3. Introduction to Facility Requirements

This chapter describes the existing conditions for key functional elements at OLM and associated facility requirements for each to accommodate FAA standards, issues and needs identified by stakeholders, and the forecast demand over the course of the planning period (2020 through 2040). Functional elements assessed at OLM consist of airfield facilities, electronic and visual aids to navigation, roadways and parking lots, and support facilities. In addition, this chapter contains an analysis of emerging industry trends such as biofuels and electric aircraft along with a comprehensive review of general aviation activity at OLM.

The facility requirements analysis begins with a discussion of the critical (design) aircraft as determined in the previous chapter. The FAA defines the critical aircraft as an aircraft or a group of aircraft with at least 500 annual operations that regularly operates or is expected to operate at the airport. The ARC, based on the critical aircraft, drives OLM design standards, safety zones, separation between facilities, and overall facility layout.

The 2013 Master Plan classified OLM as an existing ARC B-II airport with a projected classification of ARC C-II in the future. The FAA approved forecast of this master plan update determined the Cessna Citation 560 (B-II) to be the existing critical aircraft and projected the Bombardier Challenger 700 (C-II) as the ultimate critical aircraft.

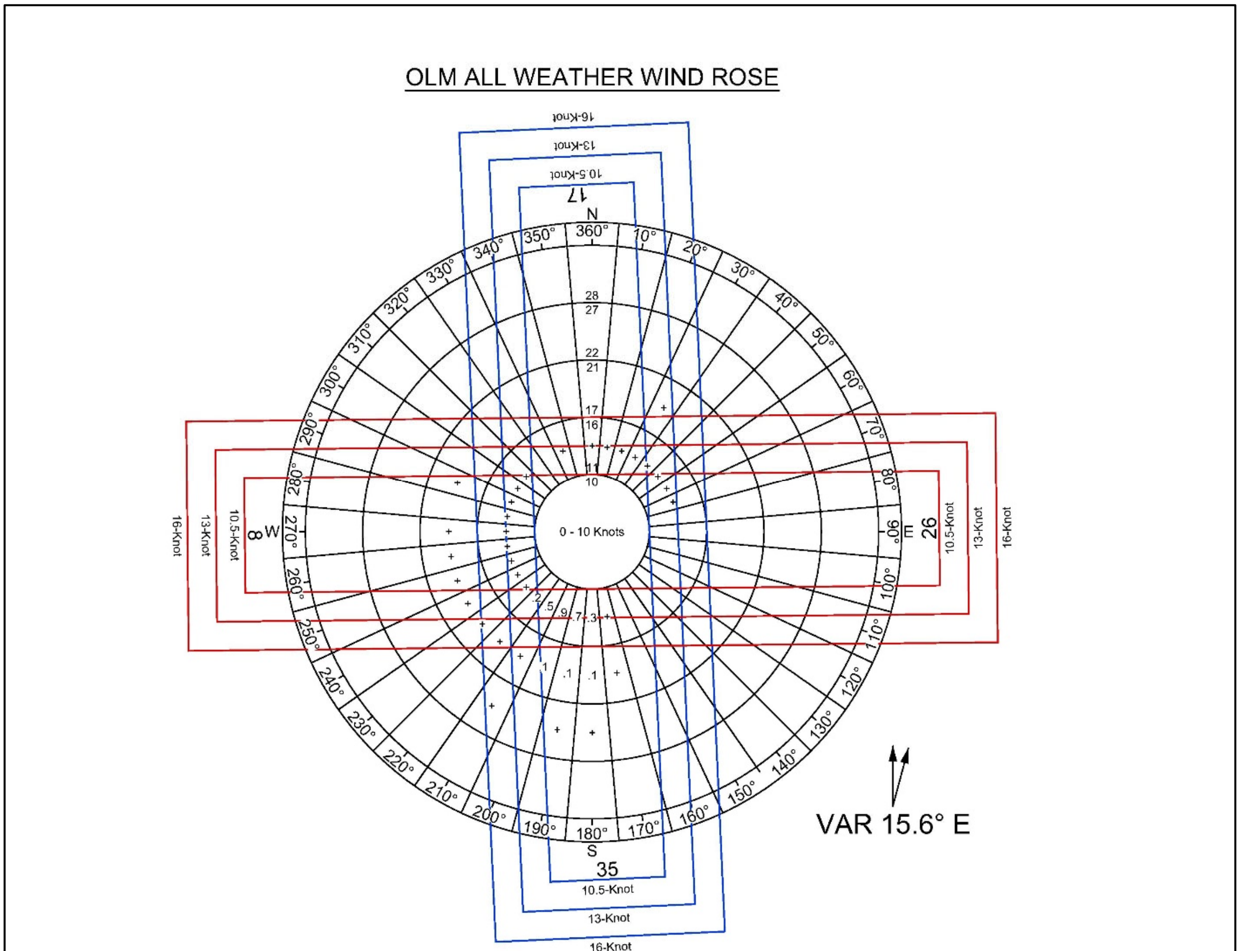
3.1. Airfield Facility Requirements

This section presents the analysis of requirements for airside facilities necessary to meet FAA standards and the anticipated aviation demand at OLM. Runways, taxiways, and aircraft parking areas are the primary elements of an airport and in order to protect these assets the FAA has designated parameters to ensure the operations at the airport are conducted with an understood level of safety provided by an airport.

3.1.1. Runway Orientation

Runways are laid out in the predominant wind direction with proper length, safety areas, and airspace for aircraft use. FAA AC 150/5300-13B provides guidance to determine runway orientation through an evaluation of wind characteristics. The wind data for OLM is collected and reported by the ASOS located to the west of Runway 17 and north of Runway 8. Wind that is observed at an angle to the runway centerline is referred to as a crosswind. Wind speed and direction data is plotted graphically on a wind rose to analyze the percentage of time that crosswinds are within tolerance of the critical aircraft for a particular runway. The determination of the appropriate crosswind tolerance is dependent upon the ARC designated to the runway. The ARC for Runway 17/35 is C-II, and B-II for Runway 08/26. The FAA desires a 95% wind coverage for a primary runway, which means that the runway system should be oriented so that the maximum crosswind component does not exceed more than 5% of the time annually. Based on the all-weather analysis for OLM, the existing runway system provides approximately 100.00% wind coverage for the 16-knot crosswind component, 99.99% for the 13-knot crosswind component, and 99.84% for the 10.5-knot crosswind component. The all-weather wind rose for both runways at OLM is shown in **Figure 3-1**. The wind coverage provided by the individual runways and the combined runway ends during all-weather conditions is quantified in **Table 3-1**.

Figure 3-1: OLM Wind Rose Combined Coverage All Weather with 10.5, 13, and 16-knot Crosswind Component



Source: FAA Airport Data and Information Portal 2021.

Table 3-1: OLM All Weather Wind Coverage Analysis

Runway	10.5 Knots	13 Knots	16 Knots
17/35	98.62%	99.37%	99.93%
08/26	94.71%	96.94%	99.25%
Combined	99.84%	99.99%	99.99%

Source: FAA Airport Data and Information Portal 2021.

Magnetic shift occurs over time, approximately 1 degree every ten years, resulting in periodic required updates to runway heading identification numbers. The runways have exceeded their existing heading identifiers and should be renumbered to accurately reflect the heading with which they are now found magnetically. Runway 17/35 will need to be renamed Runway 18/36, and Runway 8/26 will be renamed Runway 9/27.

It is recommended that the runways be re-numbered to their corrected magnetic headings due to the changes that have occurred over time from natural magnetic shift.

3.1.2. Runway Design Standards

Runway design standards are established by the FAA with the purpose of providing a safe area for runway operations. These standards include the determination of runway length, width, pavement strength, and obstruction clearance.

3.1.2.1. *Runway Width*

Runway 17/35 meets or exceeds all dimensional standards associated with ARC C-II with approach visibility minimums less than 3/4 statute mile (**Table 3-2**). Runway 17/35 has a runway width of 150 feet while the standard ARC C-II width is listed at 100 feet. Though downsizing the width of Runway 17/35 to 100 feet will reduce the expenditure of future funds required for pavement maintenance, additional expenses such as lighting relocation will increase. Future uses and needs of the Airport must be taken into consideration prior to downgrading any existing pavement areas. Runway 08/26 meets or exceeds the identified dimensional standards associated with ARC B-II with approach visibility minimums greater than or equal to 3/4-statute mile. Runway 08/26 has a runway width of 150 feet while the standard ARC B-II width is listed at 75 feet. As such, downsizing the width of Runway 08/26 to 75 feet will reduce the expenditure of funds required for pavement maintenance.

Table 3-2: OLM Runway Width Requirements

Runway Width Existing vs. Required	Runway 17/35 Width (feet)	Runway 8/26 Width (feet)
Existing	150	150
Required	100	75

Source: FAA Advisory Circular 150/5300-13B – Airport Design.

Runways 17/35 and 08/26 both exceed operational width requirement standards for their respective ARCs. While Runway 17/35's excess width can be utilized in the future, Runway 08/26 should be maintained for 75' width.

3.1.2.2. *Runway Length*

Runway length requirements, as presented in FAA AC 150/5325-4B, Runway Length Requirements for Airport Design, are based on the most demanding aircraft operating, or expected to be operating, within the fleet, along with airport elevation, mean maximum daily temperatures of the hottest month, and runway gradient.

The majority of operations at OLM are conducted by small aircraft having a Maximum Takeoff Weight (MTOW) of 12,500 pounds or less, but include the operation of jet aircraft with a MTOW of less than 60,000 pounds. Additionally, the largest aircraft commonly utilizing OLM have a MTOW of greater than 60,000 pounds. OLM has an elevation of 207.8 MSL, a mean maximum daily temperature of 78.6° Fahrenheit, and a runway gradient of 11.2 feet. The aforementioned information is used to generate the recommended runway length requirements shown in **Table 3-3**.

Table 3-3: OLM Runway Length Requirements

Aircraft Category	Length (feet)	
Existing Conditions		
17/35	5,501	
08/26	4,157	
Small Aircraft (12,500 lbs. or less MTOW)		
Approach Speeds < 30 knots	306	
Approach Speeds > 30 knots but < 50 knots	816	
Approach Speeds > 50 knots and < 10 Passengers		
95% of the fleet	2,980	
100% of the fleet	3,540	
Approach Speeds > 50 knots and > 10 Passengers	4,080	
Large Aircraft (more than 12,500 MTOW)	Dry	Wet
< 60,000 lbs. 75% of the fleet at 60% useful load	4,690	5,270
< 60,000 lbs. 100% of the fleet at 60% useful load	5,970	6,740
< 60,000 lbs. 75% of the fleet at 90% useful load	5,090	5,500
< 60,000 lbs. 100% of the fleet at 90% useful load	7,370	7,370
> 60,000 lbs. or Regional Jets	5,090	5,090

Source: FAA Advisory Circular 150/5325-4B – Runway Length.

The information presented in the table above indicates that Runway 17/35 can accommodate 75% of the large aircraft fleet with MTOW less than 60,000 pounds operating at 60% useful load and 75% of the large aircraft fleet with MTOW less than 60,000 pounds operating at 90% useful load during wet or slippery conditions. Also, Runway 17/35 can accommodate a variety of large aircraft weighing greater than 60,000 pounds MTOW. As such, the length is adequate for the aircraft that utilize Runway 17/35. However, if an air service provider desires to operate large aircraft at 90% useful load at OLM, the current runway length would need to be extended to 7,370 feet to accommodate 100% of large aircraft fleet at 90% useful load.

Runway 08/26 has a length of 4,157 feet and as shown in the table above, this runway can accommodate the entire general aviation aircraft fleet with MTOW less than 12,500 pounds.

Both runways have adequate length to accommodate the aircraft that regularly utilize the Airport.

3.1.2.3. *Runway Surface*

The runways at OLM are constructed of asphalt. Runway 17/35 has a grooved surface to aid in water displacement during rain events. The runway has been constructed to a weightbearing capacity to accommodate aircraft with single wheel axels up to 75,000 pounds, double wheel axels up to 94,000 pounds, and dual tandem wheel axels up to 142,000 pounds.

Runway 08/26 has an existing weight bearing capacity to accommodate aircraft with single wheel axels up to 30,000 pounds, double wheel axles up to 45,000 pounds, and dual tandem wheel axels up to 90,000 pounds.

Both runways have adequate pavement strength to accommodate the aircraft that regularly utilize the Airport.

3.1.2.4. *Runway Protection Zone*

A Runway Protection Zone (RPZ) functions to enhance the protection of people and property on the ground beyond the end of the runway. This is achieved through airport control of the RPZ areas. The RPZ is trapezoidal in shape, centered on the extended runway centerline, and begins 200 feet beyond the end of the area usable for takeoff or landing. RPZ dimensions are a function of the ARC, aircraft size, and the lowest visibility minimums associated with a runway end.

The Runway 17 RPZ covers an area that crosses Old Highway 99 SE, Tumwater Boulevard SE, 72nd Avenue SE, 73rd Avenue SE, and Bonniewood Drive SE. The Runway 26 RPZ covers an area that crosses Old Highway 99 SE. The northeast section (.9 acres) of the Runway 26 RPZ falls into an area that is covered by an unacquired RPZ easement. The Runway 08 and 35 RPZs fall completely within the airport property and do not cross any roadways. **Table 3-4** details RPZ dimensions at OLM.

Table 3-4: OLM RPZ Dimensions

Existing RPZ Dimensions	Width at Inner Edge (feet)	Length (feet)	Width at Outer Edge (feet)
Runway 17	1,000	2,500	1,750
Runway 35	500	1,700	1,010
Runway 08	500	1,000	700
Runway 26	500	1,000	700
Required RPZ Dimensions			
Visual and not lower than one mile, small aircraft only	250	1,000	450
Visual and not lower than one mile, approach categories A and B	500	1,000	700
Visual and not lower than one mile, approach categories C and D	500	1,700	1,010
Not lower than ¾-mile, all aircraft	1,000	1,700	1,510
Lower than ¾-mile, all aircraft	1,000	2,500	1,750

Source: FAA Advisory Circular 150/5300-13B – Airport Design.

Based on the visibility minimums for the existing instrument approach procedures, the existing RPZs are adequate in size.

3.1.2.5. *Runway Object Free Area/Obstacle Free Zone*

The Runway Object Free Area (ROFA) and Obstacle Free Zone (OFZ) enhance aircraft safety by providing clearance around runways and providing adequate airspace. The ROFA is centered on the runway centerline at ground level. Objects non-essential for air navigation or aircraft ground maneuvering, including parked aircraft, must not be placed within the ROFA. According to the AC 150/5300-13B, the OFZ is the volume of space centered above the runway centerline and above a surface whose elevation at any point is the same as the elevation of the nearest point on the runway. The OFZ is intended to provide clearance for aircraft approaching or departing the runway. Table 3-5 details ROFA and OFZ dimensions at OLM.

Table 3-5: OLM ROFA and OFZ areas

ROFA Dimension	Runway 17	Runway 35	Runway 8	Runway 26
Object Free Area Width (feet)	800		500	
Object Free Area Length (beyond runway end) (feet)	1,000		300	
Obstacle Free Zone Width (feet)	400		400	
Obstacle Free Zone Length (beyond the runway area) (feet)	2,685	200	200	200

Source: FAA Advisory Circular 150/5300-13B – Airport Design.

3.1.2.6. *Runway Safety Area*

A Runway Safety Area (RSA) is a defined, graded area surrounding the runway that, in the event of the departure of an aircraft from the runway, must be capable under normal conditions of supporting the aircraft without causing structural damage to it or injury to its occupants. As shown on **Table 3-6**, Runway 17/35 has an existing RSA with a width of 500 feet and a length of 1000 feet, meeting ARC C-II standards. Runway 08/26 has an existing RSA with a width of 150 feet and length of 300 feet, meeting ARC B-II standards. The existing surfaces surrounding the runways at OLM meet the criteria for use as an RSA.

Table 3-6: OLM Runway Safety Area Dimensions

RSA Dimension	Runway 17/35	Runway 08/26
Runway Safety Area Width (feet)	500	150
Runway Safety Area Length (feet)	1,000	300

Source: FAA Advisory Circular 150/5300-13B – Airport Design.

3.1.3. Taxiway and Apron Requirements

The taxiway system at OLM is extensive, providing access to all areas of the airport. Each runway end has taxiway access from both directions, and each runway has exit taxiways at various locations along the runway, although they are not optimally located. Certain taxiways have non-standard geometry and could be improved upon to increase airfield safety and efficiency.

Of the taxiways that serve Runway 17/35, Taxiway W is not parallel for the entire length of the runway even though it functions as such. East of Runway 17/35, Taxiway F cannot be extended to serve as a full-length parallel taxiway due to the location of a VORTAC. Runway 08/26 does not have a full-length parallel taxiway. However, adding parallel taxiways to serve Runway 08/26 would increase operational efficiency.

Based on FAA recommendations, taxiway intersections should be at a 90° angle, except for high-speed exit taxiways at congested airports. Both Runways 17/35 and 08/26 have several taxiway intersections with less than 90° angles which are provided in

Table 3-7.

Table 3-7: OLM Taxiway Intersection Angles

Taxiway	Intersection Angle
Runway 17/35 Non-Standard Exit Taxiways	
Taxiway C	36°
Taxiway D	39°
Taxiway G	79°
West Taxiway L	76°
East Taxiway L	82°
Runway 08/26 Non-Standard Exit Taxiways	
Taxiway W	77°
South Taxiway F	88°
North Taxiway F	56°
North Taxiway C	52°
Taxiway E	38°
Taxiway G	77°

Source: FAA Advisory Circular 150/5300-13B – Airport Design.

In addition to geometry, the FAA AC 150/5300-13B recommends optimally placed taxiway exits to reduce runway occupancy times and to increase overall efficiency. As depicted in the table below, Runway 17/35 has exit taxiways that are not optimally located to maximize the ability to exit the runway safely and efficiently. Runway 35 technically has four runway exits but Taxiways G and L are too close to the runway threshold to be utilized by aircraft weighing more than 12,500 pounds. The remaining exits, Taxiways C and D, are on the far end of the runway, increasing runway occupancy time and reducing efficiency. Adding additional exit taxiways at optimal locations would provide aircraft the ability to exit the runway more efficiently.

Based on data provided by the FAA,

Table 3-8 and **Table 3-9** depict the percentage of aircraft that are able to exit the runway using the specified taxiway, separated by aircraft type and pavement conditions. For instance, 100% of small, single engine aircraft are able to exit off Runway 17 using Taxiway G during dry conditions. Additionally, less than 41% of small, twin-engine aircraft are able to exit off Runway 17 using Taxiway G during wet conditions.

Table 3-8: OLM Runway 17/35 Taxiway Utilization Availability

Taxiway	Distance - Threshold to Exit	Percentage of Aircraft Exiting Runway					
		Dry Conditions			Wet Conditions		
		Small, single engine – 12,500 lbs. or less	Small, twin engine – 12,500 lbs. or less	Large – 12,500 lbs. to 300,000 lbs.	Small, single engine – 12,500 lbs. or less	Small, twin engine – 12,500 lbs. or less	Large – 12,500 lbs. to 300,000 lbs.
Runway 17							
Taxiway G	3,400	100%	<81%	<2%	<99%	<41%	0%
Taxiway L	4,700	100%	100%	>24%	100%	>97%	>4%
Runway 35							
Taxiway L (East)	700	<6%	0%	0%	<4%	0%	0%
Taxiway "G" (West)	2,100	>84%	>1%	0%	>60%	0%	0%
Taxiway D	5,000	100%	100%	49%	100%	100%	12%
Taxiway C	5,000	100%	100%	49%	100%	100%	12%

Source: FAA Advisory Circular 150/5300-13B – Airport Design.

Runway 08/26 has exit taxiways that are not optimally located. This hinders the ability to maximize the percentage of landing aircraft that are able to exit the runway quickly and efficiently, as depicted in the table below. Since both exit taxiways are not at 90° angles to the runway, the exit taxiway at the farther end of the runway requires the exiting aircraft to perform an inefficient turn of greater than 90° which further reduces the percentages shown in the table below.

Table 3-9: OLM Runway 8/26 Taxiway Utilization Availability

Taxiway	Distance - Threshold to Exit	Percentage of Aircraft Exiting Runway					
		Dry Conditions			Wet Conditions		
		Small, single engine – 12,500 lbs. or less	Small, twin engine – 12,500 lbs. or less	Large – 12,500 lbs. to 300,000 lbs.	Small, single engine – 12,500 lbs. or less	Small, twin engine – 12,500 lbs. or less	Large – 12,500 lbs. to 300,000 lbs.
Runway 08							
Taxiway F	2,000	84%	1%	0%	60%	0%	0%
Taxiway C	2,400	<99%	<10%	0%	<84%	>1%	0%
Runway 26							
Taxiway C	1,700	>39%	0%	0%	>23%	0%	0%
Taxiway F	2,100	>84%	<1%	0%	>60%	0%	0%

Source: FAA Advisory Circular 150/5300-13B – Airport Design.

Taxiway geometry throughout the airport needs to be revised to meet FAA standards of right-angle intersections. Taxiway W is recommended to be revised to serve as a full-length parallel taxiway along

with the analysis of a new full-length parallel taxiway to serve Runway 08/26. It is also recommended to add optimally located exit taxiways to both runways to increase airfield efficiency.

3.1.4. Airport Capacity and Annual Service Volume

The ability of the airfield system (i.e., runways and taxiways) to accommodate both the existing and forecasted demand at an airport is known as airfield capacity. It is defined in terms of hourly capacity of runways, annual service volume (ASV), and aircraft delay. The hourly capacity of runways is the maximum number of aircraft that can be accommodated under conditions of continuous demand during a one-hour period. ASV is an estimate of an airport's annual level of aircraft operations that will result in an average annual aircraft delay of approximately one to four minutes. ASV accounts for differences in runway use, aircraft mix, and weather conditions that would be encountered over a year's time.

3.1.4.1. *Airfield Capacity Factors*

Using the methodology described in FAA AC 150/5060-5, Airport Capacity and Delay, capacity per hour can be determined for the Airport. There are several factors that influence airfield capacity consisting of aircraft mix, runway use, percent arrivals, touch-and-go activity, the location of exit taxiways, and local air traffic control rules.

3.1.4.1.1. Aircraft Mix

Aircraft mix pertains to the type and size of the aircraft using the airport. These classes are derived from FAA AC 150/5060-5, Airport Capacity and Delay and are different than classifications used in Chapter 2-Aviation Forecast. There are four classes of aircraft:

- Class A consists of small single engine aircraft weighing 12,500 lbs. or less.
- Class B encompasses twin-engine aircraft (both propeller and jet) weighing 12,500 lbs. or less.
- Class C is large jet and propeller aircraft weighing between 12,500 pound and 300,000 pounds.
- Class D is large jet and propeller aircraft weighing over 300,000 pounds.

Aircraft mix is defined as the relative percentage of operations conducted by each of these classes of aircraft. The existing aircraft mix has been estimated at 96% combined in Classes A and B and 4% Class C.

3.1.4.1.2. Runway Use

The use configuration of the runway system is defined by the number, location, and orientation of the active runway(s) and relates to the distribution and frequency of aircraft operations to those facilities. Both the prevailing winds in the region and the existing runway facility combine to dictate the utilization of the existing runway system. Based on the previous Master Plan Update and discussions with the ATCT, the estimated runway utilization pattern for the airport is presented in

Table 3-10. Additionally, Taxiway W and Taxiway G are used by helicopters for pattern training.

Table 3-10: OLM Runway Utilization Rates

Runway	Utilization Rate
Runway 17/35	**75%**
Runway 17	80%
Runway 35	20%
Runway 08/26	**25%**
Runway 08	5%
Runway 26	95%

Source: 2013 OLM MPU and ATCT Management.

3.1.4.1.3. Percent Arrivals

Arriving aircraft have an impact on airport capacity due to the reduced speeds at approach and priority over departure operations. As such, higher levels of arrivals during peak periods reduce the capacity of the airport. It is assumed for this analysis that there is an equal distribution of arrivals and departures at the Airport.

3.1.4.1.4. Touch-and-Go Operations

Touch-and-go operations involve landing on a runway and taking off again without coming to a full stop. Such operations are usually associated with flight training and are counted as local operations. General aviation local operations accounted for approximately 53% of total operations at the Airport for 2019. That is expected to rise to 54% by the long-term forecast year of 2040. Not all local operations are touch-and-go operations so the actual percentage of touch-and-go operations can be estimated to be at or below the 50% threshold necessary for this analysis.

3.1.4.1.5. Exit Taxiways

The number of exit taxiways, taxiway geometry, and taxiway location can affect airport capacity by determining the efficiency with which aircraft can exit a runway. Runways 17, 08, and 26 have 2 exits while Runway 35 has 4 exits. For this analysis, it is assumed that the Airport's limited number of exit taxiways minimize runway occupancy times.

3.1.4.1.6. Air Traffic Control Rules

Air traffic control rules such as aircraft separation requirements can have an impact on airfield capacity. There are no air traffic rules in place at the Airport that have an effect on airfield capacity.

3.1.5. Analysis Assumptions and Results

Determining the ASV and hourly capacity involves making several assumptions based on the specifications provided in AC 150/5060-5. It is assumed that arrivals equal departures, the percentage of touch-and-go operations is in the range of 0% and 50% of total operations, a full-length parallel taxiway and adequate exit taxiways are available and no taxiway crossing problems exist; there are no airspace limitations; there is at least one runway equipped with an ILS and has the ATC facilities and services to carry out operations in a radar environment; IFR weather conditions occur 10% of the time; and 80% of airport operation is conducted with the runway use configuration that produces the greatest hourly capacity.

It should be noted that OLM does not conform to all the aforementioned assumptions, which would result in a decrease in the capacity numbers extracted from the analysis. However, using the assumptions and the guidelines provided in AC 150/5060-5, the analysis determined the existing and future ASV for the airport at 230,000 operations. The analysis also determined there to be a VFR capacity of 98 operations per hour and an IFR capacity of 59 operations per hour. Despite the inflation of the numbers due to the assumptions, the calculated ASV is significantly higher than the 86,323 operations forecasted for 2040. **Table 3-11** details several aspects of ASV at OLM.

Table 3-11: OLM Annual Service Volume

Element	2020 (Base Year)	2040 (Forecast Year)
Annual Service Volume (ASV)	230,000	
VRF Hourly Operations Capacity	98	
IFR Hourly Operations Capacity	59	
Total Demand (Operations)	70,466	86,323
Average Day Peak Month (ADPM)	263	322
Peak Hour Operations	11	13
VFR Hourly Operations	10	11
IFR Hourly Operations	1	2
ASV Demand/Capacity Ratio	31%	38%

Source: FAA Advisory Circular 150/5060-5 – Airport Capacity and Delay.

FAA standards state that at reaching 60% of the ASV, the airport should begin planning ways to increase capacity. At 80% ASV, the airport should commence construction of infrastructure to increase capacity. Based on the calculated ASV and the forecasted operations, it can be deduced that the Airport will not exceed airfield capacity through the planning period.

The Airport has adequate capacity and is not expected to experience significant delays within the planning timeframe.

3.1.6. Pavement Condition and Strength

As depicted in **Figure 1-5** and **Table 1-4** of the Inventory chapter, an inspection conducted in 2018 by WSDOT Aviation established the existing and forecasted pavement conditions for the Airport. Each section of pavement received a PCI number on a scale of 0-100. A score of 70 or higher is considered to be acceptable and anything below that is determined to be in need of rehabilitation. Maintaining pavement with periodic sealing of cracks and sealcoating is essential for extending its useful life. **Table 3-12** lists all the pavement on the airfield that was forecasted to be below 70 by the year 2021.

Table 3-12: OLM Pavement Condition

Pavement	PCI Rating
Apron (Washington State Department of Natural Resources)	43
Apron (Planeports)	69
Runway 35 Hold Apron	51
Apron (A, B, & C T-Hangars)	68
Apron (SpanaFlight)	5
Apron (WSDOT)	69
Runway 08/26	55
Taxilane (between Planeports and A T-Hangars)	16
Taxiway D	41
Taxiway G Hardstands	61
Taxiway G	50
Taxiway Hangar A	24
Taxiway Hangar B	43
Taxiway Hangar C	31
Taxiway L	48
Taxiway to WSDOT	65

Source: Washington Airport Pavement Management 2021.

Table 1-3 in the Inventory chapter listed the weightbearing strength for the pavement at the Airport. The existing pavement strength at the Airport is sufficient for current and forecasted needs.

The Airport should rehabilitate and maintain the pavement through a pavement management plan. Pavement with a PCI of less than 70 should be the focus of near-term pavement maintenance.

3.1.7. Electronic and Visual Aids to Navigation

3.1.7.1. *Runway 17/35*

Runway edge lighting for Runway 17/35 is composed of HIRLs that are controlled by the Tower staff during ATC operational hours, and pilot controlled during non-ATC hours of operation through the CTAF.

Runway 17/35 is equipped with PAPIs to provide lighted reference cues for the approach path. The approach end of Runway 17 has MALSR. Currently, Runway 35 does not have a MALSR, which is required, along with precision instrument markings, for a precision IAP with visibility minimums of ½ mile.

If a ½ mile visibility IAP for Runway 35 is desired, the Airport should install a MALSR, along with precision runway markings.

3.1.7.2. *Runway 08/26*

Runway 8/26 has basic runway markings and no edge lights; therefore, it is only capable of visual approach operations.

3.1.7.3. *Taxiway Lighting System*

Taxiway lighting helps ensure that aircraft are able to follow their correct taxiway routing at night or in low visibility situations. As depicted in **Table 3-13**, OLM has some taxiways equipped with taxiway lighting and some with edge reflectors.

Table 3-13: OLM Taxiway Visibility Aids

Taxiway	Visibility Aids
Taxiway A	Taxiway Lighting
Taxiway B	Taxiway Lighting
Taxiway L (West)	Taxiway Lighting
Taxiway W	Taxiway Lighting
Taxiway E	Edge Reflectors
Taxiway F	Edge Reflectors
Taxiway D	Edge Reflectors
Taxiway G	Edge Reflectors
Taxiway L (East)	Edge Reflectors
Taxiway C	Edge Reflectors

Source: The Aviation Planning Group 2021.

It is recommended that the Airport add edge lighting to the taxiways currently equipped with edge reflectors, especially those areas utilized heavily to transition from the east side ramps and hangars to Runway 17/35.

3.1.7.4. *Wind Cones*

Wind cones are a tool used by pilots to quickly approximate wind speed and direction before taking off or landing. A segmented circle provides traffic pattern information to pilots, useful for when the ATC tower is not operational. A primary wind cone is located within the segmented circle west of the north end of Taxiway E. Secondary lighted wind cones are located at the south end of Runway 17/35 near Taxiway W and the runup area and on the east end of Runway 8/26 near the south end of Taxiway E.

3.1.7.5. *Navigational Aids*

NAVAIDS are tools utilized by pilots for the purpose of aerial navigation to or from a location all across the nation. NAVAIDS on the airfield and within the region are utilized by pilots traveling to, from and nearby OLM.

3.1.7.5.1. ASOS
An ASOS is located west of Runway 17/35 and north of Runway 8/26 to provide audible real time weather conditions and wind speed/direction on radio frequency 135.725 or by calling (360) 754-0781.

3.1.7.5.2. VORTAC
The airfield is equipped with a VORTAC (Very High Frequency Omnidirectional Range/Tactical Air Navigation) which has the ability to measure the distance an aircraft is from the VOR and report it to the pilot in nautical miles when capable of receiving that information. The VORTAC at OLM is located west of Taxiway C, east of Runway 17/35, and north of Runway 08/26. The previous master plan recommended that the VORTAC be relocated for a future parallel taxiway, however the FAA will not fund the relocation and it is now recommended the VORTAC remain in its current location.

3.1.7.5.3. Beacons
OLM has a rotating beacon that shines a green light and a white light 180 degrees apart from one another. The beacon assists pilots in finding the airport and is operational at night and during IFR conditions. The beacon is located on top of the air traffic control tower.

3.1.7.5.4. Compass Rose
A compass rose is used to operationally check and align the aircraft compass when needed. It can also be used as a unique airfield identifier. The compass rose at OLM is located at Taxiway C.

3.2. Roadways and Parking Lots

Access to the Airport is predominantly achieved through the use of Interstate 5 (I-5). Vehicular traffic accessing the Airport from the north uses I-5 and takes exit 102 to Trosper Rd SW to continue south on Capitol Blvd SE/Old Highway 99 SE. From the south on I-5, exit 101 provides access to the Airport. As the airport is located just over a mile from I-5, vehicle access to the Airport is efficient.

Roadways on the airport are generally limited to the landside hangar access roadways. The primary east side landside roadway is the hangar access road that parallels the west side of Old Highway 99 SE. This access road enters into the airport property at four points along Old Highway 99 SE. On the west side of the airport, access is achieved directly off of Terminal St. SW. Once on the airfield, roadways are limited to taxiway travel for service vehicles and vehicle access to respective points with unpaved access paths.

Vehicle parking is available near the Airport Administration Building that can be utilized for short-term visits. There are 13 public use parking spaces located between the airport administration building and Old Highway 99 SE. Additionally, each business tenant has private parking available for their uses and for their patrons. However, feedback from airport users makes it clear that vehicle parking is not sufficient for current and future needs.

Airport access roads and airfield roadways are sufficient for current use, providing uncongested access to all facilities. Based on feedback from tenants, the Airport should consider adding additional vehicle parking.

3.3. Support Facilities

3.3.1. Aircraft Maintenance

The FBOs perform maintenance on their own aircraft and minor maintenance assistance for aircraft at OLM. There is currently no aircraft airframe or powerplant maintenance facility based at OLM and Airport users have to go elsewhere in Washington to address their maintenance needs.

It is recommended that an aircraft maintenance facility be added to the airport to provide service to based and transient aircraft.

3.3.2. Fuel Storage

The facility has a capacity of eight individual fuel tanks, of which six are currently in use. Glacier Aviation currently utilizes four spaces with four 12,000 gallon tanks (two for Jet-A and two for 100LL), and Safety In Motion occupies two spaces (one 10,000 gallon Jet-A and one 10,000 gallon 100LL). This equates to an existing capacity of 32,000 gallons of Jet-A and 100LL each. Based on fuel delivery data from 2010 to 2019, there has been an average of 134,355 gallons of 100LL and 84,817 gallons of Jet A fuel sold per year. As such, the Airport's 100LL and Jet-A fuel storage requirements can be accommodated through the foreseeable future utilizing existing storage facilities.

The existing fuel storage facilities are adequate to meet foreseeable demand, however additional capacity is not available in the existing holding area.

3.3.3. Deicing

Currently, there is no deicing facility on the airfield. This is mainly due to the Airport’s proximity to a watershed and the environmental concerns associated with deicing chemicals. Typically, ethylene glycol and propylene glycol are deicers used on aircraft. The deicing compounds become pollutants when conveyed to storm drains or to surface water after application. Leaks and spills of these chemicals can also occur during their handling and storage. Additionally, there is minimal demand for deicing services at the Airport. However, to allow for the safe deicing of aircraft, the Airport should consider installing an aircraft deicing chemical recovery system.

Current demand at the Airport does not necessitate the need for a deicing facility. If in the future the need arises, the airport should consider installing an aircraft deicing chemical recovery system.

3.3.4. Airport Wash Pads

There are no existing airport wash pads at the Airport due to environmental concerns associated with the use of chemicals and their potential environmental impact. Airport users utilize a dry wash method to clean their aircraft. The development of a wash pad with an appropriate drainage system may not be deemed as a cost-effective strategy.

Due to environmental concerns at the Airport, it is recommended that the users continue to use the dry wash method to clean their aircraft. If the demand for wet washing increases, the Airport should consider installing a wash pad with an appropriate drainage system.

3.3.5. Airport Maintenance and Equipment Storage

Airport maintenance equipment is stored under the western side of the western planeport. This section of the planeport was no longer usable for aircraft due to the hangar that was constructed immediately west of the planeports. Without having proper taxiway safety clearances for aircraft, the area has become an asset for equipment storage. Though it is not fully enclosed, the covering protects the equipment from most weather events observed at the airport. The primary equipment owned and operated by the airport are mowers and tractors.

The existing equipment storage facilities are adequate for meeting the Airport's needs.

3.3.6. Utilities

Major trunk lines of the water and sanitary sewer system are assumed to be running along the east and west sides of airport property. Power lines currently run along Capitol Boulevard SE and Old Hwy 99 SE and connect into the airport property at various points on the east end providing power through Puget Sound Energy. The electrical vault, located near the tower, is sufficient for current use and is in good condition. The state of the electrical vault should be reevaluated at the commencement of future projects.

3.4. General Aviation

3.4.1. GA Activity

GA operations at OLM include both IFR and VFR flights. Due to common weather in the area, the two flight schools, and a significant number of low ceiling and rainy days at OLM, aircraft often fly in IMC, and under an IFR flight plan. GA flight operations also include some commercial activity in the form of personal business, corporate, and medical transport.

OLM has a higher number of transient and local operations due to the need for GA access in the area. There were 64,816 annual GA operations recorded by the ATC tower in 2020, and that number is forecasted to grow to 85,014 by 2040. It should be noted that these numbers do not include night flight hours as the ATC tower is only operational from 8 am to 8 pm daily. It is estimated that there are 5,650 operations that occur during hours when the tower is not operational.

The Airport should consider increasing the hours of operation of the ATC tower to cover operations outside of current hours.

3.4.2. Aircraft Storage

Aircraft storage is an essential part of an airport's function to ensure that tenants and itinerant users are able to keep their aircraft out of the elements when not in use. There are generally four areas of storage for aircraft: T-hangars, executive hangars, FBO storage hangars, and apron tiedowns. Hangars at OLM are either owned and operated by the Port of Olympia, owned by the Port and leased to a business or person, or owned by the tenant on leased land by the Port. There are currently 28 hangar structures on the airfield, of which 10 are T-hangar/multi-unit structures and two are planeports. The Airport owns and operates seven t-hangars and the two planeport structures. There are currently five small aircraft and six large transient aircraft tiedowns available on the north end, with an additional 26 small aircraft tiedowns and two large aircraft long-term tiedown parking spaces along the hangar rows on the south end of Taxiway E that are available for tenants and users of the Airport. As of 2020, there are 124 based aircraft at the Airport and that number is expected to grow to 139 aircraft by 2040 which will further increase the need for aircraft storage. The Airport is already at 100% capacity within the hangars and planeports that are available for use with an extensive hangar waiting list due to the hold on hangar expansion occurring until the approval of the Habitat Conservation Plan and NEPA requirements have been met. In contrast, the Airport has seen an annual average 12.5% tiedown occupancy over the last five years.

After addressing current environmental concerns, it is strongly recommended that the Airport expand aircraft parking, prioritizing hangar space.

3.4.3. GA Helicopter Activity

One critical component of GA activity is helicopter operations consisting of aerial medivac transportation, helicopter pilot training, and government operations. These types of flights are frequent with based helicopters on the airfield. Currently, Taxiway C is used for helicopter operations and training. Tenants have complained about the close proximity of helicopter operations to their properties. As helicopter activity continues to increase, the need for separate facilities for helicopters becomes apparent. According to FAA AC 150/5390-2B, Heliport Design, heliports require clear approach and departure paths, a clear area for ground maneuvers, final approach and takeoff area (FATO), touchdown and liftoff area (TLOF), safety area, and a wind cone.

Table 3-14 presents the safety area standards calculated for the development of a heliport, based on the previous Master Plan Update.

Table 3-14: Helicopter Landing Area Requirements

Design Parameter	Dimension
Touchdown and Liftoff Area (TLOF)	40’ square
Touchdown and Liftoff Area (TLOF) Dynamic Pavement Load	10,000 lbs.
Final Approach and Takeoff Area (FATO)	65’ square
Final Approach and Takeoff Area (FATO) Centerline to Runway Centerline Separation for VFR operations	500’
Ground Taxi Paved Width	20’
Ground Taxi Route Width	60-70’ (depending on markings)
Hover Taxi Route Width	80-100’ (depending on markings)
Safety Area Width	20-30’ (depending on markings)
Parking Position	40’ square

Source: FAA Advisory Circular 150/5390-2C – Airport Design.

The Airport should consider developing a dedicated helipad for helicopter use.

3.5. Emergency Management Services

The City of Olympia is the capitol of the state of Washington. As such, the airport plays a significant role in logistics, management, and resource support related to emergency management in the region. According to the 2016 City of Olympia Comprehensive Emergency Management Plan, OLM may be utilized as an Emergency Resource Department. In the case of an emergency situation, OLM would see an increase in traffic as it would be used for the reception, warehousing, accounting, and distribution of essential supplies and equipment. Additionally, if an emergency creates a situation in which major roads become inaccessible, OLM's runway is sufficient for supplies, emergency services or people to be flown in and out. OLM is able to serve the region in this capacity because it has the necessary infrastructure to do so, mainly a runway with the length and width to accommodate rescue aircraft. Runway 17/35 has a width of 150 feet and a length of 5,501 feet. The Lockheed C-130 Hercules, a commonly used cargo transport aircraft, is an ADG IV which requires a minimum runway width of 150 feet. Additionally, the Washington Department of Natural Resources provides fire retardant to various emergency response airtankers such as the Bombardier Q400-AT and Convair CV580 during wildfire season. Both the aforementioned aircraft are ADG III, requiring a minimum runway width of 150 feet.

While the existing width of Runway 17/35 exceeds the width required based on the ARC, it is critical to retain the existing width so that OLM may continue to be utilized for emergency management purposes in the region. Additionally, OLM should consider updating its emergency plan.

3.6. Electric Aircraft and Biofuel

The aviation industry is constantly evolving to address issues such as operational efficiency, safety, and environmental concerns. Currently, the aviation sector is one of the biggest emitters of carbon in the world. Electric aircraft and biofuels are two emerging industry solutions being developed and promoted to reduce carbon emissions. These trends are of great import for sustainable growth at OLM.

3.6.1. Electric Aircraft

The WSDOT Aviation released the Washington Electric Aircraft Feasibility Study in November 2020. The study states that there are economic, infrastructure, technological, social, and policy obstacles that need to be cleared before electrical aircraft reach a critical mass of adoption. Some of the economic obstacles related to the implementation of electric aircraft include first to service risks, additional infrastructure costs, and lost fuel revenue. In regards to infrastructure, the study determined that the adoption of electric aircraft will require end-users to be confident that the charging and maintenance needs associated with electric aircraft can be met at the airports they utilize. Additionally, there are technological limitations associated with electrical aircraft such as battery capacity meeting route demands and charging times. As with all classifications of aircraft, there are requirements related to safety, redundancy, and reliability that need to be met by electric aircraft. These requirements are established over the course of a lengthy regulatory process.

In order to demonstrate the functionality of electrical aircraft, the Washington Electric Aircraft Feasibility Study compiled a list of initial beta test site recommendations including OLM. Factors that determined the appropriateness of the recommendation consisted of the Airport having a 3,000-foot runway, a need for aviation service, connectivity to airports within 500 nm, presence of FBOs, and the availability of jet fuel for hybrid electric aircraft. As a recommended beta test site for electric aircraft, OLM has the opportunity to begin, through this planning study, to lay the foundation for the future of electric aircraft in the state of Washington as well as for the nation. The Airport is a prime candidate for adaptation for electric aircraft needs, as it is currently providing exceptional service to its piston powered counterparts and has the intermodal connectivity and regional proximity to be an asset to the aviation system as it grows into the world of electric aircraft.

Areas of concentration for uses of electric aircraft that are forecasted in the Washington Electric Aircraft Feasibility Study are those aircraft that could utilize OLM as a future facility. These aircraft are anticipated to have similar footprints and potential requirements as to that of traditional aircraft. Future model uses include:

1. Air Cargo
2. Personal Business Use
3. Pilot Training
4. Regional Aircraft for up to 15 Passengers
5. Aircraft holding five passengers or less

Source: Washington Electric Aircraft Feasibility Study, 2020

These types of uses fit well within general aviation and the abilities of the Airport. Aircraft that currently utilize the airport are anticipated to transition to more electric powered aircraft which will aid significant environmental, financial and noise concerns.

Of great importance to the Airport will be the benefit of electric training aircraft being introduced to the current training fleets. Electric aircraft are expected to produce significantly less noise and are expected to have a lower operating cost than the traditional piston powered aircraft, reducing overall aircraft noise. Personal and business use of electric aircraft is also expected to increase over the planning period. Efforts should be made to accommodate local and itinerant electric aircraft. Itinerant electric aircraft will be a new marketable area for the Airport as it will provide a destination or transient stop for electric aircraft to get a full charge and continue on their way. Located in the state capitol and within the broader metropolitan area, the Airport will be able to tap into a market as an early adopter to provide the needed amenities and charging required for this new era of aviation.

In order to integrate electric aircraft into the existing transportation network, the Airport will need to incorporate electric aircraft into long-term transportation specific strategic planning. The Airport should consider electrical infrastructure needs in terms of current power capabilities and level of expected demand to ensure optimal electric aircraft operational sustainability. Electric aircraft operations will increase demand on the Airport's electrical grid. The Airport can address this concern in a multitude of ways. The Airport can increase electrical capacity by considering on-site generation through wind turbines and/or solar panels. The Airport may consider connecting directly into transmission lines to meet large load demands. The Washington Electric Aircraft Feasibility Study recommended working with local energy providers to ensure that grid capacity is not a constraint. Additionally, the Airport will need to invest in an upgraded power distribution system to ensure safe high-power usage. While planning for the future, the needs of electric aircraft will need to be quantified to determine the additional energy demand that they will require from the existing electrical capacity. This should be done in coordination with the electric company to understand what types and how much additional infrastructure will be required to meet the additional demand. However, if the Airport is unable to expand electrical capacity, then it may consider power usage management and set a cap on charging to service aircraft within the existing infrastructure.

There are two methods being considered for providing energy to electric aircraft, battery swapping and on-site, direct aircraft charging. The battery swapping method consists of replacing a spent battery out of an aircraft with a fully charged battery. Battery swapping has the potential to reduce turn-around times for aircraft. Additionally, this method places less peak demand on the electrical grid as opposed to direct aircraft charging. However, battery swapping has its own infrastructure demands. The Airport would need to create a battery charging facility that will slowly charge multiple batteries at the same time. While this method may not require the same levels of peak power capacity, it may use more energy overall. Along with infrastructure demands, battery swapping procedures would require regulatory approval as the FAA may decide to consider the process as a major repair or alteration. This would greatly reduce the feasibility of the battery swapping option.

The charging station method, currently being utilized by electric vehicles, has shown to have its own challenges. While there are a few prevalent options for charging technology, an industry standard has not yet been established and any current charging station infrastructure would require adapters to accommodate the variety of standards. Developing charging standards that ensure that aircraft from all manufacturers, different sizes, and varying capabilities are able to utilize airport charging facilities universally would address this concern. In addition to the environmental benefits of supporting electric aircraft, charging stations could become an additional source of revenue and increase traffic to the Airport. The revenue generated through the increase in traffic and charging fees may help offset the reduction of revenue with the possible decline in fuel sales.

In addition to electrical charging stations for aircraft, vehicle charging stations should be considered and planned for. This can be a revenue opportunity for the airport, as well as a step forward for participating in the overall accessibility for electric vehicle charging locations. Throughout the planning period electric fleet and maintenance vehicles can be considered during the procurement process, further the sustainable effort, and decreasing the overall carbon footprint of the Airport.

It is recommended that the Airport consider increasing electrical capacity and plan for the development of vehicle charging stations, battery swapping facilities, and electric aircraft charging stations for both based and itinerant aircraft.

3.6.2. Biofuels

As aviation activity continues to increase, so does the need to address rising carbon emissions. According to the Air Transport Action Group (ATAG), the global aviation industry produces around 2% of all human-induced carbon dioxide emissions. As such, the industry has committed to eliminating carbon emissions on a net basis by 2050. An emerging solution to reducing emissions and the need for fossil jet fuel is the advent of biofuels. Biofuel is a biomass-based synthesized paraffinic kerosene (SPK) that is mixed with conventional jet fuel. While the effectiveness of biofuels varies based on the source of the fuel and the technology used, the National Aeronautics and Space Administration (NASA) determined that even a 50-50 blend of biofuel and jet fuel reduces emissions by as much as 50 to 70 percent. The International Air Transport Association (IATA) identifies aviation biofuels as one of the key elements in reducing carbon emissions. Recently, Boeing CEO Dave Calhoun stated that the only answer to reducing carbon emissions by 2050 is sustainable aviation fuels.

There are currently five types of SPK used for blending with conventional jet fuel (see **Table 3-15**). The hydroprocessed esters and fatty acids pathway produces HEFA-SPK, an oil-to-jet platform. FT-SPK, a gas-to-jet platform, involves the gasification of biomass to produce synthetic gas. FT-SPK/A is another product of the gas-to-jet platform but with the addition of bio-based aromatics. The alcohol-to-jet platform, ATJ-SPK, involves the fermentation of sugars to produce alcohol which is then processed into jet fuel. Lastly, the sugar-to-jet platform directly processes sugar to produce SIP-SPK.

Table 3-15: Types of Aviation Biofuel

Biofuel	Production Platform
HEFA-SPK	Oil-to-Jet
FT-SPK	Gas-to-Jet
FT-SPK/A	Gas-to-Jet
ATJ-SPK	Alcohol-to-Jet
SIP-SPK	Sugar-to-Jet

Source: Frontiers in Energy Research 2020.
Available at https://doi.org/10.3389/fenrg.2020.00110.

While all of these production pathways are approved for developing biofuel and show promise, HEPA-SPK is the only one that is mature technologically and has begun to be commercialized. As such, HEPA-SPK is expected to be the primary aviation biofuel used in the industry for the foreseeable future. However, HEFA-SPK is currently more expensive than conventional jet fuel. The International Energy Agency (IEA) forecasts that biofuels need to meet 2% of annual jet fuel demand to reduce cost enough for a self-sustaining biofuel market. Reaching that level of market share will require billions of dollars in investment for development of new biofuel refineries. As biofuels gain feasibility, the IEA forecasts biofuels reaching 20% of aviation fuel demand by 2040.

In the interim, manufacturers are developing aircraft that are able to use biofuel blended with conventional fuel that will reduce greenhouse gas emissions while reducing the reliance on developing technology. However, blending biofuel and jet fuel requires quality control and adequate infrastructure at end-user facilities. The National Renewable Energy Laboratory's (NREL) U.S. Airport Infrastructure and Sustainable Aviation Fuel report recommends storing jet fuel and biofuel in separate tanks and then combining the two in a third tank on-site.

The Airport currently has space adjacent to the existing fuel farm. It is recommended that the Airport plan to develop biofuel infrastructure for when the technology and demand make it a feasible fuel alternative. The necessary infrastructure would require a new access road to an expansion of the fuel farm facility.

3.7. Summary

The intent of this chapter has been to outline the facilities that may be required to meet potential aviation demand projected through the long-term planning timeframe. The recommendations provided throughout this chapter will only be followed if any potential environment impacts can be mitigated, there is demand demonstrated, and the action is economically reasonable. The next step is to create development alternatives and select one which best meets these projected needs.

Table 3-16: OLM Facility Requirements Summary

Airfield & Airspace Requirements	Existing Condition	Required or Recommended	Action Needed	Remarks
ARC to Meet Fleet Mix Demand	D-III	C-II	Yes	Projects should be constructed in the future for the proposed usage design at or above a C-II design standard
Runway 17/35 (C-II)				
Orientation/ Wind Coverage	RWY = 99.93% Combined= 99.99%	95%	No	
Length	5,501’	5,501’	Yes	< 60,000 lbs. 75% of the fleet at 90% useful load
Width	150’	100'	Yes	Existing Pavement exceeds the required width based on the existing critical aircraft, but is essential for emergency response
Magnetic Heading	17/35	18/36	Yes	Runway numbers must be corrected due to magnetic shift over time
Runway Pavement Condition	Avg. PCI = 88	Avg. PCI = >70	Yes	The southern section is reported as a 69, and requires near-term maintenance
Pavement Design Strengths	75,000 lbs.	>12,500 lbs.	No	Single wheel weights shown as existing
Runway 8/26 (B-II)				
Orientation/ Wind Coverage	RWY = 96.94% Combined= 99.99%	95%	No	
Length	4,157’ (2/20)	4,157’	Yes	
Width	150’	75’	Yes	Existing Pavement exceeds the required width based on the existing critical aircraft
Magnetic Heading	8/26	9/27	Yes	Runway numbers must be corrected due to magnetic shift over time
Runway Pavement Condition	Avg. PCI = 58	Avg. PCI = >70	Yes	Runway 8/26 should be rehabilitated to rejuvenate the existing pavement
Pavement Design Strengths	30,000 lbs.	>12,500 lbs.	No	Single wheel weights shown as existing
Taxiway				
Full or partial parallel	Yes	Yes	Yes	Parallel Taxiway does not parallel the Runway
Width	35'-50’	35’	Yes	Justification is needed for the extended width beyond the needs of the critical aircraft
Runway Connector Angles	36-88 Degrees	90 Degrees	Yes	FAA standards require turns connections to a runway to be at 90-degree angles
Taxiway Pavement Condition (2018 Forecast for 2021 PCI Values)				Regular maintenance should occur to maintain the useful life of the pavement
TWY A	PCI = 80	Avg. PCI = >70	No	Future maintenance will be required
TWY B	PCI = 78	Avg. PCI = >70	No	Future maintenance will be required
TWY C	PCI = 91	Avg. PCI = >70	No	Future maintenance will be required
TWY D	PCI = 41	Avg. PCI = >70	Yes	Near-term maintenance is required
TWY E	PCI = 89	Avg. PCI = >70	No	Future maintenance will be required
TWY F	PCI = 73	Avg. PCI = >70	Yes	Future maintenance will be required
TWY G	PCI = 62	Avg. PCI = >70	Yes	Near-term maintenance is required
Lighting	Lighting/Reflectors	Lighting/Reflectors	Yes	Lighting for the east side of the Airport would increase safety on the general aviation taxiways for access to Runway 17/35
Facilities & Support Requirements	**Existing Condition**	**Required or Recommended**	**Action Needed**	**Remarks**
General Aviation Related Development				
Apron / Transient Parking	39 tiedowns	No specific minimums	No	
Apron Pavement Condition	Avg. PCI = 75	Avg. PCI = >70	Yes	Some near-term and future maintenance will be required
Terminal / Pilot Lounge	FBO's	Updated facility	Yes	Potential for a standalone facility with a restaurant/offices and other amenities
Support Facilities				
Equipment and Storage	Covered storage - Planeport	Equipment protection	Yes	A standard maintenance building would be recommended for maintenance and storage of equipment
Fuel Storage	68,000-gal capacity	No specific minimum	No	
Public Access and Parking	13 public + private parking	No specific minimum	No	Future growth will require parking additions respectively
Fencing	Fenced	100% protection	No	
Utilities	Existing	No specific minimums	No	Electric capacities may be increased with the introduction of future electric aircraft

Source: The Aviation Planning Group 2021.

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