-specific conditions that affect aircraft performance are then verified including airport elevation, runway gradient, and the assumed operating temperature (average daily maximum temperature of the hottest month of the year). These inputs are applied to runway length curves presented in AC 150/5325-4B for the applicable segment of the GA aircraft fleet.

The FAA recommends a planning evaluation based on the "family of aircraft" to capture the most common aircraft within a particular category. As noted in the updated aviation activity forecast, large business jets (12,500 to 60,000 pounds) are identified as the existing and future critical aircraft for Runway 4/22. Since FAA instrument flight plan data accounts for the bulk of the Airport's large jet operations, it is reasonable to assume that MMV's instrument runway (Runway 4/22) accommodates the majority this activity at the Airport. The large airplane grouping is further characterized by determining the "useful load factor" at which they operate, based on the haul lengths and service needs of those jet aircraft. Runway 17/35 (secondary runway) is a visual runway that accommodates predominantly small aircraft.

For GA runways that accommodate large or small airplanes, the FAA recommends use of performance curves for runway length planning. The curves were developed by FAA based on approved airplane flight manuals, and they are intended to represent the needs of the fleet, rather than a single aircraft or type. This approach provides a more effective indication of the requirements of overall aircraft rather than relying on the requirements for an individual aircraft. The design aircraft, or family of aircraft, defined in the FAA-approved Aviation Activity Forecasts, is matched to the applicable runway length curves that are defined based on the factors described below. As noted earlier. the current length of Runway 4/22 is 5,420 feet and Runway 17/35 is 4,340 feet.

Runway 4/22

For large airplanes (12,500 to 60,000 pounds), *AC 150/5325-4B* identifies "Airplanes that Make Up 75 Percent of the Fleet" and the "Remaining 25 Percent of Airplanes that Make Up 100 Percent of Fleet." The AC provides guidance for selecting the appropriate grouping of aircraft fleet and the corresponding runway length curves that should be used for planning. The FAA recommends that designers use the 75% fleet curves when the aircraft under evaluation are not found in the 100% fleet group. However, even when relatively few airplanes being evaluated are listed in the 100% of fleet aircraft group, the FAA recommends that the 100% fleet curves should be used. Activity from both fleet segments is documented at MMV through historical FAA TFMSC data, which is reflected in the critical aircraft designation for Runway 4/22. **Based on FAA criteria, use of the 100% fleet runway length curves is appropriate for Runway 4/22**. **Table 4-6** summarizes representative business jet aircraft within the 75% and 100% fleet groupings.

Table 4-6: 75% and 100% of Large Airplane Fleet (Representative Aircraft)

75% of Fleet	100% of Fleet
British Aerospace – Bae 125-700	British Aerospace – Bae Corporate 800, 1000
Beechcraft, Mitsubishi – Beech Jet - 400A, Premier I	Bombardier – Challenger 600, 601-3A/3ER, 604
Bombardier – Challenger 300	Cessna – S550 Citation S/II, 650 Citation III/IV, 750 Citation X
Cessna – Citation I, II, III, V, VII, CJ-2, Bravo, Excel, Encore, Sovereign	Dassault – Falcon 900C/900EX, 2000/2000EX
Dassault – Falcon 10, 20, 50	IAI – Astra 1125, Galaxy 1126
Israel Aircraft Industries – Jet Commander 1121, Westwind 1123/1124	Learjet – 45XR, 55/55B/55C, 60
Learjet – 20 series, 30 series, 40, 45	Raytheon Hawker – Horizon, 800/800 XP, 1000
Raytheon Hawker – Hawker 400, 600	Sabreliner – 65/75
Rockwell – Sabreliner 75A	

Source: FAA AC 150/5325-4B

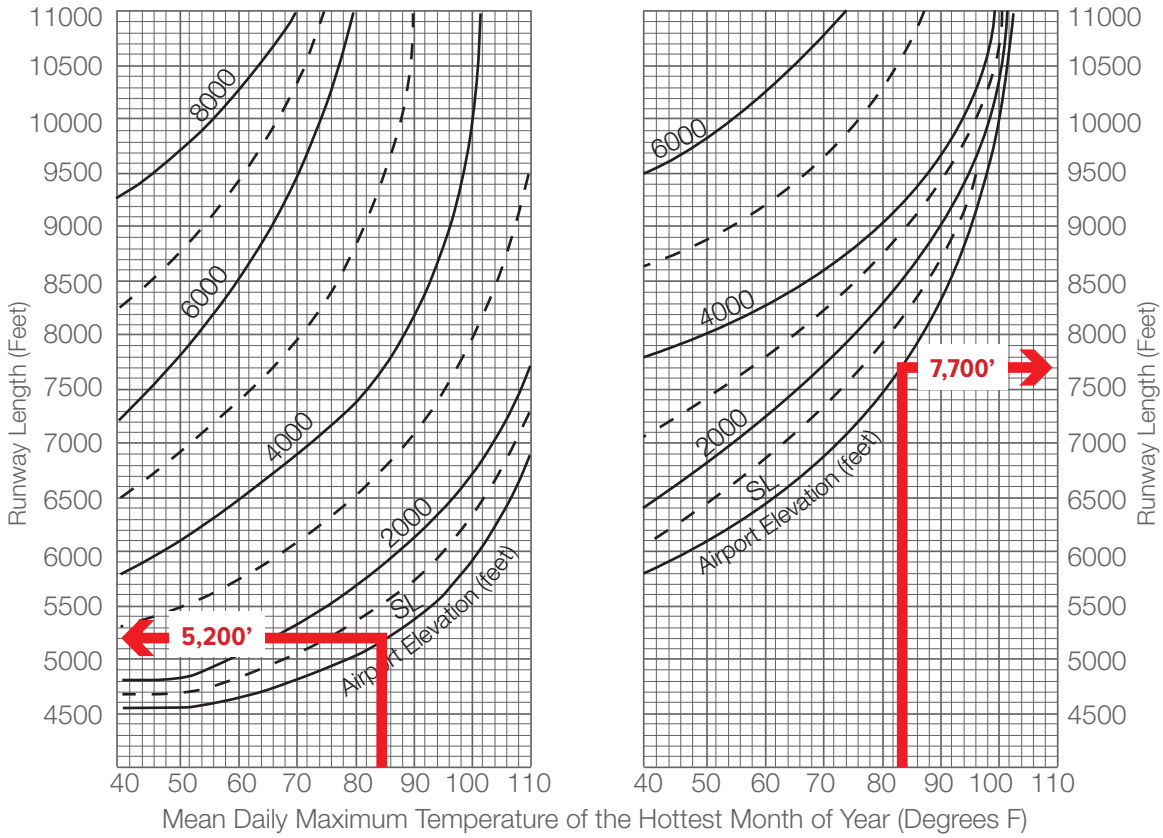
The runway length curves for these fleet segments provide for both 60% and 90% useful load factors. An aircraft's useful load represents the payload (passengers, fuel, etc.) that can be carried within its design/operating limits. For general reference, when an aircraft is at its maximum gross weight, it has reached its maximum useful load; however, that may not include full fuel tanks or a full passenger load depending on the aircraft's certificated design limits. **Based on FAA-defined criteria, including the typical haul lengths and service needs of the critical aircraft, the 60% useful load curve is recommended for Runway 4/22**.

Figure 4-6 depicts the runway length curves for 100% of the fleet and 60% useful load recommended for Runway 4/22. The runway length curve inputs include airport elevation and maximum mean daily temperature. For MMV, this produces an unadjusted runway length of 5,200 feet. Further adjustment is required to account for effective runway gradient and wet and slippery conditions. After these adjustments have been independently applied for Runway 4/22, the larger resulting runway length is selected as the recommended length.

Inputs - Runway Length Curves (Rwy 4/22):

- Airport elevation: **162.7 feet above mean sea level (MSL)**
- Mean Maximum Temperature (the average daily high temperature for the hottest month of the year): **83°F**
- Runway Gradient: **Maximum Elevation Difference: 0.1 feet**

Figure 4-6: Runway Length Curves (100% of Fleet, 60% & 90% Useful Load)



Source: FAA AC 150/5325-4B Runway Length Requirements for Airport Design

Runway gradient is addressed by increasing the required length at a rate of 10 feet for each 1-foot difference between runway high and low points. Runway 4/22 has a net elevation difference of 0.1 feet resulting in an adjustment of 1.0 feet, increasing runway length to 5,201 feet. For the 60% useful load fleet group, adjustments for wet and slippery conditions can increase the runway length either by 15% or up to a maximum of 5,500 feet, whichever is less. Applying a 15% adjustment to the 5,201-foot runway length noted above, exceeds 5,500 feet. As a result, the length is increased to 5,500 feet to satisfy the requirements for wet/slippery conditions.

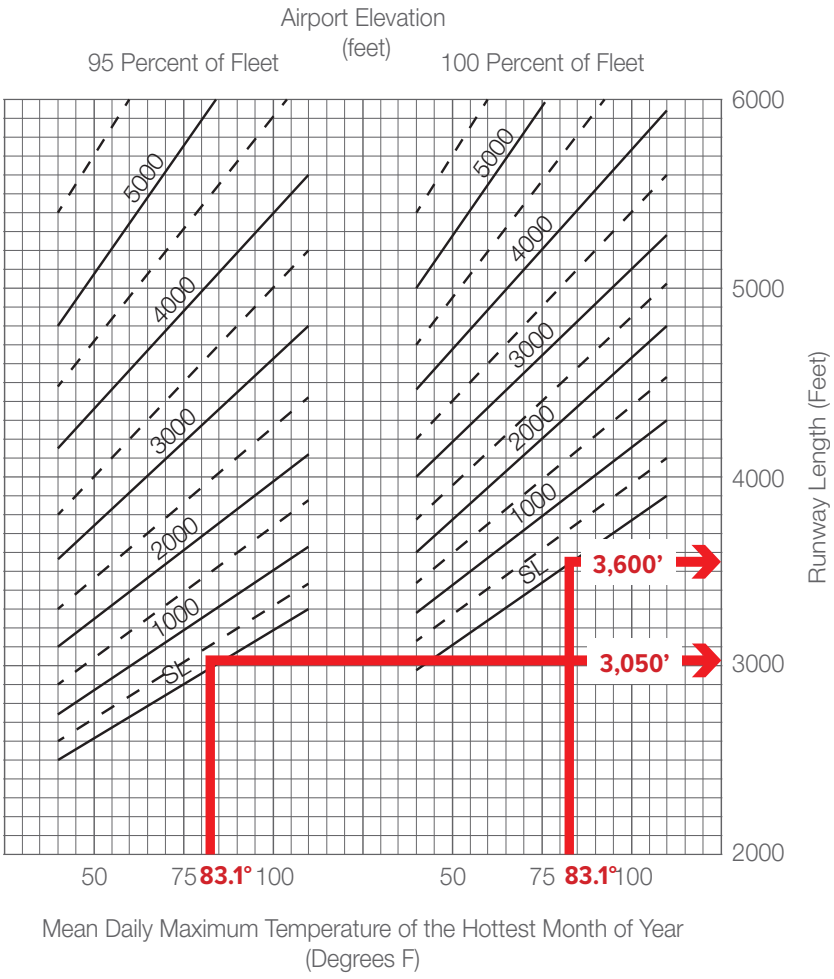
Based on local conditions and the methodology outlined in AC 150/5325-4B, a runway length of 5,500 feet is needed to accommodate 100% of large airplanes (60,000 pounds or less maximum gross takeoff weight) at 60% useful load for the current 20-year planning period.

At its current length of 5,420 feet, Runway 4/22 provides 99% (-80 feet) of the length justified for FAA funding based on forecast air traffic and the FAA's project eligibility criteria. Historical pavement data indicates that the runway was extended in 1992, from its previous length of 4,820 feet with an additional 1,000-foot paved overrun added at the Runway 4 end. Future runway improvement options will be addressed in the airside alternatives evaluation. However, based on its current operational capability, the cost of adding a small incremental increase in length may be difficult to justify, when impacts to existing ground-based navigational aids, lighting systems, and the runway/taxiway components are considered.

Runway 17/35

Runway 17/35 is a visual runway that accommodates predominantly small aircraft, which corresponds to the runway length curves for small aircraft. AC 150/5325-4B provides two sets of runway curves for small airplanes—aircraft with fewer than 10 seats and aircraft having 10 or more seats. Based on current and forecast activity, the critical aircraft for the runway is identified as a small single-engine piston aircraft, with the Cessna 182 Skylane (C-182) selected as representative. The C-182 is a four-passenger aircraft, which aligns with the "fewer than 10 seats" runway length curves for small aircraft. The "family of aircraft" that fall under A/B-I (Small Aircraft) standards weigh less than 12,500 pounds.

Figure 4-7: Runway Length Curves (95% & 100% of Small Airplane Fleet)



AC 150/5325-4B provides runway length curves for 95% and 100% of the small airplane fleet (10 or fewer seats). The FAA recommendation for determining fleet percentage is based on the community the airport serves. The AC indicates that 100 percent of the fleet is *"...primarily intended to serve communities located on the fringe of a metropolitan area or a relatively large population from a metropolitan area."* The 95% of the fleet designation *"...applies to airports primarily intended to serve medium size population communities with a diversity of usage and a greater potential for increased aviation activities."* The 95% fleet definition most closely aligns with MMV, and for planning purposes, the 95% fleet curve will be used for Runway 17/35.

Key Inputs – Runway Length Curves (Rwy 17/35):

- Airport elevation: 162.7 feet above mean sea level (MSL)
- Mean Maximum Temperature (the average daily high temperature for the hottest month of the year): 83°F
- Runway Gradient: Maximum Elevation Difference: 1.86 feet

As depicted in **Figure 4-7**, a runway length of 3,050 feet is needed to accommodate 95% of the small airplane fleet based on local conditions. The current length of Runway 17/35 is 4,340 feet, which is 142% (+1,290 feet) of the length defined in the FAA methodology.

Runway 17/35 provides 80% of the length of Runway 4/22, which appears to be adequate for current and forecast use as the Airport's second runway.

Airport Design Standards

Following its 2017 reconstruction, Runway 4/22 generally conforms to dimensional standards based on RDC C-II with approach visibility minimums "Lower than ¾ mile." This visibility standard is the lowest increment used by FAA to define design standards for runways, and it corresponds to the Instrument Landing System (ILS) for Runway 22, a precision approach that provides approach visibility minimums as low as ½-mile. The runway currently exceeds several design standards that correspond to the current critical aircraft designation (RDC B-II) but meets or exceeds most standards defined by the future critical aircraft designation (RDC C-II).

Runway 17/35 generally conforms to dimensional standards based on RDC A/B-II with 1-mile approach visibility minimums. Based on the current/future critical aircraft and approach type, the applicable design standards for Runway 17/35 are based on RDC A/B-I (small aircraft) with "visual" approach visibility minimums. The runway currently exceeds several design standards that correspond to the current and future critical aircraft designations (RDC A-I, small aircraft).

FAA AC 150/5300-13B defines both dimensional and obstruction clearance standards for major airfield design standards for runways, taxiways and aircraft aprons. **Table 4-2**, provided earlier, summarizes current and future dimensional standards for both runways at MMV. Design standards are described in the following text boxes and sections.

FAA DESIGN STANDARDS

Runway Safety Area (RSA)

Rwy 4/22

Existing Standard: B-II standard is 300 feet wide (centered on runway) and 600 feet beyond runway ends. Gradient, surface compaction, and obstacle clearing standards apply.

Future Standard: C-II standard is 500 feet wide and 1,000 feet beyond runway ends. Gradient, surface compaction, and obstacle clearing standards apply.

Existing Conditions: The existing RSA appears to exceed RDC B-II standards but does not meet C-II standards. The RSA was evaluated and designed (approved by FAA) based on C/D-II standards during the runway reconstruction in 2017. A small section of Cruickshank Road is located in the southeast corner of the RSA, approximately 900 feet from the end of Runway 22. The remainder of the RSA appears to meet all C/D-II FAA standards.

Rwy 17/35

Existing and Future Standard: A-I (Small Aircraft) standard is 120 feet wide (centered on runway) and 240 feet beyond runway ends. Gradient, surface compaction, and obstacle clearing standards apply.

Existing Conditions: The existing RSA appears to exceed RDC A-I (small) visual standards.

Runway Object Free Area (OFA)

Rwy 4/22

Existing Standard: B-II standard is 800 feet wide (centered on runway) and 600 feet beyond runway ends. Gradient and obstacle clearing standards apply.

Future Standard: C-II standard is 800 feet wide and 1,000 feet beyond runway ends. Obstacle clearing standards apply.

Existing Conditions: The existing OFA appears to exceed RDC B-II standards but does not meet C-II standards. The OFA was evaluated for the 2017 runway reconstruction based on C/D-II standards. A small section of Cruickshank Road is located in the southeast corner of the OFA, approximately 900 feet from the end of Runway 22. The remainder of the OFA appears to meet all C/D-II FAA standards.

Rwy 17/35

Existing and Future Standard: A-I (Small Aircraft) standard is 250 feet wide (centered on runway) and 240 feet beyond runway ends. Obstacle clearing standards apply.

Existing Conditions: The OFA appears to exceed RDC A-I (small) standards for visual runways.

FAA DESIGN STANDARDS

Runway Width/Shoulders

Rwy 4/22

Existing/Future Standards: B-II/C-II runway width is 100 feet, with 10-foot shoulders, based on existing approach visibility minimums.

Existing Conditions: Runway 4/22 width is 100 feet with 10-foot gravel shoulders (meets standards).

Rwy 17/35

Existing/Future Standard: A-I (Small Aircraft) standard runway width for runways with visual or not lower than 1-mile visibility is 60 feet, with 10-foot gravel shoulders.

Existing Conditions: Runway 17/35 width is 75 feet, which exceeds the width standard by 15 feet. The 10-foot gravel shoulders meet standards.

Runway Blast Pad

Rwy 4/22

Existing/Future Standards: B-II/C-II standard is 120 feet wide and 150 feet long (turf or stabilized soils, when required for ADG I, II, and II runways).

Existing Conditions: The runway is not equipped with blast pads at either end. However, the 1,000-foot paved overrun at the end of Runway 4 effectively provides blast pad function.

Rwy 17/35

Existing/Future Standard: A-I (small) standard is 80 feet wide and 60 feet long (turf or stabilized soils, when required for ADG I, II, and II runways).

Existing Conditions: The runway is not equipped with blast pads at either end.

Runway Obstacle Free Zone (OFZ)

Rwy 4/22

Existing/Future Standard: B-II/C-II standard (for large aircraft) is 400 feet wide (centered on runway) and 200 feet beyond runway ends. Obstacle clearing standards apply. Additional OFZ components apply to Runway 22 (see text).

Existing Conditions: The ROFZ appears to meet all FAA standards.

Rwy 17/35

Existing/Future Standard: A-I standard (for small aircraft) is 250 feet wide (centered on runway) and 200 feet beyond runway ends. Obstacle clearing standards apply.

Existing Conditions: The OFZ appears to meet all FAA standards.

Runway Heading

A review of magnetic variation (MAGVAR) data indicates that Runways 4/22 and 17/35 will not require a change in runway heading during the current 20-year planning based on the ongoing annual rate of changes.

Runway Protection Zones (RPZ)

By FAA definition *"The RPZ is a protection zone that serves to enhance the protection of people and property on the ground."* The RPZ shape and location often corresponds to the inner portion of the runway approach surface, although RPZs do not have vertical (slope) component. RPZ dimensions vary by runway design code (RDC).

The most recent update of the FAA Airport Design advisory circular *(AC 150/5300-13B, Appendix I)* identifies several common conditions and facilities that are considered compatible with RPZs. An updated *Airport Land Use Compatibility Planning AC (150/5190-4B)*, issued by FAA in 2022, provides this guidance for RPZs.

The FAA recommends airport control of RPZ through property ownership or acquisition of an avigation easement that limits specific conditions and defines vertical clearances for the corresponding approach surfaces. In general, proposed runway changes that reduce the presence of incompatible land uses in an RPZ are considered to provide incremental safety benefits.

No changes to the RPZ size based on the current and future RDC are anticipated during the current 20-year planning period. Any future changes in runway length or configuration may require changes in RPZ locations.

Although the FAA discourages roads in RPZs, they recognize that potential impacts vary, and in many cases the cost of realigning major roadways outside of RPZs, or reconfiguring runways to eliminate the RPZ conflict, may not be feasible. However, even in cases where roads pre-exist, or will continue to exist in an RPZ, maintaining a clear approach to the runway end is a high priority safety item for FAA. Since RPZs coincide with the inner portion of the Part 77 runway approach surface, vehicles traveling on these roads should not penetrate the runway approach, or if an obstruction does exist, it may be mitigated through a variety of actions.

Runway 4 & 22

The Runway 22 RPZ extends over Cruickshank Road, Highway 18, and beyond airport property. The 2004 ALP depicted no change to the runway or the road configurations. An analysis was conducted in 2015 to evaluate mitigation options for non-standard RSA, OFA, and RPZ in conjunction with a runway reconstruction project. The FAA-approved design maintained existing runway and road conditions and used declared distances for Runway 4 operations to mitigate the RSA and OFA obstacles. A review of these non-conforming items will be included in the airside alternatives analysis (Chapter 5). Anticipated changes to Cruickshank Road related to the ongoing ODOT Highway 18 project, may fully address these conditions and partially mitigate the RPZ. A small portion of the Runway 4 RPZ (south and west of the South Yamhill River) extends beyond airport property, over privately owned land parcels.

Runway 17 & 35

A small portion of the Runway 17 RPZ extends beyond airport property (over ODOT Highway 18 ROW). The majority of the Runway 35 RPZ extends off of airport property over privately owned agricultural land. A gated unpaved road extends through the Runway 35 RPZ from SE Airport Road to provide access to the adjacent orchards and a law enforcement shooting range located near the southwest corner of the Airport. The 2004 ALP depicted a future relocation of the access road south of its current location to improve clearance from the south end of Runway 17/35. As noted earlier, the runway was shifted south as part of its most recent construction. Options to address the current Runway 35 RPZ will be included in the airside alternatives analysis (Chapter 5).

FAA DESIGN STANDARDS

Runway Protection Zone (RPZ)
RPZs should be owned by the Airport or under control by easement and should be clear of incompatible land uses such as roads and buildings. RPZs begin 200 feet beyond each runway end and often coincide with the geometry of the inner approach surface for the runway. The current and planned approach visibility levels for each runway are referenced below.

Existing Conditions: Portions of all four RPZs at MMV extend beyond Airport property. Three of the RPZs (Rwy 22, 17, 35) have roads and within their boundaries. The Runway 22 RPZ has 6 structures located in its outer (NE) section, on the north side of Highway 18. The City of McMinnville has acquired several avigation easements for the Runway 22 RPZ.

Rwy 4/22
Current Standard: B-II Approach RPZ dimensions are 1,000 x 1,750 x 2,500 feet (inner width, outer width, length); the corresponding Departure RPZ is 500 x 700 x 1,000 feet.

Future Standard: C-II Approach RPZ dimensions are 1,000 x 1,750 x 2,500 feet (inner width, outer width, length); the corresponding Departure RPZ is 500 x 1,010 x 1,700 feet.

Rwy 17/35
Current/Future Standard: A-I (Small) Approach and Departure RPZ dimensions are 250 x 450 x 1,000 feet (inner width, outer width, length).

Recommendation: Avigation easements are recommended for all portions of existing/future RPZs not currently in Airport ownership.

The primary purpose of the RPZ easements is to control activities on the ground and to limit heights of trees or built objects that may penetrate the coincident inner approach surface for the runway (that has a similar surface area coverage). Options for realigning existing roads outside RPZs should be considered in the alternatives evaluation, where feasible.

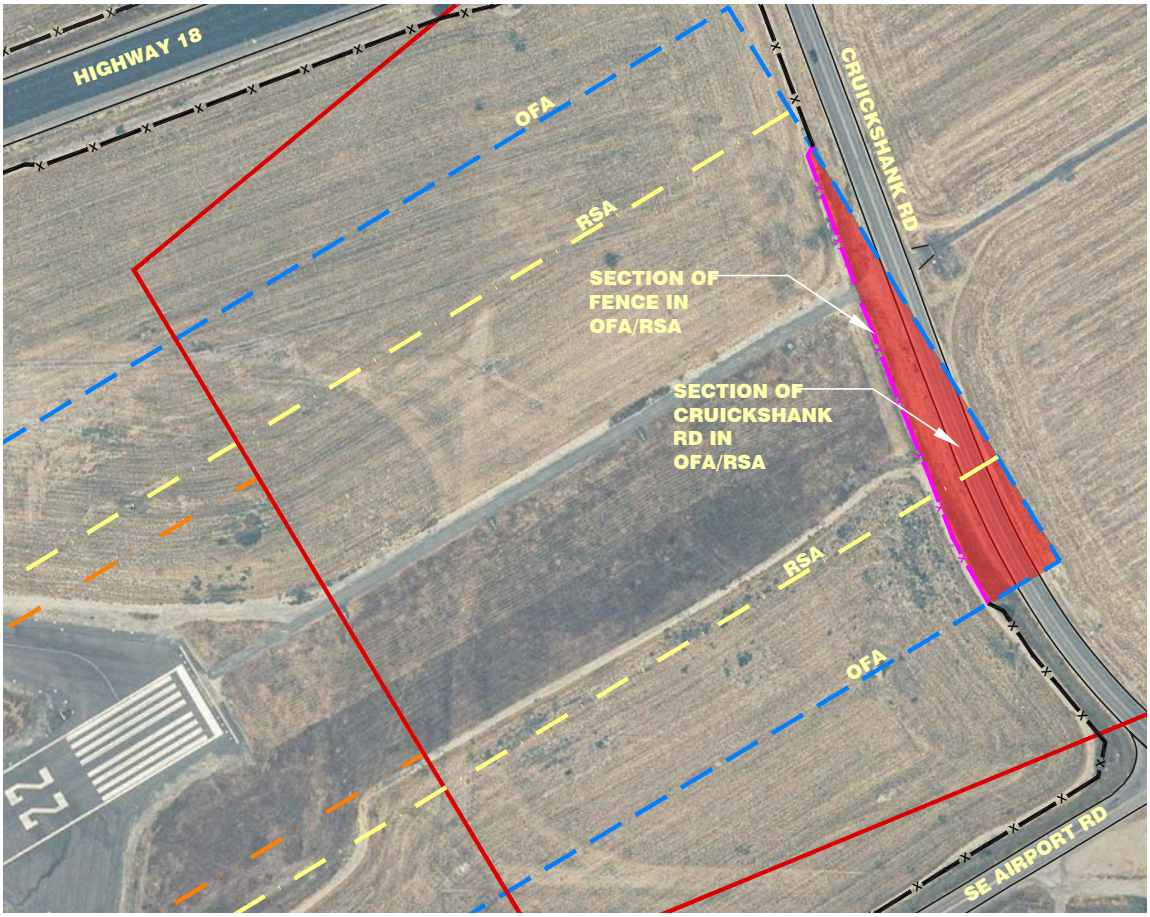
Object Free Area (OFA)

The runway OFA is a flat surface that sits at the same elevation as the runway. The OFA should be clear of terrain and above ground objects except for those required for air navigation or aircraft ground maneuvering purposes.

Runway 4/22

Runway 4/22 meets/exceeds the current B-II dimensional and obstacle clearance standards for the OFA. However, the future C-II OFA footprint is not clear at the Runway 22 end due to fencing and a public road located in the eastern 100 feet of the OFA. The non-standard conditions depicted in **Figure 4-8** reflect future RDC C-II design standards.

Figure 4-8: Runway 4/22 – Non-Standard OFA and RSA (Future)



Source: Century West Engineering

As noted earlier, RDC C/D-II design standards were used in the last reconstruction project for Runway 4/22. Mitigation measures (use of declared distances) were approved by FAA to address the non-standard OFA and RSA conditions noted above. However, FAA planning guidance indicates that the runway should be capable of meeting the applicable current or future standards. Options for meeting the future C-II OFA (and RSA) standards will be included in Chapter 5 – Development Alternatives Analysis.

Runway 17/35

Runway 17/35 meets/exceeds the current and future A-I (Small Aircraft) dimensional, obstacle clearing, and surface condition standards for the OFA. As noted earlier, Runway 17/35 was previously designed and constructed based on B-II standards.

Runway Safety Area (RSA)

The RSA is a flat surface that sits at the same elevation as the runway and is intended to be clear of terrain and above ground objects. FAA standards define dimensional, gradient, surface condition, and obstruction clearance requirements. The RSA is intended to enhance the safety of aircraft that overshoot, overrun, or veer off the runway without causing significant structural damage, as well as to provide access for Aircraft Rescue and Firefighting (ARFF) equipment for emergency response.

Runway 4/22

Runway 4/22 meets/exceeds the current B-II dimensional and obstacle clearance standards for the RSA. However, the future C-II RSA footprint is not clear at the Runway 22 end due to fencing and a public road located in the eastern 100 feet of the RSA. The non-standard conditions depicted in Figure 4-8 reflect future RDC C-II design standards. As noted earlier, FAA planning guidance indicates that the runway should be capable of meeting the applicable current or future standards. Options for meeting the future C-II RSA standard will be included in Chapter 5 – Development Alternatives Analysis.

Runway 17/35

Runway 17/35 meets/exceeds the current and future A-I (Small Aircraft) dimensional, obstacle clearing, and surface condition standards for the RSA. As noted earlier, Runway 17/35 was previously designed and constructed based on B-II standards.

Obstacle Free Zone (OFZ)

The FAA defines the OFZ that surrounds a runway as "a design and an operational surface kept clear during aircraft operations. This clearing standard does not allow aircraft and other object penetrations, except for locating frangible NAVAIDs in the OFZ because of their function. The FAA will not consider modification of the OFZ surface."

The OFZ may include up to four components depending on approach and lighting capabilities (abbreviated FAA definitions provided below):

- **Runway Obstacle Free Zone.** The ROFZ is a defined volume of airspace centered on the runway centerline, at runway elevation for any particular location. The ROFZ extends 200 feet beyond each end of the runway. ROZA dimensions are determined by aircraft size (small and large) and in some cases, approach visibility minimums. (Runway 4/22 and 17/35).
- **Inner-approach OFZ.** This OFZ is a defined volume of airspace centered on the approach area that only applies to runway ends with an approach lighting system (ALS). The surface begins 200 feet from the runway threshold (at the end of the ROZA) at the same elevation and extends 200 feet beyond the last light unit in the ALS. Its width is the same as the ROFZ and rises at a slope of 50 (horizontal) to 1 (vertical) from its beginning. (Runway 22).
- **Inner-transitional OFZ.** This OFZ only applies to runway ends with lower than ¾-mile approach visibility minimums (Runway 22). This OFZ is a defined volume of airspace along the sides of the ROFZ and Inner-approach OFZ. (Runway 22).
- **Precision Obstacle Free Zone.** This OFZ applies to any runway end with a vertically guided approach and landing minimums less than 250 feet, or visibility minimums less than ¾-mile (or RVR below 4,000 feet). The protected area begins at the threshold and continues along the extended runway centerline for a distance of 200 feet beyond the runway end. The surface is in effect when an aircraft is on final approach within 2 miles of the runway threshold. (Runway 22).

Runway 4/22

The Runway OFZ (large airplane width standard – 400 feet) applies to Runway 4/22. The Inner-approach OFZ, Inner-transitional OFZ, and Precision OFZ apply only to Runway 22. Runway 4/22 meets/exceeds the dimensional and obstacle clearance standards for all OFZ components, for both the current and future RDC (B-II/C-II).

Runway 17/35

The Runway OFZ (small airplane width standard – 250 feet) applies to Runway 17/35. Runway 17/35 meets/exceeds the dimensional and obstacle clearance standards for all OFZ components, for the current/future RDC (A-I Small Aircraft).

TAXIWAY/TAXILANE NETWORK

Taxiways

The major taxiways (A, A1-A4) associated with the primary runway (4/22) currently conform to ADG II and TDG 2A/B standards (width, shoulders, safety area, etc.) based on its most recent reconstruction. The runway separation for Taxiway A (400 feet) exceeds the requirements for the current critical aircraft category (B-II) but meets the requirements for the future critical aircraft category (C-II) based on the current approach visibility minimums (< ¾-mile). The applicable dimensions are summarized in the adjacent text boxes.

FAA DESIGN STANDARDS

Runway – Parallel Taxiway/Taxilane Separation
Rwy 4/22
Existing Standard: B-II standard is 300 feet for runways with visibility minimums lower than 3/4-mile.

Future Standard: C-II standard is 400 feet taxiway for runways with visibility minimums lower than 3/4-mile.

Existing Conditions: Runway 4/22 and Taxiway A separation is 400 feet, which exceeds the current standard and meets the future standard.

Rwy 17/35
Existing/Future Standard: A-I (Small) standard is 150 feet for visual runways and runways with not lower than 1-mile or visibility minimums.

Existing Conditions: Runway 17/35 and Taxiway D separation is 240 feet, which exceeds the current and future standard.

Taxiway Safety Area (TSA)
Rwy 4/22 Taxiways (A, A1-A4)
Existing/Future Standard: ADG II dimension is 79 feet wide (extends 39.5 feet from taxiway centerline, beyond the sides the taxiway). Additional gradient standards apply.

Existing Conditions: The TSA for Taxiway A and A1-A4 appears to meet ADG II dimensional, grading and obstruction clearing standards.

Rwy 17/35 Taxiways (D, D1-D3)
Existing/Future Standard: ADG I dimension is 49 feet wide (extends 24.5 feet from taxiway centerline, beyond the sides the taxiway). Additional gradient standards apply.

Existing Conditions: The TSA for Taxiway D and D1-D3 was designed based on ADG II standards, which exceeds ADG I standards.

Taxiway Object Free Area (TOFA)
Rwy 4/22 Taxiways (A, A1-A4)
Existing/Future Standard: ADG II dimension is 124 feet wide (extends 62 feet from taxiway centerline, beyond the sides the taxiway). Additional gradient standards apply.

Existing Conditions: The TOFA for Taxiway A and A1-A4 appears to meet ADG II dimensional, grading and obstruction clearing standards.

Rwy 17/35 Taxiways (D, D1-D3)
Existing/Future Standard: ADG I dimension is 89 feet wide (extends 44.5 feet from taxiway centerline, beyond the sides the taxiway). Additional gradient standards apply.

Existing Conditions: The TOFA for Taxiway D and D1-D3 was designed based on ADG II standards, which exceeds ADG I standards.

Taxilane Object Free Area (TOFA)
Existing/Future Standard:

- The ADG II standard is 110 feet wide, or 55 feet each side of taxilane centerline (applies to taxilanes and aprons used by large aircraft)
- The ADG I standard is 79 feet wide, or 39.5 feet each side of taxilane centerline (applies to small aircraft aprons and taxilanes)

Existing Conditions: Several existing aircraft hangar taxilanes do not meet the applicable TLOFA dimensional and obstruction clearance criteria. See recommendations later in this section for compliance with taxilane clearance.

Two items related to Taxiway A are identified for evaluation based on current FAA design guidance:

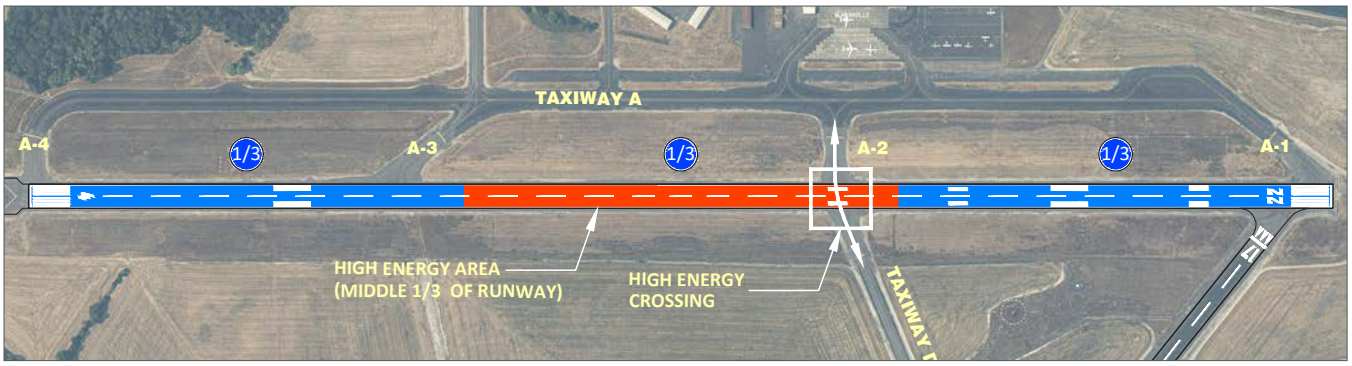
- **Exit taxiways A1 and A3 have acute angle (<90 degree) connections to Runway 4/22**. Current FAA guidance recommends that taxiway connectors be designed to provide a 90-degree intersection (and aircraft alignment at the hold position) relative to the runway centerline, to increase situational awareness for pilots and reduce runway incursions.
- **High Energy Runway Crossing**. Taxiway A2 connects to Taxiway D, forming a crossing in the middle one-third of Runway 4/22. By FAA definition, taxiway crossings in the middle section of a runway are "high energy" crossings. High energy crossings are discouraged by FAA.

Figures 4-9 and 4-10 depict these taxiway conditions.

Figure 4-9: Taxiway

Source: Century West Engineering

Figure 4-10: High Energy Runway Crossing



Source: Century West Engineering

Taxiways B and C (access to the main apron) also conform to ADG II and TDG 2A/B standards (width, shoulders, safety area, etc.). Based on their configuration and integration into the main apron, these taxiways appear to meet the FAA definition of taxilanes. Redesignating these as taxilanes may be considered in the landside alternatives evaluations to address required object free area clearances.

The infield taxiway (Taxiway D) and the three exit taxiways (D1-D3) currently conform to ADG II and TDG 2A standards (width, shoulders, safety area, etc.) based on its most recent reconstruction. As a result, Taxiway D exceeds standards based on the current and future critical aircraft (ADG I/TDG 1A). The runway separation for Taxiway D (240 feet) exceeds the requirements (150 feet) for the current and future critical aircraft category (A-I

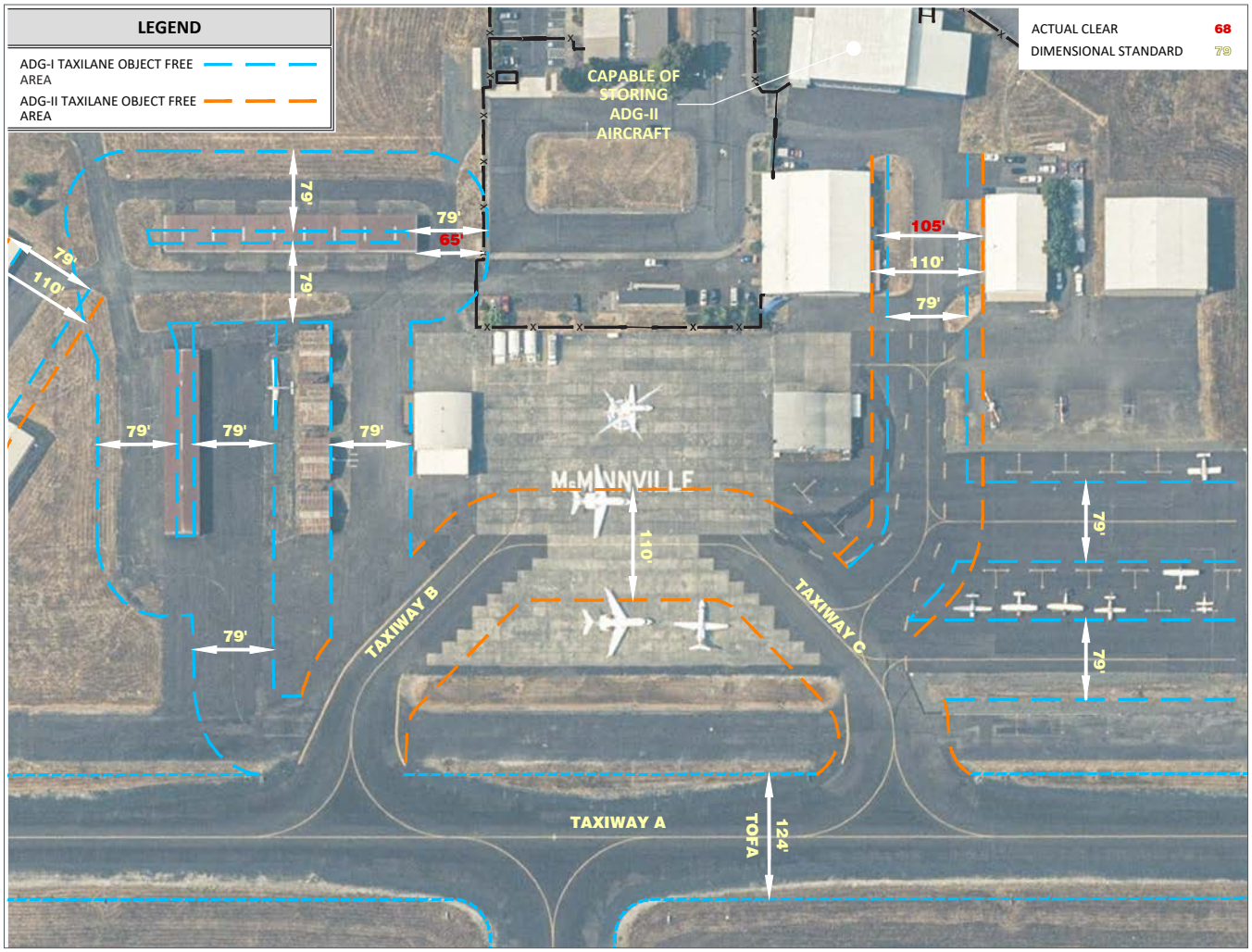
Small) based on existing visual approach visibility minimums.

Taxilanes

Taxilanes at MMV provide access to aircraft hangars and parking in the landside areas north of Runway 4/22. By FAA standard, taxilane object free areas (TLOFA) are defined and should be free of items that could create a hazard for taxiing aircraft including parked aircraft, hangars, fences, other built items, and natural terrain. It is common for taxilanes serving aircraft parking aprons and hangar developments to be designed to meet the standards of a particular group of aircraft using the facilities. Applicable TLOFA dimensions are provided in the adjacent text boxes.

Figure 4-11 depicts taxilanes in the central terminal area. Aside from the ADG II clearances provided for Taxiways B and C, most of the taxi routes (hangars and small airplane tiedown apron) in the terminal area are designed for use by small airplanes (ADG I standards). It is noted that the TLOFA clearances adjacent to several older hangars located on the west side of the main apron do not meet the ADG I standard. If eventual replacement of these hangars is planned in their current locations, the siting should be adjusted to meet the appropriate TLOFA clearances. With the noted exceptions, the taxilanes in the terminal area generally meet FAA TLOFA dimensional standards for ADG I and ADG II aircraft, where applicable. Future Improvement of taxilanes associated with apron and aircraft parking expansion will meet the standards of the ADG for which they are designed.

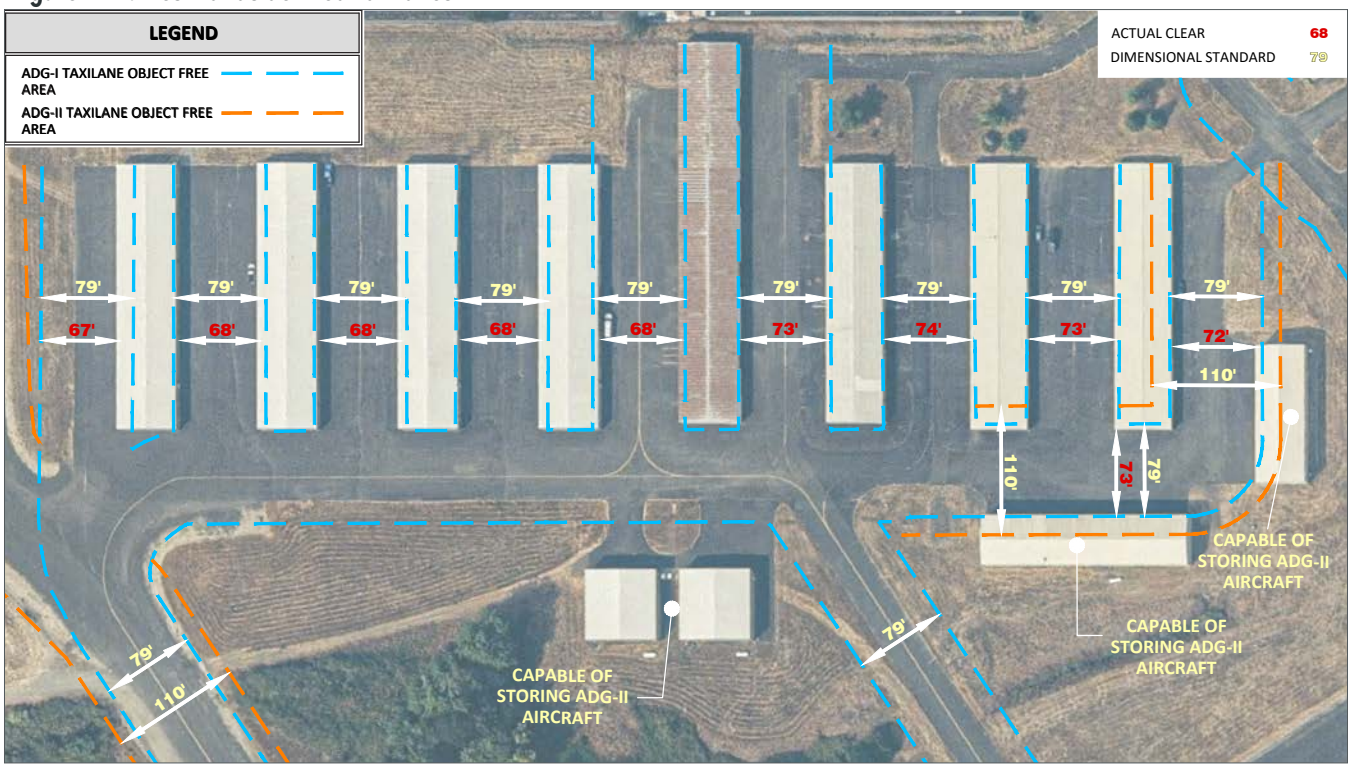
Figure 4-11: Central Terminal Area Taxilanes



Source: Century West Engineering

Figure 4-12 illustrates several north-south taxilanes in the west hangar area that provide less than the ADG I standard TLOFA. However, it is noted that most door openings for the adjacent T-hangars are less than 42 feet wide, which effectively limits the size of aircraft that can be stored or would typically operate on the stub taxilanes.

Figure 4-12: West Landside Area Taxilanes



Source: Century West Engineering

AC 150/5300-13B (Appendix J, Table J-10) provides guidance for calculating taxilane object free areas based on ADG. The calculations presented in the table represent the maximum wingspan within each ADG. For example, ADG I includes aircraft with wingspans up to 49 feet. The TOLFA formula is:

½ Aircraft Wingspan (A) + Lateral Deviation (B) + Safety Buffer (C) = ½ TLOFA (D). Doubling the ½ TLOFA dimension provides the full TLOFA (E).

> ***ADG I TLOFA**: (A) 24.5' + (B) 5' + (C) 10' = (D) 39.5'. (D) 39.5' x 2 = (E) 79' (TLOFA)*

The formula establishes the centerline to object separation distance based on the wingspan of the most demanding aircraft anticipated to use the taxilane. Applying the FAA formula to T-hangar taxilanes that exclusively serve smaller hangar units (for example 42' wide doors) provides a practical TLOFA clearance measure with the same lateral deviation and safety buffer components.

> ***ADG I (42' WS) TLOFA** For a maximum 42' door width (actual aircraft wingspans would be less to provide adequate wingtip clearance): (A) 21' + (B) 5' + (C)10' = (D) 36'. (D) 36' x 2 = (E) 72' (TLOFA)*

The main access taxilane for the west hangar area runs east-west along the south end of the hangar rows, with two taxiway/taxilane connections to Taxiway A, between Taxiways A2 and A3. The main hangar taxilane generally meets the ADG I TLOFA clearance standards. However, the TLOFA clearance provided at its far eastern end is less than the ADG I clearance. In this corner, two multi-unit conventional hangars ("Xray" Units 1-5) narrow the opening between opposing hangars to less than 79 feet. In addition, the two "Xray" hangars consist of a total of five individual units with door widths capable of accommodating ADG II aircraft. The TLOFA adjacent to these

hangars does not meet the ADG II standard.

AIRFIELD INSTRUMENTATION, SIGNAGE, LIGHTING, AND MARKINGS

Most of the existing airfield lighting systems have been installed/replaced since the last master plan was completed in 2004. The service life of the systems varies. However, for planning purposes, it is assumed that all existing airfield lighting systems will reach the end of their service life during the current planning period and require replacement. FAA airfield lighting guidance supports use of common technology between systems. The current LED standard used at MMV will be applied to all new and replacement airfield lighting systems.

Runway & Taxiway Lighting

Runway 4/22

The Runway 4/22 lighting systems are consistent with the requirements of a precision instrument runway (PIR). The existing lighting systems are in good condition.

Existing Lighting Systems – Runway 4/22 & Parallel Taxiway

- HIRL – LED runway edge and threshold lights
- PAPI – 4-light units Runway 4 & 22
- MALSR - Runway 22 (FAA owned)
- Runway End Identification Lights (REIL) – Runway 4 (FAA owned)
- MITL – LED edge lighting on Taxiway A connectors (A1-A4) – AC hold line to runway connection only. The other sections of Taxiway A and A1-A4 are equipped with stake-mounted blue reflective cylinders.
- Airfield Signs (internal illumination) – Mandatory Instruction, Location, Direction, Destination, Distance Remaining

Runway 17/35

Runway 17/35 is not lighted. Taxiway D and the three connecting taxiway (D1-D3) are equipped with stake-mounted blue reflective cylinders. All signs are reflective. The addition of runway lighting and visual guidance indicators would be appropriate for the secondary runway, although FAA funding may not be assumed.

Airfield Lighting

The existing airfield lighting fixtures include:

- Primary Wind Cone (lighted – located in the segmented circle near Runway 22 and 17 ends)
- Airport Rotating Beacon (located at NW corner of main apron on beacon tower)

Replacement of the rotating beacon should be anticipated early in the planning period based on its age and condition.

Weather Reporting

MMV has an automated surface observing system (ASOS) owned and operated by the FAA that provides 24-hour weather information. The ASOS is located on the south side of Runway 4/22, and west of the north end of Runway 17/35. The ASOS is reportedly in good working condition. Future system needs related to maintaining/replacing FAA-owned weather systems are determined by FAA. Replacement of the ASOS should be anticipated during the current planning period.

Navigational Aids

The instrument landing system (ILS) for Runway 22 is FAA owned and maintained. The ILS includes localizer and glide slope components. Future system needs related to maintaining/replacing FAA-owned ground based navigational aids are determined by FAA. The current FAA program of investing in satellite-based navigation systems includes some redundancy and overlap with conventional ground based navigational aids. For planning purposes, the critical area protections and Part 77 airspace required for the current level of precision instrument approach capability will be maintained at MMV.

Runway and Taxiway Markings

The runway and taxiway markings at MMV are consistent with FAA standards for color (white/yellow), configuration, and approach type. The markings are in good or fair condition. Regular repainting is required and is typically coordinated with sealcoat projects.

It is recommended that all runway and taxiway markings be maintained consistent with the ODAV Pavement Maintenance Program.

Runway 4/22

The existing precision instrument runway (PIR) markings on Runway 22 and the non-precision instrument (NPI) markings on Runway 4 are consistent with FAA requirements.

Runway 17/35

The existing (Basic) markings for Runway 17/35 are consistent with FAA requirements for visual approaches. The markings include a threshold bar at the Runway 17 end, runway numbers and centerline stripe.

Taxiways A-D

The markings on Taxiways A, A1-A4, D, and D1-D3 include centerline stripes and aircraft hold lines, consistent with FAA requirements. Taxiways B and C have centerline stripes. The taxiway markings are consistent with FAA standards for color (yellow) and configuration and are in good condition. Regular repainting is required and is typically coordinated with sealcoat projects.

Airfield Signs

The signage for Runway 4/22 and Taxiway A are internally illuminated (LED). The signs for Runway 17/35 and Taxiway D are reflective. The service life for airfield signs is similar to other lighting fixtures and or visual markings.

Source: Century West Engineering

Landside Facility Requirements

Landside facilities include aircraft parking apron(s), hangars, terminal, fixed base operator (FBO) facilities, and related items. The landside facility requirements were analyzed relative to hangar demand, apron and aircraft parking requirements, runway access, and conformance with FAA design standards. Future facility demand is estimated based on the updated aviation activity forecasts presented in Chapter 3.

AIRCRAFT PARKING APRON

Aircraft parking apron facility requirements were analyzed relative to existing FAA apron and aircraft parking requirements analysis provided in *FAA AC 150/5300-13B, Airport Design*. The parking requirements by aircraft type are summarized in **Table 4-6** and described in the following sections. To quantify the based and transient aircraft parking needs, the forecast of based aircraft and peak day projections were used to determine the parking necessary to satisfy existing and future demand. The forecast increase in aviation activity during the current planning period is relatively modest. Due to the uncertainties associated with projecting long-term future demand, the use of development reserves (100% of net forecast 20-year demand) for aircraft parking and hangar space is recommended to ensure that aeronautical use land areas at the Airport are adequately protected.

Aircraft parking aprons should be developed to avoid conflicts with adjacent runways, taxiways and helicopter landing areas. The applicable development setbacks should reflect the following items (note: some more demanding surfaces may supersede other surfaces). Additional setbacks such taxilane object free areas may also apply.

Runway and Taxiway Setbacks

- Part 77 Airspace – Primary and Transitional Surfaces (avoid airspace penetration from parked aircraft)
- Runway Object Free Area (avoid parked aircraft in surface)
- Taxiway Object Free Area (avoid parked aircraft in surface)

The recommended aircraft parking setbacks for each runway at MMV are included in **Table 4-1** and **Table 4-2**, presented earlier in the chapter. The apron setback required for Runway 4/22 (north side) reflects clearances for the precision instrument runway airspace and the 400-foot parallel taxiway separation. The airspace component of the calculation is based on one-half of the 1,000-foot primary surface width (measured from runway centerline), plus the distance required for the 7:1 transitional surface slope to clear a specific aircraft tail height. In this case, the distance required to clear the 20.3-foot tail for the current critical aircraft (Cessna 680 Sovereign) under the transitional surface is 642.1 feet (500’ +142.1’ = 642.1’). This distance also protects the ADG II parallel taxiway object free area (400’ + 62’ = 462’).

There are no existing aircraft parking areas adjacent to Runway 17/35. Future development of aircraft parking adjacent to the runway would be determined by the side of the runway (with/without parallel taxiway) and the Part 77 primary and transitional surface clearance. The recommended setbacks would be based on typical small aircraft (ADG I) that utilize the runway. The distance required to protect a 10-foot tail height would be 285 feet or 195 feet with/without a parallel taxiway.

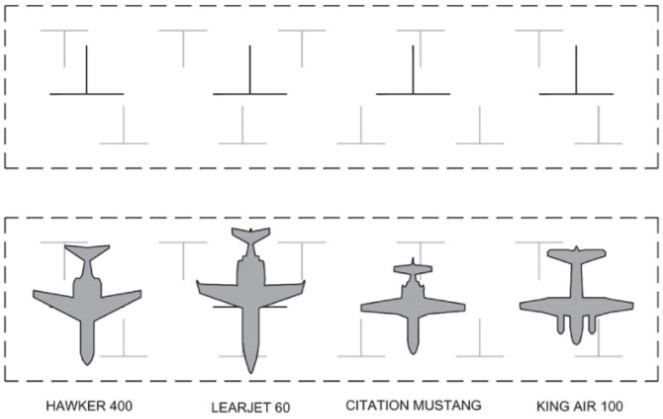
Based and Transient Aircraft Parking

The evaluation of apron and taxilane configurations in the Airport Development Alternatives (Chapter 5) will reflect the aircraft using each facility, consistent with FAA design guidance: *“Provide planning and design to accommodate varying aircraft types and sizes anticipated to use the airport.” (AC 150/5300-13B, Appendix E. E.1.3, General Aviation Facilities).*

Source: Century West Engineering

The main apron is designed with an open aircraft parking area served by two ADG II taxiways/taxilanes. The apron does not have designated parking positions and aircraft are staged by the FBO. The main apron can typically accommodate 2 or 3 business jets (different sizes) while maintaining clearance from the adjacent taxilane that loops from Taxiways B and C.

Space requirements for large transient business aircraft were estimated based on typical parking configurations used for ADG II aircraft. Based on the maximum ADG II wingspan of 79 feet, drive-through parking positions are configured to provide adequate wingtip clearances and nose/tail clearances from adjacent taxilane OFAs.

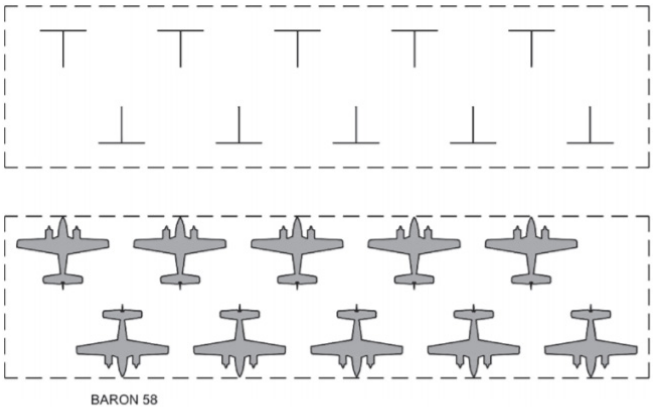


Note: The lighter lines depict the nested tiedown positions available for small aircraft
Source: Delta Airport Consultants, Inc.

Typical parking layout for small AC tiedown positions marked for larger aircraft.

The east tiedown apron (17 tiedowns) is designed to accommodate small aircraft parking based on ADG I standards. Other areas of small aircraft parking are located on the west and east sides of the main apron, adjacent to several hangars.

Although not specifically defined in current FAA general aviation apron design criteria, the FAA's previous long-established planning standard of 300 square yards (sq yd) for each based aircraft, and 360 sq yds for each transient aircraft was used to calculate small airplane parking requirements for long-term planning purposes.



Source: Delta Airport Consultants, Inc.

Generic parking area for 10 tiedown positions

Transient aircraft parking needs were developed from the average peak day forecast data presented in Chapter 3 – Aviation Activity Forecasts. Transient parking requirements are estimated to be 15% of the itinerant operations of the average peak day of the peak month. Using this formula, it is estimated the Airport will need to provide parking for approximately 10 to 11 transient small aircraft during the 20-year planning period for normal busy day demand. The relatively low transient parking demand compared to annual aircraft operations reflects the high percentage of flight training operations at the Airport. These aircraft do not typically require parking, aside from short-term turnarounds and fueling.

Based on the overall demand projections, the 17 small aircraft tiedowns on the east tiedown apron appear to be adequate to meet locally based and transient small airplane parking needs through most of the current planning period, although development reserves are recommended.

Business Aircraft Parking

The main apron has the ability to accommodate 3 to 4 business jets (different sizes) while maintaining clearance from the adjacent taxilane OFA that extends from Taxiways B and C. Based on projected demand, 4 to 6 ADG II business aircraft parking positions will be required during the current planning period, with overflow demand accommodated by the FBO with manual positioning (aircraft tugs) for short-term parking. The long-term projections reflect typical busy day activity that would also include smaller jets and other business class aircraft. To address potential demand beyond current projections, defining additional reserve areas for large aircraft parking expansion is recommended.

Helicopter Parking

There are no designated transient helicopter parking positions on existing aircraft parking aprons at MMV. Transient helicopters normally park on the main apron. For planning purposes, 1 to 3 transient helicopter parking positions should be adequate to accommodate normal demand during the current planning period, with any overflow demand accommodated on adjacent aprons.

Jerry Trimble Helicopters (JTH) is one of the largest operators of helicopters at MMV. JTH currently has three dedicated parking spaces located adjacent to the east tiedown apron for their small helicopters, with additional overnight aircraft storage in their hangar. Future demand for tenant helicopter parking will be determined by specific business factors. However, for long-term planning purposes, it is reasonable to assume additional demand for locally based helicopter parking may occur and should be evaluated in the landside alternatives. This demand is projected to be 3 to 5 positions during the current planning period.

Source: Century West Engineering

Added on 06.13.2025

Revised on 06.16.2025
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Table 4-7: Apron And Hangar Facility Requirements Summary

Item	Base Year (2023)	2028	2033	2038	2043
Based Aircraft Forecast	128	138	139	145	151
Aircraft Parking Apron - Existing Aircraft Parking Type/Capacity					
Existing Tiedown Apron[1]	11,432 sq yd				
Large Aircraft Parking	3 Drive-Through Positions				
Existing East Tiedown Apron[1]	7,600 sq yd				
Small Aircraft Parking	19 Tiedowns				
Helicopter Parking[2]	3				
Transient Helicopter Parking[3]	0				
Projected Needs (Gross Demand)[4]					
Locally Based Tiedowns (@ 300 sq yd each)	6 spaces / 1,800 sq yd	7 spaces / 2,100 sq yd	7 spaces / 2,100 sq yd	7 spaces / 2,100 sq yd	8 spaces / 2,400 sq yd
Small Airplane Itinerant Tiedowns (@ 360 sq yd each)	10 spaces / 3,580 sq yd	10 spaces / 3,580 sq yd	11 spaces / 3,820 sq yd	11 spaces / 3,820 sq yd	11 spaces / 3,820 sq yd
Business Aircraft Parking Positions (@ 1,000 sq yd each)	4 spaces / 4,000 sq yd	4 spaces / 4,000 sq yd	5 spaces / 5,000 sq yd	5 spaces / 5,000 sq yd	6 spaces / 6,000 sq yd
Small Helicopter Parking Positions (@ 380 sq yd each)	3 spaces / 1,140 sq yd	4 spaces / 1,520 sq yd	4 spaces / 1,520 sq yd	5 spaces / 1,900 sq yd	5 spaces / 1,900 sq yd
Transient Helicopter Parking Positions (@ 800 sq yd each)	1 space / 800 sq yd	2 spaces / 1,600 sq yd	2 spaces / 1,600 sq yd	2 spaces / 1,600 sq yd	3 spaces / 2,400 sq yd
Aircraft Fueling Apron (SEP @ 400 sq yd each)	2 spaces / 800 sq yd	2 spaces / 800 sq yd	3 spaces / 1,200 sq yd	3 spaces / 1,200 sq yd	3 spaces / 1,200 sq yd
Total	**26 spaces / 12,120 sq yd**	**29 spaces / 13,600 sq yd**	**32 spaces / 15,240 sq yd**	**33 spaces / 15,620 sq yd**	**36 spaces / 17,720 sq yd**
Aircraft Hangars (Existing Facilities)					
Existing Hangar Units / Aircraft Storage Capacity (Approx. 188,701 sf)	106 Units[6]				
Projected Needs (Net Increase in Demand)[6]					
(New) Hangar Space Demand (@ 1,500 sq ft per space)[7] (Cumulative 20-year projected demand: 21 Units/30,750 sq ft)		5 Unit / 7,125 sq ft	5 Unit / 7,125 sq ft	6 Unit / 9,000 sq ft	5 Units / 7,500 sq ft

Source: Century West Engineering
Table 4-6 Notes:

1. Existing apron areas, per 2023 ODAV Pavement Management Plan.
2. Trimble Helicopters parking (north of east tiedown apron).
3. No designated transient helicopter parking spaces; most transient helicopters park on the main apron.
4. Apron parking demand levels identified for each forecast year represents estimated gross (aggregate) demand.
5. Existing hangars include 2 large Quonset hangars; 4 large conventional hangars; 8 small/medium conventional hangars; and 10 T-hangars (90 units). Total hangar area is estimated at 188,701 square feet, which currently accommodates 120+ aircraft.
6. Aircraft hangar demand levels identified for each forecast year represent forecast cumulative demand, assuming 95% of new based aircraft will be stored in hangars.
7. Hangar square footage approximated by type/size of aircraft and reflects existing hangar development patterns at MMV.

Added on 06.13.2025
Revised on 06.16.2025

AIRCRAFT HANGARS

The Airport currently has 24 existing hangars that provide aircraft storage and support commercial tenant activities. The existing buildings accommodate aircraft storage and tenant operations space (approximately 188,000 square feet, 120+ aircraft):

- Two (2) large Quonset hangars (main apron) – aircraft storage, maintenance
- Four (4) large conventional hangars located northeast of the main apron - aircraft storage, accommodate helicopter and fixed wing flight training operations, FBO aircraft services
- Ten (10) T-hangar buildings – small aircraft storage (90 units).
- Two (2) multi-unit conventional hangars (5 units)
- Four (4) small conventional (open front) hangars
- Two (2) medium conventional hangars

Approximately 95% of the Airport's based aircraft fleet is currently stored in hangars.

For planning purposes, it is assumed that 95% of new based aircraft at MMV will require hangar storage. The based aircraft forecast presented in Chapter 3 projects an increase of 23 aircraft over the 20-year planning period. Based on the 95% hangar/5% apron storage ratio, the net additional hangar demand is 21 aircraft (rounded) during the planning period. Long term space requirements are approximated based on a review of existing hangar square footage and based aircraft totals to provide a rough square footage per aircraft value.

Tenant requirements will vary and the requirements for larger hangars capable of business aircraft or expanded commercial operations should be reflected in site planning. It is recommended that a 100% development reserve be incorporated into future landside planning. In effect, long term landside facility planning (forecast + reserve) for locally based aircraft is based on accommodating 46 aircraft.

GA Terminal/Pilot Lounge

The existing general aviation terminal building provides restrooms, flight planning, and waiting areas for pilots. Future plans for expanding the tenant owned space are unknown. However, it is recommended that an area be defined (roughly 3,000-4,000 square feet) and reserved for potential building expansion to address potential near-term expansion. The potential redevelopment of the terminal area including aircraft fueling facilities may include future development of a new GA terminal in a different location.

The west Quonset hangar also provides public use restrooms on the ground floor.

Support Facilities Requirements

Support facilities such as aircraft fueling, security/perimeter fencing, surface access and vehicle parking, and utilities may also require upgrades during the planning period.

Surface Access and Vehicle Parking

Vehicle access to MMV is provided from the U.S. Highway 18 connection at SE Cirrus Ave. All existing east landside development is accessed via SE Cirrus Ave and the SE Nimbus Loop. Access to the Galen McBee Airport Park is provided by SE Amory Way.

Potential surface access and vehicle parking improvements are expected to be associated with new or redeveloped landside facilities in the central terminal area, and the east and west landside areas of the Airport.

FUEL FACILITIES

The existing aviation fuel storage on the Airport includes three 12,000-gallon aboveground tanks (1 - 100LL AVGAS, 2 - Jet A) owned by the City of McMinnville and mobile fuel trucks owned by the FBO. The fixed tank fuel dispensing system includes a 24-hour credit card payment system. One of the jet fuel tanks has been out of service for an extended period and is planned for upgrade.

Based on current and forecast activity, the existing tank capacity for both 100LL and jet fuel appears to be adequate. However, having one of the jet fuel tanks offline has the potential of impacting fuel delivery scheduling, particularly as the volume of larger jet activity and typical purchase volumes increase.

The location of the self-service 100LL AVGAS tank and fueling area may occasionally conflict with other apron operations (passenger loading/unloading for transient business aircraft). Relocating the AVGAS fueling area and tanks to a less congested area should be considered in long-term planning.

Source: Century West Engineering

UTILITIES

The existing airport utilities as discussed in Chapter 2 – Existing Conditions appear to be adequate to support future development in the east landside development area of the Airport. It is recommended the existing utilities be maintained and extended, as required to accommodate new development during the planning period.

AIRPORT FIREFIGHTING

The Airport has no on-site Airport Rescue and Fire Fighting (ARFF) facilities or assets and none are required based on current FAA regulations. Airport management indicates that building a new fire station on the Airport is currently being considered. The new facility would be capable of supporting both community and airport fire response needs. The location of the proposed fire station will be further detailed in chapter 5 – Development Alternatives Analysis.

PERIMETER FENCING/GATES

The primary operating areas at MMV are fenced. Controlled access gates are located in the terminal area and significant portions of the airport terminal area are fenced (6-foot chain link). Range fencing is used for portions of the Airport's boundary. A fencing project to extend new chain link fencing along the north section of the Airport is at the environmental evaluation stage, with construction anticipated early in the planning period.

A review of existing vehicle gate locations providing access to landside development areas will also be completed. Additional automated gate locations will be identified for planned landside development areas to control public access to the airfield. Any proposed fencing will be consistent with a fencing project that is ongoing during the development of this Airport Master Plan.

LAND USE

On-Airport Land Use

The majority of MMV is located within the McMinnville city limits with M-2 (general industrial) zoning. The existing zoning accommodates all airport related development and provides adequate protection from potential incompatible land uses. The current City of McMinnville airport overlay zoning should be updated for consistency with the airport master plan and the updated airport layout plan (ALP) and Part 77 airspace plan. See Chapter 2 for information on existing land use and zoning.

Off-Airport Land Use

As noted in Chapter 2, large portions of the Part 77 surfaces established for the Airport extend into unincorporated Yamhill County, and over several smaller municipalities. A small area of the Runway 22 approach surface extends over Marion County.

The review of off-airport land use provided in Chapter 2 did not identify any known land use compatibility issues. A review of existing avigation easements will be conducted to identify any existing or potential gaps in coverage/ protection, in conjunction with the updates to the Airport Layout Plan and Exhibit "A" Property Plan drawings.

Summary

The significant investment in MMV's runway-taxiway system and other airfield facilities, combined with significant tenant facility investment made since the last master plan will allow the Airport to focus on other facility needs early in the current 20-year planning period. A summary of facility needs is provided in **Table 4-8**.

The updated forecasts of aviation activity anticipate modest growth in activity. This results in moderate airside and landside facility demands beyond existing capabilities. The existing airfield facilities can accommodate the forecast increase in activity, with targeted facility improvements. For the most part, the need for new or expanded facilities, such as aircraft hangars, will be market driven. The non-conforming items noted within this chapter can be addressed systematically during the current planning period to improve overall safety for all users.

Preliminary airport development alternatives will be presented in Chapter 5 to evaluate different options capable of meeting forecast demand, in addition to identifying any development constraints that exist. The process of Planning Advisory Committee (PAC) review of the preliminary alternatives will allow the City of McMinnville to define and refine the preferred alternative for the master plan and develop a viable implementation strategy.

Table 4-8: Facility Requirements Summary

Facility	Short Term (0-10 years)	Long Term (10-20 years)
Runway 4/22	RDC: B-II Pavement Maintenance & Repaint Markings	RDC: C-II Clear RSA and OFA of nonconforming items (fence, Cruickshank Road); relocate fence, re-grade surfaces Eliminate High Energy Crossing (Taxiway A2 and D) Pavement Maintenance & Repaint Markings
Taxiway A, A1-A4	TDG 2 Pavement Maintenance & Repaint Markings	TDG 2 Upgrade A1 and A3 to 90-degree connectors Relocate Replace AC Hold Area at A1 Relocate Taxiway A2/D outside middle 1/3 of runway Pavement Maintenance & Repaint Marking
Runway 17/35	RDC: A-I (small) Pavement Maintenance & Repaint Markings	RDC: A-I (small) Pavement Maintenance & Repaint Markings Optional Runway Lighting (MIRL) and PAPI
Taxiway D, D1-D3	TDG 1A Pavement Maintenance & Repaint Markings	TDG 1a Pavement Maintenance & Repaint Marking
Navigational Aids and Lighting	Replace Airport Rotating Beacon (LED)	End of Service Life Replacements: • Rwy 4/22 HIRL • Rwy 22 MALSR • Rwy 4 REIL Rwy 4 & 22 PAPI
Weather	None	Replace ASOS
Landside Facilities	Main Apron Expansion (Business AC Parking) Hangar Development Replace/Reconfigure hangars at end of useful life Apron and Taxilane Pavement Maintenance & Repaint Markings	East Aircraft Tiedown Apron Apron and Taxilane Pavement Maintenance & Repaint Markings Transient Helicopter Positions
Terminal Building/FBO	Building Expansion Reserve	New GA Terminal and vehicle parking
Aircraft Fueling	System Maintenance - existing (3) Fuel Tanks	Replace existing tanks Secure parking and secondary containment for fuel trucks
Surface Access	Maintain Access SE Cirrus Avenue	Maintain public access to Airport Park
Security	Airport Perimeter Fencing Automated Vehicle Gates (Landside Developments, Terminal Area)	Airport Perimeter/Airport Operating Area (AOA) Fencing
Utilities	Electrical and Water to New Hangar Sites	Same

Preliminary Airport Development Alternatives

Introduction

AIRSIDE IMPROVEMENTS

The preliminary airside and landside development alternatives presented below are intentionally conceptual. These concepts are intended to facilitate discussions that will guide the City of McMinnville on how best to meet the facility requirements for McMinnville Municipal Airport identified in Chapter 4.

The proposed airside improvements focus on runway and taxiway refinements intended to address conformance with FAA design standards.

The ongoing ODOT Highway 18 Three-Mile Lane project will eliminate the Cruickshank Road connection to the highway as part of the corridor improvements. This project will allow the small section of Cruickshank Road located directly beyond the end of Runway 22, to be vacated. The road closure and the relocation of a section of airport fence outside the Runway 4/22 object free area (OFA) and runway safety area (RSA) will allow the runway to fully meet future (RDC C-II) OFA and RSA standards.

The proposed taxiway improvements are consistent with current FAA design guidance on taxiway geometry and the operational function interface between runways and taxiways.

LANDSIDE ALTERNATIVES

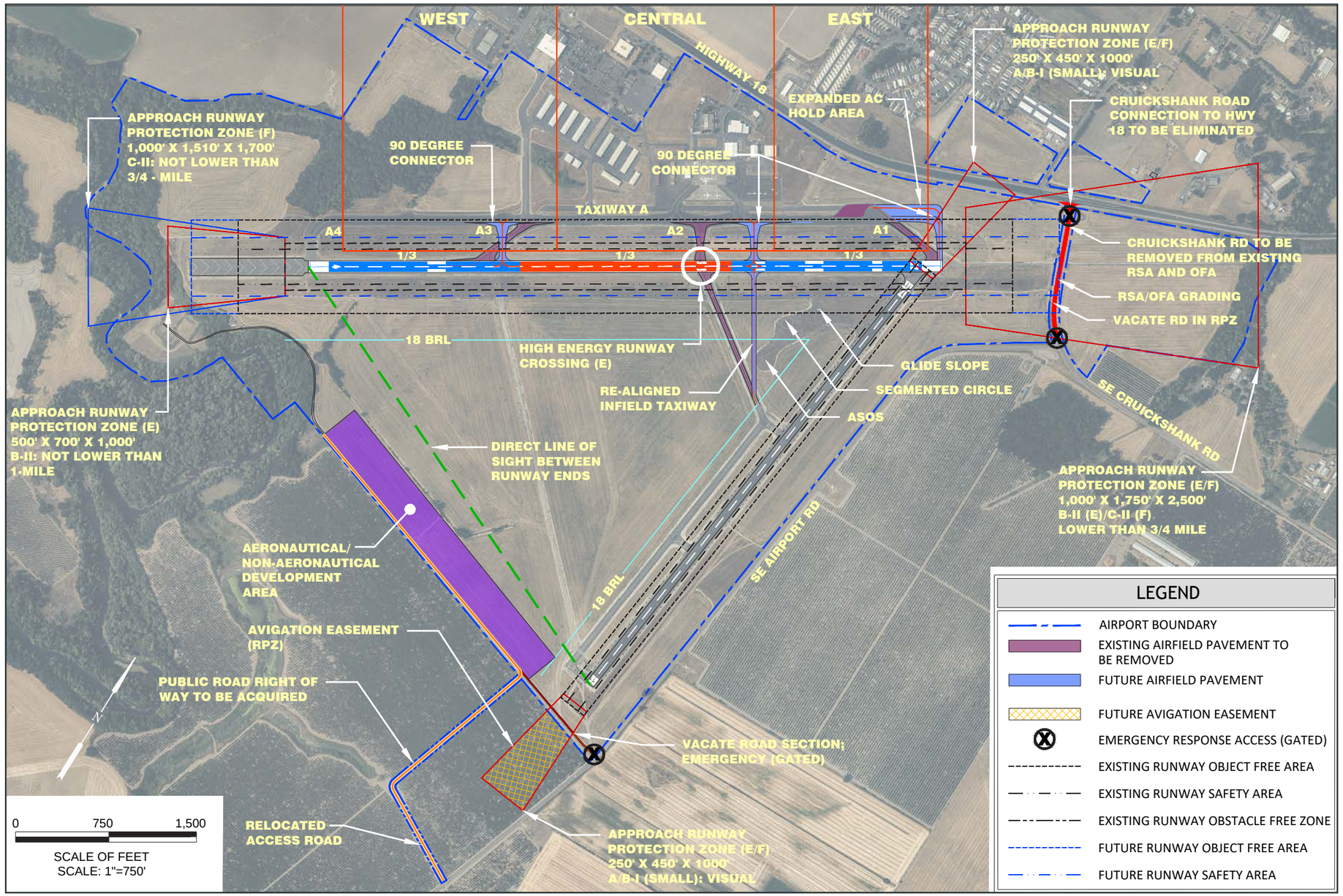
The landside development alternatives concepts presented below depict proposed improvements capable of meeting the facility requirements identified in Chapter 4.

As noted earlier in the master plan, all existing landside facilities are located on the north side of Runway 4/22. The landside alternatives will focus on this area, with proposed expansion east and west of the central terminal area.

The focus of the landside evaluation is to identify the most efficient use of available space, with aeronautical uses considered the highest and best use. This analysis will guide the City of McMinnville on the development of landside facilities during the current 20-year planning period, or until additional evaluations may be required.

The concepts are meant to be modular in nature. A selected preferred alternative may be as presented below, it may be a combination of components from different concepts, or it may be an entirely different concept identified in discussions stemming from these concepts. The best concepts from each of the three landside areas identified will be combined into a single preferred alternative.

Figure 5-1: Proposed Airside Improvements



Proposed Airside Improvements

Runway 4/22:

- Runway Safety Improvements:
  - » Planned closure of Cruickshank Road, which currently travels through the east end of the Runway Safety Area (RSA) and Object Free Area (OFA), beyond the end of Runway 22
  - » Relocate airport fence outside RSA and OFA, regrade the surfaces to meet FAA standards
  - » The ODOT road closure will re-reroute local traffic to Highway 18 further east of MMV

Runway 17/35:

- RPZ Compatibility:
  - » Runway 35 RPZ: Relocate existing access road outside the RPZ. Acquire of Right-of-Way (ROW) for new road

RPZ Control:

- » Portions of the RPZs for all runway ends at MMV extend beyond airport owned property. The City of McMinnville has previously acquired avigation (air) easements for a portion of the Runway 22 RPZ. Acquiring easements for all remaining sections of existing/future RPZs that extend beyond airport property is recommended to control activities in the RPZ and to protect the inner approach surface for the runways.

Taxiways:

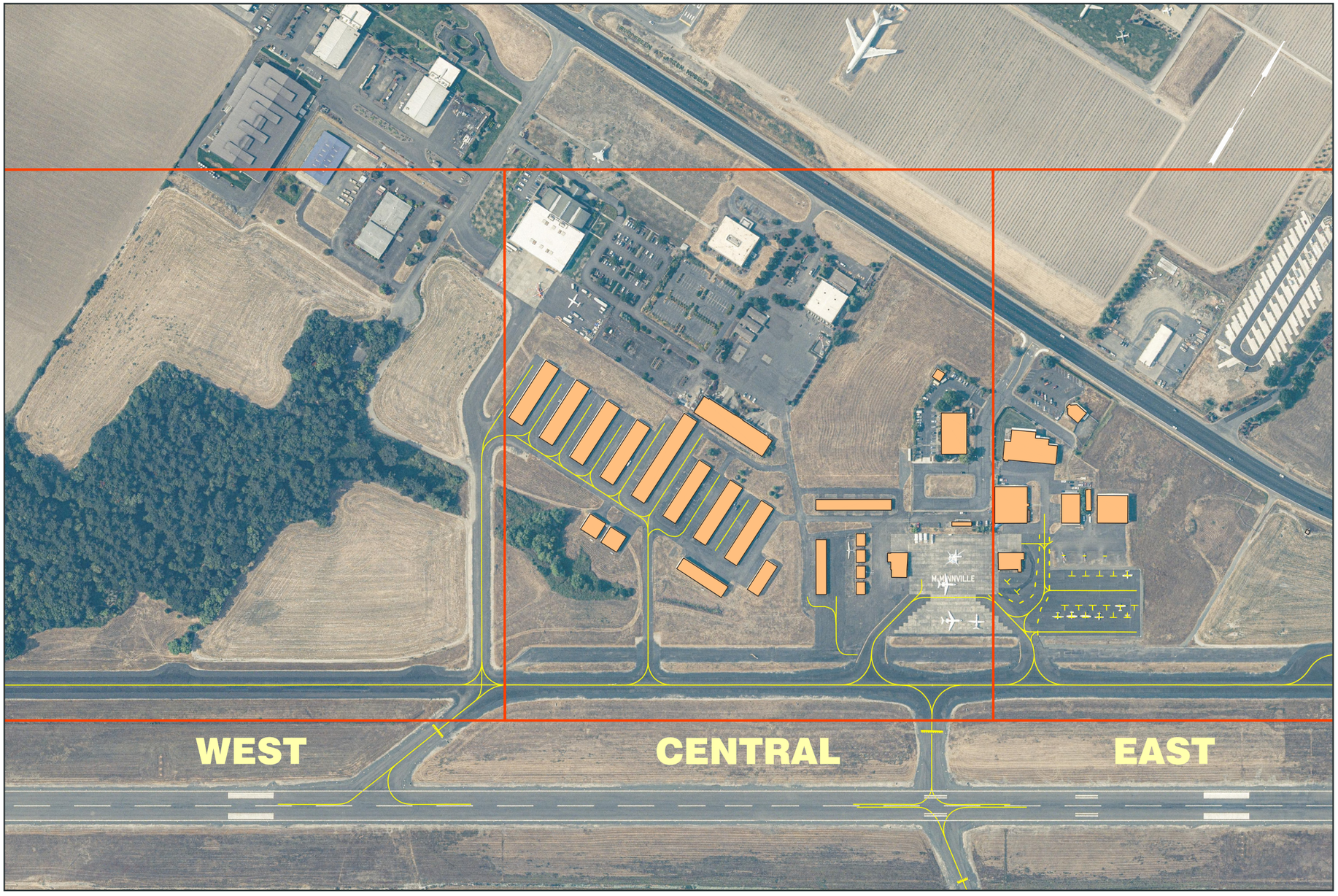
- Taxiway A2 & D Intersection:
  - » Eliminate High Energy Runway Crossing. Relocate the Taxiway A2 and Taxiway D connection (runway crossing) 460 feet to the east, outside the middle third of Runway 4/22, reducing the risk of runway incursions and enhancing pilot situational awareness
- Geometry Improvements:
  - » Reconfigure Taxiway A1 and A3 from acute angle geometry to conventional 90-degree connections to improve safety and efficiency
  - » Relocate the aircraft hold area adjacent to Taxiway A1 as part of the taxiway reconfiguration

Mixed-Use Aeronautical and Non-Aeronautical Areas:

- » Proposed mixed use (aeronautical/non-aeronautical) development in the south infield limited to south end of the Airport to protect direct line of sight between the ends of Runway 4 and Runway 35. Long term development challenges include access to utilities.

Added on 06.13.2025

Figure 5-2: Landside Development Areas

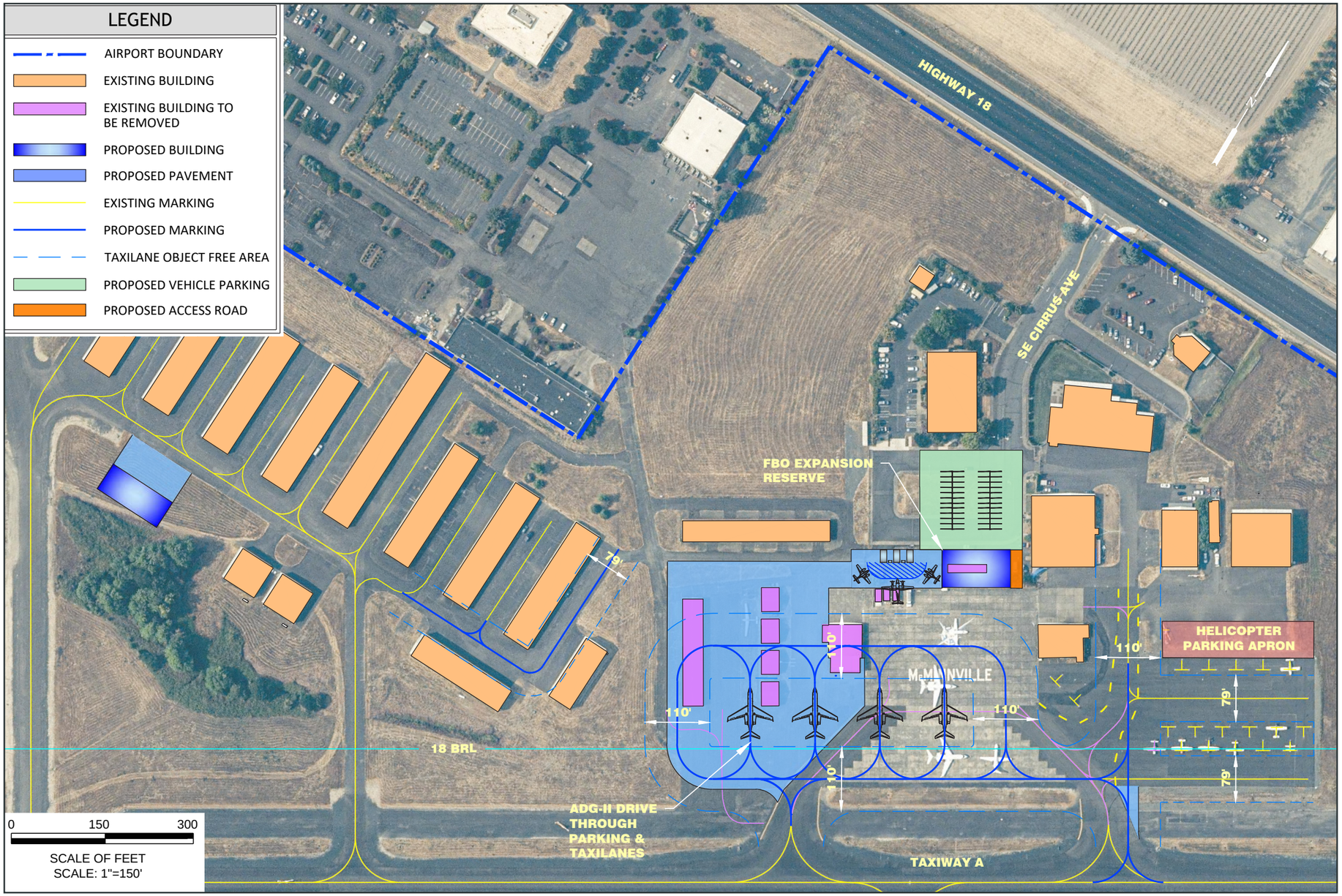


Landside Development Areas

- The north landside area is divided into three groups (options for these areas follow)
  - » West Area (west of Galen McBee Airport Park)
  - » Central Area (the main terminal area and west hangar area)
  - » East Area (hangars and aircraft parking areas east of the main apron)

Added on 06.13.2025

Figure 5-3: Central Terminal Area – Alternative 1 & 2 - Phase 1



Central Terminal Area - Alternative 1 & 2 - Phase 1

This concept provides incremental expansion of the main apron, which can be incorporated with the long-term development alternatives concepts that follow.

Main Apron:

- West expansion of the main apron to provide additional large aircraft parking and improve efficiency and operating conditions
- Four (4) – Large aircraft (ADG II) drive-through aircraft parking positions with ADG II access taxilane loop
- Reconfigured apron taxilane connections to Taxiways B and C, and Taxiway A
- Site redevelopment. Remove existing hangars (older, city owned buildings) to accommodate additional large aircraft parking.
  - » West Quonset Hangar
  - » Four (4) Open Front Conventional Hangars
  - » One (1) 6-unit T-hangar
  - » Replacement hangar options are presented for the east landside area

FBO/GA Terminal Building:

- FBO building (existing site) reserve to address near term expansion of FBO building /terminal

Aircraft Fuel Tanks and Fueling Area:

- Relocate fuel tanks and construct new fueling apron to improve small aircraft access to the fueling area and optimize use of the main apron by large aircraft

Parking and Access:

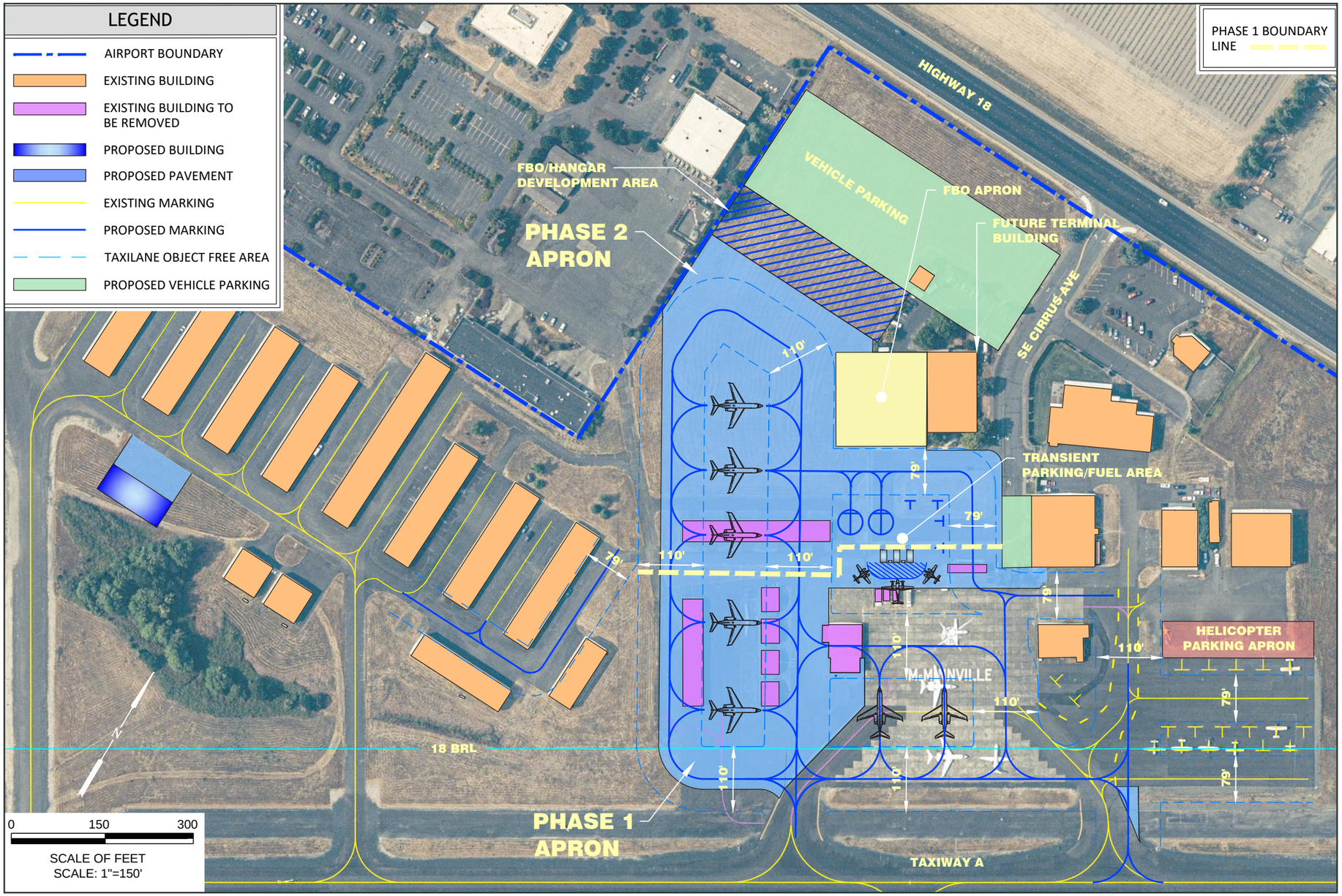
- Vehicle parking and access improvements for airport users and tenants

Security and Access Control:

- Relocated and upgraded (electronic) vehicle and pedestrian gates and fencing to improve security and access control

Added on 06.13.2025

Figure 5-4: Central Terminal Area – Alternative 1



This concept expands on the Phase 1 option by continuing the main apron expansion to the north and reorienting the large aircraft parking row north-south, with full taxilane access provided to the aircraft parking and new FBO/ terminal.

FBO/Terminal Building:

- Phase 1 FBO building reserve maintained to facilitate transition to new FBO/Terminal
- Redevelopment of existing building (OSP – current lease) into the new FBO/terminal building
- Designated apron space for FBO activities adjacent to (south) the new building
- Vehicle parking expansion area north of proposed building

Apron Reconfiguration:

- Expand and reconfigure large aircraft parking to accommodate increased demand. Maintain a portion of the Phase 1 large aircraft parking (7+ large aircraft parking positions)
- New transient parking apron for small, fixed wing aircraft and helicopters adjacent to FBO
- Improved aircraft movement (taxilanes)

Aircraft Fuel Tanks and Fueling Area:

- Fuel tank relocation and apron (Phase 1 project)

Security and Access Control:

- Relocated and upgraded (electronic) vehicle and pedestrian gates and fencing to improve security and access control

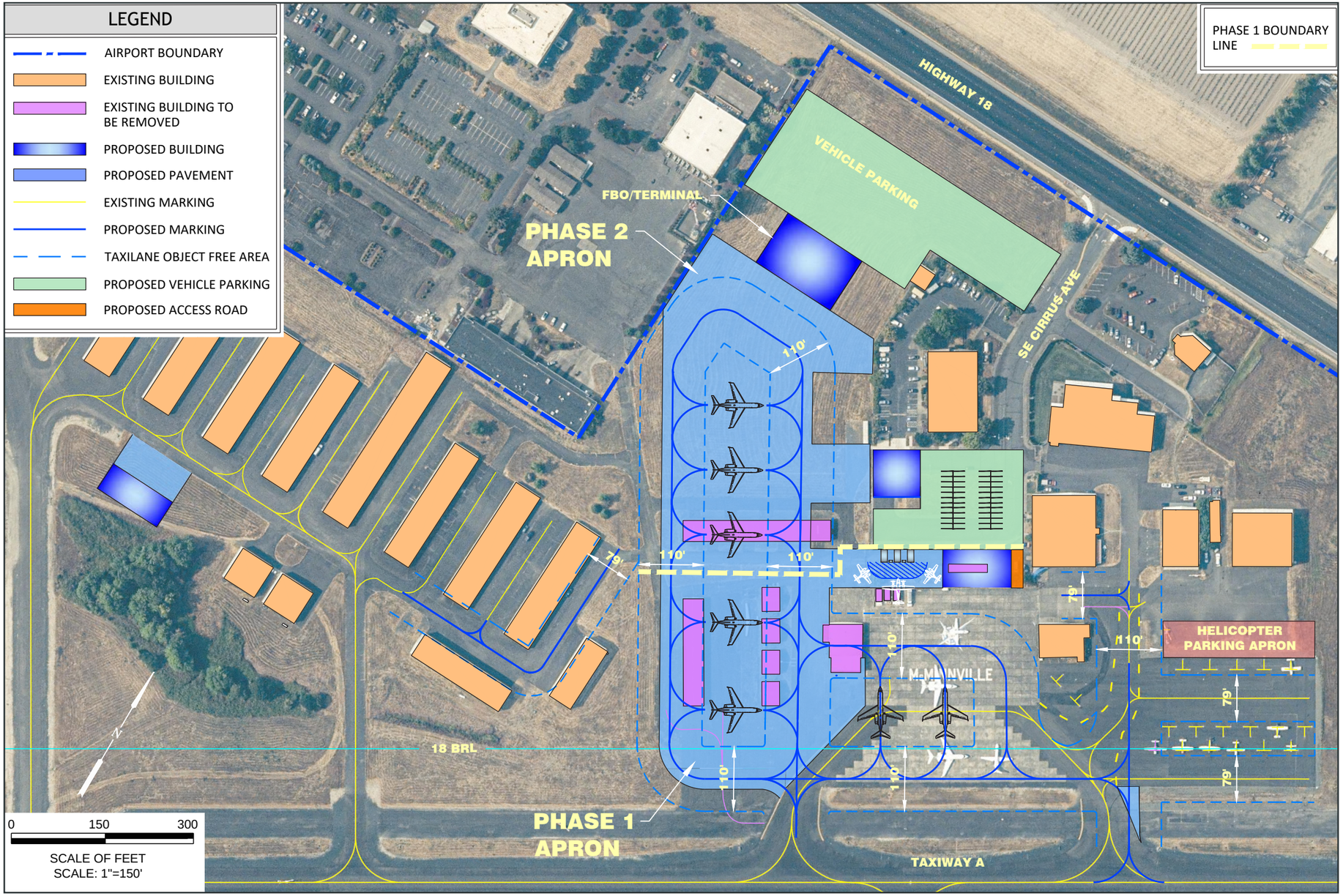
Parking and Access:

- Development of new parking areas and vehicle access improvements
- Long Term Reserve - Vehicle Parking and FBO/Terminal Building

Central Terminal Area – Alternative 1

Added on 06.13.2025

Figure 5-5: Central Terminal Area – Alternative 2



This concept expands on the Phase 1 option by continuing the main apron expansion to the north and reorienting the large aircraft parking row north-south, with full taxilane access provided to the aircraft parking and new FBO/terminal.

FBO/Terminal Building:

- Phase 1 FBO building reserve maintained to facilitate transition to new FBO/Terminal
- New FBO/terminal building (north end of main apron expansion)
- Vehicle parking expansion area north of proposed building

Apron Reconfiguration:

- Similar apron reconfiguration for large aircraft parking. Maintain a portion of the Phase 1 large aircraft parking (7+ large aircraft parking positions), phased northern expansion of main apron

Aircraft Fuel Tanks and Fueling Area:

- Fuel tank relocation and apron (Phase 1 project)

Security and Access Control:

- Relocated and upgraded (electronic) vehicle and pedestrian gates and fencing to improve security and access control

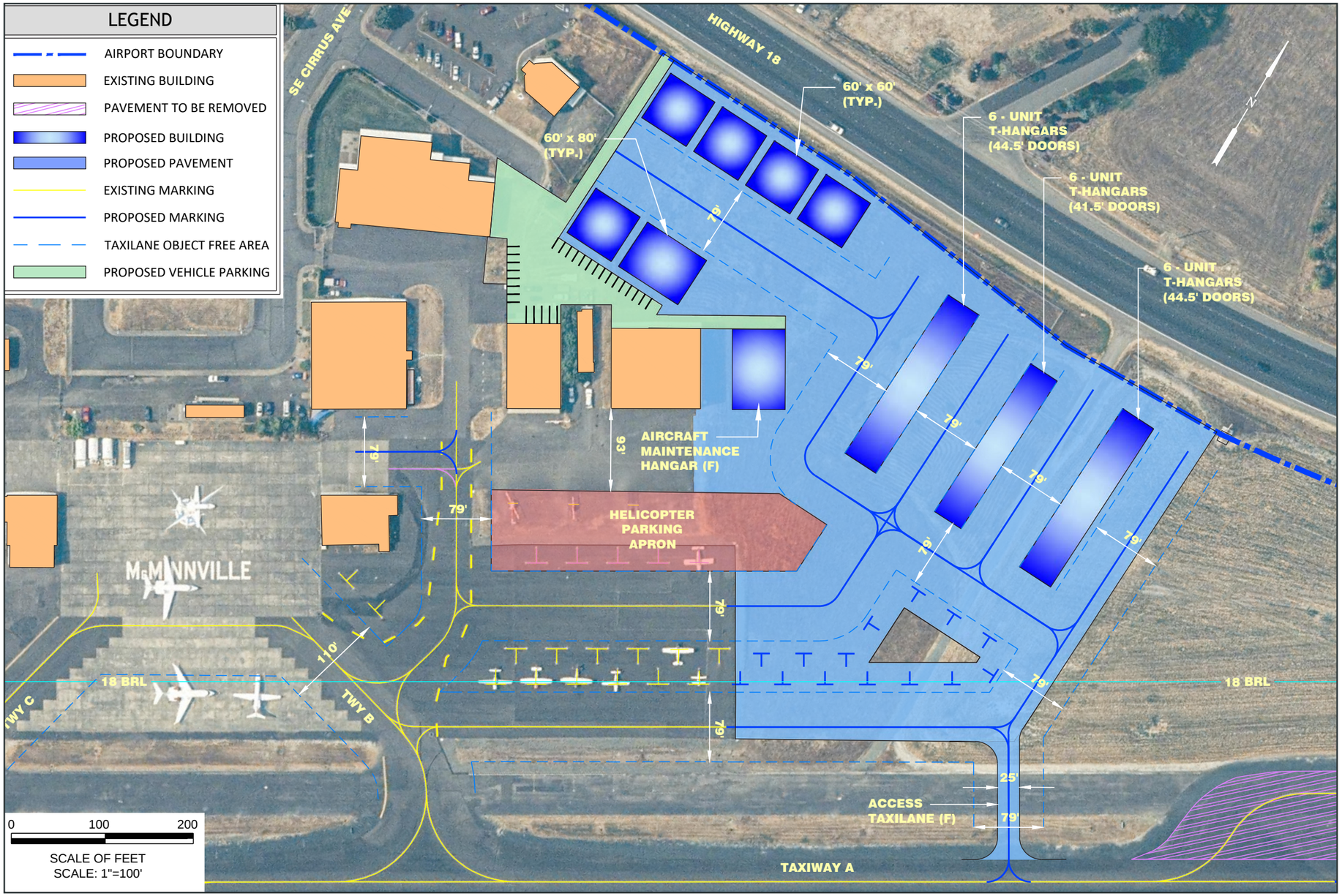
Parking and Access:

- Development of new parking areas and vehicle access improvements
- Long Term Reserve - Vehicle Parking and FBO/Terminal Building

Central Terminal Area – Alternative 2

Added on 06.13.2025

Figure 5-6: East Landside Area – Alternative 1



East Landside Area – Alternative 1

This concept provides incremental expansion of aircraft parking and hangars in the east landside area.

Hangar Development:

- New hangar sites with varying sizes and door widths to accommodate aircraft storage demand:
  - » Conventional Hangar (Aircraft Maintenance)
  - » Three (3) 6-unit T-hangars (18 units)
  - » Six (6) Conventional Hangars (60'x60' , 60'x80' typ.)

Apron Taxilane/Access:

- Expanded Helicopter Parking Apron (-5 fixed wing tiedowns - redeveloped for helicopters)
- East Tiedown Apron Expansion/Reserve (+14 tiedowns)
- ADG-I taxilane access to new hangar sites and aircraft parking
- Second taxilane connection to Taxiway A to improve aircraft access and traffic flow

Security and Access Control:

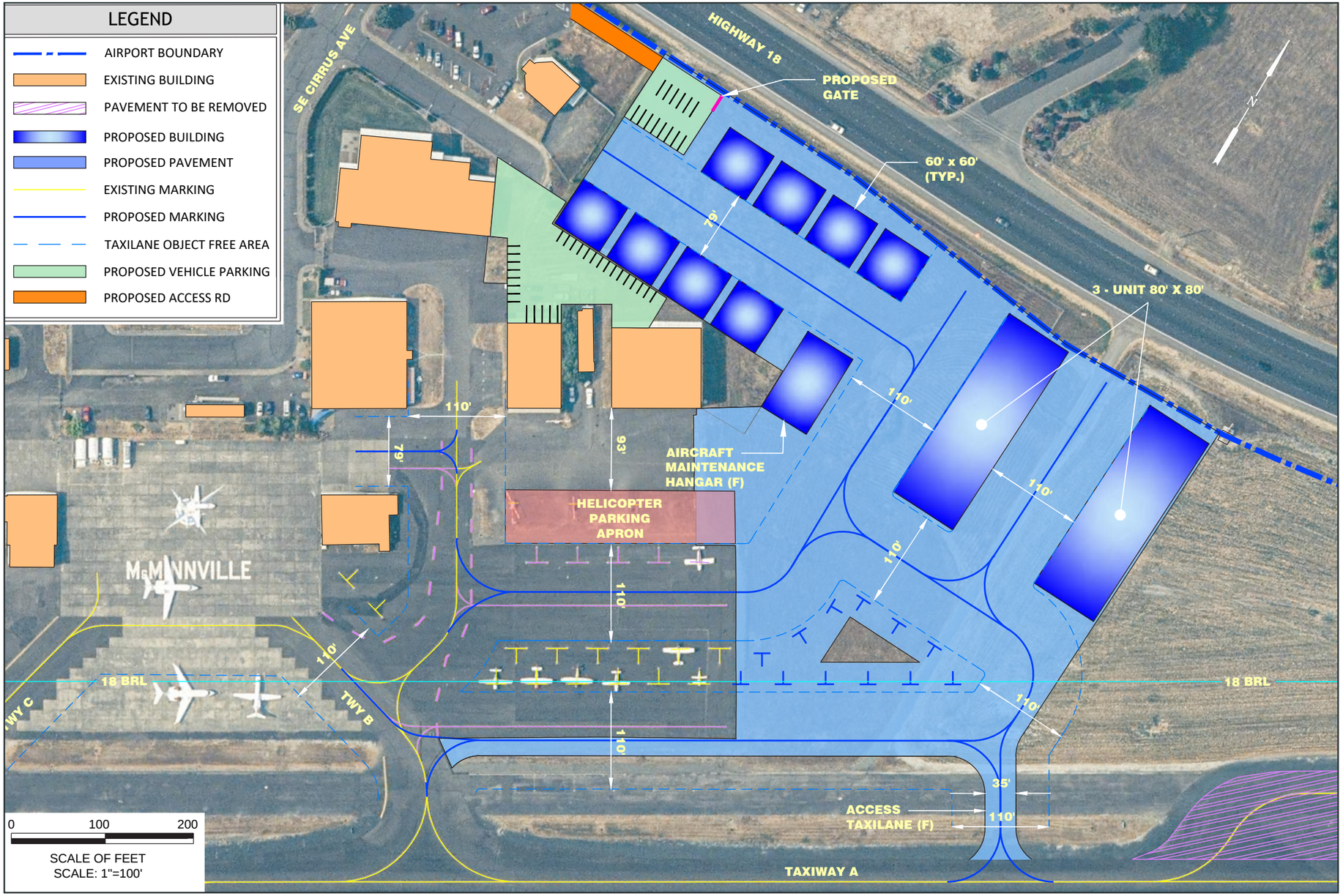
- Upgraded (electronic) vehicle and pedestrian gates and fencing to improve security and access control

Parking and Access:

- Development of new parking areas and vehicle access improvements

Added on 06.13.2025

Figure 5-7: East Landside Area – Alternative 2



East Landside Area – Alternative 2

This concept provides incremental expansion of aircraft parking and hangars in the east landside area.

Hangar Development:

- New hangar sites with varying sizes and door widths to accommodate aircraft storage demand:
  - » Conventional Hangar (Aircraft Maintenance)
  - » Two (2) 3-unit Conventional Hangars (80'x80' units) (6 units)
  - » Eight (8) Conventional Hangars (60'x60' typ.)

Apron Taxilane/Access:

- ADG-II taxilane access to new hangar sites and aircraft parking (-5 tiedowns to clear TLOFA)
- Helicopter Apron Improvement/Expansion
- East Tiedown Apron Expansion/Reserve (+13 tiedowns)
- Second (ADG II) taxilane connection to Taxiway A to improve aircraft access and traffic flow

Security and Access Control:

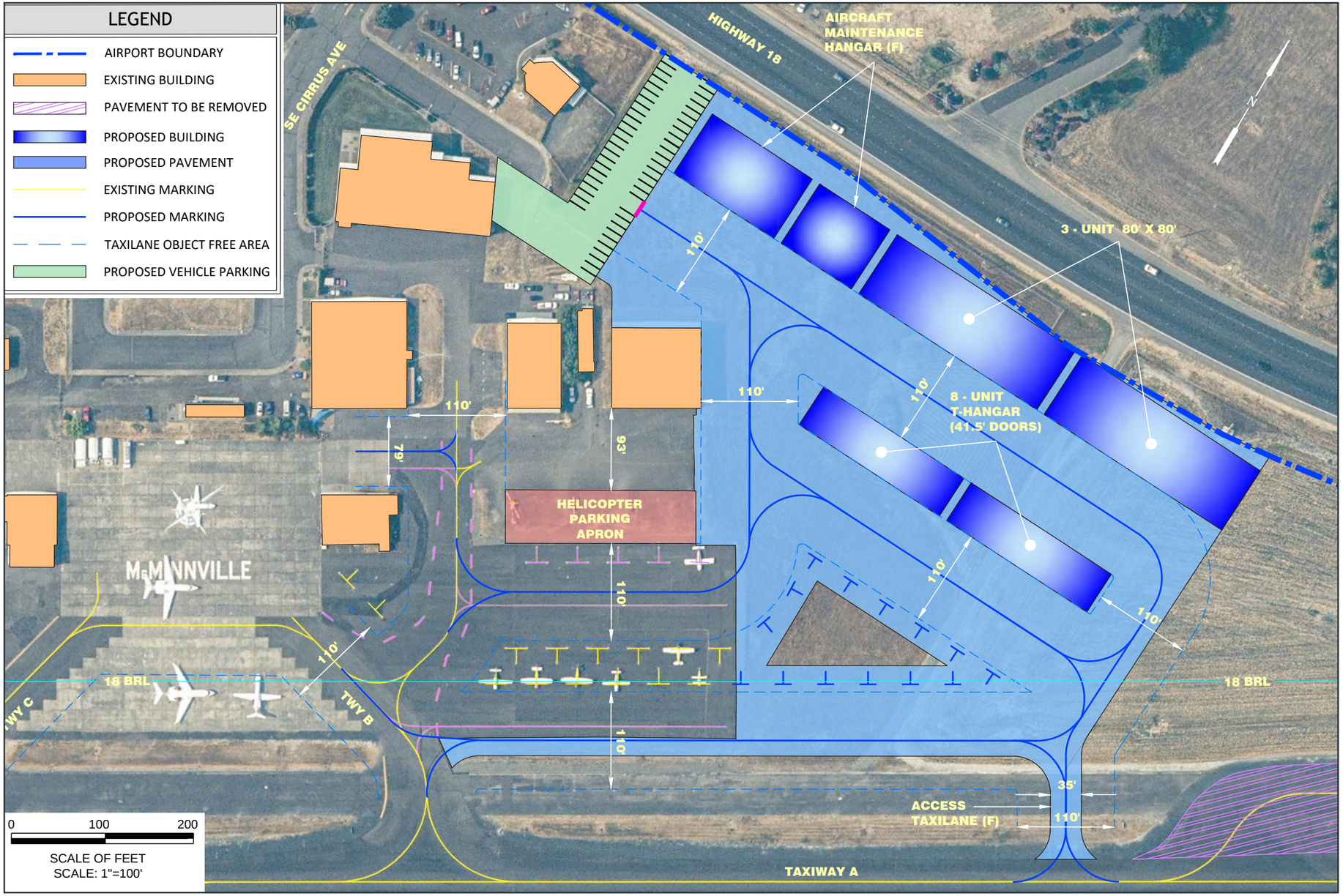
- Upgraded (electronic) vehicle and pedestrian gates and fencing to improve security and access control

Parking and Access:

- Development of new parking areas and vehicle access improvements

Added on 06.13.2025

Figure 5-8: East Landside Area – Alternative 3



East Landside Area – Alternative 3

This concept provides incremental expansion of aircraft parking and hangars in the east landside area.

Hangar Development:

- New hangar sites with varying sizes and door widths to accommodate aircraft storage demand:
  - » Two (2) 8-unit T-hangars (w/ 41.5’ doors) (16 units)
  - » Two (2) Conventional Hangars (Aircraft Maintenance)
  - » Two (2) 3-unit Conventional Hangars (80’x80’ units) (6 units)

Apron Taxilane/Access:

- ADG-II taxilane access to new hangar sites and aircraft parking (-5 tiedowns to clear TLOFA)
- Helicopter Apron Improvement
- East Tiedown Apron Expansion/Reserve (+14 tiedowns)
- Second (ADG II) taxilane connection to Taxiway A to improve aircraft access and traffic flow

Security and Access Control:

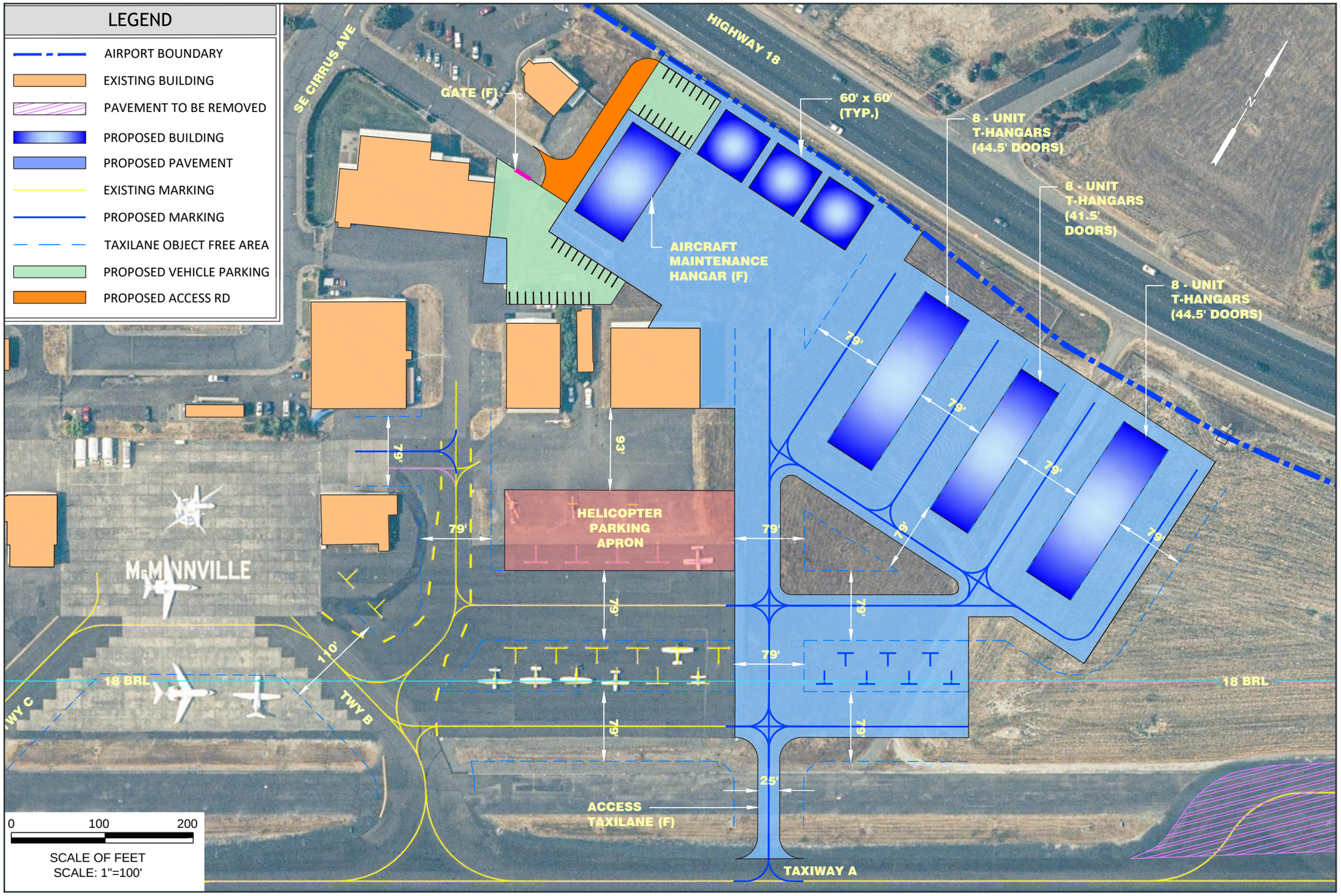
- Upgraded (electronic) vehicle and pedestrian gates and fencing to improve security and access control

Parking and Access:

- Development of new parking areas and vehicle access improvements

Added on 06.13.2025

Figure 5-9: East Landside Area – Alternative 4



East Landside Area – Alternative 4

This concept provides incremental expansion of aircraft parking and hangars in the east landside area.

Hangar Development:

- New hangar sites with varying sizes and door widths to accommodate aircraft storage demand:
  - » Three (3) 8-unit T-hangars (w/ 41.5’ and 44.5’ doors) (24 units)
  - » One (1) Large Conventional Hangar (Aircraft Maintenance)
  - » Three (3) Conventional Hangars (60’x60’ typ.)

Apron Taxilane/Access:

- Expanded Helicopter Parking Apron (-5 fixed wing tiedowns - redeveloped for helicopters)
- ADG-I taxilane access to new hangar sites and aircraft parking
- East Tiedown Apron Expansion/Reserve (+7 tiedowns)
- Second (ADG I) taxilane connection to Taxiway A to improve aircraft access and traffic flow

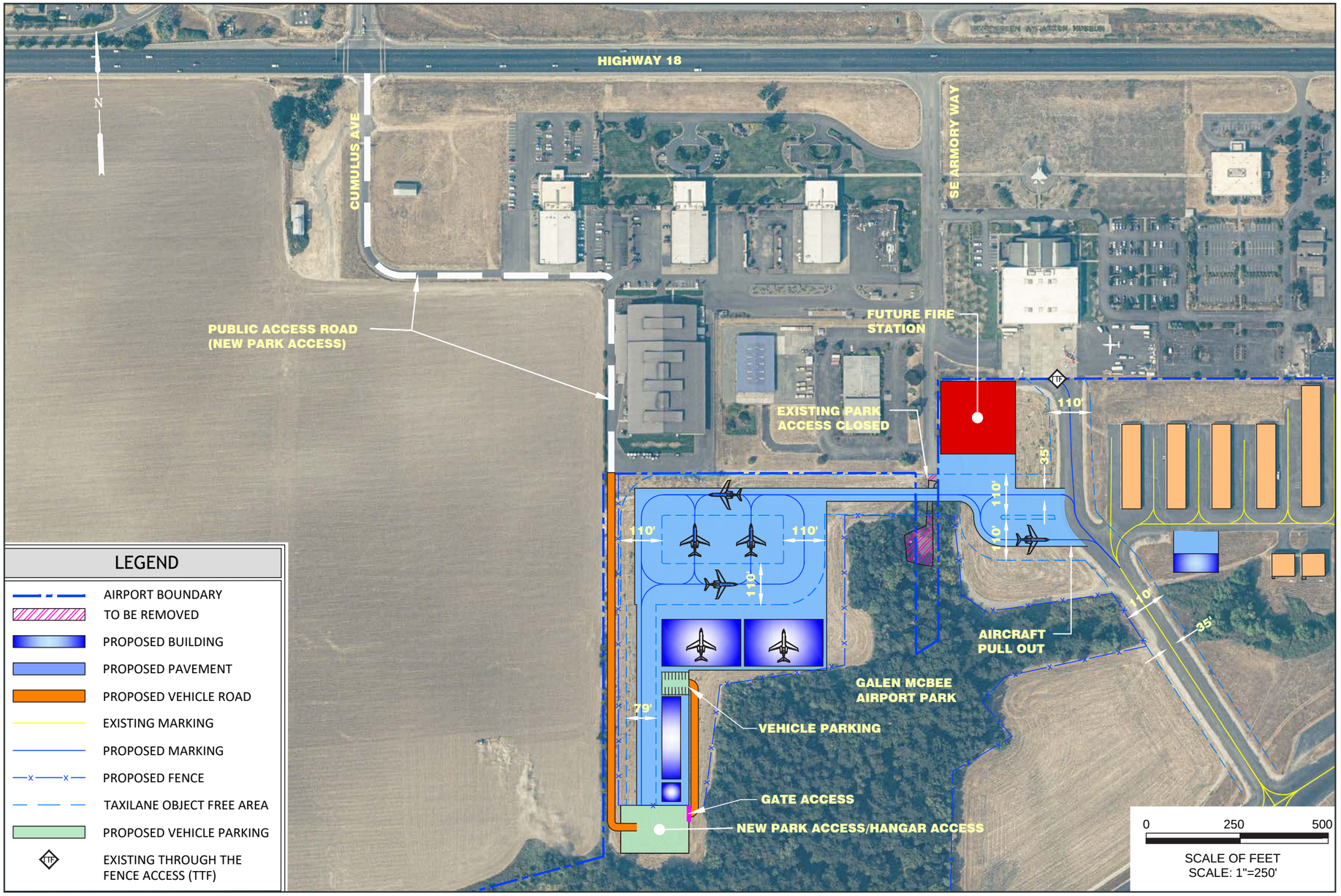
Security and Access Control:

- Upgraded (electronic) vehicle and pedestrian gates and fencing to improve security and access control

Parking and Access:

- Development of new parking areas and vehicle access improvements

Figure 5-10: West Landside Area – Alternative 1



West Landside Area – Alternative 1

This concept provides incremental expansion of aircraft parking and hangars in the future west landside area.

Airport Park Public Access:

- Public access to Galen McBee Airport Park is relocated to the southwest corner of the park/trail system with a new trailhead and public parking lot. A new public roadway connection is proposed for Cumulus Avenue. Planned development of private property immediately west of this site may provide other options for public access to the park. The existing roadway access to the park and the trailhead will be closed to accommodate the access taxilane.

Main Access Taxilane:

- New ADG II taxilane connection to the west hangar taxilane to provide access to hangars and aircraft parking areas.
- Aircraft pull out on taxilane to reduce traffic conflicts (opposite direction taxiing)

Apron Taxilane:

- ADG II aircraft parking (2 to 4 drive-through parking positions)
- ADG-II taxilane loop to access aircraft parking row and large hangars
- ADG-I taxilane to small new hangars

Hangar Development:

- New hangar sites with varying sizes and door widths to accommodate aircraft storage demand:
  - » Two (2) large commercial hangars (ADG II access)
  - » One (1) multi-unit hangar (5 units, 50’x50’ typ.) for small aircraft storage (ADG I access)

Security and Access Control:

- Upgraded (electronic) vehicle and pedestrian gates and fencing to improve security and access control

Parking and Access:

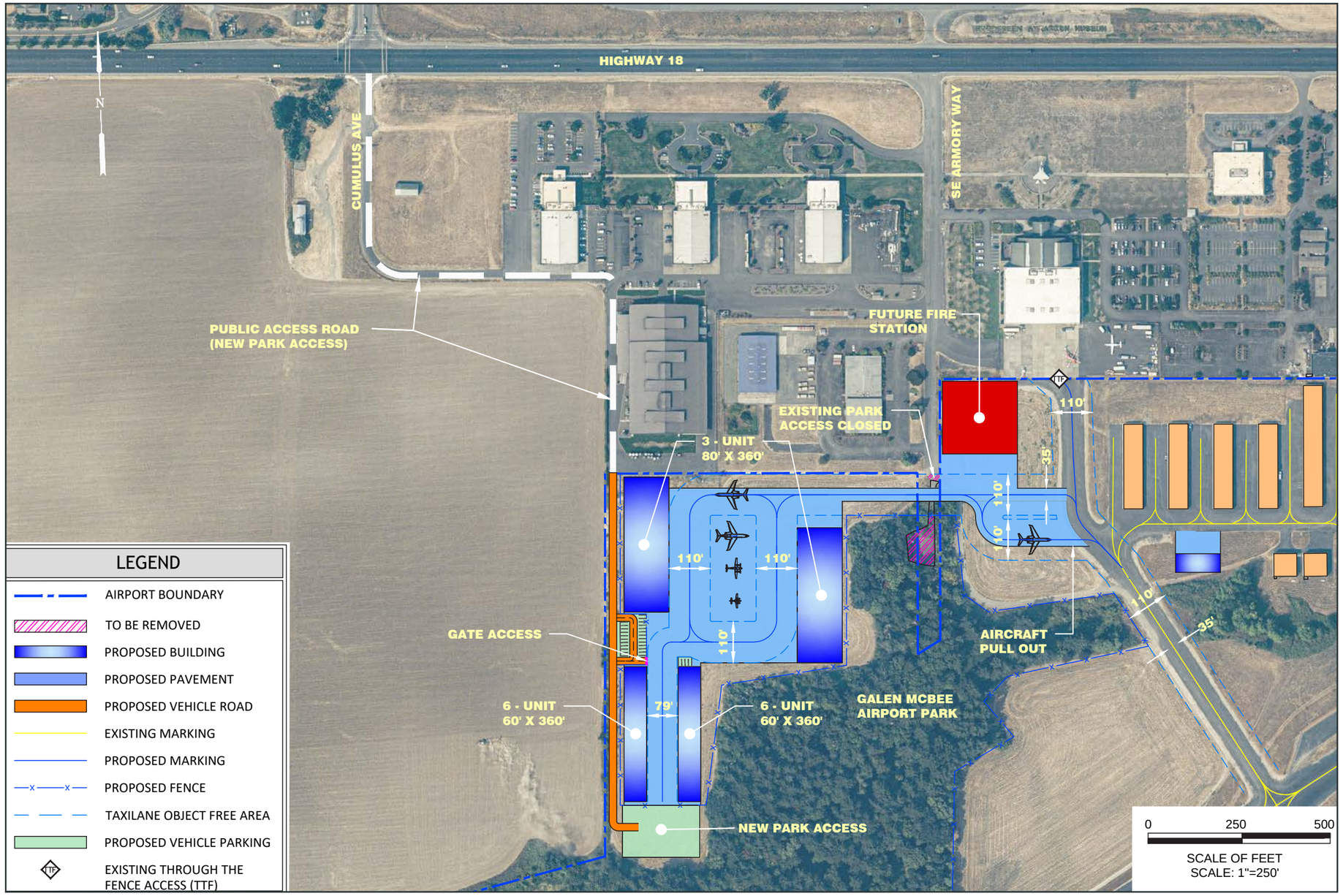
- Development of new parking areas and vehicle access improvements

Fire Station:

- A site for a new community/airport fire station is identified near the north end of the airport park with a direct connection to Highway 18 vis SE Armory Way

Added on 06.13.2025

Figure 5-11: West Landside Area – Alternative 2



West Landside Area – Alternative 2

This concept provides incremental expansion of aircraft parking and hangars in the future west landside area.

Airport Park Public Access:

- Public access to Galen McBee Airport Park is relocated to the southwest corner of the park/trail system with a new trailhead and public parking lot. A new public roadway connection is proposed for Cumulus Avenue. Planned development of private property immediately west of this site may provide other options for public access to the park. The existing roadway access to the park and the trailhead will be closed to accommodate the access taxilane.

Main Access Taxilane:

- New ADG II taxilane connection to the west hangar taxilane to provide access to hangars and aircraft parking areas
- Aircraft pull out on taxilane to reduce traffic conflicts (opposite direction taxiing)

Apron Taxilane:

- ADG II aircraft parking (2 to 4 drive-through parking positions)
- ADG-II taxilane loop to access aircraft parking row and large hangars
- ADG-I taxilane to small new hangars

Hangar Development:

- New hangar sites with varying sizes and door widths to accommodate aircraft storage demand:
  - » Two (2) multi-unit hangars (3 units each, 80'x120' each unit, typ.) (ADG II access)
  - » Two (2) multi-unit hangars (6 units each, 60'x60' each unit, typ.) (ADG I access)

Security and Access Control:

- Upgraded (electronic) vehicle and pedestrian gates and fencing to improve security and access control

Parking and Access:

- Development of new parking areas and vehicle access improvements

Fire Station:

- A site for a new community/airport fire station is identified near the north end of the airport park with a direct connection to Highway 18 vis SE Armory Way

Added on 06.13.2025

Chapter 5

Alternatives Analysis

The evaluation of future development alternatives represents a critical step in the airport master planning process. The primary goal is to define a path for future development that provides an efficient use of resources and is capable of accommodating the forecast demand and facility needs defined in the master plan.

Introduction

As noted in the facility requirements evaluation, current and long-term planning for McMinnville Municipal Airport (MMV) is based on maintaining and improving the Airport's ability to serve a range of general aviation aircraft, including medium and large business jet aircraft. Existing facilities accommodate a wide variety of conventional fixed-wing and rotary-wing aircraft. The airfield facilities associated with the primary runway (4/22) generally meet or exceed FAA ADG II and TDG 2 standards. The taxiway access for the main apron is also designed to accommodate ADG II/TDG 2 aircraft. The second runway (17/35) and its associated taxiways generally meet or exceed FAA ADG I and TDG 1 standards. Non-conforming items identified in the facility requirements assessment will be addressed in the appropriate airside or landside development alternatives.

2004 AIRPORT LAYOUT PLAN (ALP)

The 2004 ALP depicts several recommended landside and airside improvements:

- **Expand Main Apron for large aircraft parking (PCC section)**
- **Expand/reconfigure east tiedown apron**
- **Add second access taxiway to west hangar area (connect to Taxiway A at A3)**
- Expand west hangar area
- General aviation terminal reserve adjacent to main apron

- East terminal area – new general aviation aircraft hangars and taxilanes
- **Terminal area large hangar development (east of Cirrus Avenue)**
- Vehicle parking and road access to accommodate development
- Internal access road (extends from east end of terminal area around Runway 22 RSA)
- **Reconstruct/Reconfigure Runway 17/35 to eliminate intersection with Runway 4/22, reduce runway length**
- Acquire property for the inner portion of the Runway 35 RPZ and realign an existing unpaved road to mitigate approach surface obstruction (vehicles on road) and to clear other protected surfaces for the runway
- **Close original infield taxiway (A3 to Rwy 35 end) (*original Taxiway D*)**
- **Construct parallel taxiway for Runway 17/35 and new infield connecting taxiway (*new Taxiway D*) (connect to A2)**

The projects highlighted in **bold** were completed between 2004 and 2024. The remaining projects will be evaluated based on current needs and FAA design standards, and will be incorporated into the updated preliminary alternatives, as appropriate.

Facility Needs Overview

Table 5-1 summarizes the primary demand factors and corresponding facility needs that will be evaluated in the alternatives analysis. Individual demand-driven facility development reserves are defined as 100% of the net forecast to account for uncertainty in predicting demand for new hangars and aircraft parking.

Table 5-1: Summary of Demand Factors and Facility Development Needs – MMV

Item	Defined Facility Needs in Current 20-year Planning Period
Forecast Increase in Based Aircraft	• Facility Planning Metric: +23 Aircraft (23 "new" aircraft requiring hangar or tiedown parking) » +16 Single Engine Piston » +1 Multi-Engine Piston » +1 Jet » +5 Helicopter • Forecast + 100% Development Reserve = 46 aircraft
Runway-Taxiway System	• FAR Part 77 Airspace » No change in current runway designation • Primary Runway: 4/22 (Precision Instrument) • Secondary Runway: 17/35 (Visual) • No change in Runway 4/22 width or length based on forecast design aircraft • Upgrade Taxiways A1 and A3 with 90-degree connectors • Address Runway 4/22 "High-Energy Crossing" at Taxiway A2 and D • Runway 17/35 is ineligible for FAA funding based on wind coverage provided by Rwy 4/22 • Maintain Runway 17/35 in current configuration
Based Aircraft Hangars	• Assumes 95% of based aircraft will require hangar space
Based Aircraft Parking	• Assumes 5% of based aircraft will require tiedown parking in the current planning period
Commercial Hangars	• Identify development space within landside areas (market driven, not reflected in storage hangar demand projection)
FBO/Terminal Building	• Identify development options for expansion/relocation of existing FBO/Terminal building and vehicle parking
Transient Airplane Parking	• 4-6 Positions + Reserve (Large AC) • 0 additional small airplane tiedowns required (existing 17 tiedowns adequate for forecast demand)
Transient Helicopter Parking	• 3 Positions + Reserve
Aircraft Fueling Facilities	• Relocate above ground storage tanks outside movement areas to improve access, efficiency and safety of the fuel area

Development Alternatives Analysis Process

The preliminary alternatives will focus primarily on the landside improvements needed to accommodate current and future demand. Based on demand and input from the Planning Advisory Committee (PAC), options will include reconfiguration or expansion of existing on-airport development areas. No property acquisition is anticipated, although reconfiguration of some parcels may be considered, if beneficial to the Airport.

Airport development challenges to be resolved include:

1. Optimize operational efficiency and safety for fixed wing aircraft and helicopters.
2. Identify the highest and best use of existing and future airport landside capacity.
3. Define future aeronautical needs to support definition of future non-aeronautical areas available for development on the Airport.
4. Provide compliance with all applicable FAA standards.

FAA PLANNING GUIDANCE

The evaluation process utilized in this study is based on guidance provided in *AC 150/5070-6B Airport Master Planning*. Evaluation criteria categories selected to support the evaluation of development alternatives include:

Operational Capability – Includes criteria that evaluate how well the Airport functions as a system and is able to satisfy future activity levels, meet functional objectives such as accommodating the design aircraft, and provide for the most efficient taxiway system or aircraft parking layout.

FAA Design Standards – Includes an analysis of existing FAA design standards and various requirements or areas of focus currently identified by Advisory Circulars.

Airspace Compatibility – Includes the identification and analysis of the impacts that proposed changes to the airport environment would have on the local and regional airspace systems.

Land Use, Transportation, and Environmental Compatibility – Includes an analysis of best planning practices as they relate to land use, transportation systems, and a cursory analysis/identification of potential environmental effects as defined in FAA Order 1050.1 Environmental Impacts Policies and Procedures and *FAA Order 5050.4 FAA Airports Guidance for Complying with NEPA*.

By analyzing the development alternatives against the evaluation criteria presented above, and subsequently discussed with local stakeholders and interested airport users, an interactive process of identifying and selecting elements of a preferred alternative will emerge that can best accommodate all required facility improvements.

Throughout this process, the City of McMinnville will seek public input and coordination with the Planning Advisory Committee (PAC) and FAA to shape the preferred alternative.

Once the preferred alternative is selected by the City of McMinnville, a detailed capital improvement program will be created that identifies and prioritizes specific projects to be implemented. The elements of the preferred alternative will be integrated into the updated ALP drawings that will guide future improvements at the Airport.

No Build Alternative

A No-Build Alternative is included to represent the maintenance of existing facilities and capabilities. Unlike the active development alternatives that are intended to respond to future demand for facility needs, the No-Build Alternative represents a “no-action” option. The existing airfield would remain unchanged from its present configuration and the Airport would be operated in a “maintenance-only” mode.

No improvement in public use facilities would be planned, although construction of private hangars or related facilities could be accommodated within currently developed areas.

The primary result of this alternative would be the inability of the Airport to accommodate aviation demand beyond current facility capabilities. Future aviation activity would be constrained by the capacity, safety, and operational limits of the existing airport facilities. In addition, the absence of new facility development effectively limits the sponsor's ability to increase revenues and operate the Airport on a financially sustainable basis over the long term.

The no-action alternative establishes a baseline from which the other alternatives can be developed and compared. The purpose and need for the alternatives are defined by the findings of the forecasts and facilities requirements analyses. The need to safely accommodate access and use of the public transportation facility provides the underlying rationale for making facility improvements. The timing of public investment in facilities is driven by safety, capacity, and the ability to operate an airport on a financially sustainable basis, whereas market factors generally determine the level and pace of private investment in hangars or other facilities at an airport.

Based on the factors noted above, the No-Build Alternative is inconsistent with the management and development policies established by the City of McMinnville and its commitment to provide a safe and efficient air transportation facility to serve the surrounding areas that is socially, environmentally, and economically sustainable.

Preliminary Development Alternatives

The preliminary development alternatives are intended to facilitate a discussion about the most effective way to meet the facility needs of the Airport expected over the next 20 years. The facility needs noted earlier are presented as individual proposed airside improvements to existing runways or taxiways, or they are incorporated more broadly into landside development concepts for aircraft aprons, hangars, and associated facilities. Items such as lighting improvements, minor roadway extensions and pavement maintenance do not typically require an alternatives analysis and will be incorporated into the preferred development alternative and the ALP, as needed.

The preliminary development alternatives have been organized into airside and landside groups. The landside alternatives are further organized by development area within MMV's existing landside area, north of Runway 4/22. These are summarized below.

Airside Improvements

- Proposed Airside Improvements (Figure 5-1)

Landside Alternatives

- Landside Development Areas (Figure 5-2)
- Central Landside Alternatives
  - » Central Landside – Alternative 1 & 2 – Phase 1 (Figures 5-3)
  - » Central Landside – Alternative 1 (Figure 5-4)
  - » Central Landside – Alternative 2 (Figure 5-5)
- East Landside Alternatives
  - » East Landside – Alternative 1 (Figure 5-6)
  - » East Landside – Alternative 2 (Figure 5-7)
  - » East Landside – Alternative 3 (Figure 5-8)
  - » East Landside – Alternative 4 (Figure 5-9)
- West Landside Alternatives
  - » West Landside – Alternative 1 (Figures 5-10)
  - » West Landside – Alternative 2 (Figure 5-11)

The preliminary development alternatives described below and depicted in **Figures 5-1 to 5-11** are intended to illustrate the key elements of the proposed concepts. The evaluation of the preliminary alternatives will lead to the selection of the preferred alternative by the City of McMinnville that captures the desired airside and landside elements. It is important to note that the preferred alternative selected by the city may come from one of the preliminary alternatives presented, a combination or hybrid of these alternatives, or a new concept that evolves through the evaluation and discussion of the alternatives.

Also important to note is that master plan implementation will be accomplished through the completion of numerous individual development projects that will be phased over many years. The sequence and actual timing of projects will be determined by specific facility demand, the City's development priorities for MMV, and the availability of both local and FAA funding.

It is anticipated that some proposed projects or long-term development reserves may be deferred beyond the current 20-year planning period, as the facility needs at most airports often exceed available resources. As noted earlier, the City has the option of limiting future facility improvements based on financial considerations or other development limitations.

PROPOSED AIRSIDE IMPROVEMENTS

Overview

The proposed airside improvements include several individual runway and taxiway components. The improvements are primarily focused on increasing conformance with current FAA standards and design guidance, consistent with improving safety for a wide range of users. No dimensional changes to either runway are proposed during the current planning period.

The airfield improvements depicted in **Figure 5-1** are based on guidance from *FAA AC 150/5300-13B, Change 1 - Airport Design*. Although the current runway and taxiway configurations meet or exceed most existing and future FAA standards, some specific components may require updating to meet current FAA design guidance and development priorities.

These projects may be combined with other runway or taxiway improvements included in the recommended preferred alternative or combined with larger pavement maintenance or rehabilitation projects. Potential project sequencing will be determined during the capital improvement program (CIP) development. Improvements to Runway 4/22 are prioritized over Runway 17/35 since conformance with FAA standards is required for FAA funded projects.

Runway 4/22

The proposed improvements to Runway 4/22 focus on meeting future FAA C-II standards for the Runway Safety Area (RSA) and Runway Object Free Area (ROFA); taxiway system upgrades; and Runway Protection Zone (RPZ) control. As described in Chapter 3 - Aviation Activity Forecast, airport traffic is projected to reach the FAA's critical aircraft threshold of 500 annual operations of C-II or larger aircraft near the mid-point of the 20-year planning period. The majority of this activity will be accommodated on Runway 4/22. The C-II RSA and OFA surfaces extend 1,000 feet beyond each end of Runway 4/22. As noted in the facility requirements evaluation, the C-II RSA and OFA for the runway contains two non-standard items at their outer (east) end (<950 feet from Runway 22 end):

- Airport Fence
- Public Roadway (SE Cruickshank Road)

The planned closure of the SE Cruickshank Road connection to Highway 18 (City/ODOT 3-Mile Lane project) will allow the 1,200-foot section of the road that intersects with SE Airport Road, to be vacated. Removing this section of the road will allow the outer ends of the RSA and OFA to be re-graded to meet standards and the existing fencing to be relocated outside of the surfaces. Access to Highway 18 will be redirected to the east via the remaining section of SE Cruickshank Road to Highway 233/SE Lafayette Hwy.

A change in the location of the existing Taxiway A2 and D crossing on Runway 4/22 is proposed to meet current FAA design guidance. As noted in the facility requirements evaluation, the Taxiway A2-D crossing is located in the middle one-third of the runway. The FAA defines taxiway crossings in the middle third of a runway as "high energy" crossings. The FAA recommends that this configuration should be avoided to reduce runway incursion risk. Additional details are provided in the taxiway section, below.

It is recommended that avigation easements be acquired for the portions of the Runway 4 and Runway 22 RPZs that extend beyond airport property but are not currently protected through easement. Alternatively, acquisition of individual parcels may be considered to establish control over the RPZ. As noted in the facility requirements chapter, avigation easements were acquired by the City of McMinnville between 1981 and 1983 for 5 privately-owned parcels in the Runway 22 RPZ. It appears that small portions of the Runway 22 RPZ extending off airport property remain without an easement, including the Highway 18 right-of-way (ROW). For existing public road ROWs, RPZ easements typically limit the heights of built items (overhead light poles, etc.) and natural items (trees), based on the defined Part 77 approach surface elevations (slope) that coincide with the edges of the RPZ trapezoid. No record of avigation easements for the Runway 4 RPZ were identified.

Taxiways

Replacement of two acute angle exit taxiways (A1 and A3) with 90-degree taxiways is proposed, based on current FAA design guidance. The relocation of the aircraft hold area adjacent to Taxiway A1 is recommended as part of the taxiway reconfiguration.

The proposed relocation/reconfiguration of Taxiway A2 and the northern section of Taxiway D noted earlier is based on conformance with current FAA design guidance. The existing runway crossing at Taxiway A2 and D is defined by FAA as a "high energy crossing" since it is located in the middle one-third of the Runway 4/22. The proposed change shifts the runway crossing 460 feet to the east, outside of the middle third of the runway. The proposed realignment of the northern section of Taxiway D avoids conflicts with the nearby ASOS, segmented circle and ILS glideslope for Runway 22.

The new taxiway developments described above would also remove existing taxiway pavements to eliminate future maintenance issues and largely offset the addition of new impervious surfaces for calculation of stormwater management.

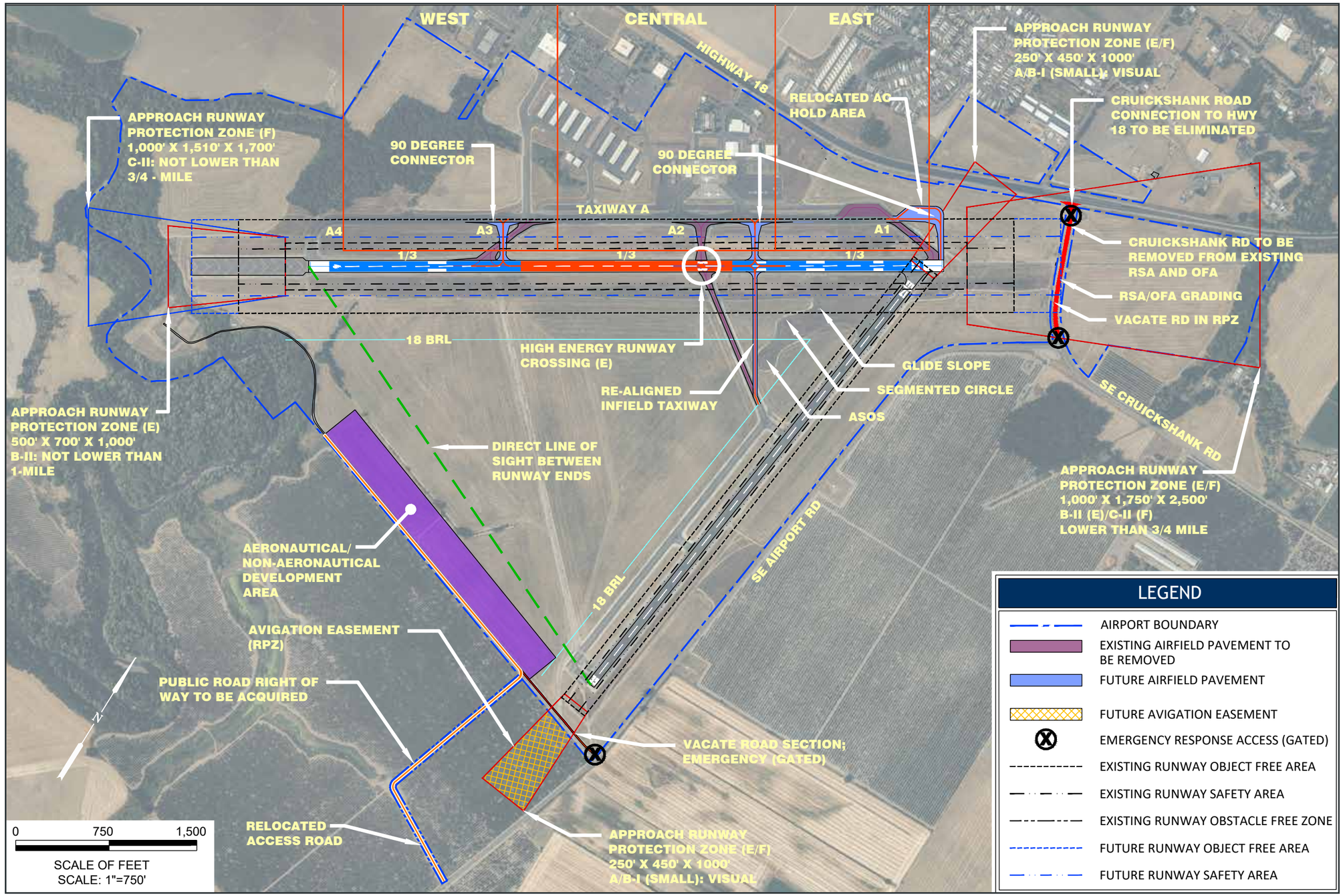
Runway 17/35

No improvements are proposed for Runway 17/35. Maintaining the existing runway and adjacent taxiways (D, D1-D3) is recommended where feasible. Based on the wind coverage provided by Runway 4/22, Runway 17/35 is not expected to be eligible for FAA funding in the future.

The majority of the Runway 35 RPZ extends off airport property over privately-owned agricultural land. Agriculture is considered a compatible land use within an RPZ. A small area of Highway 18 ROW crosses through the outer end of the Runway 17 RPZ. Acquisition of avigation easements is recommended to ensure the continued land use compatibility in both RPZs. An unpaved access road currently travels through the inner portion of the Runway 35 RPZ. Relocating the road outside the RPZ is proposed to address land use compatibility and approach clearance issues.

A mixed-use aeronautical and non-aeronautical development reserve is proposed for the southern edge of the Airport, with surface access provided from SE Airport Road and the realigned access road noted above.

Figure 5-1: Proposed Airside Improvements



Preliminary Landside Development Alternatives

OVERVIEW

The landside planning evaluations are intended to identify options for meeting the net twenty-year demand forecast for based aircraft and projected transient aircraft parking demand, plus development reserves equal to 100% of the forecast demand.

The landside facility needs include development areas and taxilane access for new aircraft hangars and parking for larger fixed wing aircraft and helicopters. The current number of small airplane tiedowns (19) located east of the main apron exceeds long-term forecast parking demand for locally-based and transient aircraft. However, existing apron areas may be modified or reduced in some options to accommodate other aircraft needs, which could result in the need to provide additional tiedowns.

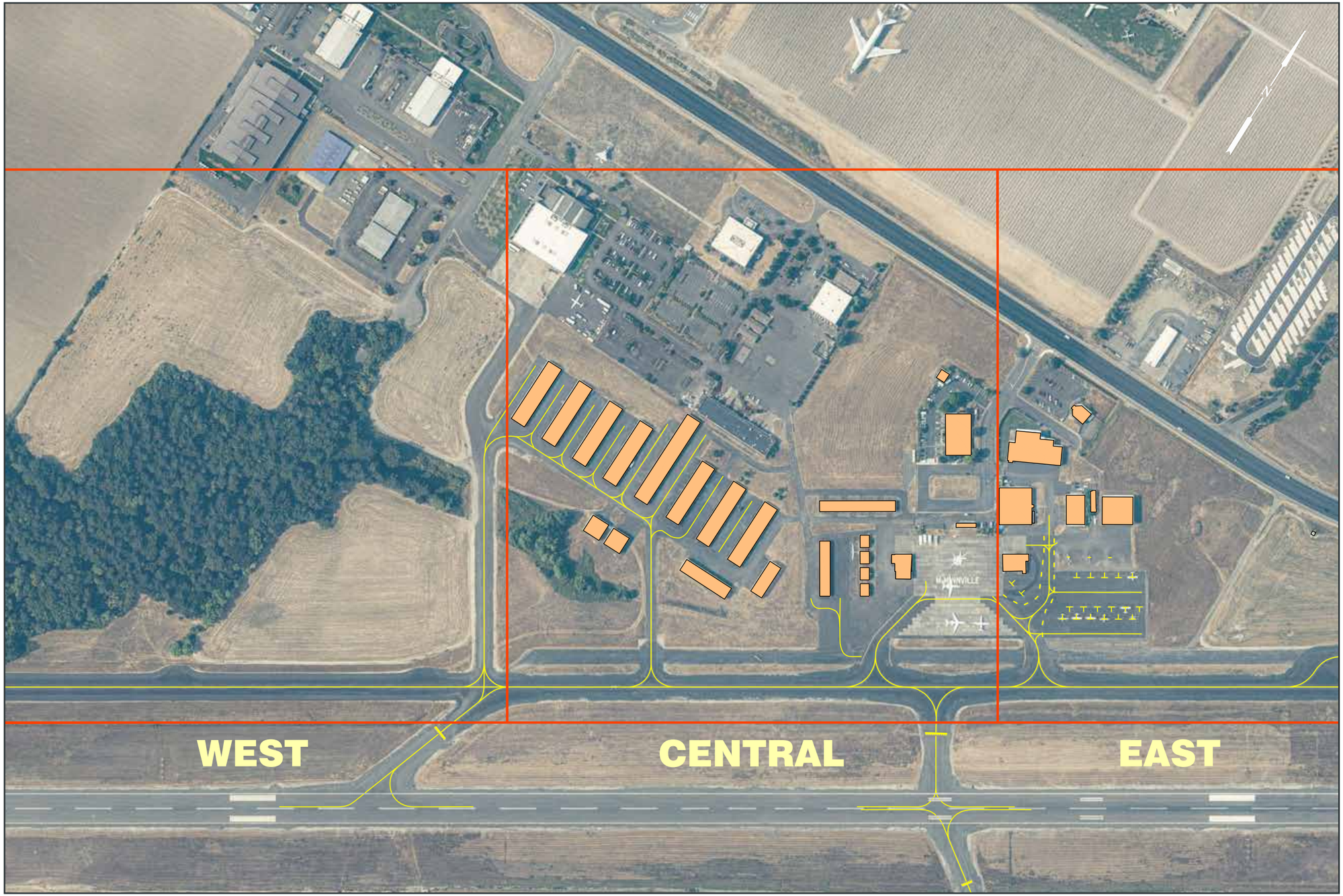
The FAA recommends that airport master plans be initially developed in an "unconstrained" manner, rather than establishing pre-defined limits that drive the planning process. The evaluation of development alternatives for the Airport is unconstrained, consistent with FAA guidance, forecast demand, and defined facility requirements.

Three development areas (west, central, east) are identified within the overall north landside area to meet forecast facility demand (see **Figure 5-2**). The proposed development is intended to leverage existing vehicle and aircraft access where possible, while providing incremental development that can be effectively phased over time in response to actual demand. It is acknowledged that when combined, the concepts presented for the three landside development areas provide facilities that exceed the projected 20-year demand for MMV. The primary goal in the alternatives review process is to identify the most viable development components that can be phased over the next 20 years and reserve the remaining areas for long-term aeronautical use.

The West Landside Area focuses on the developable airport land adjacent to Galen McBee Park and a planned commercial/light industrial development area immediately west of MMV, south of Highway 18. The Central Landside Area focuses on infill and redevelopment in the main terminal area and new development on currently vacant land. The East Landside Area focuses on new development east of the terminal area. The preliminary landside development alternatives include:

- An overview of the three development areas (**Figure 5-2**)
- Central Landside Area (**Figures 5-3, 5-4, 5-5**) – Two options and one phased component providing FBO/ terminal building, large aircraft parking, vehicle parking and aircraft fueling area
- East Landside Area (**Figures 5-6, 5-7, 5-8, 5-9**) – Four options for the development of future hangar sites for aircraft storage and commercial applications, defined ADG I/II taxilane access to hangar sites, expanded/ reconfigured helicopter and small aircraft parking areas, improved vehicle access and parking
- West Landside Area (**Figures 5-10, 5-11**) – Two options providing hangars and aircraft parking west of the Galen McBee Park, extends taxiway access from west hangar area

Figure 5-2: Landside Development Areas



Added on 06.13.2025

CENTRAL TERMINAL AREA CONCEPTS

The preliminary alternatives for the central terminal area focus on accommodating transient large business class aircraft (business jets, turboprops, etc.) with development options for a general aviation terminal/fixed base operator (FBO) building and adjacent public vehicle parking. Other proposed improvements include fuel storage/dispensing area upgrades and commercial hangar development options. Future electric aircraft charging systems would also be accommodated in this area. **Table 5-2**, presented at the end of this section summarizes the key features of the central terminal area alternatives.

The core elements of these alternatives is to provide ADG II taxilane clearances throughout the terminal area and drive-through aircraft parking areas. The expansion of the aircraft parking space, the taxilane object free area (wingtip) clearances and other ADG II taxilane geometry combine to create a significantly larger apron area that require removal of several existing city-owned hangars. Due to the significant development required for the central terminal area at full build out, an initial phase was defined to illustrate the ability to make incremental improvements.

Central Terminal Area Alternative 1/2 – Phase 1

Terminal Area – Phase 1 (Figure 5-3) expands the ADG-II aircraft parking and movement areas on the west side of the main apron. This phase is compatible with both of the central terminal alternatives (Alternatives 1 and 2) presented. The proposed apron expansion provides 4 north-south drive through parking positions sized for ADG II aircraft connecting to Taxiways B and C, which connect to Taxiway A and Runway 4/22. Taxiway B is reconfigured to improve access to Taxiway A and the east landside area.

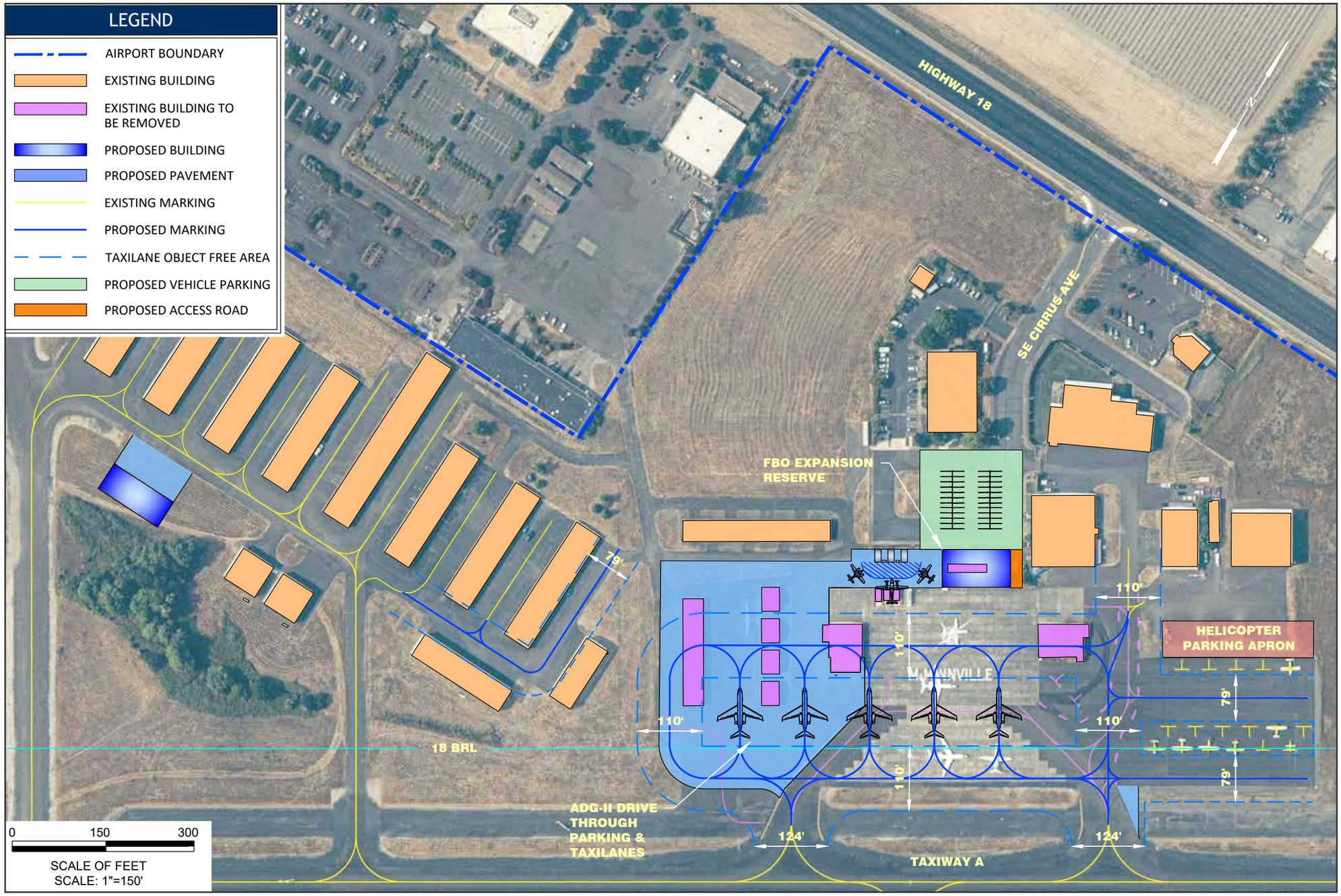
The aircraft parking area is defined by surface markings which allows for flexible parking to accommodate a combination of ADG I and II business aircraft sizes. The western expansion of the apron requires the removal of several city-owned hangars including the west Quonset hangar, four open-front conventional hangars (Bravo), and T-Hangar Charlie (6 units) and the relocation of displaced aircraft to other hangars or parking areas on the Airport. The hangar removal required to implement Phase 1 represents storage capacity for approximately 12 small aircraft. It is also noted that several small aircraft tiedowns located adjacent to these hangars will also be eliminated. Options for developing new hangars and parking for small aircraft are presented in the east and west landside alternatives (see **Figures 5-6 to 5-11**).

An expanded FBO building footprint (approximately 6,000 to 8,000 square feet) is identified in the current FBO location at the north end of the main apron. This provides a near-term option for expanding FBO facilities on the current site in order to maximize use of existing facilities and the other proposed Phase 1 improvements. This concept assumes replacement of the existing portable building with a larger permanent or modular building. The larger building could be accommodated on the site without requiring changes to the existing roadway or on-street parking. The unpaved vehicle parking area located west of the current FBO building (north of the existing aircraft fueling area), would be redeveloped to accommodate a relocated fueling area (see below).

An expanded vehicle parking area is proposed within the existing loop roadway. The parking lot would serve existing tenants and airport users (±44 spaces). Vehicle access to the main apron is maintained via a gated access road connection to SE Cirrus Avenue.

The proposed improvements to the existing aviation fuel storage area include relocating (north) the three (3) existing above ground fuel tanks, the dispensing area, and fuel truck parking. The relocated fueling facilities will accommodate both the existing tanks and future replacement tanks. Shifting the fueling area north will significantly increase the separation between fueling aircraft and large aircraft on the adjacent main apron and will also improve aircraft circulation in and around the fueling area. The relocated fueling area is capable of accommodating up to three small aircraft with direct access from a new east-west taxilane on the main apron. Heavy truck access from SE Cirrus Ave is maintained for fuel deliveries.

Figure 5-3: Central Terminal Area – Alternative 1 & 2 - Phase 1



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Central Terminal Area – Alternative 1

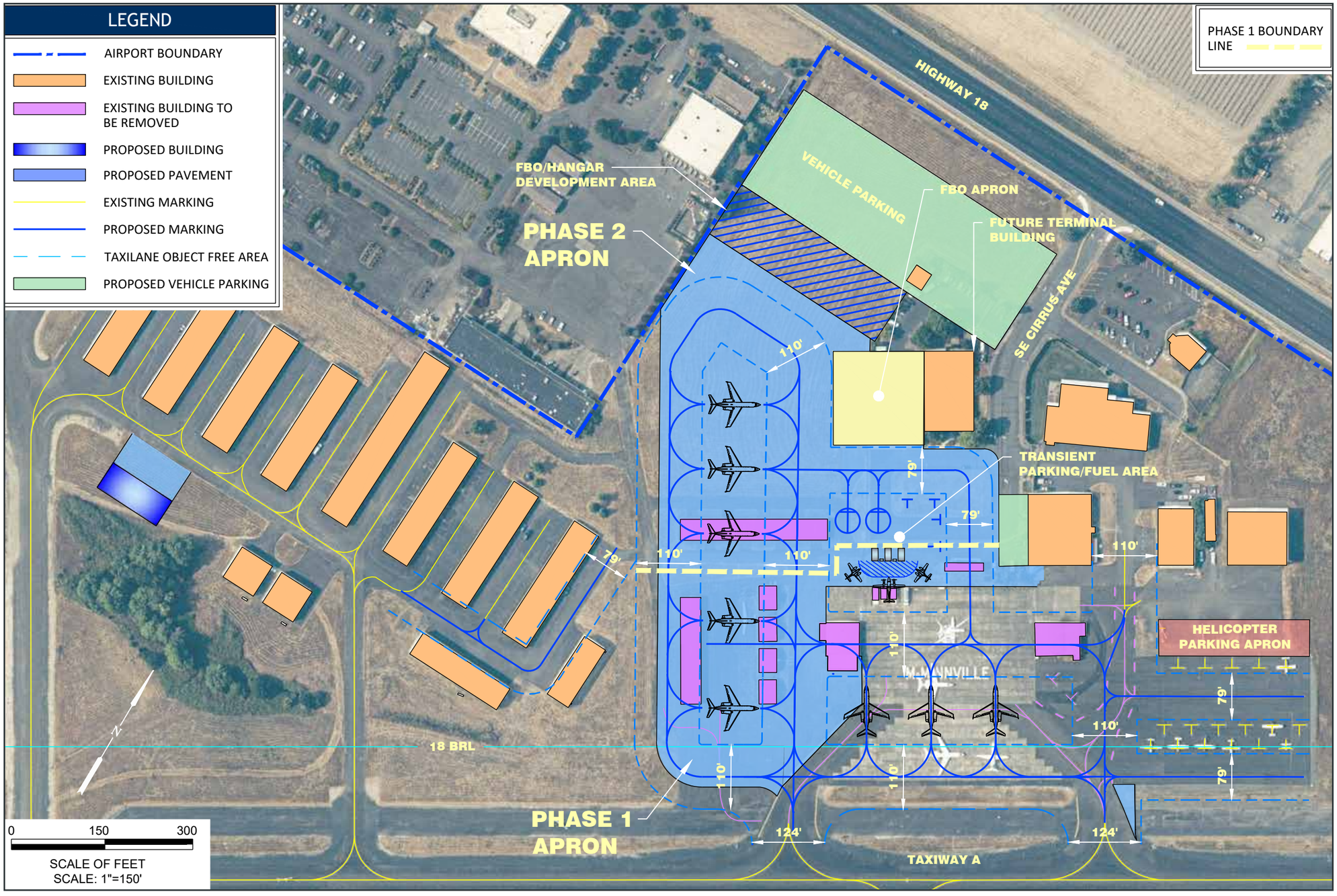
Central Area – Alternative 1 (Figure 5-4) extends the Phase 1 main apron expansion described earlier, northward to provide additional large aircraft parking and access to an expanded GA terminal/FBO building site. This option configures the large aircraft parking row and dual ADG II taxilanes to run north-south to optimize the use of the site and provide efficient movement of aircraft. The apron and taxilane expansion can be completed in phases based on demand. Two large aircraft parking positions (eastern-most) from the Phase 1 main apron configuration are maintained, while the western parking positions are reoriented 90-degrees and integrated in the expanded apron. As depicted, the full build out of the main apron accommodates 7 ADG II business jets, but the open drive-through parking row will be able to accommodate a variety of different sized ADG I and II business aircraft, which effectively increases jet and turboprop transient parking capacity near the FBO facilities. To accommodate the apron expansion beyond Phase 1, Hangar A (8-unit T-hangar) is removed.

In this alternative, an existing city-owned office building, currently leased to the Oregon State Patrol (OSP), is identified as a potential FBO/general aviation (GA) terminal building, opposite the north-south large aircraft parking row. With this option, the building and site would be reconfigured to provide a combination of public and tenant space. A new FBO apron is added on the west side of the building to provide operational space for fuel trucks, passenger loading/unloading, and short term aircraft parking.

An additional development area is identified at the north end of the expanded apron to locate a larger FBO building/GA terminal or FBO hangars. A vehicle parking area (100+ spaces) with direct access from Cirrus Lane is proposed. The parking area is capable of serving both of the proposed FBO/GA terminal building areas described here. The north development area provides a unique opportunity to reserve a site for larger facilities, and it also provides a viable option if the redevelopment of the OSP-leased office building is not pursued. The concept also provides flexibility in sequencing near-term and long-term improvements, where the existing office building, if converted to FBO use, could be repurposed in the future.

A small aircraft apron is proposed south of the OSP-leased office building as part of the site redevelopment described above. The new apron section will accommodate small aircraft and potentially support electric aircraft charging facilities. The proposed relocation of the existing aboveground aviation fuel tanks and aircraft fueling area presented in Phase 1, is maintained, and is compatible with a new apron area. The terminal vehicle parking area proposed in Phase 1 is eliminated as part of the development of the small aircraft apron. With the development of the new apron section, a consolidated aircraft fueling/charging facility could be developed as an island centered near the main apron. Although the operational function of aircraft fueling and electric re-charging is similar, the typical aircraft charging times are expected to be significantly longer than the time required to refuel conventional aircraft. As technology improves, advances in battery storage and charging systems are expected to reduce charging times. However, for the near future, it is assumed that electric aircraft charging stations will require the equivalent of one short-term transient parking space for each plug in. Initially, the facility would be intended for smaller conventional aircraft, helicopters, other VTOL aircraft, and unmanned aircraft. Longer term development of electrified business class aircraft would require compatible systems and adequately sized parking areas.

Figure 5-4: Central Terminal Area – Alternative 1



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Central/Terminal Area – Alternative 2

Central Area – Alternative 2 (Figure 5-5) uses the same large aircraft parking configuration developed in both the Phase 1 development option (Figure 5-3) and Alternative 1 (Figure 5-4). The ability to accommodate different apron/taxilane configurations is limited by the narrowness and depth of the apron expansion areas and a desire to avoid impacting newer hangars west of the terminal area .

The primary difference between Alternative 2 and 1 is the proposed development of facilities in the area north of the existing FBO building and aircraft fuel storage tanks. The existing/expanded FBO footprint, the terminal vehicle parking area, and the relocated aircraft fueling area presented in Phase 1 are maintained.

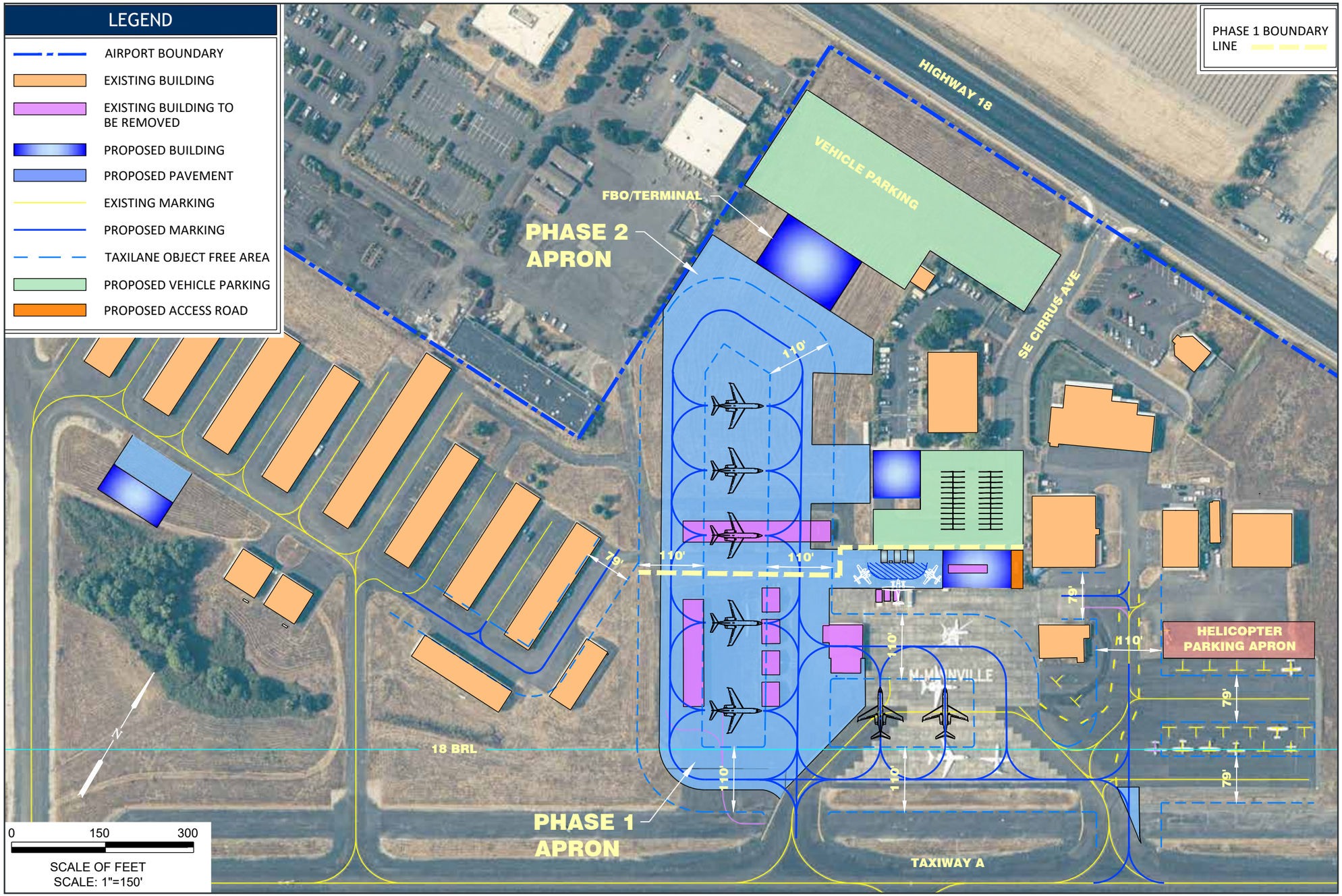
A larger FBO/GA Terminal building site is located at the north end of the large aircraft parking row, with adjacent vehicle parking. The vehicle parking area is similar to Alternative 1, but is modified to be compatible with the office building currently occupied by OSP.

A conventional hangar site (60'x60' typ.) is proposed north of the relocated fuel area, with ADG II aircraft access provided from the adjacent main apron expansion.

TABLE 5-2: Central/Terminal Area Options Features

Development Features	Phase 1	Alternative 1	Alternative 2
FBO/Terminal Building (Approximate Square Footage)	7,440	11,513	15,000
Large Aircraft Parking Positions	4	7	7
New Hangar Sites	0	1	2
Vehicle Parking Spaces	20	144+	122+
Aboveground Fuel Tanks	3	3	3
Existing Hangars Removed/# Units	6 /11	1/8	1/8

Figure 5-5: Central Terminal Area – Alternative 2



Added on 06.13.2025

EAST LANDSIDE DEVELOPMENT CONCEPTS

The preliminary alternatives for the east landside area focus on accommodating aircraft storage (parking, hangars) and tenant commercial activities such as aircraft maintenance. The incremental development of aeronautical facilities in this area is enhanced by the existing apron, taxiway/taxilane, utilities, and surface access improvements provided in the adjacent central terminal area. The concepts provide combinations of hangar sizes and taxilane clearances designed to accommodate the sizes of aircraft (ADG I and II) commonly operating at the Airport. Several common development items appear in each of the alternatives:

- T-Hangars/Multi-Unit Hangars
- Small/Medium Conventional Hangars
- Commercial/Maintenance Hangars
- Small Airplane Tiedowns
- Small Helicopter Parking
- Vehicle Access and Parking
- New Taxilanes

Four preliminary alternatives are provided for evaluation: two options are sized exclusively for ADG I aircraft; one option is sized for ADG II aircraft (this would also accommodate smaller ADG I aircraft within the ADG II development area); and one option provides a combination of ADG I/II hangar sizes and taxilane clearances in different sections of the development area. **Table 5-3** summarizes the key features of the East Landside Area alternatives; **Figures 5-6 to 5-10** depict the East Landside Alternatives.

The controlling factor in taxilane design is the required wingtip clearance from taxilane centerline to the nearest fixed or moveable object. This equates to one-half of the taxilane object free area (TLOFA) dimension, measured outward from centerline. The FAA standard full-width TLOFA dimensions are 79 feet for ADG I and 110 feet for ADG II, which correspond to minimum clearances of 39.5 and 55 feet from a taxilane centerline to an adjacent building or parked aircraft. In general, hangars with door widths ranging from 50 to 80 feet can accommodate ADG II aircraft and are planned with ADG II taxilane access. Door widths less than 50 feet are limited to ADG I aircraft or small helicopters, and are planned with ADG I taxilane access.

Site Factors

The east landside development area is located east of the main apron and the adjacent hangars north and east of the apron. The area is triangular-shaped, which narrows significantly at its east end. The site is bordered to the north by the airport property line and Highway 18; to the south by Taxiway A and the aircraft hold area near the end of Runway 22; and to the west by the small aircraft tiedown apron and hangars. The primary development setbacks for the site are defined by clearances established for Runway 4/22 and Taxiway A, including the building restriction line (BRL) and the taxiway object free area (TOFA).

The aircraft hold area at Taxiway A1 also requires separation from adjacent landside facilities to address jet and prop blast generated by holding/taxiing aircraft. The proposed reconfiguration of Taxiway A1 from an acute angle exit to the FAA-recommended 90-degree taxiway geometry described in the airside improvements section provides an opportunity to relocate the hold area east closer to the aircraft hold line on the new Taxiway A1. Shifting the aircraft hold area east of its current location would also allow additional development flexibility in the east landside area. The relocation of the aircraft hold area adjacent to Taxiway A1 is depicted in each alternative.

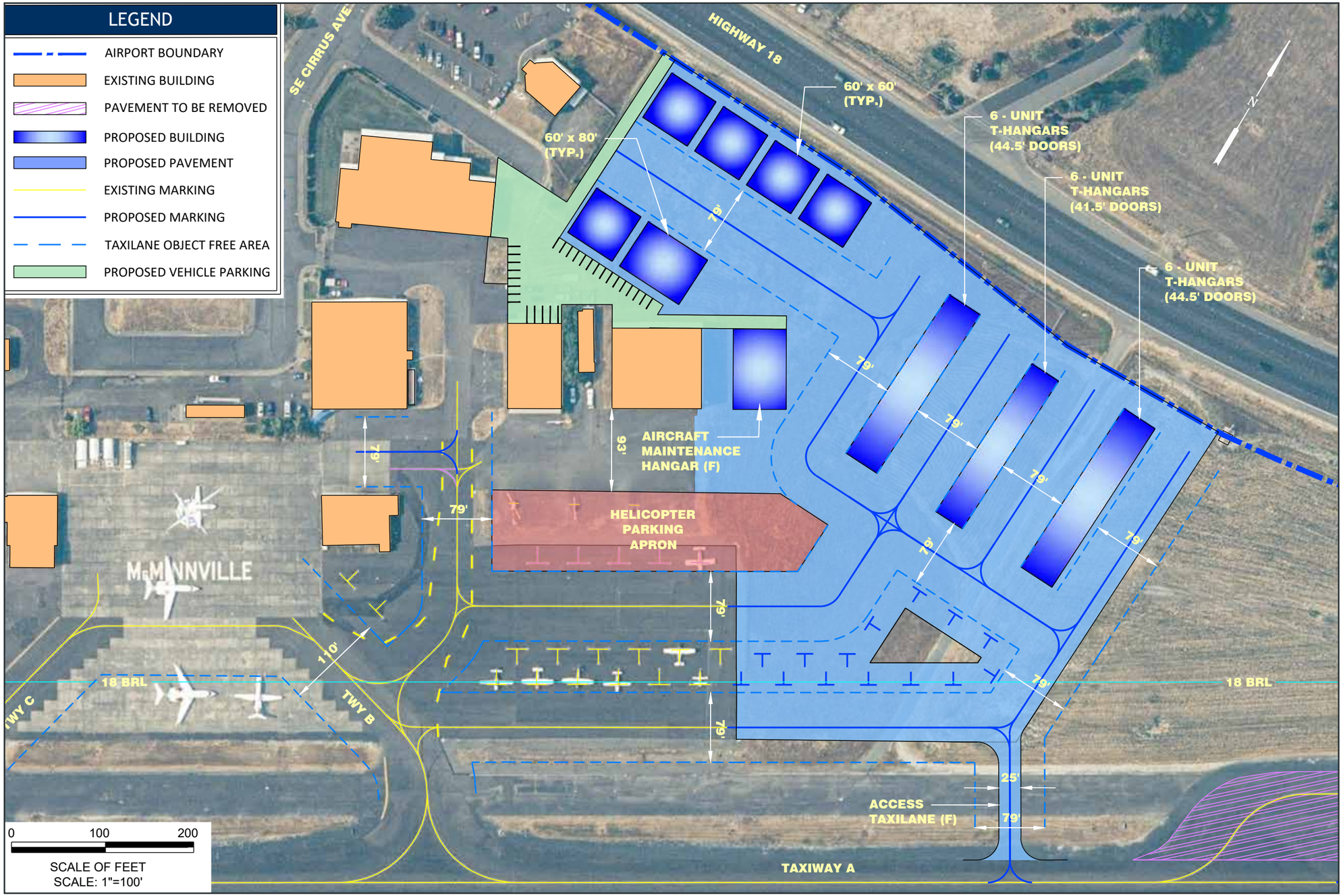
East Landside Alternative 1

East Landside Alternative 1 (Figure 5-6) provides an ADG I development that includes small aircraft storage hangars, a commercial hangar site, and expanded/reconfigured parking aprons for fixed wing aircraft and helicopters. Improvements in vehicle access and parking are proposed from the SE Nimbus Loop connection to Cirrus Avenue. The proposed development concept includes the following key features:

- **ADG I** taxilane standards and clearances are used.
- **Two existing east tiedown apron ADG I taxilanes are extended east** to provide access to the proposed hangar development areas and future small aircraft tiedowns.
- A new **East Access Taxilane** connection is provided from the development area to Taxiway A. The taxilane will improve the flow of taxiing aircraft in the east landside area and reduce congestion on Taxiway B.
- **T-Hangars (18 units)** – Two 6-unit T-Hangars with 44.5-foot doors; One 6-unit T-Hangar with 41.5-foot doors. The hangars are oriented north-south to optimize snow melt during winter conditions. The hangars are located in the eastern section of the area.
- **Maintenance hangar site** – located at the east end of existing hangar row (north of east tiedown apron). This hangar site can be developed with minimal taxilane/apron improvements.
- **Conventional hangar sites** – located in the upper section of the development area, two opposing hangar rows are served by a single ADG I taxilane. Five conventional hangars are depicted with 60-foot widths and one hangar has an 80-foot width. Actual clear door openings vary by hangar design and are typically reduced by fixed wall structures on both sides of the doors. These hangars are intended to accommodate one or more ADG I aircraft (wingspans up to 49') based on the taxilane OFA clearance provided.
- **Expanded Helicopter and Small Aircraft Parking Aprons** – the northern row of 5 small airplane tiedowns on the east apron is converted to helicopter parking in conjunction with expansion and reconfiguration of the existing tenant helicopter parking area immediately north. The expanded helicopter parking area provides space for 9 small helicopters. The small aircraft tiedown apron is expanded to the east to offset the loss of 5 tiedowns and to provide capacity to accommodate future demand and long-term reserves. As depicted, 14 new small airplane tiedowns are proposed with the east apron expansion, with a net increase of 9 small airplane tiedowns.

The proposed improvements in the east landside area are compatible with the proposed Phase 1 central terminal area improvements. The development of small aircraft hangars is intended to offset the loss of hangars in the proposed central terminal area redevelopment, and accommodate future demand for additional hangar space.

Figure 5-6: East Landside Area – Alternative 1



Added on 06.13.2025

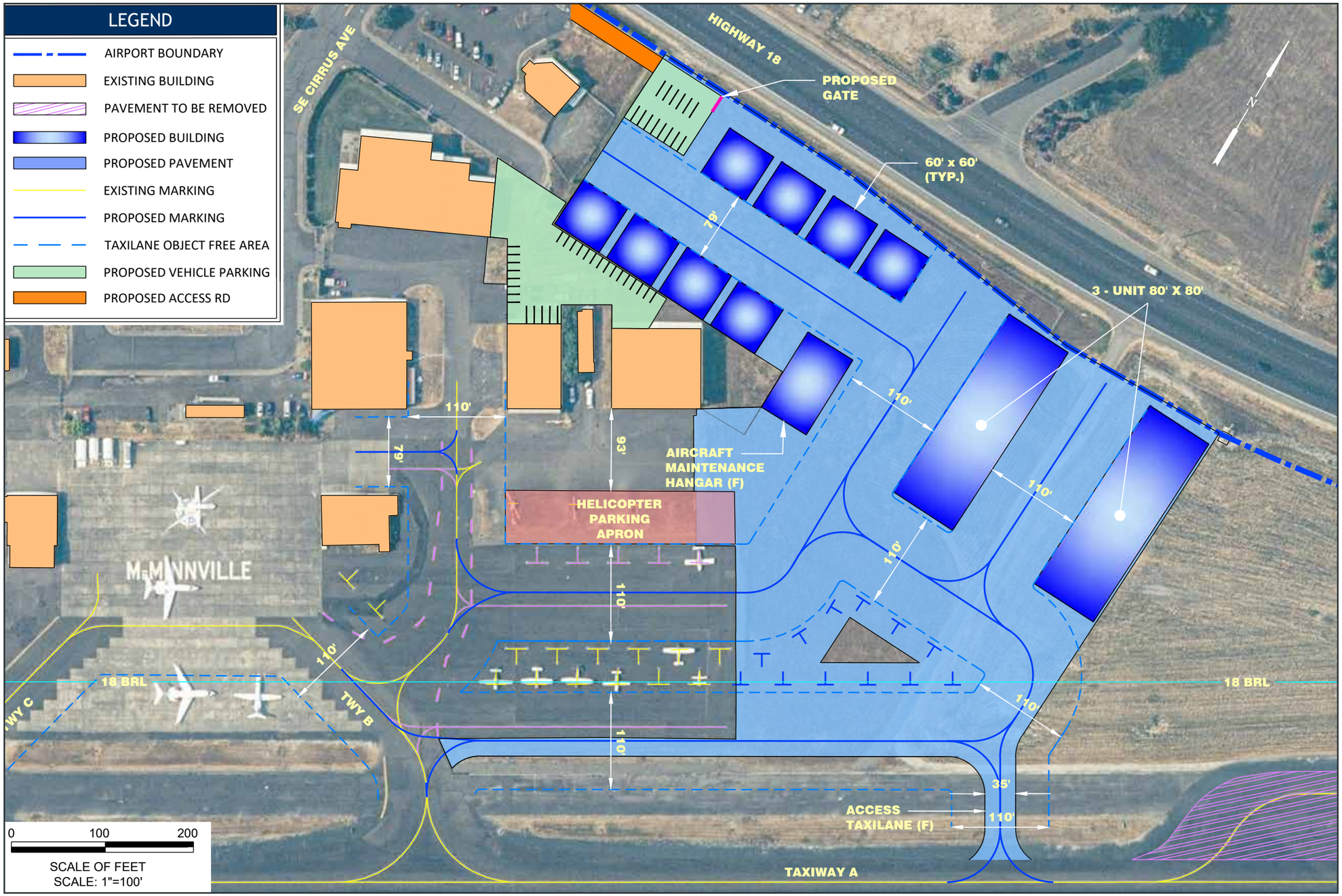
East Landside Alternative 2

East Landside Alternative 2 (Figure 5-7) provides a combination ADG I/ADG II development that includes aircraft storage hangars, a commercial hangar site, a reconfigured and expanded apron for small airplane tiedowns, and vehicle access and parking improvements. The proposed improvements are compatible with the proposed Phase 1 central terminal area improvements presented earlier. The development of small aircraft hangars is intended to offset the loss of hangars in the proposed central terminal area redevelopment, and accommodate future demand for additional hangar space.

In this concept, the east tiedown apron is reconfigured to accommodate ADG II taxilanes. This change would allow ADG II aircraft to access the east landside area from both Taxiway B and the proposed new east taxilane connection to Taxiway A. New hangar sites are proposed in the north and east sections of the area. The basic layout of hangars and aircraft parking presented in Alternative 1 is maintained with some specific changes to accommodate ADG II aircraft. The proposed development concept includes the following key features:

- **ADG II** taxilane standards and clearances are used for the aircraft parking apron and the hangars located on the east side of the development. **ADG I** taxilane clearances are provided for two adjacent rows of small conventional hangars located at the north end of the development.
- The existing **ADG I taxilanes** on the east tiedown apron are upgraded to provide ADG II OFA clearance. The north row of 5 small airplane tiedowns is eliminated to clear the taxilane OFA. The southern edge of the existing and future apron is extended 20 feet south to account for the shifted (ADG II) taxilane centerline that runs along the south side of the dual tiedown row.
- **Access Taxilane** – a new connection to Taxiway A is provided at the east end of the development area. The taxilane will improve the flow of aircraft movement in the hangar and aircraft parking areas and reduce congestion on Taxiway B.
- **Expanded Small Aircraft and Helicopter Parking Aprons** – the east tiedown apron is expanded to offset the loss of tiedowns noted above and to provide capacity to accommodate future demand and long-term reserves. 12 new small airplane tiedowns are proposed with the eastern apron expansion, with a net increase of 7 tiedowns. 1 additional small helicopter parking position is added to the east end of the existing 3-position parking row.
- **Multi-Unit Hangars (6 units)** – Two 3-unit hangars (80’ x 80’) with a common roof. The hangars are oriented north-south to optimize snow melt during winter conditions. These hangar sites are served by future ADG II taxilanes.
- **Conventional hangar sites (6 hangars)** – The layout includes two opposing rows of conventional hangars served by a single ADG I taxilane in the upper section of the development area. This layout has 8 small (60’x 60’ typ.) conventional hangar sites intended to accommodate one or more ADG I aircraft (wingspans up to 49’) based on the required taxilane OFA clearance.
- **Vehicle Parking** – a proposed vehicle parking area is depicted in the northern corner of the development with surface access provided through the adjacent airport owned non-aeronautical office parking lot. Alternatively, the proposed parking area could accommodate a hangar and additional parking could be added on the east side of the office building with direct access to SE Nimbus Loop. The parking improvements proposed south of SE Nimbus Loop in Alternative 1 are maintained.
- **Maintenance hangar site** – located at the east end of existing hangar row (near the northeast corner of the east tiedown apron), but angled to align with the northern rows of conventional hangars. The development of this hangar site requires taxilane/apron improvements.

Figure 5-7: East Landside Area – Alternative 2



Added on 06.13.2025

East Landside Alternative 3

East Landside Alternative 3 (Figure 5-8) presents a variation on hangar layout that rotates the hangar rows and adjacent taxilanes 90-degrees to run east-west through the narrow site. ADG II taxilanes are used throughout the east landside area to facilitate movement of both large and small aircraft. As proposed, two large multi-unit hangars and two large conventional hangars with south facing doors are located along the north edge of the development area. Two small aircraft T-hangars are located in the center hangar row, with taxilane access on both sides. The reconfigured east tiedown apron presented in Alternative 2 is also used in this option. A new access taxilane connection to Taxiway A is located near the east end of the development.

As with the other east landside concepts, this alternative is compatible with the proposed Phase 1 central terminal area improvements presented earlier. This alternative includes aircraft storage hangars, commercial hangar sites, a reconfigured and expanded apron for small airplane tiedowns, new taxilane access, and vehicle access/parking improvements.

The proposed development concept includes the following key features:

- **ADG II** taxilane standards and clearances are used for the aircraft parking apron and the hangar areas.
- **Access Taxilane** – a new connection to Taxiway A is provided at the east end of the development area.
- **Expanded Small Aircraft Parking Apron** – the east tiedown apron is expanded to offset the loss of tiedowns noted above and to provide capacity to accommodate future demand and long-term reserves. 14 new small airplane tiedowns are proposed with the eastern apron expansion, with a net increase of 9 tiedowns.
- **Multi-Unit Hangars (6 units)** – Two 3-unit hangars (80’ x 80’) with a common roof.
- **Conventional hangar sites (2 hangars)** – The layout includes two conventional/maintenance hangar sites at the west end of the north hangar row. The hangars sizes (widths) can vary within the defined space, although the adjacent ADG II TLOFA clearance will limit building depths (depicted at 80’).
- **Vehicle Parking** – a new vehicle parking area is depicted adjacent to the maintenance hangars at the west end of the hangar row. Public access is provided to support commercial activities via SE Nimbus Loop.

Figure 5-8: East Landside Area – Alternative 3

Added on 06.13.2025

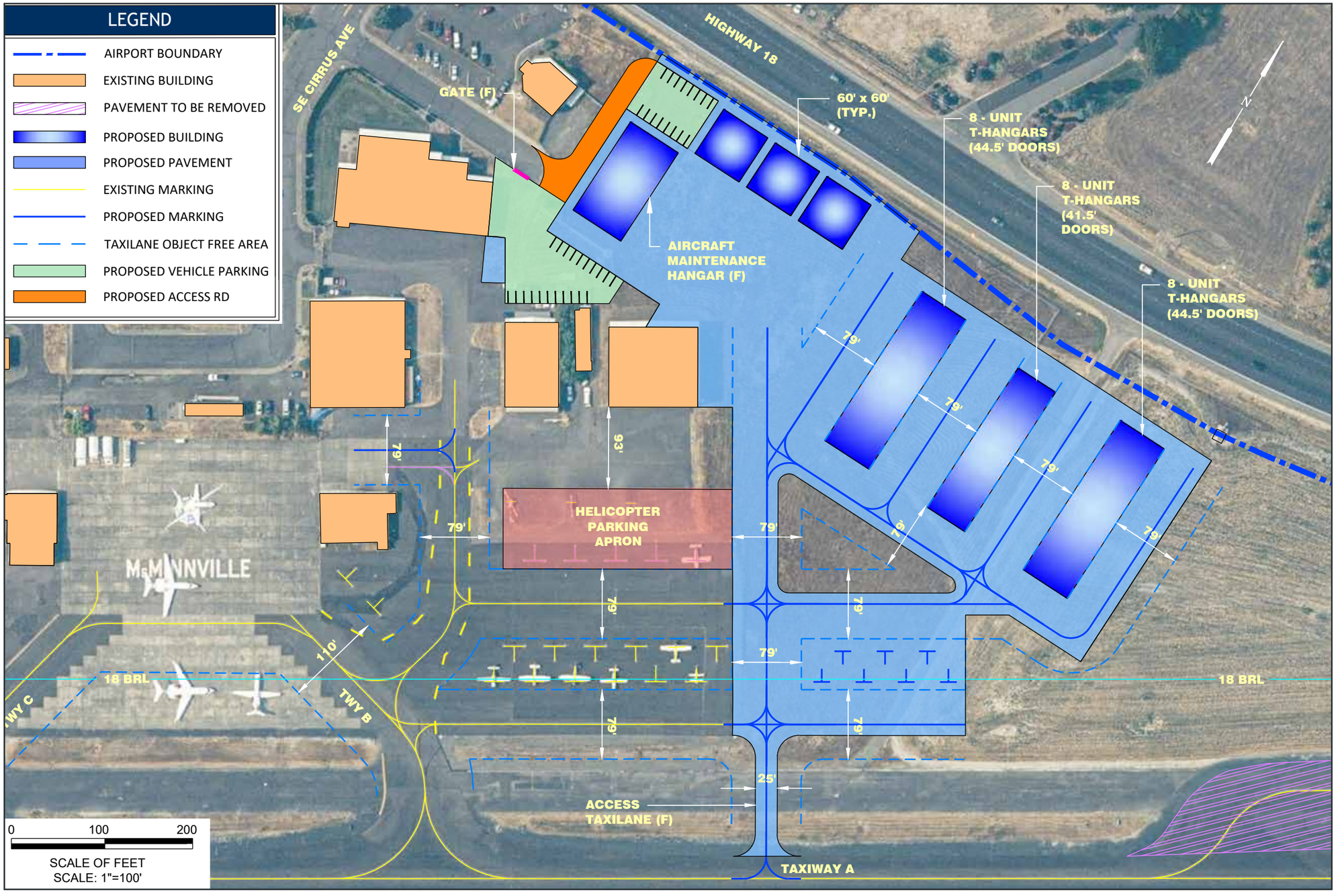
East Landside Alternative 4

East Landside Alternative 4 (Figure 5-9) provides an ADG I development that includes small aircraft storage hangars, a commercial hangar site, and expanded/reconfigured parking aprons for fixed wing aircraft and helicopters. Improvements in vehicle access and parking are proposed from the SE Nimbus Loop connection to Cirrus Avenue. The proposed development concept includes the following key features:

- **ADG I** taxilane standards and clearances are used.
- **Two existing east tiedown apron ADG I taxilanes are extended east** to provide access to the proposed hangar development areas and future small aircraft tiedowns.
- **Access Taxilane** – a new connection to Taxiway A is provided at the west end of the new development area (east end of existing tiedown apron). This taxilane is located near the center of the new development area.
- **T-Hangars (24 units)** – Two 8-unit T-Hangars with 44.5-foot doors; One 8-unit T-Hangar with 41.5-foot doors. The hangars are oriented north-south to optimize snow melt during winter conditions. The hangars are located in the eastern section of the area.
- **Maintenance hangar site** – located in the upper section of the development area with a single ADG I taxilane and small apron. Surface access and vehicle parking improvements provided at the west end of the development area.
- **Conventional hangar sites** – located in the upper section of the development area. Three conventional hangars are depicted with 60-foot widths. Actual clear door openings vary by hangar design and are typically reduced by fixed wall structures on both sides of the doors. These hangars are intended to accommodate one or more ADG I aircraft (wingspans up to 49') based on the taxilane OFA clearance provided.
- **Expanded Helicopter and Small Aircraft Parking Aprons** – the northern row of 5 small airplane tiedowns on the east apron is converted to helicopter parking in conjunction with expansion and reconfiguration of the existing tenant helicopter parking area immediately north. The expanded helicopter parking area provides space for 7 small helicopters. The small aircraft tiedown apron is expanded to the east to offset the loss of 5 tiedowns and to provide capacity to accommodate future demand and long-term reserves. As depicted, 7 new small airplane tiedowns are proposed with the east apron expansion, with a net increase of 2 small airplane tiedowns.

The proposed improvements in the east landside area are compatible with the proposed Phase 1 central terminal area improvements. The development of small aircraft hangars is intended to offset the loss of hangars in the proposed central terminal area redevelopment, and accommodate future demand for additional hangar space.

Figure 5-9: East Landside Area – Alternative 4



Added on 06.13.2025

Revised on 06.16.2025

Table 5-3: Eastside Alternative Features

Development Features	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Hangar Taxilanes	ADG I taxilanes with standard TOFA clearances.	ADG I/II taxilanes with standard TOFA clearances.	ADG II taxilanes with standard TOFA clearances.	ADG I taxilanes with standard TOFA clearances.
New Conventional Storage Hangar Sites	6	8	0	3
New Commercial/ Maintenance Hangar Sites	1	1	2	1
ADG I T-Hangars	(3 – bldgs./18 units)	None	(2 – bldgs./16 units)	(3 – bldgs./24 units)
ADG II Multi-Unit Hangars	0	(2 – bldgs./6 units)	(2 – bldgs./6 units)	0
Public Road & Vehicle Parking Improvements	SE Nimbus Loop hangar access and parking	SE Nimbus Loop access to parking and hangars; secondary access and vehicle parking area adjacent to north hangars	SE Nimbus Loop access to parking and hangars; new consolidated vehicle parking area located adjacent to north hangars	SE Nimbus Loop hangar access and parking; secondary access and vehicle parking area adjacent to north hangars
Site Development Issues	Utility extensions to new development areas. Existing stormwater detention areas to be relocated; additional stormwater areas required for increased imperious surfaces	Same	Same	Same

WEST LANDSIDE DEVELOPMENT CONCEPTS

The proposed development of a new west landside area at MMV utilizes an undeveloped part of the airfield that sits northwest of the Galen McBee Airport Park. Immediately west of the future west landside area is a 200-acre site identified by the City of McMinnville for the development of an Innovation Campus. The City's website provides the project's vision: *"The Innovation Campus is intended to be high-density employment campus responding to the next generation of industrial and entrepreneurial jobs where research and development is nurtured and supported in a thoughtful and intentional campus design in partnership with product manufacturing. The campus will house class "A" office space, flex spaces, incubator spaces and manufacturing facilities. With almost 200 acres, it is one of Oregon's largest industrial sites and is strategically located on HWY 18 near the McMinnville Municipal Airport. The site has three property owner groups who have been engaged in the Innovation Campus discussions and the 3MLAP."*

The development site has the ability to be connected to the Airport's existing landside taxiway/taxilane system that currently ends near the Precision Aviation hangar and the adjacent west hangar area, which are located east of the site. However, extending the existing taxiway to the area will require relocating the existing vehicle and pedestrian access for the park, currently provided from SE Armory Way. Maintaining public access to the city park is considered essential and would be accomplished by relocating existing access to another part of the park. As proposed, the existing roadway section located south of the armory on SE Armory Way would be closed and the street vacated; a new vehicle and pedestrian access is provided to the park's west side; and the park trailhead and public parking area are relocated to the western section of the park. The option of extending taxiway access to the new landside area from the south is not considered feasible due to terrain challenges, which includes a significant drainage into the South Yamhill River that runs through the park.

Although the site's developable area is relatively small (approximately 11 acres), the new west landside area offers a unique opportunity to establish a functional connection between the Airport and the future Innovation Campus. Thoughtful, focused development of aeronautical facilities on airport land can maximize potential benefits for both the Airport and future commercial/manufacturing Innovation Campus tenants and customers. The ability to provide convenient access to aircraft facilities such as transient parking apron and hangar space presents a significant "value-added" feature, compared to most conventional industrial park developments. The development of complimentary aeronautical facilities in this area is consistent with MMV's role in supporting the local and regional economy with general aviation facilities.

Site Factors

The proposed west landside development area consists of approximately 11 acres of airport property near the northwest corner of the Airport. The site is bordered by privately-owned land to the west (planned 200-acre Innovation Campus site), privately-owned industrial land to the north, the Galen McBee Airport Park to the south and east, MMV's existing west hangar area to the east, and a steep ravine that contains a natural drainage into the South Yamill River. As noted earlier, the key to effectively connecting the new west landside area to existing airport facilities is to construct new taxiway access.

Common Design Features

It is proposed that the West Landside Area be developed to accommodate business aircraft commonly operating at the Airport included in ADG II, in addition to smaller ADG I aircraft. To achieve this, the main taxiway/taxilane, hangar, and apron dimensions will be consistent with ADG II standards. The nearest existing taxiway that connects the west hangar area to the Runway 4/22 parallel taxiway, would also be upgraded to ADG II standards. Some development of hangars and taxilanes for ADG I aircraft may also be considered within the overall development.

The proposed development options depict public access to the new development area and Galen McBee Airport Park routed from the existing road system (Cumulus Avenue) along the western boundary of the Airport. A new parking lot and (conceptual) trailhead location are relocated to the west side of the park/trail system. Options for providing public access to these facilities through the future Innovation Campus road system may also be considered, when developed. The existing park access and trailhead will be closed to accommodate a new taxiway connection.

Two preliminary west landside alternatives are provided for evaluation. These alternatives are summarized below and depicted in **Figures 5-10 and 5-11. Table 5-4** summarizes the key features of the West Landside Area alternatives.

West Landside Alternative 1

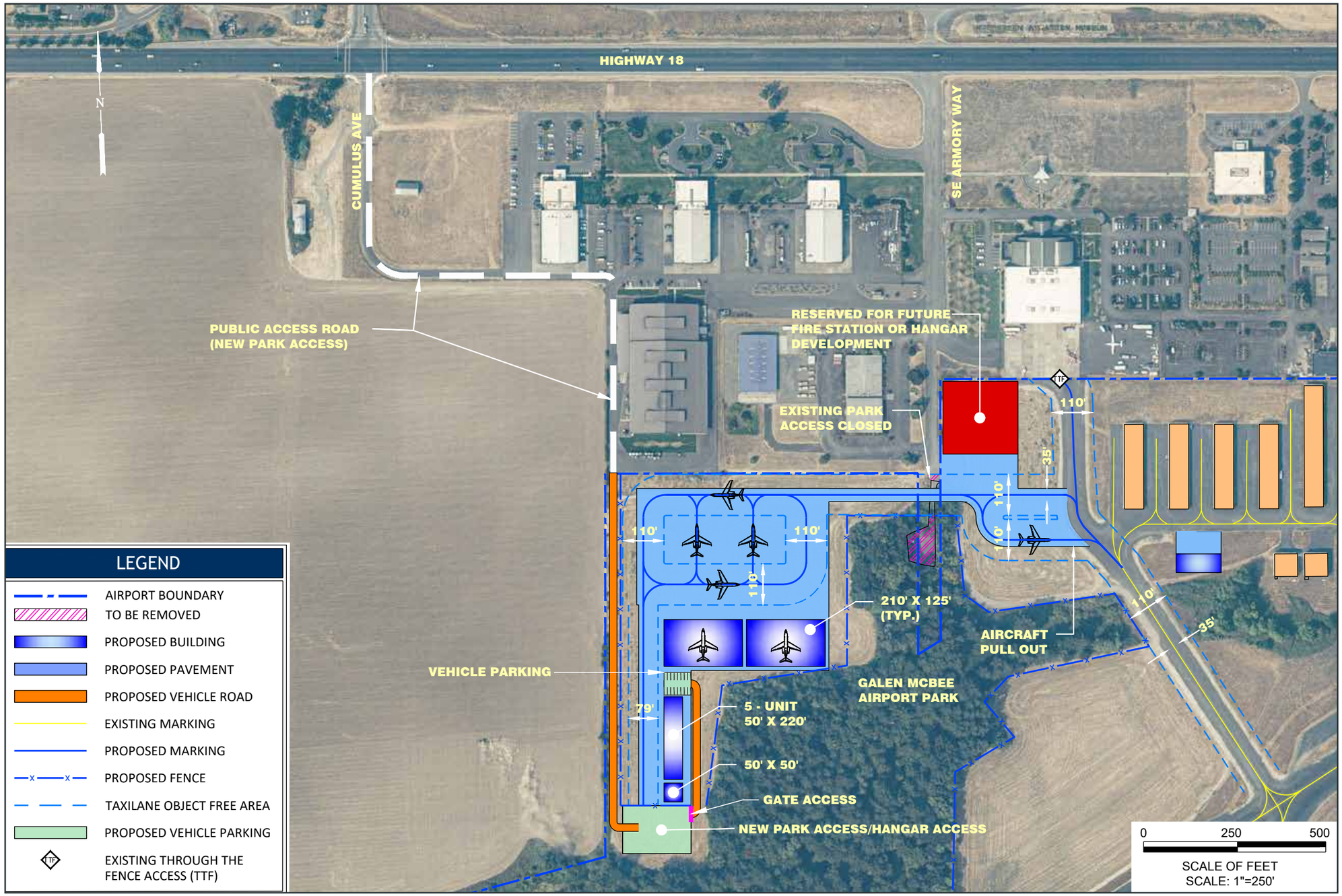
West Landside Alternative 1 (Figure 5-10) presents a conceptual layout that includes:

- Vacates existing north access road to Galen McBee Airport Park; replace with west access road
- East-west ADG II taxiway with aircraft pullout (connect west hangar area taxiway)
- ADG II Aircraft Parking Apron (2-4 transient drive-through business aircraft parking positions)
- 2 - Conventional Hangar sites - 210’ x 80’ (typ.)
- ADG I taxilane for small hangars
- 1 – 5-unit Small AC hangar site (44’ door widths)
- 1 – Small Conventional Hangar site - 50’ x 50’ (typ.)
- Public vehicle access and parking areas for park
- Tenant vehicle access and parking for aircraft hangars
- Dual purpose fire station site

The core components in this layout are formed by the new ADG II taxiway and apron, which will accommodate aircraft parking and hangars for larger business class aircraft. As noted earlier, the existing access road and vehicle parking area serving Galen McBee Airport Park must be vacated and replaced in order to construct the new access taxiway. The new access taxiway section is connected to the existing taxiway that serves the west hangar area. An aircraft pullout has been added at the connection between the new and existing taxiway. The pullout is intended to mitigate potential congestion caused by opposite-direction aircraft taxiing along the 1,600’ length of the taxiway between the new west landside area and Taxiway A, in addition to aircraft that use the existing taxiway (west hangar area and the adjacent Precision through-the-fence apron/hangar). The southern section of the development area has a narrow width that will accommodate a single ADG I taxilane and hangars with west-facing doors.

A conceptual footprint for a future fire station is depicted adjacent to SE Armory Way. The fire station is intended to be able to serve both the general public and the airport requiring access to the runway taxiway/taxilane system. Extended pavement provides access from the fire station to the proposed east west taxilane to the west development area. This area would also be capable of accommodating hangar development if the fire station is ultimately sited off airport property.

Figure 5-10: West Landside Area – Alternative 1



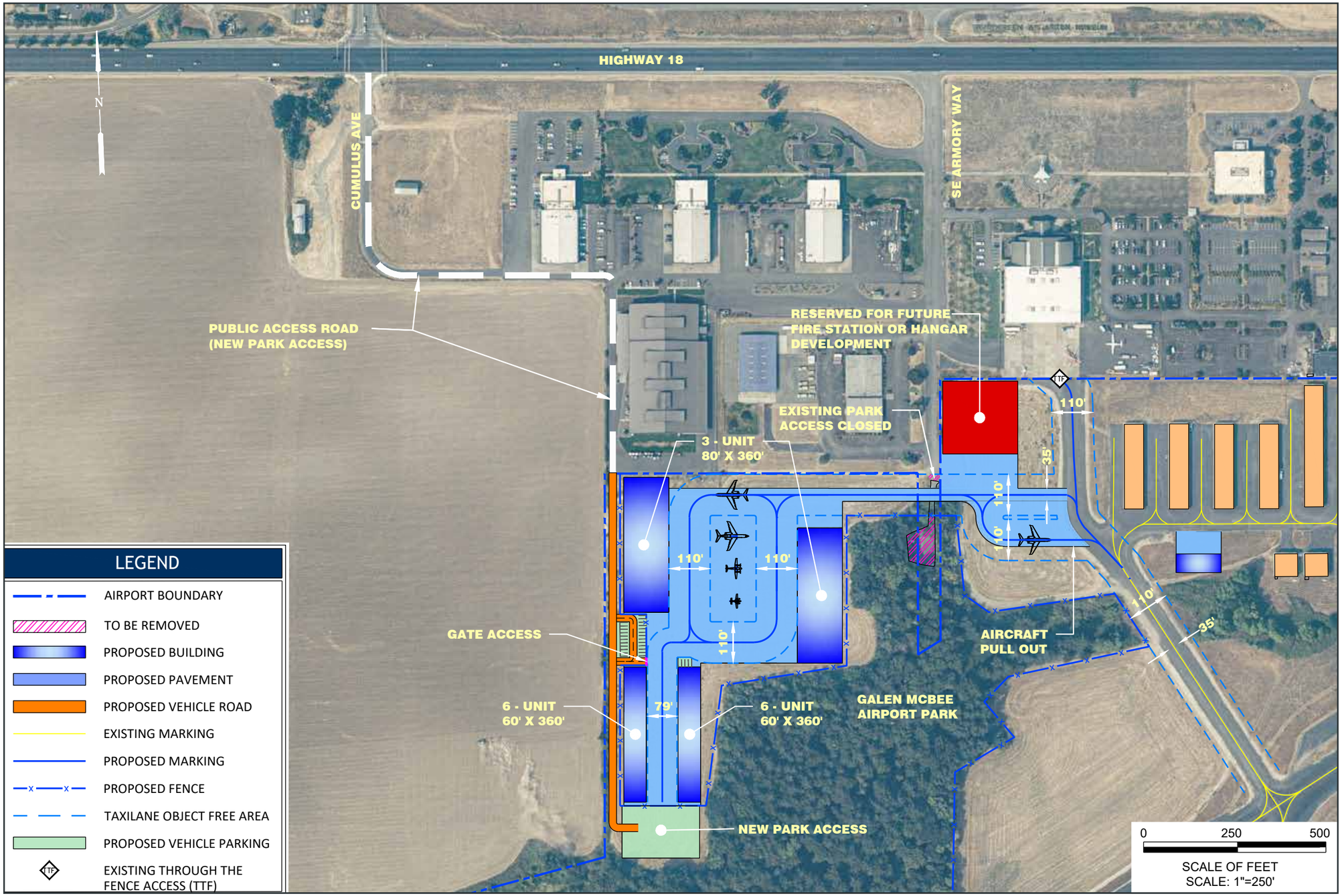
Added on 06.13.2025

West Landside Alternative 2

West Landside Alternative 2 (Figure 5-11) uses the same ADG-II access taxiway, aircraft hold area, and surface access improvements proposed in Alternative 1, but modifies the new apron and hangar configurations. In Alternative 2, the size (length) of the ADG II parking row is reduced by approximately 41 feet, and is reoriented with east-west drive through parking positions. The north and south limits of the site are the north airport property line and the nearest edge of the airport park. The proposed improvements include:

- Vacate existing north access road to Galen McBee Airport Park; replace with west access road
- East-west ADG II taxiway with aircraft pullout (connect west hangar area taxiway)
- ADG II Aircraft Parking Apron (2-4 transient drive-through business aircraft parking positions)
- 2 – 3-Unit Hangar sites - 360 x 80’ (typ.) (6 hangar units total)
- ADG I taxilane for small hangars
- 2 – 6-unit Small AC hangar sites (60’ door widths) (12 hangar units total)
- Public vehicle access and parking areas for park, relocated park trailhead
- Tenant vehicle access and parking for aircraft hangars
- Dual purpose fire station site

Figure 5-11: West Landside Area – Alternative 2



Added on 06.13.2025

Table 5-4: West Landside Alternatives Features

Development Features	Alternative 1	Alternative 2
New Hangar Sites	(2) ADG-II Large Commercial Hangars (210' x 125' typ.) + (1) ADG-I 5-unit hangar (210' x 44') (42' doors) + (1) ADG I Conventional Hangar (50' x 50' typ.) Total: 2 ADG-II hangar units; 6 ADG-I hangar units	(2) ADG-II 3-unit Conventional Hangars (80' x 360' typ.) + (2) ADG-I 6-unit hangars (60' x 360' typ.) Total: 6 ADG-II hangar units; 12 ADG-I hangar units
Aircraft Parking	Approx. 41,728 sq ft of aircraft parking and circulation Total: 2-4 ADG-II Aircraft Parking Positions	Approx. 34,649 sq ft of aircraft parking and circulation Total: 2-3 ADG-II Aircraft Parking Positions
Taxiways/Taxilanes	Taxiway for hangar and aircraft parking apron access; taxilanes within hangar areas and apron	Same
Vehicle Parking	Approx. 14 airport-use parking spaces (does not include relocated public parking area to the new trailhead for the park)	Approx. 26 airport-use parking spaces (does not include relocated public parking area to the new trailhead for the park)
Site Development Issues	The existing public access road to the airport park conflicts with the proposed taxiway extension required to serve the west landside area. Grading and drainage (new development area) Utility extensions to new development areas	Same
Public Roads Impacts	Close and vacate the existing access road serving Galen McBee Airport Park. Replace the park access with a new road connection from Cumulus Avenue that will also serve the new west landside area.	Same

Land Use, Transportation and Environmental Issues

The preliminary development alternatives were reviewed to identify potential issues related to local site conditions and summarizes potential issues by development area. This information is intended to provide a preliminary level of screening and comparison of potential issues when comparing the alternatives. Additional evaluations will be performed as the alternatives are refined.

Table 5-5: Potential Development Factors - Land Use/Transportation/Environmental

Development Factors Alternatives	Development
Airside	Land Use: • No known issues related to land use or zoning. No changes in current designations recommended. Traffic/Transportation: • Closing and vacating a section of SE Cruickshank Road at Highway 18 will increase the surface travel distance between the north and south sections of the Airport. • Non-airport public use of SE Cruickshank Road will be affected by the ODOT plan to reduce access points to Highway 18 within the Three -Mile Lane corridor that runs north of the Airport, increasing driving distances to the nearest highway connection to the east. Environmental: • New FAA funded airfield construction projects will require NEPA environmental review. Mitigation for increased impervious surface areas, grading, drainage, stormwater collection and treatment will be determined by applicable engineering and environmental requirements. Proposed improvements located on airport property are subject to reviews related to wetlands, streams, or another critical habitat. Property: • Limited property acquisition (road ROW) is required to accommodate the proposed realignment of an existing access road near the south end of Runway 17/35. No additional property acquisition is required to accomplish the other proposed airside improvements. • Avigation easements should be acquired for any portions of existing or future Runway Protection Zones (RPZ) not owned outright by the City of McMinnville.
Central Terminal Area/Main Apron	Land Use: • No known issues related to land use or zoning. Traffic/Transportation: • Existing surface access to the area is maintained; circulation and parking improvements based on development or redevelopment of facilities. • Gate locations for new apron and hangar area access. Environmental: • New FAA funded airfield construction projects will require NEPA environmental review. Mitigation for increased impervious surface areas, grading, drainage, stormwater collection and treatment will be determined by applicable engineering and environmental requirements. Proposed improvements located on airport property are subject to reviews related to wetlands, streams, or another critical habitat. • Expanded impervious surface area (buildings, taxilanes, apron) may trigger specific surface grading and drainage requirements and may require specific water quality and stormwater management improvements. • Relocation of existing above ground fuel storage and dispensing facilities in accordance with applicable state and federal regulations. Property: • No known property issues.

Table 5-5: Potential Development Factors - Land Use/Transportation/Environmental (continued)

Development Factors Alternatives	Development
East Landside Area	Land Use: • No known issues related to land use or zoning. Traffic/Transportation: • New roadway connection to SE Nimbus Loop and SE Cirrus Drive to provide vehicle access and gate locations for new hangar area. • Development of additional vehicle parking areas may require new connections to existing airport access roads. Environmental: • New FAA funded airfield construction projects will require NEPA environmental review. Mitigation for increased impervious surface areas, grading, drainage, stormwater collection and treatment will be determined by applicable engineering and environmental requirements. Proposed improvements located on airport property are subject to reviews related to wetlands, streams, or another critical habitat. • Expanded impervious surface area (buildings, taxilanes, apron) may trigger specific surface grading and drainage requirements and may require specific water quality and stormwater management improvements. Property: • No known property issues.
West Landside Area	Land Use: • The proposed improvements maintain access and result in no net loss of function for Galen McBee Airport Park. Traffic/Transportation: • New roadway connection to Cumulus Ave to provide vehicle and pedestrian access for West Landside Area and the airport park. • Gate locations for new apron and hangar area access. Environmental: • New FAA funded airfield construction projects will require NEPA environmental review. Mitigation for increased impervious surface areas, grading, drainage, stormwater collection and treatment will be determined by applicable engineering and environmental requirements. Proposed improvements located on airport property are subject to reviews related to wetlands, streams, or other critical habitat. • Expanded impervious surface area (buildings, taxilanes, apron) may trigger specific surface grading and drainage requirements and may require specific water quality and stormwater management improvements. Property: • No known property issues.

Executive Summary Preferred Alternative

Introduction

The airport master plan's preliminary development alternatives were presented for public review and comment at a September 12, 2024, Planning Advisory Committee (PAC) meeting and public open house. Project-related comments and questions were provided both during the meetings and subsequently as part of the review process.

The preliminary alternatives included proposed improvements that corresponded to the FAA-approved aviation activity forecast (including the current and future design aircraft for each runway) and the associated facility requirements defined for the 20-year planning period at MMV.

Following the public presentations, the consultant team continued to work with airport management to refine the concepts presented. The draft Airport Alternatives Chapter (Chapter 5) was provided to PAC members for review in December 2024. Project materials were also posted on the City of McMinnville's airport master plan project website.

Based on the ongoing evaluation of the preliminary alternatives, elements of the preferred alternative began to emerge and additional refinement was completed. Another round of PAC review/input was provided for the information refined following draft Chapter 5.

The preliminary preferred alternative selected by the City of McMinnville represents a combination of improvements for each of the Airport's primary development areas based on the PAC and public input provided throughout the evaluation process. Public and PAC comments have continued to be accepted until the airport master plan is finalized. The recommended preferred alternative will be reviewed by the FAA Seattle ADO.

As noted in the alternatives chapter, the proposed improvements focused on the following area of the Airport:

- Airside (runway-taxiway system)
- West Development Area (new)
- Central Terminal Area (reconfigured, expanded)
- East Landside Area (new)

A brief summary of the preferred alternative elements is provided below with supporting graphics **(Executive Summary – Figure 1 through Figure 5).**

The alternatives chapter provides a full description of the process used to develop and evaluate preliminary alternatives that led to the preferred alternative. The components of the preferred alternative will be incorporated into the updated Airport Layout Plan (ALP) drawing set, presented in Chapter 7 and the master plan's 20-year Capital Improvement Program (CIP). Further refinement of the development concept is ongoing, as the ALP is updated. Once approved by FAA and the City of McMinnville, the 2025 ALP set, and the accompanying airport master plan, will replace the 2004 ALP and report.

Airside Facilities

RUNWAY-TAXIWAY SYSTEM

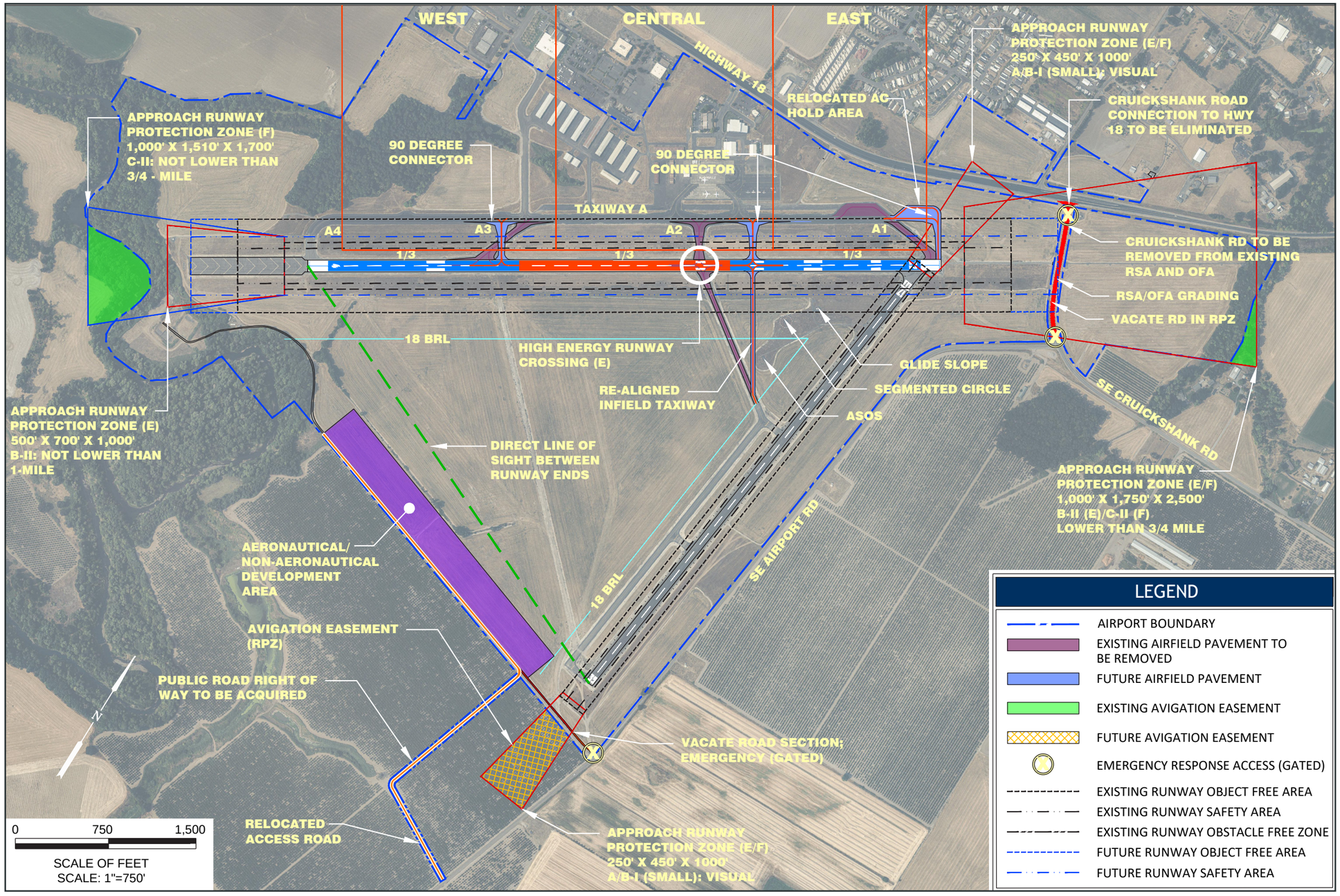
Figure 1 depicts the recommended airside improvements for the current 20-year planning period. No changes are recommended for Runway 4/22 and 17/35. Minor upgrades to Taxiway A and D are recommended for consistency with FAA design guidance. Periodic pavement maintenance and rehabilitations, and replacement/ upgrade of aging lighting, signage, and navigational aids are anticipated in the current 20-year planning period. Several existing FAA-owned facilities (ILS localizer, glide slope, Runway 22 MALS-R approach lighting system) are expected to reach the end of their useful lives during the current planning period, and require replacement or decommissioning depending on the FAA funding policy in effect at the time.

Runway 4/22: RSA/OFA clearing and grading (future RDC C-II standard). The section of Cruickshank Road that crosses through the east end of the RSA and OFA and connects to Highway 18 will be closed and the surfaces will be graded and cleared (relocate road and fencing) to meet FAA standards.

Taxiway A Upgrades. Three exit taxiways (A3, A2, A1) are recommended for upgrades. Taxiway A1 and A3 will be reconfigured as 90-degree exit taxiways, and Taxiway A2 will be relocated outside of the middle one-third of Runway 4/22 to eliminate a “high-energy crossing” consistent with current FAA design guidance. The realignment of the north section of Taxiway D to connect with the relocated Taxiway A2 is also recommended.

Runway 22 Aircraft Hold Area. The existing aircraft hold area adjacent to Taxiway A1 is recommended to be relocated as part of the Taxiway A1 90-degree reconfiguration, to position aircraft closer to the new Taxiway A1 aircraft hold line.

Figure 1: Preferred Airside Improvements



Airside

Added on 06.13.2025

Landside Facilities

WEST LANDSIDE AREA (NEW)

Figure 2 depicts the recommended west landside improvements for the current 20-year planning period.

The west landside area provides a small aeronautical development space near the northwest corner of the Airport that directly abuts the future Innovation Campus. Surface access to the area will be provided via Cumulus Avenue and frontage roads or through the adjacent campus itself (to be determined based on final campus design). Public access to the Airport's Galen McBee Park is maintained through relocation of the trailhead and public parking area to the west side of the park. The section of SE Armory Way south of the armory will be closed and vacated to allow construction of a new access taxiway. New roadway access is proposed on the west side of the development area.

It is noted that the hangar sizes are provided to demonstrate the ability of the site to accommodate aircraft storage while providing aircraft taxilane access that meets FAA standards. The development of the west landside area may be completed in increments or as a full build project defined by tenants.

Access Taxiway Extension. The existing taxiway that provides access to the west T-hangar area and the Precision Air apron is extended west to reach the new development area. This taxiway and an adjacent aircraft pull out are designed to accommodate ADG II aircraft.

Transient Aircraft Parking Apron. An apron with space to accommodate 2 to 3 business class aircraft or a larger number of small aircraft. The new west apron loop taxilane is designed to accommodate ADG II aircraft.

Hangar Sites. Development sites for hangars (ADG II and ADG I aircraft). As depicted, four multi-unit hangars (approximately 100,000 square feet) are located adjacent to the new apron with approximately 6 large aircraft units and 12 small aircraft units. The smaller hangar sites are accessed by an ADG I stub taxilane that extends from the southwest corner of the west apron.

An additional hangar development area is identified near the intersection of the existing west hangar taxiway and the adjacent on- and off-airport hangars. As depicted, a new hangar development (approximately 24,000 square feet) is located south of the Precision apron/north of the proposed aircraft pull out, and on the north end of the T-hangars Hotel, India, Juliet, and Kilo. Four existing hangar stub taxilanes are extended to access the hangar sites. An access road extends from the new south end of SW Armory Way to the hangar areas.

The precise configuration, sizes, and footprints of hangars will be determined by future tenants, but the layout defines the buildable areas and a taxilane system that works with the constrained site. The hangar sites are located adjacent to ADG II/I taxilanes, and minimum development setbacks are determined by the applicable taxilane object free area (TLOFA) boundary.

New Landside and Park Vehicle/Pedestrian Access. As depicted, a new roadway is extended along the western edge of Airport property to provide access to hangar sites, the transient apron, and the public park. Two vehicle parking areas are proposed.

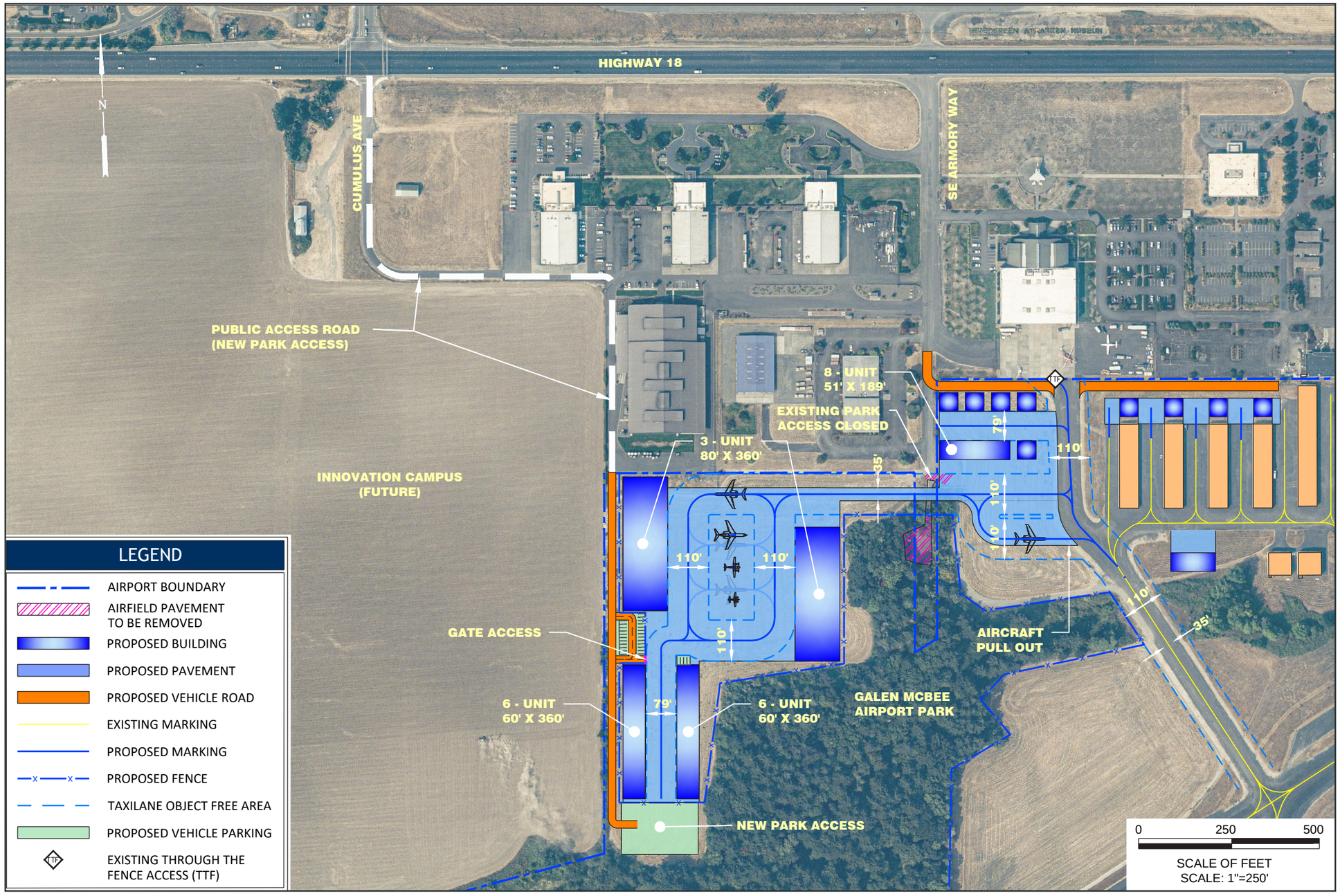
CENTRAL TERMINAL AREA (RECONFIGURED, EXPANDED)

The central terminal area is the primary location at MMV for transient and local aircraft services including parking, fueling and hangar storage. The primary development focus in the central terminal area is to expand parking capacity for transient business aircraft by expanding the main apron and to provide adequate space for future fixed base operator (FBO) or general aviation terminal building, and support facilities expansion. The anticipated development for this area is incremental, and likely to be implemented in phases based on demand and funding availability. The recommended central terminal area improvements are divided into two primary phases to identify significant features, although actual development increments may vary.

Phase 1 concentrates on the area immediately west of the main apron. Phase 2 continues to extend the planned development to the north, from the west end of the expanded (Phase 1) main apron. Several city-owned existing hangars, and the associated apron and taxilane pavements will be removed to accommodate the redevelopment.

It was noted earlier in the master plan that the asphalt apron and taxilane pavements located adjacent to the west side of the main apron are in poor condition, and these pavements would require significant rehabilitation or reconstruction if they were maintained for current use. The timeline for the actual implementation for the main apron area expansion/redevelopment will be determined by project priorities, environmental evaluations, and funding availability. The timing of pavement repair for the existing pavements versus main apron expansion will be determined by airport management. If interim pavement work is completed, it is recommended that it be compatible with the planned main apron expansion to avoid or minimize “throw-away” projects.

Figure 2: West Landside – Preferred Alternative



West Landside Area

Added on 06.13.2025

CENTRAL TERMINAL AREA - PHASE 1

Figure 3 depicts the Phase 1 improvements recommended for the central terminal area for the current 20-year planning period.

Hangar removal required for this phase includes seven city-owned structures:

- Four open front conventional hangars
- One 6-unit T-hangar (Charlie)
- Two Quonset hangars (west and east)

The hangars are removed to accommodate the expanded and reconfigured apron. Airport management expects displaced aircraft to be accommodated in other available hangar space, on the east tiedown apron, and in new hangars to be constructed in other areas of the Airport. The original concept did not remove the eastern Quonset hangar until Phase 2. PAC input suggested that both Quonset hangars be removed in Phase 1.

An east-west row of drive-through business aircraft (ADG II) parking positions is established in conjunction with the main apron being expanded to the west. As depicted, four large ADG II aircraft parking positions are provided, although the row could accommodate up to 6 to 7 aircraft with a combination of ADG I and II aircraft. The parking row is divided into east and west sections to accommodate access to the aircraft fueling area (additional information provided below). The eastern-most parking positions are located directly opposite the existing FBO building. This configuration provides approximately 500 feet of useable aircraft parking row frontage and a clear 110 feet in the center of the row to accommodate the fuel access taxilane (ADG II Taxilane OFA).

The recommended central terminal area configuration includes a refinement that allows the existing aircraft fuel storage tanks and aircraft fueling positions to be maintained in their current location in Phase 1. Access to the existing aircraft fueling area is provided by a dedicated north-south stub taxilane that extends from the south side of the main apron. Dual loop taxilanes are located on either side of the fuel access taxilane and fueling area. All of the designated transient aircraft parking positions and the fuel access taxilane tie into the apron's loop taxilane system and the reconfigured Taxiway B and C connections.

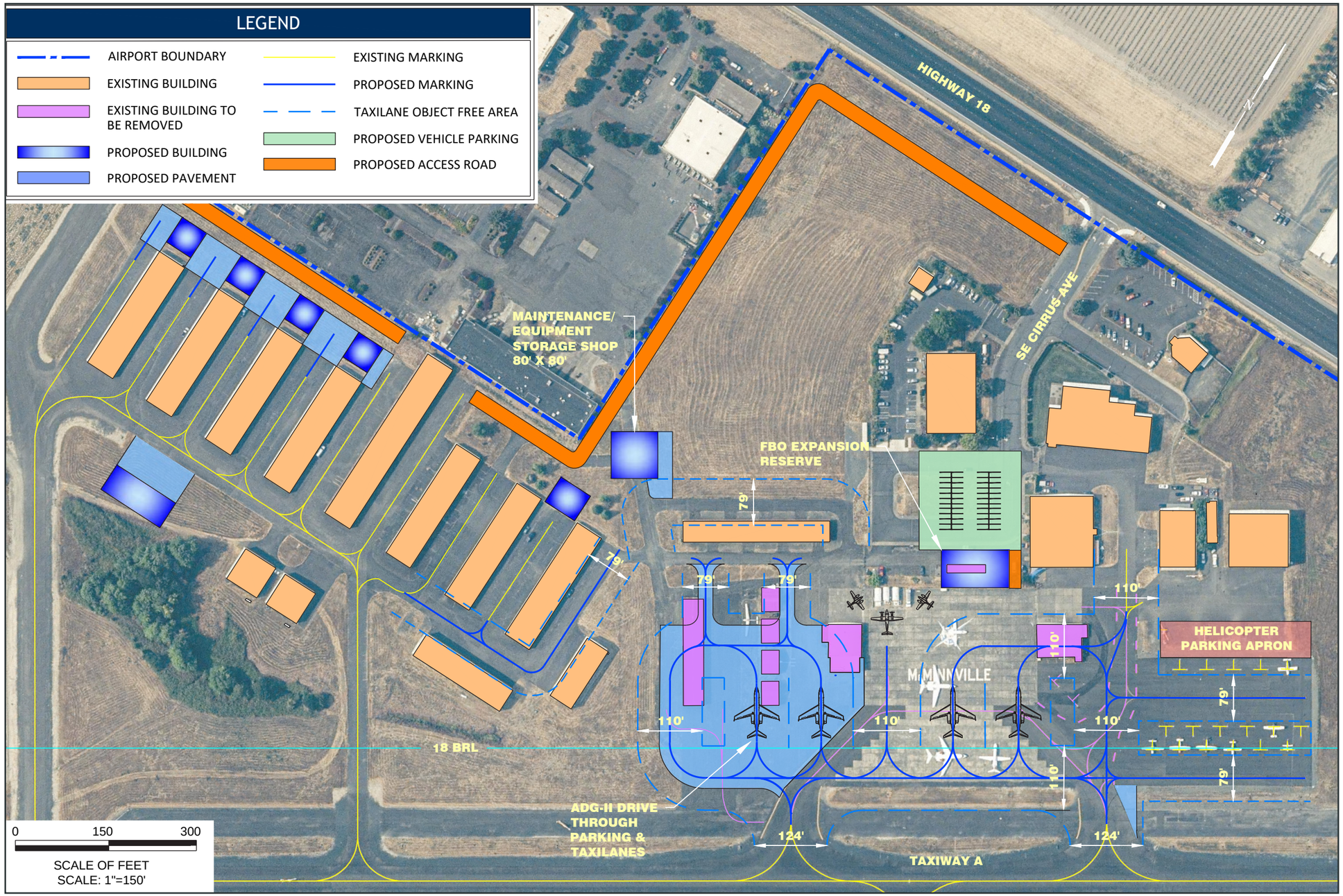
Relocating the fueling facilities is maintained as an option in Phase 2, although the Phase 1 configuration can also be permanent, if desired. This refinement considers the significant cost involved in relocating the fuel tanks and the aircraft fueling positions before the first increment of apron expansion. Fuel system projects of this kind are not typically funded by FAA and would require significant local funding (city or tenant).

The existing FBO building can be expanded or replaced on its existing site. A new vehicle parking area is proposed located inside the existing loop access road the connects to SE Cirrus Avenue.

A new internal roadway has been added to provide access to the west hangar area through the central terminal area. This improvement eliminates the current access route/gate near the fuel area to avoid vehicle traffic through the expanded main apron area. The new road will connect to SE Cirrus Avenue and also provide access to future development areas identified in Phase 2 near the north end of the terminal area.

Other refinements include an additional aircraft storage hangar located at the north end of the taxilane between the Delta and Echo T-hangars and a new airport maintenance shop located adjacent to the west hangar area and expanded main apron. Surface access to the new buildings is provided by the new internal roadway described above. A pavement connection to the main apron is required for equipment access.

Figure 3: Central Landside – Preferred Alternative (Phase 1)



Central Landside

Added on 06.13.2025

CENTRAL TERMINAL AREA - PHASE 2

Figure 4 depicts the Phase 2 improvements recommended for the central terminal area for the current 20-year planning period.

This phase builds on the Phase 1 apron expansion, by extending the main apron northward. The concept retains most of the east-west parking row, and adds a (reoriented) north-south parking row on the west side of the main apron. As noted earlier, reorienting the transient aircraft parking row north-south is the best fit for the physical space provided by the site to maximize long term aircraft parking capacity in the central terminal area.

As with Phase 1, this phase of redevelopment requires removal of an existing city-owned hangar to accommodate apron expansion:

- 8-unit T-hangar (City Owned – Hangar Alpha)

Airport management expects displaced aircraft to be accommodated in other available hangar space, on the east tiedown apron, and in new hangars to be constructed in other areas of the Airport. The ADG II north-south access taxilane to the fueling area included in Phase 1 may be maintained or eliminated. For illustration purposes, the ultimate configuration is depicted with the fuel tanks and dispensing area relocated 75 feet north, and the dedicated north-south access taxilane eliminated. Development of the depicted future electrical aircraft charging facilities is compatible with both the existing and relocated fuel tank locations.

The north-south row of ADG II drive-through aircraft parking row extends north from the west end of the main apron. Phase 2 provides approximately 1,000 feet of ADG II drive-through aircraft parking frontage in the main apron's north-south and east-west rows (assuming the Phase 1 fueling access stub taxilane is removed). As depicted, eight large ADG II aircraft parking positions are provided, although the rows could accommodate additional aircraft with a combination of ADG I and II aircraft.

If the north-south fueling area access stub taxilane is maintained, approximately 875 feet of ADG II parking frontage is provided. The Phase 2 apron expansion may also be divided into smaller northern expansion increments, depending on funding availability. MMV accommodates a wide range of transient business aircraft included in ADG I (wingspans up to 49') and ADG II (wingspans up to 79').

The reconfigured Taxiway C from Phase 1 is extended northward to form the eastern leg of the ADG II loop taxilane developed to provide access to the north-south aircraft parking row; the western leg of the taxilane loop extends along the west side of the parking row.

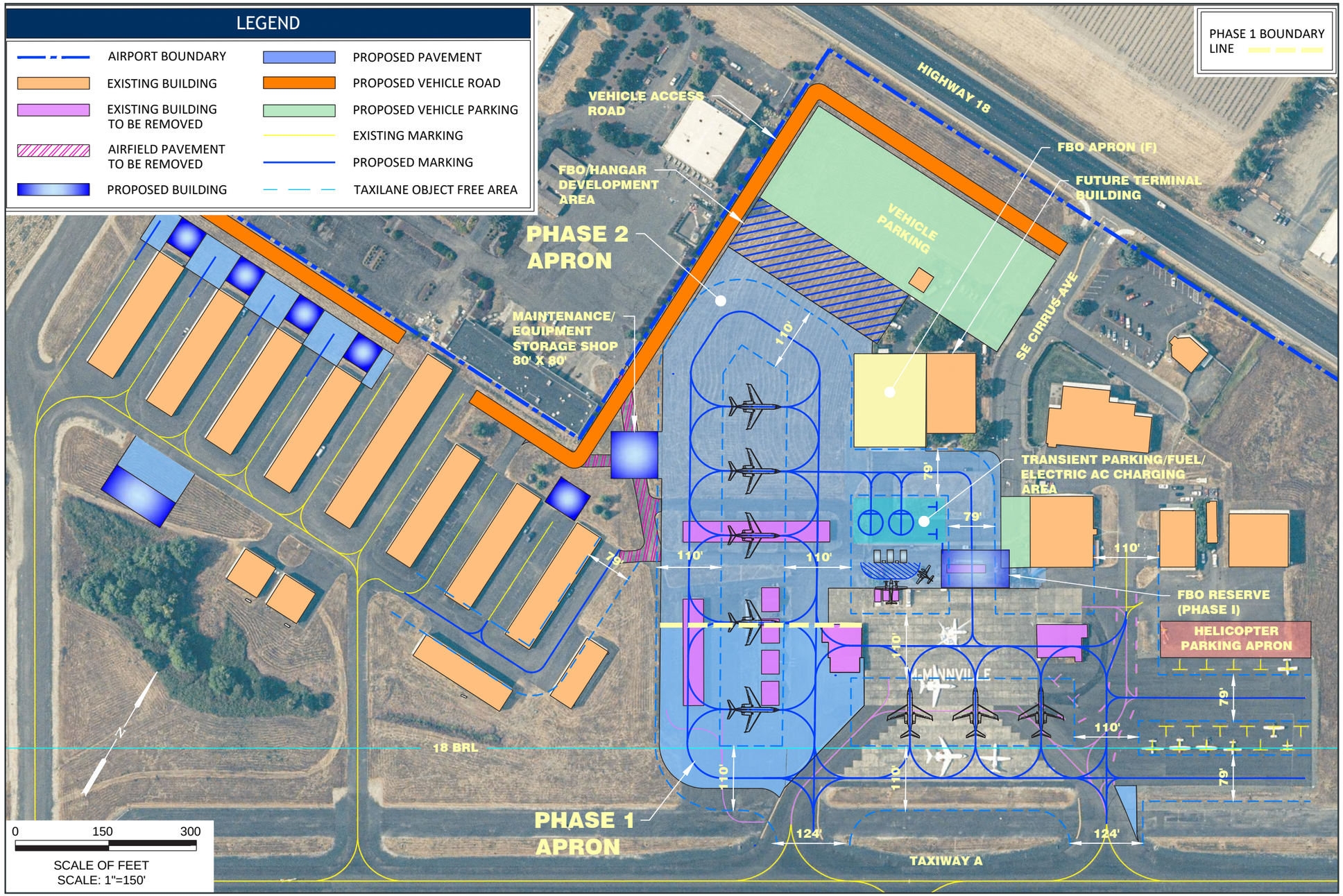
The Phase 2 apron expansion provides opportunities for landside development/redevelopment within the terminal area between Cirrus Avenue and the former Evergreen Aviation complex. Several conceptual elements are identified to support large aircraft use. The city-owned building currently leased to the Oregon State Patrol (OSP), is identified for potential redevelopment into an aviation use facility. A development site for future hangar or fixed base operator (FBO) is located at the north end of Phase 2 apron.

Two new aprons are proposed near the northeast corner of the Phase 2 apron:

- The aircraft fueling/charging area apron is located north of the existing fuel storage tanks. The terminal area vehicle parking lot identified in Phase 1 will be reduced in size to accommodate the new apron and additional vehicle parking is located in the terminal area. This apron would be accessed from the main apron's north-south ADG II taxilane with an ADG I taxilane extending along the north side of the aircraft fueling/charging apron. A long term option is available to extend the ADG I taxilane around the east side of the fueling/charging area and connect to the Phase 2 taxilane on the existing main apron, if the current FBO building site is relocated elsewhere in the central terminal area.
- A new apron area is added to the west side of the OSP-leased building. The apron would connect to the Phase 2 transient aircraft parking apron and ADG II taxilanes. The apron would support a fixed base operator (FBO) building or a general aviation (GA) terminal. This apron would be located immediately north of the future electric charging/aircraft apron and ADG I taxilane.

A new vehicle parking area is located on the north side of the OSP building, with direct access to Cirrus Avenue and Highway 18. This parking area also supports a new west hangar access road and the future term development of large hangars or an FBO building at the north end of the apron.

Figure 4: Central Landside – Preferred Alternative (Phase 2)



Central Landside

Added on 06.13.2025

EAST LANDSIDE AREA (NEW)

Figure 5 depicts the recommended east landside improvements for the current 20-year planning period.

The future development of the east landside area concentrates on adding aircraft storage hangars and small aircraft parking east of the current terminal area development. The recommended improvements reflect the combination of elements selected by airport management, with PAC and user input, from the preliminary East Landside Area Alternatives 1 through 4. The recommended configuration is most similar to Alternative 4, with additional refinements added to accommodate ADG II aircraft. The development of the east landside area may be completed in increments based on demand and availability of funding.

As noted in the preliminary alternatives, the east landside area is a triangular shaped site, formed by Highway 18, Taxiway A, and the east end of Runway 4/22. New taxilane connections are required to provide aircraft access to, and within the hangar area.

The precise configuration, sizes, and footprints of hangars will be determined by future tenants, but the layout defines the buildable areas and a taxilane system that works with the constrained site. The hangar sites are located adjacent to ADG I/II taxilanes, and minimum development setbacks are determined by the applicable taxilane object free area (TLOFA) boundary.

General site improvements, drainage, surface access, and utility extensions are required to develop buildable hangar sites. Existing stormwater drainage swales will require relocation and expansion for new development.

Access Taxilanes. A new ADG II taxilane connects the east landside area to Taxiway A. The additional taxilane allows aircraft to access new hangar sites and the east tiedown apron without taxiing through the main apron area on Taxiway B or C. The access taxilane extends from Taxiway A to the north end of the east landside area. An ADG II taxilane extends to the northwest and southeast from the north end of the main taxilane to provide access to a row of four (80'x80' or 80'x100') conventional hangars and a multi-unit hangar. The expanded tiedown apron and the eastern three rows of hangars are served by ADG I taxilanes. Additional taxilanes extend east of the main taxilane to hangars and the expanded aircraft tiedown apron.

Transient Aircraft Parking Apron. The existing east tiedown apron is extended to the east, with a configuration that accommodates the new north-south main access taxilane for the east landside area that connects to Taxiway A. The option provides 9 small airplane tiedowns in the dual sided (north-south) parking row. The layout also shows the option of converting 5 existing south-facing tiedowns at the north edge of the existing tiedown apron to helicopter parking that can be accessed from the north or south. As depicted, the reconfigured east apron has 21 small airplane tiedowns east of Taxiway B and the main apron.

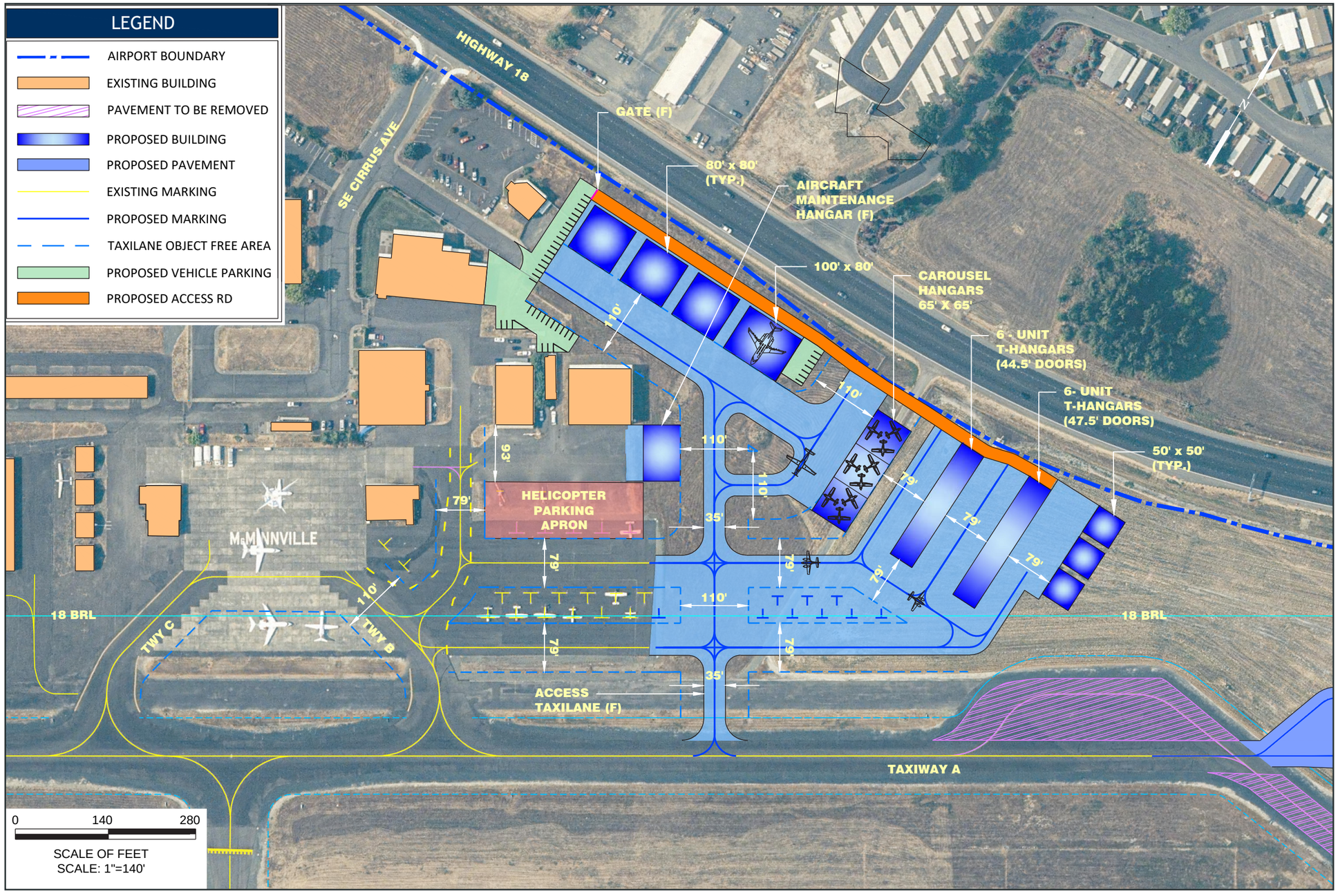
Hangar Sites. The site configuration includes a mix of hangar types and sizes for ADG I and II aircraft. Approximately 70,000 square feet of new hangar space is depicted in the east landside area, with individual hangar spaces ranging from approximately 1,300 to 8,000 square feet. The buildings include standard conventional hangars and multi-unit hangars.

As depicted, four medium/large conventional hangars (80'x80'; 80'x100') are located along the north airport property line. The north hangar row is served by a new access road and an ADG II taxilane. Three multi-unit hangar rows are located east of the north hangar row, including two 6-unit T-hangars and one 9-unit carousel hangar. The T-hangars depicted have 44.5' and 47.5' door widths. The carousel hangar is a typical design for small aircraft with three aircraft per unit. Alternatively, the carousel hangar could be developed as a 3-unit conventional hangar with a common roof and divided spaces.

A site for a new aircraft maintenance hangar is located adjacent to existing apron and hangars located north of the east tiedown apron. This hangar site can be developed without new taxilane access with a west-facing door fronted by the existing apron.

Hangar Access Road. The existing vehicle access and parking in this area is upgraded and expanded. A new 840-foot service roadway is extended from SE Nimbus Loop along the northern edge of airport property to provide access to hangar sites Expanded vehicle parking areas are located adjacent to existing and future hangars.

Figure 5: East Landside – Preferred Alternative



East Landside

Added on 06.13.2025

Revised on 06.16.2025
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