



Evanston-Uinta County Airport – Burns Field (EVW)

Airport Master Plan

Chapter Five: Facility Requirements

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5.0 FACILITY REQUIREMENTS

To properly plan for the future of Evanston-Uinta County Airport – Burns Field (EVW), it is necessary to determine if the existing airport facilities can safely and efficiently accommodate current and forecasted levels of activity. Each of the facilities described in **Chapter 3, Airside and Landside Inventory** must be analyzed to determine if improvements are required to meet new or updated standards developed and adopted by the FAA or other regulatory agencies. This analysis was also be used to help determine if new facilities are needed, or existing facilities upgraded to support the Airport’s strategic vision.

The main goal of this analysis is to identify what improvements are needed, when they will be needed, and to document the purpose and justification for these improvements. The findings from this analysis are critical in the FAA’s system of identifying and prioritizing projects at the local, state, and federal level.

Each facility was analyzed to determine its ability to safely and efficiently accommodate the forecasted activity levels discussed in **Chapter 4, Forecast of Aviation Demand**. Facilities were also examined to determine if they meet current FAA design standards, recommendations, requirements, and design considerations. Alternative methods of addressing these potential development projects will be discussed and evaluated in **Chapter 6, Development Alternatives**.

5.1 Summary of Existing Facilities and Recommendations

Effective airport design and planning help to ensure airport facilities can meet current and future aviation needs and environmental considerations while maintaining acceptable levels of safety, efficiency, and capacity. The airport design process involves a series of steps to identify aviation demand at an airport and then apply the corresponding FAA standards to each of the airport’s facilities. These steps generally include the following:

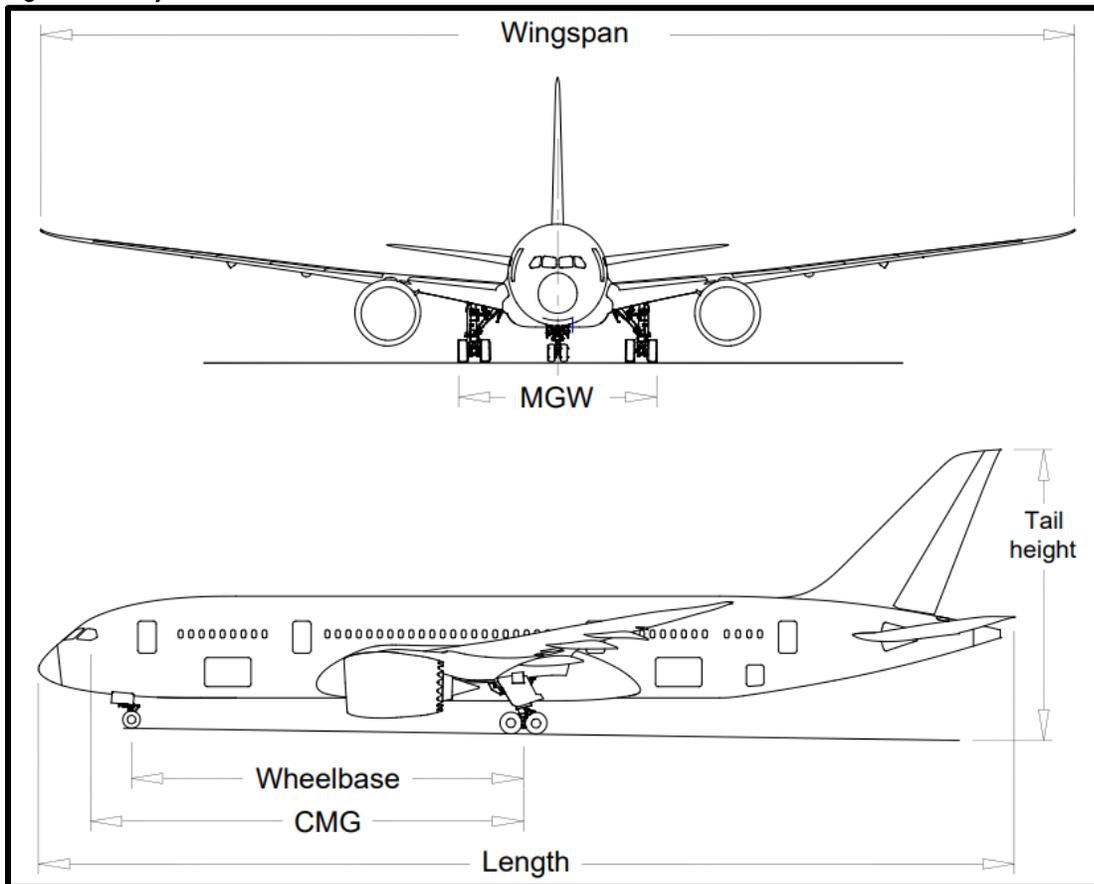
1. Identify the size, aircraft approach category, airport design group, and taxiway design group of the critical aircraft.
2. Identify reasonably attainable visibility minimums.
3. Identify the applicable runway design code.
4. Apply appropriate design standards contained within FAA Advisory Circular (AC) 150/5300-13B, *Airport Design*.

5.1.1 Aircraft Classes, Categories, and Groups

The FAA has developed a coding system that defines airport design criteria based on the operational and physical characteristics of the critical aircraft (**Figure 5.1**). The critical aircraft is the most demanding aircraft, or grouping of aircraft with similar characteristics, that make regular use of the airport. It can be a single aircraft or a composite of the most demanding characteristics from different aircraft, with at least 500 annual operations.

The approach speed, tail height, and wingspan, and landing gear dimensions of the critical aircraft defines the design parameters of an airport. The corresponding coding systems include the aircraft approach category (AAC), airplane design group (ADG), and taxiway design group (TDG).

Figure 5.1 Key Aircraft Dimensions



Source: FAA, AC 150/5300-13B, Airport Design, Figure A-1

Size, Weight, and Wake Turbulence Classifications

The FAA has established four classifications of aircraft based on maximum certificated takeoff weight (MTOW), number of engines, and wake turbulence effect. These classifications, summarized in **Table 5.1**, are typically used for capacity planning. Wake turbulence is a measure of weight and its capacity to disturb the air.

Table 5.1 Aircraft Size, Weight, and Wake Turbulence Classification

Aircraft Class	Maximum Certified Takeoff Weight (MTOW)	Number of Engines	Wake Turbulence Classification
A	12,500 pounds or less	Single	Small
B	12,500 pounds or less	Multi	Small
C	12,500 to 300,000 pounds	Multi	Large
D	More than 300,000 pounds	Multi	Heavy

Source: FAA, AC 150/5300-13B, Airport Design, Figure A-1

Aircraft Approach Category

The aircraft approach category (AAC) is designated by a letter and is based on the speed of an aircraft as it approaches a runway when landing (**Table 5.2**). It is generally used to help ensure an airport’s runway safety areas can safely accommodate the critical aircraft. Like the aircraft size, weight, and wake turbulence classifications listed in **Table 5.1**, these are also designated by a letter, but are not related to each other.

Table 5.2 Aircraft Approach Categories

Category	Approach Speed
A	Less than 91 knots
B	91 knots or more but less than 121
C	121 knots or more but less than 141
D	141 knots or more but less than 166
E	166 knots or more

Source: FAA, AC 150/5300-13B, Airport Design, Table 1-1

Aircraft Design Group

The airplane design group (ADG) is designated by a Roman numeral and is based on an aircraft’s wingspan and tail height (Table 5.3). It is typically used to establish dimensional standards needed for adequate wingtip clearances.

Table 5.3 Aircraft Design Group

Group	Wingspan	Tail Height
I	<49 feet	<20 feet
II	49 feet - < 79 feet	20 feet -< 30 Feet
III	79 feet - < 118 feet	30 feet -< 45 Feet
IV	118 feet - < 171 feet	45 feet -< 60 Feet
V	171 feet - < 214 feet	60 feet -< 66 Feet
VI	214 feet - < 262 feet	66 feet -< 80 Feet

Source: FAA, AC 150/5300-13B, Airport Design, Table 1-2

Representative Aircraft Examples

Figure 5.2 illustrates the representative aircraft for several AAC and ADG combinations.

Figure 5.2 Representative Aircraft

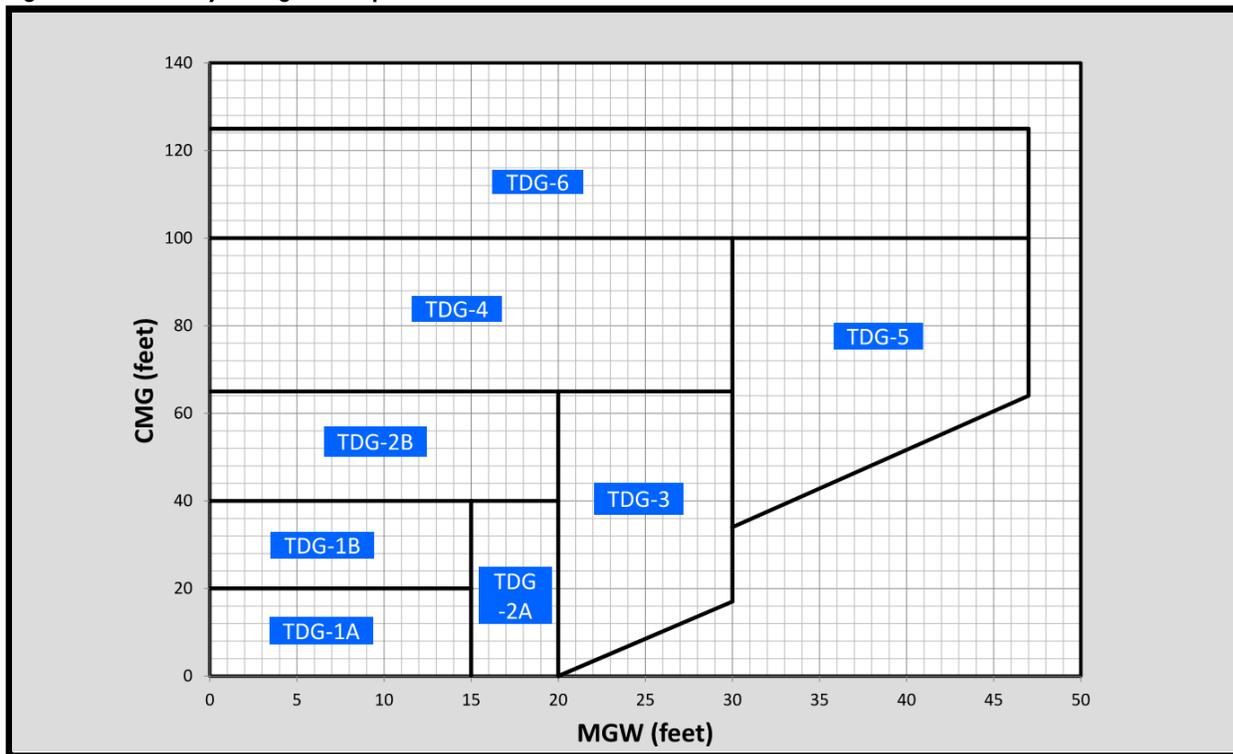
		Wingspan/Tail Height			
		I	II	III	IV
Approach Speed	A	A-I Cessna 172 	A-II Pilatus PC-12 	A-III CL-415 Super Scooper 	
	B	B-I Citation Mustang 	B-II King Air 200 	B-III ATR-72, Q-400 	
	C	C-I Learjet 45 	C-II Challenger 300 	C-III Airbus A320 	C-IV Boeing 757, C-130 
	D		D-II Gulfstream IV 	D-III Gulfstream 550 	D-IV Douglas DC-10 

Source: Ardurra

Taxiway Design Groups

The taxiway design group (TDG) is used to establish the correct design factors for taxiway width. As shown in **Figure 5.3**, it is based on the dimensions of an aircraft's landing gear. This includes the distance from the cockpit to the main gear (CMG) and the main gear width (MGW). Each taxiway at an airport can have a different TDG classification based on the most demanding size and type of aircraft expected to use a particular taxiway.

Figure 5.3 Taxiway Design Group



Note: Values in the graph are rounded to the nearest foot. 1 foot = 0.305 meters.

Source: FAA, AC 150/5300-13B, Airport Design, Figure 1-1.

Runway Design Code

The runway design code (RDC) is comprised of three components; AAC, ADG, and RVR, which establish the design characteristics for a particular runway. The RDC is determined by the lowest approach visibility minimums for either runway end. Because this code changes with runway capabilities, runways at an airport can have a different RDC.

A runway's lowest visibility published on an instrument approach procedure is used to determine its runway visual range (RVR) value. As shown in **Table 5.4** a runway that does not have an instrument approach is classified as a visual runway and does not have an RVR value.

Table 5.4 Aircraft Approach Categories

Runway Visual Range	Instrument Flight Visibility Category (Statute Mile)
VIS	Visual
5,000 feet	Not lower than 1 mile
4,000 feet	Lower than 1 mile but not lower than ¾ mile
2,400 feet	Lower than ¾ mile but not lower than ½ mile
1,200 feet	Lower than ¼ mile

Note – RVR values are not exact equivalents

Source: FAA, AC 150/5300-13B, Airport Design, Table 1-3

5.1.2 Critical Aircraft and Applied Airfield Design Criteria

As previously discussed in **Chapter 4, Forecast of Aviation Demand**, the FAA approved existing critical aircraft for the primary runway and taxiways is best described as having an AAC of B, an ADG of II, a TDG of 2A, and is represented by the Cessna Citation V. The future ultimate critical aircraft is the Bombardier Challenger 350, (CL35), which is a C-II aircraft, with a TDG of 1B.

The lowest approach visibility for Runway 5/23 is 1/2 statute mile. This corresponds to a runway visual range of 2,400 feet which means the runway design code for Runway 5/23 is B-II-2400 for existing and future and C-II-2400 for ultimate.

Table 5.5 details the critical aircraft design parameters for EVW through the planning period.

Table 5.5 Critical Aircraft

Design Parameter	Existing/Future RWY 5/23	Ultimate RWY 5/23
Critical Aircraft	Cessna Citation V	Bombardier Challenger 350 (CL35)
AAC	B	C
ADG	II	II
TDG	2A	1B*
RDC	B-II-2400	C-II-2400

*The Citation V TDG 2A will be maintained as the ultimate TDG design group as it is more demanding than the Challenger 350.

5.2 Land Use and Airport Protection

Land use is the term used to describe how property is currently being used and how it can be used in the future. The existing and planned land uses near an airport can impact the local community and airport operations. Airport-compatible land uses are defined as those uses that can coexist with an airport without constraining the safe and efficient operation of the airport or exposing people living or working nearby to potential negative environmental or safety impacts.

Effective compatible land use planning around airports addresses airspace, safety, and noise considerations. In many instances, the community's willingness to take a proactive approach in establishing compatible land use policies around the airport prevents the need to be reactive and deal with more severe conflicts in the future.

Effective land use compatibility plans consider both height and land use restrictions with these restrictions also being incorporated as zoning laws. Coupled with other proactive measures, such as voluntary noise abatement programs and selective fee-simple land acquisition, proactive planning around the airport protects both the airport and the surrounding community. Furthermore, federal grant assurances require airport sponsors to operate and maintain the airport in a safe and serviceable condition, prevent and remove airport hazards, and take appropriate measures to ensure the land uses around the airport are compatible with airport operations.

It is important to point out that there is a difference between height restrictive zoning and basic land use zoning. As its name implies, the intent of height restrictive zoning is to protect the airspace around an airport from objects or structures that may pose hazards to aircraft operations. In general, this type of zoning conforms to the surface definitions and height limitations of Title 14 of the Code of Federal Regulations (CFR)

Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace (Part 77). On the other hand, land use zoning intends to prevent incompatible land uses near an airport. This practice protects and benefits both the airport and the local community.

5.2.1 Airport Airspace

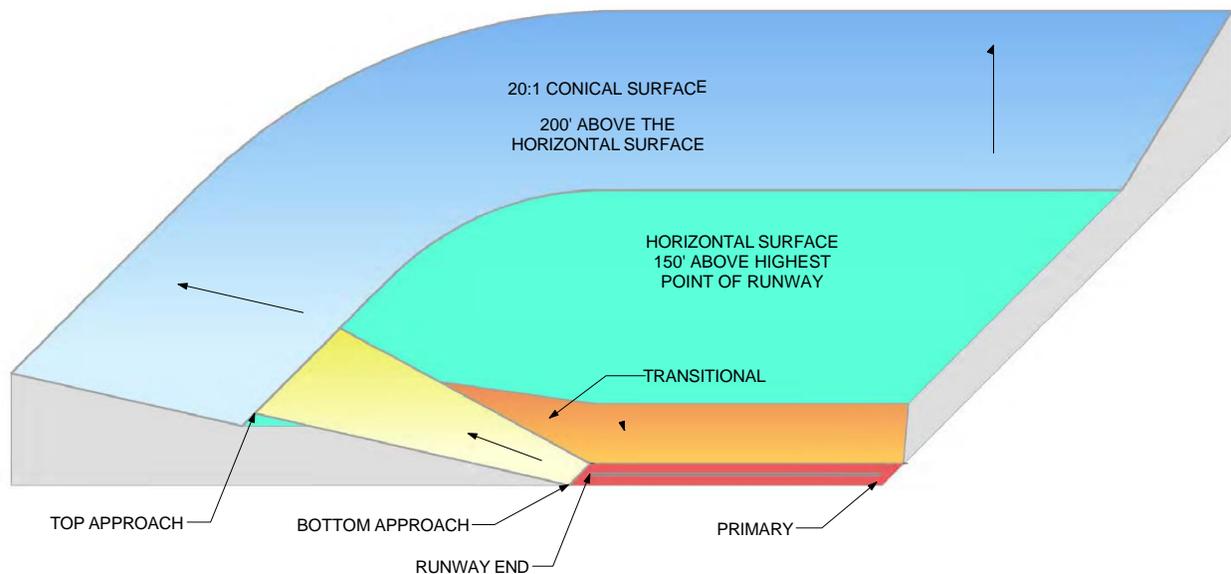
It is important to evaluate the airport's airspace in order to plan for and protect both existing and future approaches. This includes determining if there are any obstructions penetrating the imaginary surfaces defined in Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace or the approach and departure surfaces defined in FAA AC 150/5300-13B, *Airport Design*.

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

Title 14 of the Code of Federal Regulations (CFR) Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*, establishes standards for determining obstructions to airspace. Part 77 describes imaginary surfaces surrounding airports that are to be protected from natural and man-made obstructions considered to be aeronautical hazards (Figure 5.4).

The standards for Part 77 surface dimensions are applied individually to each runway end based on its category (i.e., visual, nonprecision, or precision), and the lowest approach visibility minimums associated with that runway end. The Part 77 surface dimensions for Runway 5/23, are listed in Table 5.6.

Figure 5.4 Part 77 Surfaces



Source: Ardurra

Table 5.6 EVW Part 77 Surfaces

Surface	Runway 5/23	
Primary Surface		
Width	1,000 feet	
Length Beyond Runway End	200 feet	
Horizontal Surface		
Height Above Airport Elevation	150 feet	
Radius Arc	10,000- foot arc	
Conical Surface (Upward from periphery of Horizontal Surface)		
Length	4,000 feet	
Slope	20:1	
Transitional Surface		
Slope	7:1	
Approach Surface Runway	RWY 5 (min. visibility $\frac{3}{4}$ mile)	RWY 23 (min. visibility $\frac{1}{2}$ mile)
Inner Width	1,000 feet	1,000 feet
Outer Width	4,000 feet	16,000
Length	10,000	10,000
Slope	34:1	50:1
Extended Length	N/A	40,000
Extended Slope	N/A	40:1

Source: FAA, AC 150/5300-13B, Airport Design, Table 3-4

Recommendation

The current Airport Layout Plan notes several penetrations to the Part 77 surfaces related to natural terrain and vegetation penetrations in the horizontal and conical surface. These are typical at many airports and though they penetrate the surface, they do not constitute a hazard to air navigation and thus do not impact flight operations. It is recommended that vegetation related penetrations be mitigated as practical.

There are no obstructions in the Part 77 approach surfaces. It is recommended that development around the airport continue to be monitored and held to the height restrictions of the Part 77 surfaces included in the Uinta County and City of Evanston’s land use regulations.

5.2.2 County and City Land Use Protections

Uinta County Planning and Development defines an Airport Protection Overlay in Section 8 and 11 in the county Land Use Plan. ¹ The purpose of the ordinance is to regulate the land use in the defined vicinity of the

¹ [Uinta-County-Land-Use-Resolution-2023 \(uintacounty.com\)](https://www.uintacounty.com/DocumentCenter/View/10000/Uinta-County-Land-Use-Resolution-2023)

airport to minimize exposure and danger to citizens from aircraft overflight and to protect the airport through compatible land use. The plan defers to the current approved Airport Airspace Drawing in the Airport Master Plan Part 77 surfaces to define the boundaries of the Airport Protection Overlay.

The City of Evanston provides additional regulations through an Airport Protection District, provided in Article IV, Section 24-32.2² to regulate and restrict the height of structures and objects of natural growth, and otherwise restricts the use of property in the vicinity of the Airport. This ordinance also uses the current Airport Master Plan Part 77 surfaces to define the boundaries of the district, along with the associated FAA criteria and restrictions regarding appropriate land uses and land use restrictions for development around the airport. The city takes a proactive approach to land use protection by specifically regulating future land use within the district including changes to existing development. Any proposed change to land use or development is subject to review by the City, with the Airport Board offering advice and recommendations to the city planning and zoning commission.

Recommendation

Overall, the City of Evanston takes a proactive approach to land use protection by specifically regulating future land use within the district including changes to existing development. Any proposed change to land use or development is subject to review by the City, with the Airport Joint Powers Board. It is recommended that when the City Code is revised, additional language be added to stipulate that tall structures within the Airport Protection District (under EVW Part 77 imaginary surfaces) require the submission of FAA Form 7460-1 to allow FAA to analyze if the structure will interfere with aircraft navigational areas. Additionally, it is recommended EVW staff continue to update the Uinta County zoning administer with copies of any updated master plans and airport layout plans.

5.2.3 Approach and Departure Standards

FAA AC 150/5300-13B, *Airport Design*, was used to determine the dimensional standards for the runway approach and departure surfaces. It is important to note that the approach and departure surfaces defined in the AC are different from the surfaces defined in 14 CFR Part 77. Like the Part 77 surfaces, these surfaces must be protected and kept free from proposed manmade development or natural vegetation growth that could penetrate these surfaces. The approach surface depends on the lowest visibility minimums and type of procedure associated with the runway end and is independent of the approach surface for the opposite end of the runway.

Recommendation

The existing and future approach and departure surfaces are clear of penetrations. Like the Part 77 surfaces, it is recommended that development around the airport continue to be monitored and held to height restrictions identified in the County and City's height restrictions regulations.

5.3 Airfield Facilities

An assessment of the airport's airfield facilities was conducted to determine their ability to safely and efficiently accommodate the activity forecasted for the 20-year planning period. This determines if the runways, taxiways, and navigational aids are in compliance with FAA design and safety standards. The results of this

² [City of Evanston, WY Supplemental Zoning Regulations \(ecode360.com\)](http://ecode360.com)

analysis are also used to help determine if and when improvements are needed to meet specific operational demands.

5.3.1 Airfield Capacity

The purpose of an airfield capacity analysis is to assess the airport’s ability to efficiently accommodate its day-to-day and long-term demands without undue delays or compromises to safety. The analysis also assists in determining when improvements would be needed to meet operational demands.

The most widely recognized and accepted method for conducting an airfield capacity analysis is found in FAA AC 150/5060-5, *Airport Capacity and Delay*. The methodology described in the AC is used to determine the annual service volume (ASV) and hourly capacity to provide a reasonable estimate of an airport’s annual capacity. The ASV is calculated by determining the airport’s mix index. This is a mathematical expression representing the percent of weight class (**classes noted in Table 5.7**) specifically, class C as there were no operations by heavy aircraft weighing over 300,000lbs.

This methodology accounts for differences in runway use, fleet mix, and weather conditions encountered during a typical year. For long range planning, pre-determined calculations in the AC may be used if certain assumptions are met. These assumptions and how they apply at EVW are outlined in **Table 5.7**.

Table 5.7 Assumption Criteria and EVW Status

AC Defined Assumption	Assumption Met At EVW?
Runway Use Configuration – Any runway layout can be approximated by one of the 19 depicted runway-use configurations (in the AC).	Yes
Percent Arrivals – Arrivals equals departures.	Yes
Percent Touch and Go’s – The percent of touch and go’s is within the ranges defined in the AC.	Yes
Taxiways – A full length parallel taxiway, ample runway entrance/exit taxiways, and no taxiway crossing problems.	Yes
Airspace Limitations – There are no airspace limitations which would adversely impact flight operations or otherwise restrict aircraft which could operate at the airport.	Yes
Runway Instrumentation – The airport has at least one runway equipped with an ILS and has the necessary ATC facilities and services to carry out operations in a radar environment.	Yes

Source: FAA, AC 150/5060-5, *Airport Capacity and Delay*

For the first assumption, the runway configuration at EVW best matches sketch number 1 in the AC (**Figure 5.5**) with a mix index in the 0-20 range, which gives an ASV assumption of 230,000 annual operations.

Figure 5.5 Runway Configuration

NO.	Runway-use Configuration	Mix Index % (C+3D)	Hourly Capacity Ops/Hr		Annual Service Volume Ops/Yr
			VFR	IFR	
1.		0 to 20	98	59	230,000
		21 to 30	74	57	195,000
		31 to 40	63	56	205,000
		41 to 120	55	53	210,000
		121 to 130	51	50	240,000

Source: FAA, AC 150/5060-5, Airport Capacity and Delay

The capacity analysis is provided in **Table 5.8**, which uses operational data from the approved forecast with the applied method and assumptions outlined in the AC.

Table 5.8 EVW Capacity Analysis

Sketch 1	Baseline (2023)	2028	2033	2043
Annual Service Volume	230,000	230,000	230,000	230,000
Annual Demand	5,505	7,618	8,169	9,398
% Capacity	2.5%	3.3%	3.5%	4%

Source: Ardurra

Recommendation

Per FAA Order 5090.5, *Formulation of the NPIAS and ACIP*, the activity level to begin planning for capacity improvements is 60% of ASV, with development occurring at 80% of ASV.

EVW is well within its ASV and will not need to plan for capacity improvements within the planning horizon.

5.3.2 Runway Design Standards

FAA AC 150/5300-13B, *Airport Design* was used to determine the design standards, recommendations, design considerations, and requirements for runways. The AC describes features essential for safe and efficient aircraft operations based on the RDC of the critical aircraft associated with each runway. This includes dimensions for runway width, and separation distances from fixed or movable objects as well as the safety and object free areas that surround a runway. These areas act as a protective buffer around the airport’s operating surfaces.

The determined RDC for Runway 5/23 is B-II-2,400 (1/2 mile), However, the existing facility meets the ultimate critical aircraft RDC of C-II-2,400 (1/2 mile)) and is not forecasted to change over the 20-year planning horizon. See **Table 5.9** for the design standards and compliance.

Table 5.9 Runway 5/23 Design Standards and Compliance

Design Criteria	Existing Runway 5/23	B-II/2,400	Compliance (Y/N)	C-II/2400 Ultimate	Compliance (Y/N)
Runway Design					
Runway Width	100'	75'	Y	100'	Y
Runway Shoulder	10'	10'	Y	10'	Y
Crosswind Component	16 kts	13 kts	Y	16 kts	Y
Runway Protection					
RSA Length Beyond RWY End	1000'	600'	Y	1000'	Y
RSA Length Prior to Threshold	600'	600'	Y	600'	Y
RSA Width	500'	300'	Y	500'	Y
Runway Object Free Area					
ROFA Length Beyond RWY End	1000'	600'	Y	1000'	Y
ROFA Length Prior to Threshold	600'	600'	Y	600'	Y
ROFA Width	800'	800'	Y	800'	Y
Runway Obstacle Free Zone					
OFZ Length Beyond RWY End	200'	200'	Y	200'	Y
OFZ Width	400'	400'	Y	400'	Y
POFZ Length/Width	200'/800'	200'/800'	Y	200'/800'	Y
Runway Separation					
Centerline to Holding Position	250'	250'	Y	250'	Y
Centerline to Parallel TWY Centerline	400'	300'	Y	400'	Y
Runway 5 (Not less than 3/4 mile)					
RPZ Approach Length	1,700'	1,700'	Y	1,700'	Y
RPZ Approach Inner Width	1,000'	1,000'	Y	1,000'	Y
RPZ Approach Outer Width	1,510'	1,510'	Y	1,510'	Y
Runway 23 (not less than 1/2 mile)					
RPZ Approach Length	2,500'	1,700'	Y	2,500'	Y
RPZ Approach Inner Width	1,000'	1,000'	Y	1,000'	Y
RPZ Approach Outer Width	1,750'	1,510'	Y	1,750'	Y

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

Recommendation

The supplemental wind cone on the Runway 23 end is 265 feet from runway centerline. According to the AC, a supplemental wind cone is required to be out of the OFA, or at least 400 ft from the runway centerline. It is recommended that the supplemental wind cone be relocated outside of the OFA.

Runway 5/23 meets the design requirements for the associated RDC, therefore no design criteria modifications are recommended.

5.3.3 Runway Length

FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*, provides the standards and guidelines used to determine the recommended runway length, and uses the critical aircraft for calculations. Table 5.10 lists the runway length recommendations for general aviation aircraft weighing between 12,500 and 60,000 pounds based on the airport elevation of 7,142 ft above MSL, a temperature of 81° Fahrenheit which occurs in July, and the runway gradient of 0.3%. The existing critical aircraft at EVW is the Cessna Citation V, and the future critical aircraft is identified as the Bombardier Challenger 350.

Following AC guidance, the runway length was evaluated using the maximum takeoff and landing weights, the elevation of the airport, and the mean daily maximum temperature of the hottest month of the year to obtain the takeoff and landing length.

Table 5.10: Runway Length Analysis

AC 150/5325-4B Design Approach	Runway Length
Large, 75% of fleet @ 60% useful load	7,500 feet
Large, 75% of fleet @ 90% useful load	8,600 feet
Large, 100% of fleet @ 60% useful load	11,000+ feet
Large, 100% of fleet @ 90% useful load	11,000+ feet

Notes: Airport Elevation is 7,142 feet; Mean Daily Maximum Temperature of hottest month: 81°F; Current length of Runway 5/23 is 7,300 feet.
Source: FAA, AC 150/5325-4B

Recommendation

According to the AC, a runway length of 8,600 feet is recommended to accommodate 75% of the national general aviation fleet at 90% useful load.

The previous master plan planned for a future runway extension to 9,000 feet, allowing EVW the ability to accommodate larger jet aircraft with higher useful loads. The current 7,300-foot runway meets the needs for today’s users of the airport and no runway extension is anticipated within the planning period.

This master plan carries forward the runway extension as an ultimate condition. Due to the current fleet of aircraft using the airport, the runway extension is not envisioned as a practical or necessary improvement within the planning period. However, it is recommended that prior plans and land use protection remain in place to ensure the runway could be extended in the future if needed.

Prior to any runway extension, it is recommended a detailed runway length study be undertaken to determine the precise needs of the critical aircraft based on typical range requirements for viable operations at EVW.

5.3.4 Wind Coverage

The FAA advises that the primary runway at an airport be oriented in the direction of the prevailing wind. The most desirable runway orientation is based on the largest wind coverage with the minimum allowable crosswind. By aligning the runway with the predominant wind, there is an increase in operational safety due to the aerodynamic design of an aircraft. A crosswind is a wind that is not parallel with the runway, and wind coverage is the percentage of time a crosswind is below an acceptable speed. The allowable crosswind speeds are defined by the FAA by RDC and provided in **Table 5.12**.

Table 5.11: Allowable Crosswind Component by RDC

Runway Design Code	Allowable Crosswind Component
A-I and B-I	10.5 Knots
A-II and B-II	13 Knots
A-III, B-III, C-I through C-III, D-I through D-III	16 Knots
A-IV and B-IV, C-IV through C-VI, D-IV through D-VI	20 Knots

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

Runway 5/23 has an existing and future RDC of B-II and an ultimate RDC of C-II, with an allowable crosswind component of 13 and 16 knots respectively. A wind analysis was completed to verify the primary runway wind coverage, as shown in **Table 5.13**.

Table 5.12: Runway 5/23 Total Wind Coverage Analysis

Crosswind Component	All Weather	IFR	VFR
10.5 Knots	94.56%	91.35%	95.41%
13 Knots	97.13%	95.14%	97.65%
16 Knots	99.01%	98.21%	99.22%
20 Knots	99.76%	99.55%	99.82%

FAA, Airport Data and Information Portal (ADIP)

Runway 5/23 wind coverage is above the FAA minimum threshold of 95% all weather coverage for the existing and future critical aircraft's 13 knot requirement, and the ultimate critical aircraft's 16 knot requirement.

For small A/B-I aircraft with a 10.5 knot requirement, all weather coverage is slightly below 95%. However, those smaller aircraft typically only operate in VFR conditions, which has 95.41% coverage for A/B-I aircraft.

Recommendation

Runway 5/23 meets the wind coverage requirement of 95% for all weather crosswind components for the existing, future, and ultimate critical aircraft. Overall, the runway can serve all aircraft types and a crosswind runway is not necessary for wind coverage at EVW.

5.3.5 Runway Designation

The normal shifting of the magnetic poles can result in the need to renumber, or redesignate, airport runways. According to FAA Order 8260.19J, *Flight Procedures and Airspace*, runway designation markings do not need to be changed until the magnetic heading shifts more than three degrees from the existing runway markings. The normal shifting of the magnetic poles can result in the need to renumber, or redesignate, the runway. A review of the geodetic and magnetic headings indicates a redesignation is required now for Runway 5/23 to Runway 6/24.

Recommendation

Runway 5/23 should be redesignated to Runway 6/24, along with airport signage, chart supplements, and instrument approach procedures.

5.3.6 Runway Line of Sight

A runway with a clear line of sight (LOS) allows pilots to visually verify the location and actions of other aircraft and vehicles operating along active runways. When runways meet LOS standards, it reduces the potential for accidents.

The line of sight standard for airports without an air traffic control tower, like EVW, states that for a runway with a full parallel taxiway, any point five feet above the runway centerline must be mutually visible with another point five feet above the centerline for a distance equal to half the length of the runway. For Runway 5/23 this distance is 3,650.

Recommendation

The RVZ and LOS requirements are met for Runway 5/23.

5.3.7 Runway Gradient

The slope of a runway can affect aircraft performance, pilot perception, and drainage. The FAA has established longitudinal gradient standards based on aircraft approach categories to regulate the percent of slope allowed for the safe operation of aircraft on a runway.

The maximum longitudinal gradient for runways with an aircraft approach category of C is +/- 1.5%, not to exceed +/- 0.80% within the first and last quarter of the runway (1,825 feet). The maximum longitudinal gradient for runways with an aircraft approach category of A or B is 2%.

Runway 5/23 has an overall gradient of 0.08%. The grade for the first quarter of Runway 5 is 0.2% and Runway 23 is 0.4%. Runway 5/23 is well within the runway design grade limitations for RDC B-II, and C-II according to FAA AC 1500-5300-13B.

Recommendation

The runway gradient for Runway 5/23 is within standards and no recommendations are provided at this time.

5.3.8 Taxiway and Taxilane System

FAA AC 150/5300-13B, *Airport Design*, was used to determine the design standards, recommended practices, and design considerations for taxiways and taxilanes. This AC provides guidance to enhance safety and efficiency based on the TDG and ADG of the critical aircraft associated with each taxiway. This includes taxiway dimensions, configuration, and separation standards; taxiway turns and intersection design; and

surface gradients. Taxiway design includes standards for safety and object free areas that provide a protective buffer around taxiways and other aircraft movement areas.

The parallel taxiway (Taxiway A) and all connector taxiways meets TDG 2A design standards.

Table 5.13 Taxiway Design Criteria

Design Criteria	Standard ADG II	Compliance Y/N
Safety Area Width	79 feet	Y
Object Free Area Width	124 feet	Y
Centerline to Fixed or Moveable Object	62 feet	Y
Taxiway Design Group Standards	TDG 2A	Y
Width	35 feet	Y
Edge Safety Margin	7.5 feet	Y
Shoulder Width	15 feet	Y

Taxiways that lead directly from an apron to a runway are problematic as they create safety risks related to runway incursions. Taxiways leading directly from an apron to the middle third of the runway pose a risk of taxiing aircraft entering the runway where arriving or departing aircraft are moving at high speeds. These taxiways create a false assumption for pilots of a parallel taxiway prior to a runway. Taxiway geometries that require a pilot to make turns, promote situational awareness and reduce the risk of a runway incursion.

Recommendation

Several taxiway fillets do not meet required FAA design standards, it is recommended they be brought to taxiway design standard 2A upon the next taxiway reconstruction project. Taxiway A runway entrance on each end is squared rather than rounded per design standards. It is recommended the squares be rounded in the next taxiway project. It is recommended that the existing pavement be maintained at TDG 2A standards to accommodate future conditions at the airport.

Taxiway A3 provides direct access between the apron and the runway. Alternatives will consider realigning the A3 connector or constructing an offset between the runway exit connectors and the apron.

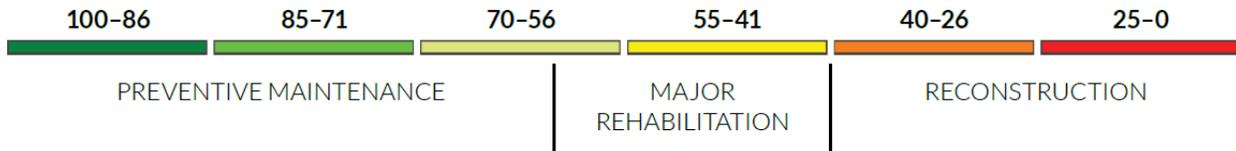
5.3.9 Navigational Aids

The airport is equipped with Navigational Aids (NAVAIDS) which include visual, electronic, and meteorological aids. These provide assistance for aircraft navigating to and maneuvering on the airport. A full list of NAVAIDS and their function is located in **Chapter 4, Inventory**.

The VOR/DME, located on the north side of Runway 5 approach maintains a critical area radius of 1,000 feet around the NAVAID. Currently, the FAA owns a radius of 325 ft around the VOR/DME. Land acquisition and/or protection of the remaining 675 foot radius around the remaining clear area is recommended.

The remaining airport’s NAVAIDS comply with FAA standards and are sufficient for the needs of the airport.

Recommendation



Source: Applied Pavement Technology, Inc., Predicted 2023 PCI

5.3.11 Pavement Strength

The required pavement design strength, or weight-bearing capacity, is an estimate based on average activity levels and is limited in terms of aircraft landing gear type and geometry (i.e., load distribution). The pavement design strength is not the maximum allowable weight; however, operations by aircraft which exceed the weight-bearing capacity should be limited to avoid accelerating pavement deterioration.

The pavement strength published for Runway 5/23 at EVW is 73,000 pounds for single wheel gear (SWG), 93,000 pounds for dual wheel gear (DWG), and 148,000 pounds for dual tandem wheel (DTW).

Recommendation

The weight-bearing capacity of the runways is adequate for the aircraft currently and forecasted to use the runway.

5.4 General Aviation Facilities

EVW is categorized in the 2016 Wyoming State Aviation System Plan (WYASP) as a business airport. This plan includes several facility and service objectives for business airports that were used to determine requirements for each of the general aviation (GA) facilities in this section.

5.4.1 Main General Aviation Apron

The main GA apron at EVW is approximately 97,660 square feet. It is located midfield and is connected by a taxiway to the main hangar area. The asphalt surface underwent maintenance in 2021 and is in good condition.

5.4.2 Aircraft Hangars

At the current time, there are a total of 17 hangars of various sizes located along the main hangar row, including twelve nested T-hangars and five box hangars, of which are all occupied. The airport maintains a waiting list for hangars as they become available. The demand for hangars is high with three new hangars being built in the last two years, and the airport has agreements for more with future tenants from Utah. Most of the new hangars are to store jet aircraft.

The baseline forecast determined that within the planning period, EVW could expect at least 8 new based aircraft. However, it was determined the ultimate potential at EVW is for up to 60 total based aircraft. That level of demand would equate to approximately 36 new aircraft being based at EVW within the planning period.

Recommendation

EVW does not currently meet the 2016 WYASP objective for hangar space which states 100% of based aircraft should be in hangars. Assuming each new aircraft will be hangered in individual hangars, a total of

36 hangars should be planned for to ensure a hangar development plan is in place to accommodate the ultimate potential demand. The Alternatives Chapter examines layouts to accommodate both the baseline and ultimate demand for based aircraft.

5.4.3 Aircraft Tie-Downs

There are 27 aircraft tiedowns located on the main apron. The objective included in the 2016 WYASP is for business airports to have enough aircraft tiedowns to avoid having a shortage of tiedowns for more than 14 days per year. The number of tiedowns required to meet this objective was determined based on the forecast for itinerant aircraft operations. The baseline forecast identified 24 based aircraft in 2023, increasing to 32 in 2043. Transient operations are on average 11 per day in 2023 increasing to 20 by 2043. Table 5.16 details the breakdown of tiedown needs.

Table 5.14 Aircraft Tie-Down Objectives

Year	Based Aircraft	Existing Tie-Downs	Tie-down Demand (30%)	Daily Transient GA operations	Tie-Down Demand (75%)	Tie-Down Objective
2023	24	27	7	11	9	16
2033	28	27	8	17	13	21
2043	32	27	10	20	15	25

Recommendation

There are a total of 27 aircraft tie-downs at EVW, which is sufficient and meets the State’s objectives through the planning period.

5.4.4 Vehicle Parking

There are two marked parking lots for vehicles, both are located on the south side of the airport next to Airport Road. The lots provide approximately 60 parking spaces which is considered adequate to accommodate both existing and future transient and based aircraft owners and passengers. The asphalt is in poor condition.

Recommendation

The asphalt in the auto parking is in poor condition and in need of repair, it is recommended that EVW reconstruct the asphalt in the near term.

5.5 Support Facilities

Support facilities at EVW include fuel storage, FBO, and snow removal equipment (SRE) facilities. The 2016 WYASP includes several facility and service objectives for business airports that were used to determine requirements for the support facilities listed in this section.

5.5.1 Fixed Base Operator

At EVW, Evanston Aviation is the sole FBO. The company provides a full range of services including aircraft parking (hangar, ramp, or tiedowns), aircraft rental, deicing services, aviation fuel, pilot lounge, rental cars,

courtesy transportation and more. According to the WYASP, it is suggested that all business airports have an FBO.

Recommendation

The airport meets the 2016 WYASP objective for an FBO. No additional services are required at this time.

5.5.2 Fuel

Evanston Aviation currently provides both Jet-A and 100LL fuel at the airport. The fuel capacity at EVW is adequate for the existing need and future need. The current fuel tanks are located underground, and a site for above ground fuel tanks must be reserved.

Recommendation

The airport meets the 2016 WYASP objective for fuel facilities and adequate for today, but within the planning period it is perceived a new area will be needed to accommodate new and larger above ground tanks. No additional facilities or services are required at this time. The Alternatives chapter examines sites for the fuel tanks.

5.5.3 Snow Removal Equipment

The airport currently has three plows, one rotary plow (blower), and one sweeper. The objective included the 2016 WYASP is for business airports to have a snowplow, broom, rotary plow (blower), a vehicle capable of attaching the equipment, and possibly an additional plow or broom.

Recommendation

EVW meets the 2016 WYASP objective for snow removal equipment, but airport management indicates equipment is aging and requires replacement.

5.6 Fencing and Vehicle Gates

Airport perimeter fences keep an airport secure and prevent people or wildlife from accessing the airport operations area (AOA). The Airport is fully enclosed with wildlife fencing. The main entrance is located off Airport Road and is the only electric access gate requiring an entry code at the EVW. There are three additional gates secured with a padlock that provide access to the airfield.

Recommendation

The airport meets the 2016 WYASP objective for fencing and no additional accommodations are required at this time.

5.7 Airport Access

County Road 111 is the only access roadway to the airport. It connects Wasatch Road which leads to the City of Evanston. The Union Pacific Railroad crosses County Road 111 and trains frequently block the crossing when the train is stopped in Evanston. If a train is stopped on the tracks, it blocks access to the airport and there is no alternative route. This situation creates a hazard to the safety of airport users, employees, and businesses on the airport as emergency vehicles and personnel cannot obtain access to the Airport if there is an emergency. Additionally, when the road is blocked, employees become stuck getting to or from work at the Airport, and customers may incur undue delay. While not a dire situation, these situations are costly to

businesses and users of the Airport and can severely detract from the attractiveness of using EVW as a gateway to the region.

Prior studies have examined various solutions, including new roadway access points as well as bridging over the tracks. It is highly recommended that Uinta County and the City of Evanston build upon those studies and continue to search for solutions to ensure continuous access for both emergencies and general use.

5.8 Utilities

Water, sewer, electricity, and natural gas are all available at the Airport. However, water, sewer, and natural gas are served via a water well and septic systems, and on-site propane tanks. There is no current connection of those services to local service providers. This limits the desirability for developing at EVW as it is costly to find suitable wells around the airfield and creates hurdles if tenants desire gas and sewer services. There has been prior discussion about extending these services up Airport Road or connecting via private property off the southeast side of the airport directly to utility lines near Commerce Drive. The latter has a shorter distance but requires additional coordination with landowners.

Recommendation

It is recommended Airport management, the County and the City continue to explore options to connect utilities to the Airport. Furthermore, the Airport should ensure that septic systems are added holistically, with consideration of Wyoming Department of Environmental Quality (DEQ) requirements.

5.9 Facility Requirements Summary

The Airport meets FAA design standards for the existing and future airport conditions. **Table 5.17** presents other assessment findings and recommendations that were determined from this assessment.

Table 5.15 Airport Facilities Assessment Summary

Elements	Description of Need and /or Recommendation
Runways	
Runway Length	The runway length is sufficient through the planning period. A runway extension up to 9,000 feet is carried forward as an ultimate condition.
Object Free Areas	The supplemental wind cone is inside the OFA and 265 ft from runway centerline. That wind cone is recommended to be relocated outside the ROFA.
Taxiways and Taxilanes	
Direct Connections from Apron to Runway	Taxiway A3 provides direct access between the apron and the runway. Alternatives will determine a preferred future configuration that adheres to FAA standards
Nonstandard taxiway fillets and radii	All taxiways except A4 do not have fillets and radii that meet FAA design standards. Those should be corrected during any applicable reconstruction projects.
Land Use, Hangar and Support Facilities, and Landside Access	
Aircraft Storage	A hangar layout is needed to ensure the ultimate demand of 36 new based aircraft can be accommodated. Alternatives will be developed to determine a preferred configuration.

Aircraft Fuel Storage	An area for above ground fuel storage is needed. The siting for that facility on the current Airport Layout Plan will be validated throughout the alternatives process.
Landside Access and Vehicle Parking	The asphalt in the auto parking is in poor condition and in need of repair, it is recommended the Airport reconstruct the asphalt in the near term.
Airport Access	Uinta County and the City of Evanston should continue to search for solutions to ensure continuous access for both emergencies and general use.
Utilities	It is recommended that water, sewer, and gas connection be added within the planning period to enhance desirability of developing at EVW.