

A. Inventory of Existing Conditions



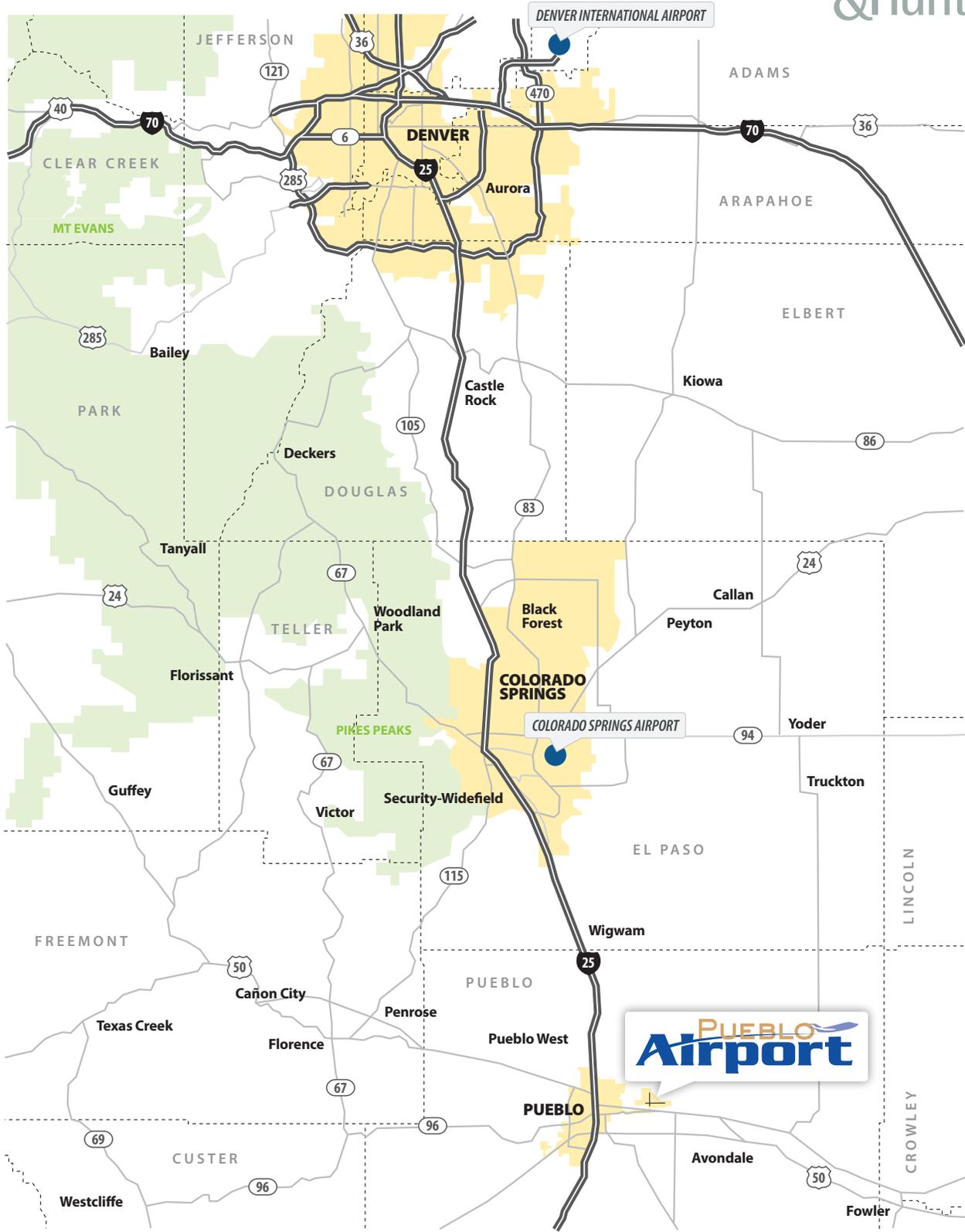
The foundation of any airport master plan begins with a thorough review of an airport’s pertinent background data, as well as a physical inventory of its airside and landside components and facilities. Documenting an airport’s existing conditions serves as the baseline for subsequent chapters of the master plan, such as the forecast of aviation demand and facility requirements. This chapter is the outcome of the review and inventory of the Pueblo Airport.

Airport History

Pueblo Memorial Airport (the Pueblo Airport, the Airport, or PUB) was originally constructed in 1942 as a training airfield for the U.S. Army Air Corps, where B-24 Liberator pilots and air crew readied themselves for action in World War II. The Airport was named in memoriam for the pilots and crew who trained there. In 1953, the City of Pueblo was granted the airfield from the federal government from the War Surplus Administration. The City of Pueblo has been operating the Airport ever since.

Airport Location and Vicinity

PUB is located in Pueblo County, Colorado, in the south-central part of the state. The County seat is situated in the City of Pueblo. At the time of the 2010 Census, the City of Pueblo was the ninth most populous city in the state. Pueblo is approximately 112 miles south of Denver, the state capitol. The area is considered semi-arid desert, and typically sees less snowfall than other Colorado cities. The relative location of PUB within the state of Colorado is depicted on **FIGURE A1**.



North | Approximate Scale: 1" = 15 Miles | source: Google Maps, 2020.

FIGURE A1 **Airport Location Map**

The Airport itself is found six miles east of Pueblo's city-center just north of U.S. Highway 50. PUB property encompasses 2,551 acres and resides at an elevation of 4,729 feet mean seal level (MSL). The adjacent Airport Industrial Park encompasses approximately 1,321 acres but is not considered Airport property. PUB's location relative to the City of Pueblo is depicted on **FIGURE A2**.

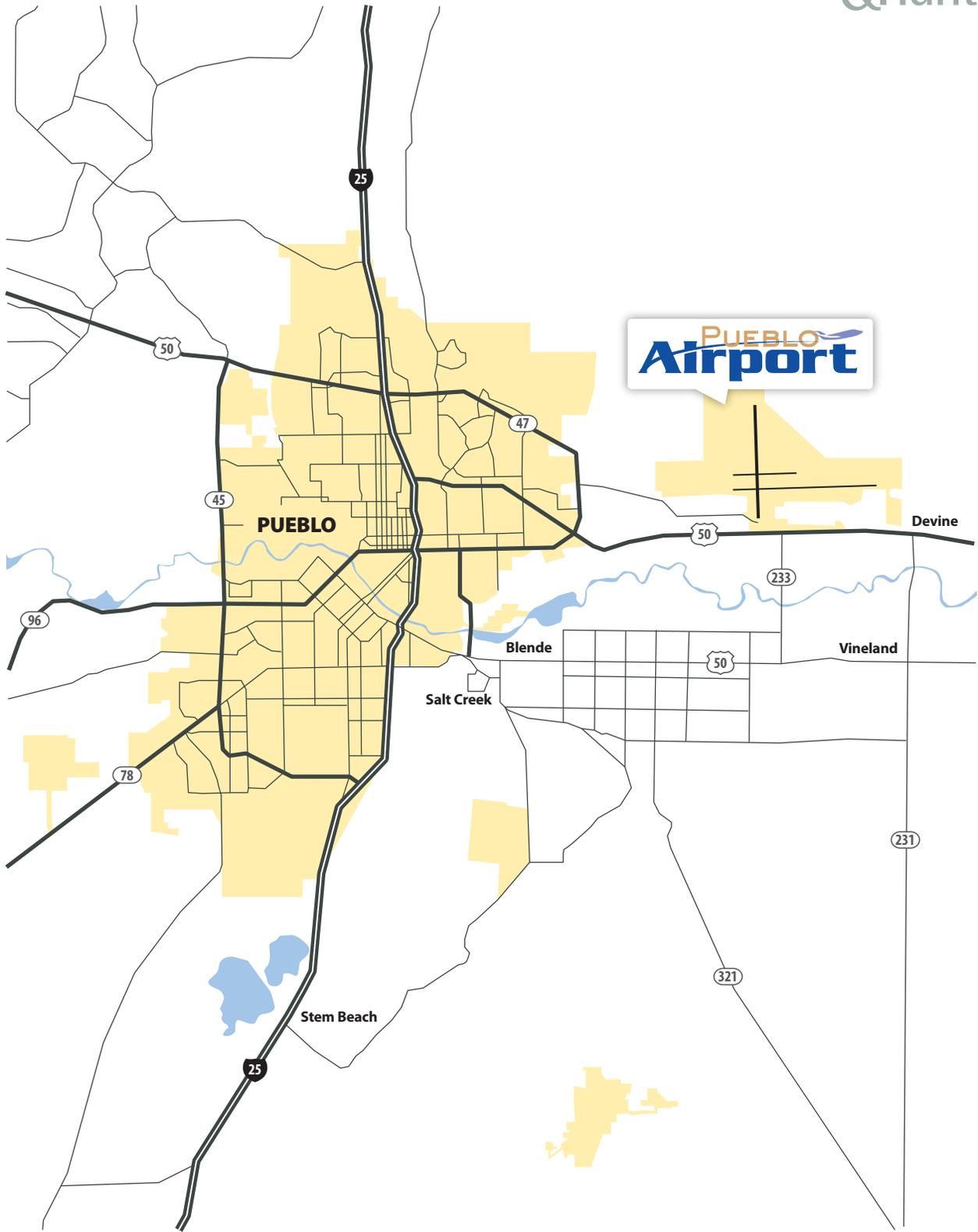
Airport Ownership Structure and Management

PUB is a public-use facility owned and operated by the City of Pueblo. Within the City's government structure, the Airport falls within the Aviation Department. Department positions include:

- **Director of Aviation (1)**
- **Operations and Maintenance Supervisor (1)**
- **Operations and Maintenance Specialists (9)**
- **Operations Technician (1)**
- **Administrative Technician (1)**
- **Seasonal/Temporary Support (3).**

An Airport Advisory Committee was established for PUB in 1999 to act in an advisory capacity to the Pueblo City Council. The committee is made up of 11 members, two of whom are designated by the Pueblo Board of County Commissioners, and one who represents the commercial service operator at the Airport. Committee members serve a three-year term, except for the commercial service representative who serves a one-year term. According to the City of Pueblo website, the functions of the committee are as follows:

- **To create a community awareness program as to the availability and use of air service at Pueblo Memorial Airport**
- **To investigate, evaluate, promote, and recommend programs for commercial airlines and general aviation services at Pueblo Memorial Airport**
- **To make periodic reports with respect to its activities to the City Council and the Board of County Commissioners of Pueblo County, Colorado.**



North | Approximate Scale: 1" = 15 Miles | source: Google Maps, 2020.

FIGURE A2 Airport Vicinity Map

Airport Service Level and Role

Since 1970, the FAA has classified the subset of public-use airports in the United States as being vital to serving the public needs for air transportation, either directly or indirectly, and therefore may be made eligible for federal funding to maintain their facilities. These airports are classified within the National Plan of Integrated Airport Systems (NPIAS), where the airport service level reflects the type of public use the airport provides. The service level also reflects the funding categories established by Congress to assist in airport development. The service level categories listed in the NPIAS include commercial service – either primary or nonprimary, reliever, or general aviation.

According to the NPIAS, 2019-2023, Report to Congress, dated October 2018, there are 3,321 NPIAS airports in the U.S.; Colorado has a total of 49 NPIAS airports. At the time of publication, PUB was classified within the general aviation service level, with a regional role in the state. Although PUB had scheduled commercial service, only approximately 3,800 total enplanements were recorded in calendar year 2017 which kept them classified within the general aviation service level. However, since service began with United Express and their operator SkyWest Airlines, enplanements in calendar years 2018 and 2019 surpassed 10,000 passengers. This milestone enables the Airport to now be classified as a primary commercial service, non-hub airport within the NPIAS and allows the airport to qualify for a one-million-dollar entitlement grant under the FAA Airport Improvement Program (AIP). Nonhub primary airports have more than 10,000 passenger enplanements, but less than 0.05 percent of all total enplanements by primary commercial service airports in the NPIAS.

At the state level, the Colorado Department of Transportation's (CDOT) Division of Aeronautics has long recognized the importance of understanding the interrelationship of its state aviation system airports in order to identify the system's needs. Similar to the FAA's NPIAS, CDOT's Colorado Aviation System Plan (CASP) identifies the state airports' needs and priorities and provides this information to policy makers, such as the Colorado Aeronautical Board (CAB). The most current CASP was published in 2011. However, the CASP Update is currently underway, with an estimated completion date sometime in 2020.

According to the Draft CASP, PUB has been classified as a commercial service airport within Colorado's state aviation system. It is important to note that the current CASP update included revisions to the previous 2011 methodology used to classify airports in the system. As the Draft CASP states, "all airports with existing or committed scheduled commercial services were classified as Commercial Service at the state level regardless of their classification in the NPIAS/ASSET system (August 2019)." Thus, as currently classified, there are 14 commercial service Colorado aviation system.

Federal and State Grant Histories

The City of Pueblo has received several grants from the Federal Aviation Administration (FAA) over the last 10 years through the Airport Improvement Program (AIP) for the development of the Airport. The AIP is funded through the Aviation Trust Fund which was established in 1970 to provide funding for eligible projects as defined in the AIP Handbook.

Likewise, the Colorado Department of Transportation (CDOT) Aeronautics Division has been offering entitlement and discretionary grant funding for state airport since 1991. PUB has also received several state grants in the past 10 years. **TABLE A1** and **TABLE A2** summarize both the FAA and CDOT grants from 2009 through 2019.

TABLE A1 FAA AIP 10-year Grant History

FISCAL YEAR	GRANT SEQUENCE NO.	FUNDS	PROJECT DESCRIPTION
2009	29	\$1,303,177	Rehabilitate Apron
2010	30	\$8,510,477	Construct Runway - Plan-1, Wildlife Hazard Assessments
2014	34	\$2,310,000	Rehabilitate Taxiway
2017	35	\$3,851,643	Rehabilitate Runway - 17/35, Rehabilitate Runway Lighting - 17/35
2018	36	\$3,286,159	Rehabilitate Apron
2019	37	\$532,741	Conduct Airport Master Plan Study
2019	38	\$3,000,000	Install Perimeter Fencing Not Required by 49 CFR 1542

SOURCE: FAA, 2020; Dibble Engineering.

NOTE: The grant data are generated at the end of each fiscal year and will not reflect subsequent grant amendments. This data will not reflect any funding or project amendments.

TABLE A2 CDOT Discretionary Aviation Grant 10-year History

FISCAL YEAR	STATE FUNDS	LOCAL FUNDS	FEDERAL FUNDS	TOTAL	PROJECT DESCRIPTION
2011	\$368,925	\$91,541	\$2,161,004	\$2,621,470	Fence & Match on FAA Runway Project
2012	\$400,000	\$164,912	\$5,150,000	\$5,714,912	Reconstruct a Portion of the GA Ramp, SRE & Match FAA Runway Project
2013	\$285,263	\$125,263	\$4,000,000	\$4,410,526	Participate in Federally Funded ARRF Truck; Construct secondary fuel farm containment structure; Participate in Federally Funded rehabilitation and realignment of TWY A
2014	\$262,260	\$139,149	\$4,808,142	\$5,209,551	Fuel Farm Containment System; Participate in Federally Funded AIP 31 & 33; Participate in Federally Funded Taxiway D Rehab, Commercial Apron Rehab, and Ramp Drainage match reimbursement
2015	\$8,333	\$8,333	\$150,000	\$166,666	Terminal Improvements
2016	None awarded				
2017	\$150,000.00	\$165,789.47	\$6,000,000.00	\$6,315,789.47	Participate in Federally Funded Runway 17/35 Rehabilitation and Airfield Lighting System
2018	\$100,512.00	\$100,513.00	\$3,819,475.00	\$4,020,500.00	Participate in Federally Funded Apron Rehabilitation (Construct Islands) and Lighting
2019	None awarded				

SOURCE: CDOT, 2020; Dibble Engineering.

NOTE: The grant data from CDOT was only available through 2011.

Airfield Design Standards

Airport design standards provide basic guidelines for a safe, efficient, and economic airport system. The standards conform to meet the size and performance characteristics of aircraft that are anticipated to use an airport. Various elements of airport infrastructure and their functions are also covered by these standards. This section will summarize the existing safety and other critical areas currently found at PUB based on their current airfield configuration and design aircraft.

Design Aircraft

According to FAA Advisory Circular 150/5300-13A, *Airport Design*, planning a new airport or making improvements to an existing airport requires the selection of one or more “design aircraft.” The design aircraft (for the purpose of airport geometric design) can be classified by the parameters:

- **Aircraft Approach Category (AAC)**
- **Airplane Design Group (ADG)**
- **Taxiway Design Group (TDG).**

The AAC relates to aircraft approach speed (operational characteristic) and is represented by the letter A through E. The ADG relates to the aircraft wingspan and tail height (physical characteristic) and is represented by the Roman numeral I through VI. The TDG is based on an aircraft’s landing gear, and specifically the main gear width and the length of the cockpit to the main gear. The characteristics of the AAC and ADG are summarized in **TABLE A3**.

TABLE A3 FAA AAC/ADG Characteristics

AIRCRAFT APPROACH CATEGORY		APPROACH SPEED	
Category A		Less than 91 knots	
Category B		91 to 120 knots	
Category C		121 to 140 knots	
Category D		141 to 165 knots	
Category E		165 knots or more	

AIRPLANE DESIGN GROUP	WINGSPAN	TAIL HEIGHT
Group I	< 49 feet	< 20 feet
Group II	49 to 78 feet	20 to 29 feet
Group III	79 to 117 feet	30 to 44 feet
Group IV	118 to 170 feet	45 to 59 feet
Group V	171 to 213 feet	60 to 65 feet
Group VI	214 to 261 feet	66 to 79 feet

SOURCE: FAA Advisory Circular 150/5300-13A, *Airport Design*, 2014; Dibble Engineering.

For the selection of a design aircraft, the FAA requires that the most demanding aircraft, or family of aircraft, which conducts at least 500 operations per year at the airport be selected as the design aircraft. Additionally, when an airport has more than one active runway, a design aircraft is typically selected for each runway. According to the most current approved Airport Layout Plan (ALP) dated April 2019, the existing design aircraft for each runway are as follows:

- **Runway 8L/26R & Runway 17/35:** Gulfstream G-V
- **Runway 8R/26L:** non-specific family of turboprop or small corporate jets categorized as B-II.

Using the AAC/ADG classifications, the Gulfstream G-V is categorized as C-III and falls within TDG 2. Again, as mentioned above, aircraft in the B-II category are typically twin-turboprop or small corporate turbine aircraft. It is not uncommon for a runway to not have a specific aircraft named as their design aircraft, but rather a family of aircraft listed; however, one outcome of this Master Plan effort will be to validate the existing design aircraft for each runway and recommend a specific critical aircraft for Runway 8R/26L using available data.

Runway Design Code

When the AAC, ADG, and approach visibility minimums for a runway are combined, they form the runway design code (RDC). The RDC provides the information needed to determine certain design standards that apply to a runway. The visibility minimums are expressed by runway visual range (RVR) values in feet of 1,200, 1,600, 2,400, 4,000, and 5,000. If a runway is only used for visual approaches, the term “VIS” should appear as the third component. The RDC visibility categories translated to an RVR value are illustrated in **TABLE A4**.

TABLE A4 Runway Design Code Components

RUNWAY VISUAL RANGE (FT)	FLIGHT VISIBILITY CATEGORY (STATUTE MILE)
VIS	Visual approach only
5000	Not lower than 1 mile
4000	Lower than 1 mile but not lower than 3/4 mile
2400	Lower than 3/4 mile but not lower than 1/2 mile (CAT-I PA)
1600	Lower than 1/2 mile but not lower than 1/4 mile (CAT-II PA)
1200	Lower than 1/4 mile (CAT-III PA)

SOURCE: FAA Advisory Circular 150/5300-13A, *Airport Design*, 2014; Dibble Engineering.

NOTE: CAT-I, II, III PA stands for a Category I, II, or III Precision Approach.

Based on the existing critical aircraft and visibility minimums, the RDC for the runways at PUB are as follows:

- **Runway 8R:** C-III/2400
- **Runway 8L/26R:** B-II/VIS
- **Runway 26L:** C-III/4000
- **Runway 17/35:** C-III/5000.

Taxiway Design Group

The taxiway design group (TDG) design standards are based on the overall main gear width (MGW) and the cockpit-to-main gear (CMG) distance of the critical aircraft for the runway(s) at an airport. The TDG is used to determine a minimum width and the fillet standards of taxiways for an airport’s critical aircraft. The existing taxiways at the Airport vary in width from 35 to 75 feet (see **TABLE A7**). Taxiway design standards have been revised by the FAA since the previous Airport Master Plan was prepared; therefore, a TDG was not previously established for taxiways at the Airport, and in some instances the existing taxiway widths exceed the minimum required widths based on the existing critical aircraft. Further analysis on the existing TDG and the recommended TDG will be further discussed in the Facility Requirements chapter.

Airport Reference Code

The ARC is not a design standard, rather it is an airport designation that signifies the airport's highest Runway Design Code (RDC) minus the third (visibility) component. The ARC is used for planning purposes only and does not limit the aircraft that may be able to operate safely on the airport. According to the current ALP, the existing ARC for the Airport is C-III.

Safety Areas

Runway and Taxiway Safety Areas (RSAs and TSAs) are defined as surfaces surrounding the runway and taxiway intended specifically to reduce the risk of damage to aircraft in the event of an undershot, overshoot, or excursion from the runway or taxiway. The safety areas must be:

- **Cleared and graded and have no potentially hazardous surface variations**
- **Drained to prevent water accumulation**
- **Capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting (ARFF) equipment, and the occasional passage of aircraft without causing structural damage to the aircraft**
- **Free of objects, except for objects that need to be in the runway or taxiway safety area because of their function.**

All runway safety areas at PUB are in good condition and meet FAA standards. Likewise, the taxiway and taxilane safety areas were reviewed and no apparent deficiencies were identified. It should be noted that due to the spacing and location of the GA hangars located in the southwest area of the airfield, this area should only accommodate aircraft in ADGs I and II; there is not enough separation to meet taxilane centerline to a fixed or movable object or wingtip clearances for aircraft in ADG III or above.

Obstacle Free Zone, Precision Obstacle Free Zone, and Object Free Area

The obstacle free zone (OFZ) is a three-dimensional volume of airspace which supports the transition of ground to airborne aircraft operations. The clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible visual navigational aids (NAVAIDs) that need to be in the OFZ because of their function. The OFZ represents the volume of space longitudinally centered on the runway. The runway object free area (ROFA) is a two-dimensional ground area surrounding the runway. The ROFA standard also precludes parked airplanes, agricultural operations and objects, except for those that need to be located in the ROFA for air navigation or aircraft ground maneuvering purposes.

Lastly, for runways equipped with a precision instrument approach, such as an ILS, an additional protection zone is needed. This is the precision obstacle free zone (POFZ). The POFZ is defined as a volume of airspace above an area (200 feet long by 800 feet wide) beginning at the threshold elevation and centered on the extended runway centerline. The POFZ surface is in effect only when certain operational conditions are met, such as an aircraft on final approach within 2 miles of the runway threshold. The dimensional standards for each of these protection areas varies with the type of RDC of a runway, with exception of the POFZ.

The OFZ and ROFA for Runways 8L/26R, 8R/26L, and 17/35, and the POFZ for Runway 8L/26L, at PUB currently meet FAA design standards. See **TABLE A5** for a summary of the safety area dimensional standards as they currently exist at PUB today.

Runway Protection Zone

The runway protection zone (RPZ) is trapezoidal in shape and centered about the extended runway centerline. Like the other safety areas, the RPZ dimension for a runway end is a function of the critical aircraft and approach visibility minimums associated with that runway end (See **TABLE A5**). Additionally, the FAA issued a memorandum on September 27, 2012, regarding land uses within an RPZ. The memorandum outlines interim policy guidance to address what constitutes a compatible land use and how to evaluate proposed land uses that would reside in an RPZ. The land uses currently not recommended by the FAA to be within the RPZ include residences and places of public assembly (churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons typifying places of public assembly). Currently, all RPZs associated with each runway end at PUB are located on existing airport property and the surrounding land uses on adjacent property are compatible with airport operations. The FAA also recommends the Sponsor control the RPZs through fee simple ownership, or avigation easements, thus any future RPZ for PUB runway's that are not on existing property should also be acquired in these manners to comply with the FAA directive.

TABLE A5 PUB Existing Runway Dimensional Standards

DESIGN STANDARD	RUNWAY 8L/26R	RUNWAY 8R/26L	RUNWAY 17/35
RUNWAY DESIGN CODE (RDC)	B-II/VIS	C-III-2400/4000 ²	C-III/5000
Runway Safety Area (RSA) width	150	500	500
RSA length beyond departure end	300	1,000	1,000
Runway Object Free Area (ROFA) width	500	800	800
ROFA length beyond runway end	300	1,000	1,000
Runway Obstacle Free Zone (ROFZ) width	250	400	400
ROFZ length beyond runway end	200	200	200
Precision Obstacle Free Zone (POFZ) width	N/A	800	N/A
POFZ length beyond runway end	N/A	200	N/A
Approach Runway Protection Zone (RPZ) ³ Length x inner width x outer width	1,000 x 500 x 700	2,500 x 1,000 x 1,750	1,700 x 500 x 1,010
Departure RPZ Length x inner width x outer width	Same as Approach RPZ	1,700 x 500 x 1,010	Same as Approach RPZ

SOURCE: Pueblo Memorial Airport Layout Plan, April 2019; FAA Advisory Circular 150/5300-13A, *Airport Design*, 2014; Dibble Engineering.

NOTES: ¹ All dimensions are in feet.

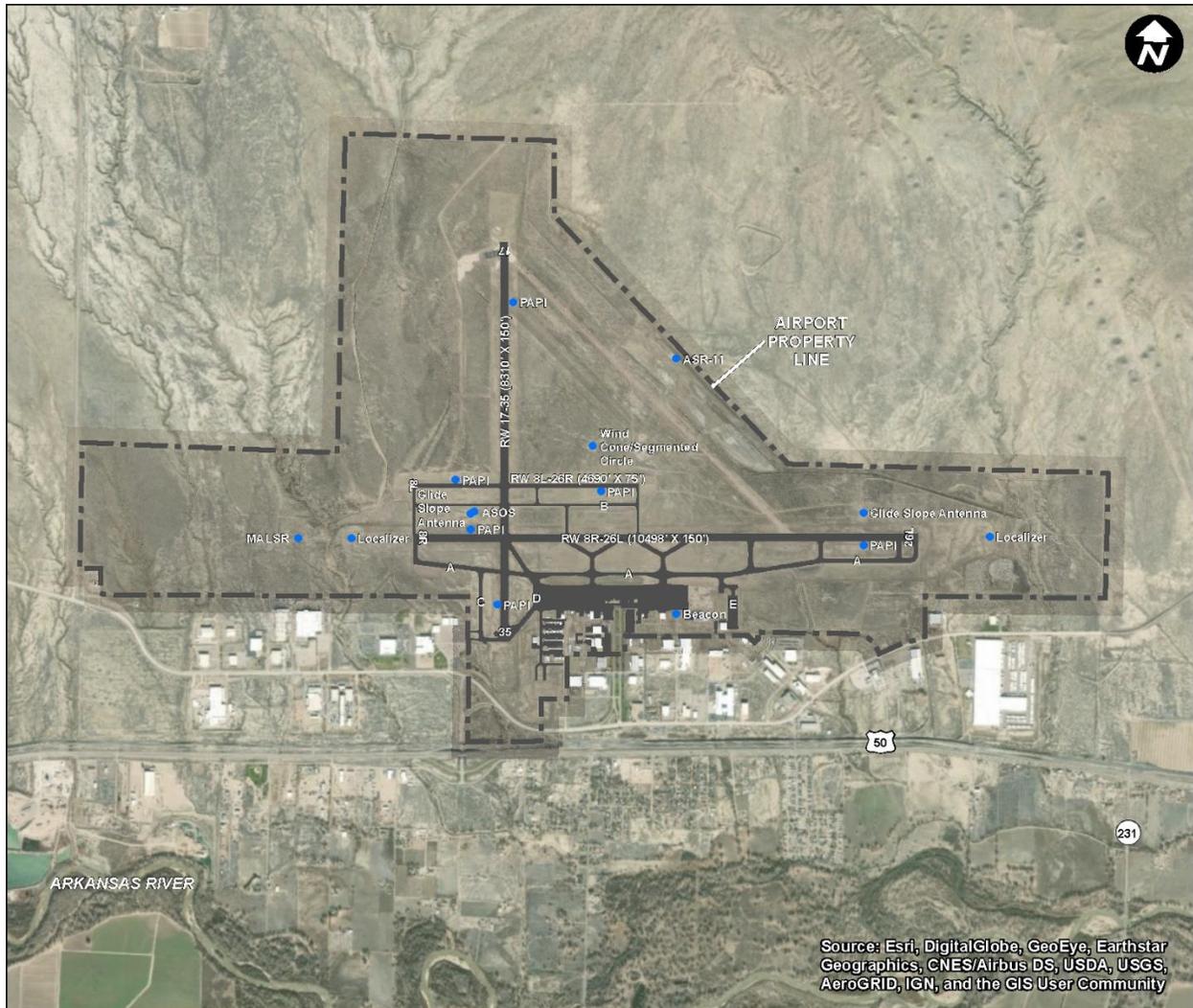
² Runway 8R and 26L have different approach minimum, with 8R having the lowest at CAT I standards; for runways with different approach minimums the safety area dimensions for the lowest minimums will apply to the entire runway. In PUB's case this would be those associated with 8R. However, the RPZ dimensions for 26L differ from 8R. Runway 26L RPZ dimensions are: 1,700' x 1,000 x 1,510 (Approach) & 1,700' x 500' x 1,010' (Departure)

³ The RPZ surface begins 200 feet from the end of a paved runway threshold.

Airside Inventory

The definition of airside is that portion of the airport in which aircraft, support vehicles, and equipment are located, and in which aviation-specific operational activities take place. Typical airside components include airfield pavements, navigational aids and weather equipment, lighting, and signage. The inventory of airside components provides the basis for the airfield demand/capacity analysis and the determination of any facility change requirements that might be identified. The existing airfield layout is illustrated on **FIGURE A3**.

FIGURE A3 Existing Airfield Layout



SOURCE: Dibble Engineering.

Airfield Pavement

Airfield pavements consist of runways and taxiways. These pavements are essentially the skeleton of an airport, supporting and connecting airside activities to non-movement areas and landside facilities. The maintenance and preservation of an airport's system of pavement is essential in order to provide safe and efficient operational capabilities. A general description and condition of the existing airside pavements are described below.

Runways

PUB has three active runways – 8L/26R, 8R/26L, and 17/35. All three are paved in asphalt, grooved¹, and reported to be in good condition according to the current FAA Airport Master Record, Form 5010-1 dated February 27, 2020. **TABLE A6** briefly summarizes the characteristics of each runway.

TABLE A6 PUB Runway System

RUNWAY	CHARACTERISTICS
8L/26R	<ul style="list-style-type: none"> ▪ Dimensions: 4,690 feet x 75 feet ▪ Published strength: 20,000 pounds Single Wheel (SW) gear ▪ Runway category: Greater-than-utility, visual (both) ▪ Runway marking type: Basic (both)
8R/26L	<ul style="list-style-type: none"> ▪ Dimensions: 10,498 feet x 150 feet ▪ Published strength: 75,000 pounds Single Wheel (SW), 170,000 pounds Dual Wheel (DW), 250,000 pounds 2 Dual Wheels in Tandem (2D) gear ▪ Runway category: Greater-than-utility, precision instrument (both) ▪ Runway marking type: Precision (both)
17/35	<ul style="list-style-type: none"> ▪ Dimensions: 8,310 feet x 150 feet ▪ Published strength: 93,000 pounds Single Wheel (SW), 110,000 pounds Dual Wheel (DW), 170,000 pounds 2 Dual Wheels in Tandem (2D) gear ▪ Runway category: Greater-than-utility, non-precision instrument (both) ▪ Runway marking type: Non-precision (both)

SOURCE: FAA, 5010 Airport Master Record – Pueblo Memorial, 2020; Dibble Engineering.

¹ Some runways are grooved in order to provide an escape route under the aircraft tire for water on the runway to reduce or eliminate dynamic hydroplaning and standing water, assist with drainage to disrupt ice formation, and reduce stopping distances (when dry) through a process called tire tread interlock (Cardinal Grooving, 2020).

Taxiways

The Airport is equipped with two full-length parallel taxiways and a series of connector taxiways, as well as a partial-parallel and an acute-angled taxiway. The pavement widths and the presence of shoulders vary depending on location. **TABLE A7** briefly summarizes each component.

TABLE A7 PUB Taxiway System

TAXIWAY	DESCRIPTION	TDG	WIDTH (FEET)
A	Full length parallel taxiway south of Runway 8R/26L	5/3	75/50 ¹
A1	Right-angle connector from parallel Taxiway A to the threshold of Runway 8R	5	75
A2, A4, A5, A7, A8	Acute-angle connector from parallel Taxiway A, A3, and A6 to Runway 8R/26L	5	75
A3, A6, A9, A10	Right-angle connector from parallel Taxiway A to connectors A4/A5, A7/A8, and Runway 8R/26L	5	75
A12	Right-angle connector from parallel Taxiway A to the threshold of Runway 26L	5	75
B	Full length parallel taxiway south of Runway 8L/26R	2	35
B1	Right-angle connector from parallel Taxiway B to the threshold of Runway 8L & 8R	2	35
B3	Right-angle connector from parallel Taxiway B to Runway 8L/26R	2	35
B4	Right-angle connector from parallel Taxiway B to Runway 8R/26L	2	35
B7	Right-angle connector from parallel Taxiway B to the threshold of Runway 26R and to Runway 8R/26L	2	35
C	Partial-parallel taxiway west of Runway 17/35	3	50
C1	Right-angle connector from parallel Taxiway C to the threshold of Runway 35	3	50
C5	Right-angle connector to the threshold of Runway 17	3	50
D	Acute-angle connector to the threshold of Runway 35	5	75
E	Partial-parallel to hangar taxilane on the east apron	3	50
E3	Right-angle connector from apron to Taxiway A	5	75
E6	Right-angle connector from apron to Taxiway A	5	75
E7	Right-angle connector from partial-parallel Taxiway A to Taxiway E	5	75

SOURCE: FAA, *PUB Airport Diagram*, 2018; Google Earth imagery, 2020; Dibble Engineering.

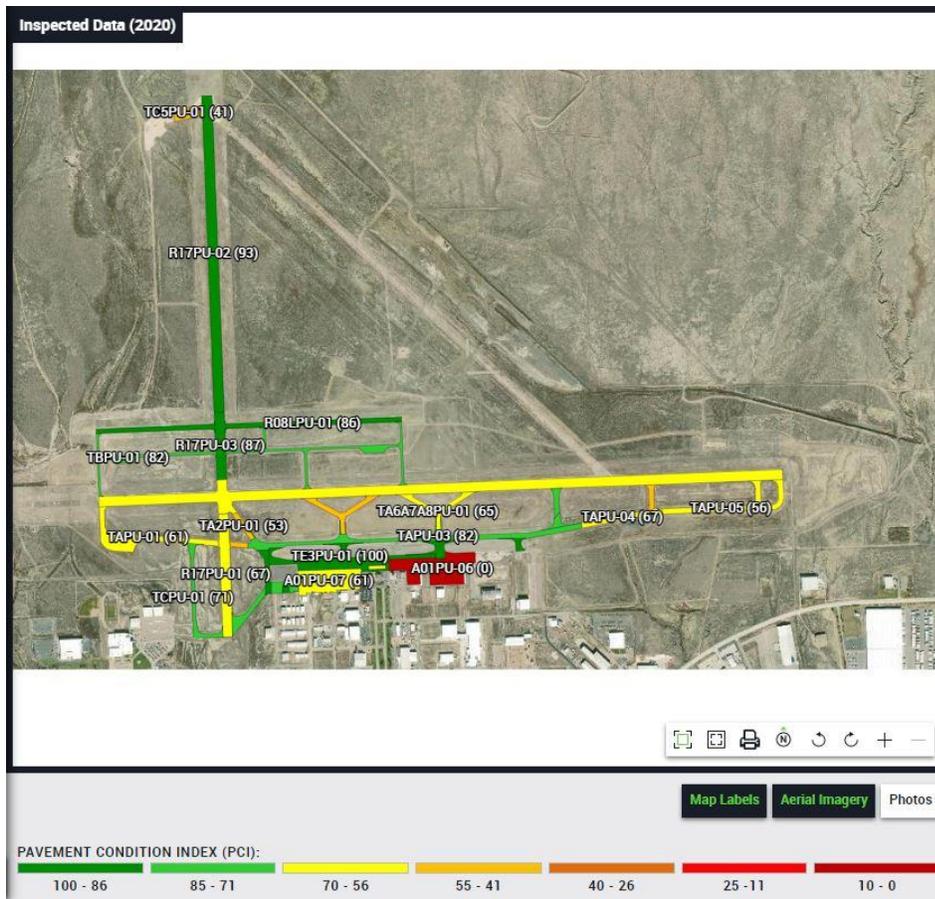
NOTE. ¹The width of Taxiway A between Taxiway connector A2 to A6 is 50 feet.

Pavement Condition and Strength

As part of the CDOT Division of Aeronautics Pavement Management Program (PMP), a visual rating system known as the Pavement Condition Index (PCI) is used to evaluate for pavement distress and deterioration. The PCI scale values range from zero (pavement in a failed condition) to 100 (pavement in excellent condition). The CDOT Division of Aeronautics last conducted a major PCI inspection at PUB in 2020. The PCI values from this inspection range from 0 to 100. A depiction of the PCIs for the runways and other airfield pavements are shown on **FIGURE A4**.

Furthermore, to express the bearing strength of pavement, the pavement classification number (PCN) system is used at airports. The PCNs are calculated in terms of a standard single-wheel load. An analysis of the runway and taxiway pavements at PUB was conducted as a part of this Master Plan effort in order to provide the Airport a general idea on the structural condition of the airfield pavement and to help prioritize pavement in need of rehabilitation. The PCN analysis results are found in **Appendix A**.

FIGURE A4 PUB PCI Map



SOURCE: Colorado 2020 IDEA website; Dibble Engineering.

Navigational and Visual Aids

Other key airside components include navigational and visual aids. Navigational aids (NAVAIDs) are electronic aids that assist pilots navigating to the airfield and the runway. Not all NAVAIDs are physically located on the Airport, for example GPS satellites; however, all NAVAIDs associated with PUB will be included here. Visual aids include runway/taxiway edge lighting, pavement marking, signage, and wind cones, amongst others. A summary of the NAVAIDs and visual aids for PUB are listed in **TABLE A8**.

TABLE A8 PUB Navigational and Visual Aids

ITEM		DESCRIPTION
Navigational Aids		<ul style="list-style-type: none"> ▪ Area Navigation (RNAV/Global Positioning System (GPS)) ▪ VHF Omnidirectional Range/Tactical Air Navigation (VORTAC): Pueblo – 3.2 nautical miles east ▪ Instrument Landing System with Localizer (ILS w/ LOC) ▪ ASR-11
Visual Aids	Lighting	<ul style="list-style-type: none"> ▪ High Intensity Runway Lighting (HIRL) - Runway 8R/26L ▪ Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) – Runway 8R ▪ Runway End Identifier Lights (REIL) - Runways 26R/26L, 8L, 17/35 ▪ Medium Intensity Runway Lighting (MIRL) – Runways 8L/26R & 17/35 ▪ 4-Light Precision Approach Path Indicators (PAPIs), three-degree glide path - Runways 8L/26R, 8R/26L, 17/35 ▪ Medium Intensity Taxiway Lighting (MITL) system – all taxiways except Taxiway B and connectors; Taxiway B has retro-reflective markers
	Markings and signage	<ul style="list-style-type: none"> ▪ Precision runway markings - Runway 8R/26L ▪ Non-precision runway markings – Runway 17/35 ▪ Basic runway markings - Runway 8L/26R ▪ Taxiway markings – centerline, standard hold short, surface location/direction, and Land and Hold Short (LAHSO) – Runways 8R/26L and 17/35 ▪ Runway & taxiway guidance signs -instruction, location, direction, destination, and information; distance remaining (8R/26L & 17/35)
	Misc. Aids	<ul style="list-style-type: none"> ▪ Airport Rotating Beacon (green and white) ▪ Segmented Circle / Wind Cone (lighted) – midfield ▪ Wind indicators – all runaway ends (lighted)

SOURCE: FAA, 5010 Airport Master Record – Pueblo Memorial, 2020; Pueblo Memorial Airport Layout Plan, April 2019; Dibble Engineering.

Weather Monitoring Equipment

Automated airport weather stations are automated sensor suites which are designed to serve aviation and meteorological observing needs for safe and efficient aviation operations, weather forecasting, and climatology. There are several types of automated airport weather reporting stations. These include the Automated Weather Observing System (AWOS), the Automated Surface Observing System (ASOS), and the Automated Weather Sensor System (AWSS).

PUB has an ASOS located on the west end of the airfield, just north of the PAPI for Runway 8R. This system generally reports the following parameters: barometric pressure, altimeter setting, wind speed and direction, temperature and dew point in degrees Celsius, density altitude, visibility, and cloud ceiling, while also having the additional capabilities of reporting temperature and dew point in degrees Fahrenheit, present weather, icing, lightning, sea level pressure and precipitation accumulation. Data is disseminated via an automated VHF air band radio frequency (108-137 MHz) at each airport, broadcasting the automated weather observation. At PUB this occurs via the Automatic Terminal Information Service (ATIS) on 125.25 MHz. The phone number for the ASOS is (719) 948-2803.

Local Climate and Wind Data

Pueblo's geographic location within Colorado falls within the semi-arid climate zone. This zone is hotter and drier than other areas of the state. July is the warmest month where the mean maximum temperature is 92.9 degrees Fahrenheit (°F). Conversely, the coldest month is January with the lowest average temperature of 14 °F. Rainy season usually begins in late spring through late summer (April through August), with July and August receiving the most precipitation at 2.1 and 2.3 inches of rainfall, respectively. Likewise, the greatest amount of snowfall occurs in December and January with an average of 5.5 inches in December and 6.5 inches in January.

Wind direction and speed are also important meteorological conditions for airports. Wind direction and speed determine the desired alignment and configuration of the runway system. Aircraft land and takeoff into the wind and therefore can tolerate only limited crosswind components (the percentage of wind perpendicular to the runway centerline). FAA Advisory Circular 150/5300-13, *Airport Design*, recommends that a runway should yield 95 percent wind coverage under stipulated crosswind components. If one runway does not meet this 95 percent coverage, then construction of a crosswind runway may be advisable. Due to the wind conditions in the area, PUB does have a designated crosswind runway – Runway 17/35. The allowable crosswind components for each ARC as outlined in AC 150/5300-13A are illustrated in **TABLE A9**.

TABLE A9 FAA Crosswind Components and Corresponding ARCs

ALLOWABLE CROSSWIND	ARC (AAC/ADG)
10.5 knots	A-I & B-I
13 knots	A-II & B-II
16 knots	A-III, B-III, & C-I through D-III
20 knots	A-IV through D-VI, E-I through E-VI

SOURCE: FAA AC 150/5300-13A, *Airport Design*, 2014; Dibble Engineering.

With PUB's ARC and RDC of the primary and crosswind runways designed to meet C-III standards, the allowable crosswind component that the airport must meet is 16 knots. However, most of PUB's operations are performed by training and transient aircraft in A-I/II and B-I/II categories, and therefore the wind coverage was also analyzed for crosswinds at 10.5 knots and 13 knots for each runway. Historical wind data from PUB's ASOS located on the field and the FAA wind analysis tool was used to analyze the runway wind coverage and to create the all-weather and IFR wind roses for the ALP. The allowable crosswind component and corresponding wind coverage percentages for PUB are shown in **TABLE A10**.

TABLE A10 Percentage of Runway Wind Coverage with Crosswind Components

RUNWAY	WEATHER	10.5 KNOTS	13 KNOTS	16 KNOTS
Runway 8/26	VFR	90.34	93.54	96.21
	IFR	89.55	91.93	93.90
	All	90.29	93.43	96.05
Runway 17/35	VFR	87.49	92.09	96.32
	IFR	90.49	94.38	98.10
	All	87.76	92.29	96.48
Combined	VFR	97.82	99.30	99.82
	IFR	98.34	99.33	99.72
	All	97.86	99.30	99.81

SOURCE: NOAA Integrated Surface Database, ASOS Station 724640 - Pueblo Memorial Airport, 2009-2019 data; Dibble Engineering.

NOTE: Runways 8R/L and 26R/L are aligned to the same true bearing, thus wind coverage for both is the same.

Although Runways 8R/26L (and 8L/26R) meet the minimum 95 percent wind coverage for 16-knot crosswind components (C-III standards) in VFR and all-weather conditions, it falls slightly short for 10.5 and 13 knot crosswinds. The same is true on Runway 17/35. However, the combined runway system does meet and exceed the 95 percent coverage in VFR, IFR, and all-weather conditions. Thus, it can be inferred that crosswind Runway 17/35 is still justified and should be maintained.

Airfield Vehicle Service Roads

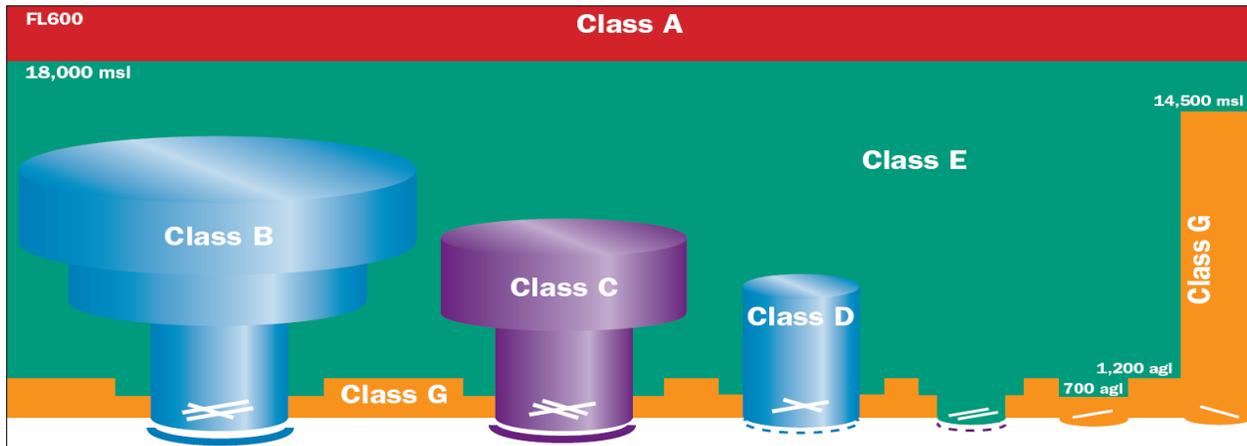
Many airports have vehicle service roads (VSRs) that are either paved, unpaved, or a combination of both, that traverse near the movement and non-movement areas of the airfield in order for airport, emergency, airline, and/or FAA personnel to access these areas by vehicle. PUB has a VSR that encircles the entire airfield. The road is unpaved, but sections exist around the ends of Runways 35 and 26L that have crushed asphalt aggregate, or “roto mill”, that provide more of a hardened surface.

Airspace System

The National Airspace System (NAS) consists of various classifications of airspace that are regulated by the FAA. Airspace is either controlled or uncontrolled. Pilots flying in controlled airspace are subject to Air Traffic Control (ATC) and must follow either Visual Flight Rules (VFR) or Instrument Flight Rules (IFR) requirements. These requirements include combinations of operating rules, aircraft equipment and pilot certification, and vary depending on the Class of airspace. A graphical representation of the different airspace classes is shown in **FIGURE A5**. General definitions of the classes of airspace are provided below:

- **Class A Airspace** - Airspace from 18,000 feet MSL up to and including flight level (FL) 600.
- **Class B Airspace** - Airspace from the surface to 10,000 feet MSL surrounding the nation’s busiest airports in terms of IFR operations or passenger enplanements.
- **Class C Airspace** - Generally, airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower.
- **Class D Airspace** - Airspace from the surface up to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports with an operational control tower.
- **Class E Airspace** - Generally, controlled airspace that is not Class A, Class B, Class C or Class D.
- **Class G Airspace** - Generally, uncontrolled airspace that is not designated Class A, Class B, Class C, Class D, or Class E.
- **Victor Airways** - These airways are low altitude flight paths between ground-based VHF Omni-directional Range receivers (VORs).

FIGURE A5 Classes of Airspace



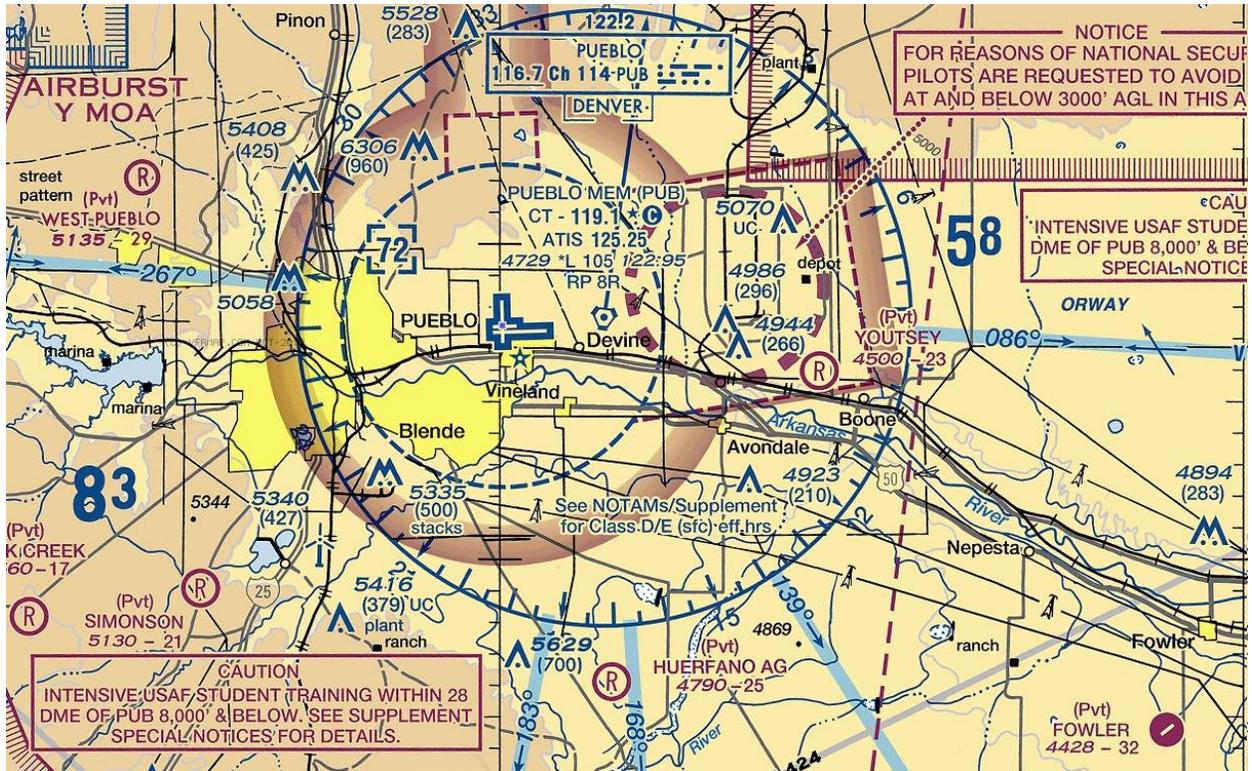
SOURCE: Aircraft Owners and Pilots Association, 2020.

The Airport is situated under Class D airspace during the ATCT's operational hours from 6:00 am until 10 pm Mountain Standard Time (MST). The Class D airspace begins at the surface and extends 2,500 feet above the airport elevation (charted in mean sea level (MSL)). When the ATCT is not operational, the Airport falls under Class E airspace starting at the surface and extends to 18,000 feet MSL, abutting Class A airspace. Class E consists of controlled airspace designed to contain IFR operations near an airport and while aircraft are transitioning between the airport and enroute environments. This transition area is intended to provide protection for aircraft transitioning from enroute flights to the Airport for landing. Several enroute VOR radials are present in or near PUB's airspace leading to the Pueblo VORTAC located approximately 3 miles east of the airfield. A depiction of the airspace and other elements surrounding PUB is found on the VFR sectional chart as shown in **FIGURE A6**.

The traffic patterns at the Airport are standard left traffic for all runways except for 8R, which has a right traffic pattern. Traffic Pattern Altitude (TPA) is the standard 1,000 feet above ground level (AGL). Pilots should also be aware of high levels of Canadian Aviation Education (CAE)-Doss flight training in the traffic pattern and in the designated training areas to the north and southwest of the Airport starting at 500 feet AGL to 8,500 MSL Monday through Friday.

PUB is located within the jurisdiction of the Denver Air Route Traffic Control Center (ARTCC), Denver Terminal Radar Approach Control (TRACON), and the Denver Flight Service Station (FSS). The altitude of radar coverage by the Denver ARTCC may vary as a result of the FAA navigational/radar facilities in operation, weather conditions, and surrounding terrain. The Denver FSS provides additional weather data and other pertinent information to pilots on the ground and enroute.

FIGURE A6 PUB VFR Sectional Chart



SOURCE: VFR MAP.

Title 14, Code of Federal Regulations (14 CFR) Part 77 Imaginary Surfaces

The 14 CFR Part 77 *Safe, Efficient Use, and Preservation of Navigable Airspace* establishes several imaginary surfaces that are used as a guide to provide a safe and unobstructed operating environment for aviation. These surfaces, which are typical for civilian airports, are shown in **FIGURE A7**. The primary, approach, transitional, horizontal, and conical surfaces identified in 14 CFR Part 77 are applied to each runway at both existing and new airports on the basis of the type of approach procedure available or planned for that runway and the specific 14 CFR Part 77 runway category criteria. All runways at PUB are classified as larger-than-utility runways, meaning they are designed to accommodate aircraft that weigh more than 12,500 pounds.

The 14 CFR Part 77 imaginary surfaces depicted in **TABLE A11** represent the existing dimensions for PUB. These surfaces will be used to determine if any existing or potential obstacles exist depending on the planned development at the Airport. Any changes to the existing dimensions based on the selection of a different RDC for the Airport will be noted on the Airport Data Table included on the Airport Layout Plan set. Obstacles will be identified on the Airport Layout Plan and any potential mitigation will also be identified, such as obstruction marking or the recommended removal of an obstacle.

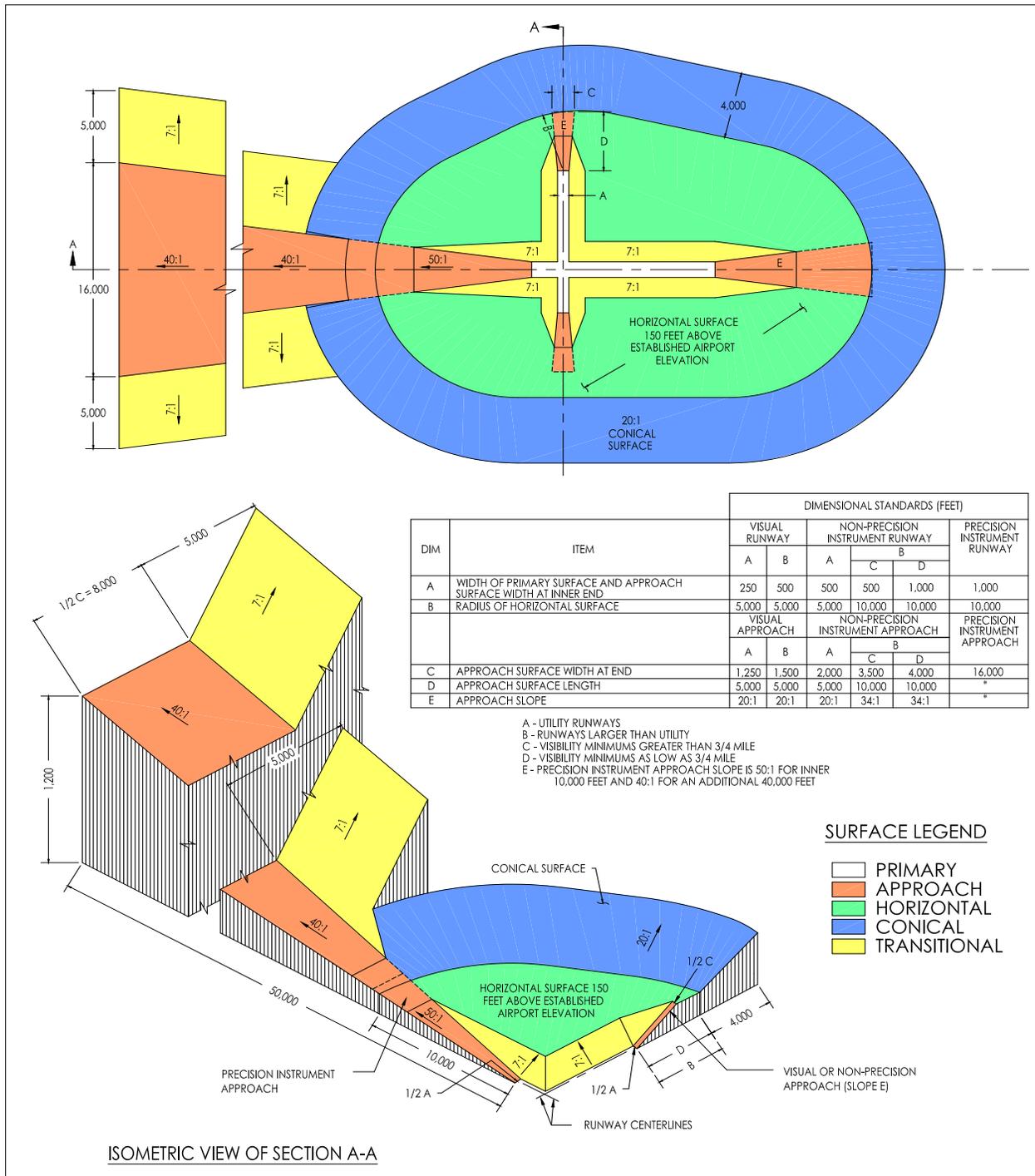
TABLE A11 14 CFR Part 77 Imaginary Surfaces

IMAGINARY SURFACE	RUNWAY 8L/26R	RUNWAY 8R/26L	RUNWAY 17/35
Primary Surface width	500	1,000	500
Primary Surface beyond runway end	200	200	200
Radius of Horizontal Surface	5,000	10,000	10,000
Approach Surface dimensions	500 x 1,500 x 5,000	1,000 x length specified by approach x 16,000	500 x 3,500 x 10,000
Approach Surface slope	20:1	50:1/40:1 ¹	34:1
Transitional Surface slope	7:1	7:1	7:1
Conical Surface slope	20:1	20:1	20:1

SOURCE: 14 CFR, Part 77 *Safe, Efficient Use, and Preservation of Navigable Airspace*, 2020; Dibble Engineering.

NOTE: ¹ Precision instrument approach slope is 50:1 for inner 10,000 feet and 40:1 for an additional 40,000 feet.

FIGURE A7 14 CFR Part 77 Imaginary Surfaces

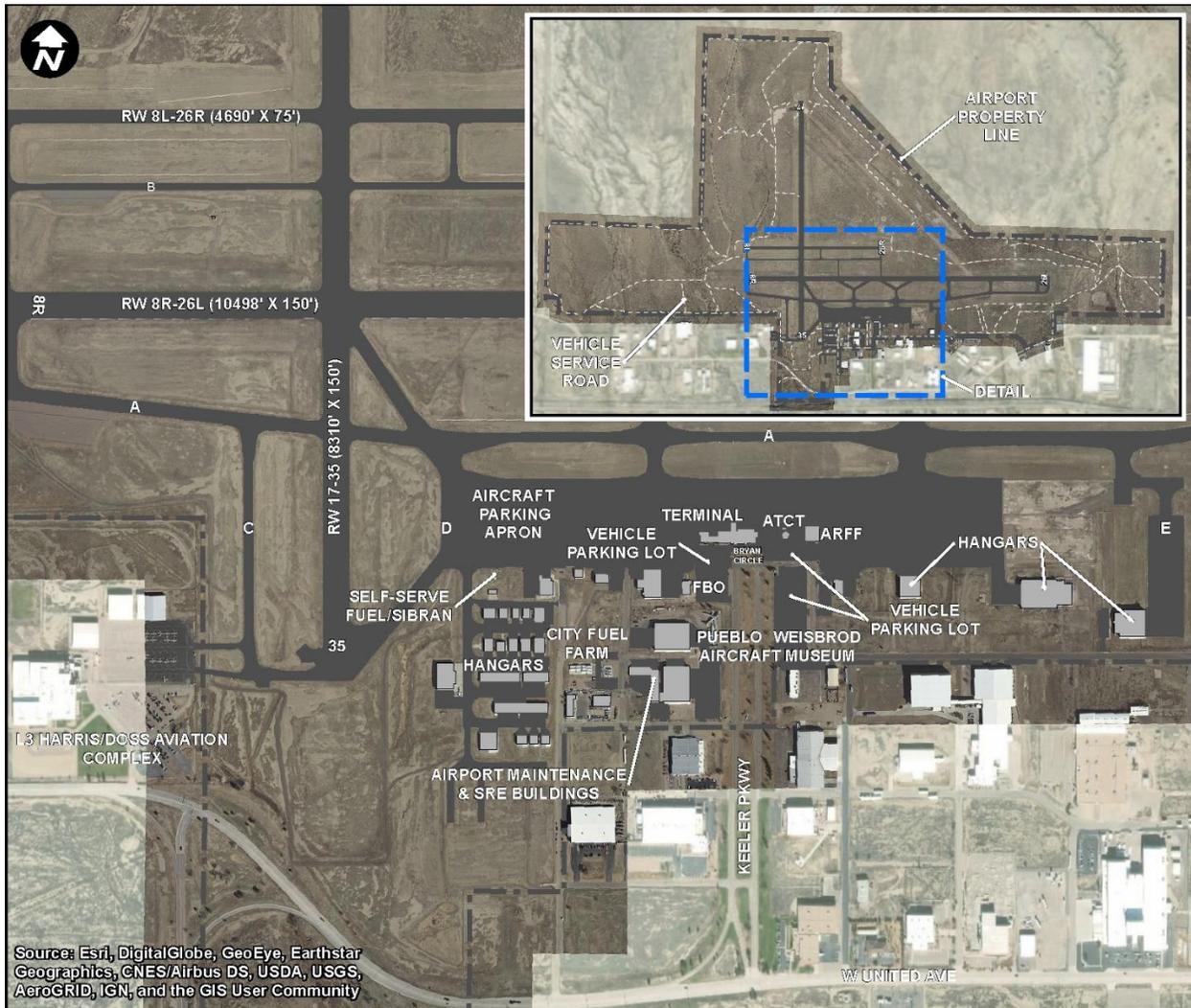


SOURCE: Federal Aviation Administration, Order JO 7400.2H, *Procedures for Handling Airspace Matters*, August 2011.

Landside Inventory

For planning purposes, the definition of landside is that portion of the airport designed to serve passengers or other airport users typically located outside of the movement areas; landside facilities include aircraft parking aprons and storage hangars, passenger terminal buildings or other general aviation (GA) facilities, and other buildings where aviation (or non-aviation) related activities are conducted. The various landside facilities are depicted on **FIGURE A8**.

FIGURE A8 Existing Landside Layout



SOURCE: Dibble Engineering.

Aircraft Parking Apron

There is only one main aircraft parking apron at PUB, although it is divided into different sections. According to the CDOT 2020 PMP inventory report, the entire apron encompasses roughly 131,110 square yards of Asphalt concrete (AC) on top of Portland concrete cement pavement (PCCP). The middle portion of the apron is adjacent to the passenger terminal and is used for commercial service aircraft. This area of the apron (approximately 4,200 square yards) is identified as the dedicated commercial service apron area with special pavement markings. Approximately 26,250 square yards of general aviation aircraft parking is available west of the terminal apron. Other portions of the apron are made up of taxilanes that aircraft use to navigate to/from the adjacent taxiways. Approximately 18 tie-down spaces are available for transient aircraft parking on the GA apron near the FBO.

The overall average PCI rating for the apron at PUB according to the 2020 PMP report is 49; however, there are sections that are in better condition than others. The commercial service apron, along with the taxilanes and GA areas to the west are in excellent to good condition with PCI ratings ranging from 100 to 61, respectively. Portions of the commercial service apron and the taxilanes to the east and west were recently rehabilitated in 2018 and inland islands were added south of Taxiway A and north of the apron. New PCI is reported to be 87. The remainder of the apron on the east is in failed condition with PCI rating of zero (0) according to the 2020 PMP report.

Passenger Terminal Building

PUB's two-story passenger terminal building is located at the center of the apron (see **FIGURE A8**) and is approximately 24,000 square feet in size. It was originally built in 1954 and has had several additions over the years. A minor remodel was completed in 2017. The terminal serves the commercial service airline and its passengers, and includes a main lobby, ticketing counters, baggage claim, security screening area, post-security hold room, restrooms, and restaurant space. Airport administration and operations, Hertz Rental Car, and the Transportation Security Administration (TSA) are also found in the terminal building. The terminal lies between the commercial service aircraft apron to the north and the Bryan Circle vehicle roadway to the south and has roughly 135 linear feet of passenger drop-off curbside area. The overall condition of the building is fair. Much of the inside and outside are dated and the exterior needs new paint. The flat roof often causes interior ceiling leaks. **TABLE A12** summarizes PUB's key terminal functional areas.

TABLE A12 PUB Terminal Areas

TERMINAL AREA	SIZE
Lobby	1,580 sf
Greeter waiting area	1,025 sf
Ticketing	335 sf
Security screening	600 sf
Baggage claim	1,500 sf
Deplaning outflow	335 sf
Post-security hold room	950 sf
Restrooms	1,000 sf
Passenger drop off/pickup curbside	135 lf

SOURCE: Pueblo Memorial Airport, 2020; Dibble Engineering.

NOTE: All square footage is approximate. Sf = square feet and Lf = linear feet.

GA Facilities

GA facilities accommodate the non-commercial service aircraft at airports. Typically, these GA facilities include fixed base operators (FBOs), Specialized Aviation Service Operators (SASOs) and other aviation businesses, and aircraft storage hangars. The GA facilities found at PUB are described below.

FBO

A Fixed Base Operator (FBO) is an aviation-related business that provides services for non-air carrier pilots, aircraft, and passengers. However, some FBOs fuel air carrier aircraft, as well and provide deicing and light maintenance. FBO services range from GA aircraft fueling, ground servicing, aircraft maintenance and repair, in-flight catering, flight training, and aircraft rental.

FBOs often serve as a terminal for GA passengers and include a lobby, restrooms, vending, and rental car services. Pilot lounges, flight planning rooms, and pilot shops are also typical in FBOs. Currently, PUB has one full-service FBO: Rocky Mountain Flower Aviation. Located on the west GA apron, the FBO encompasses roughly 4,200 square feet of terminal space, plus a total of 40,000-square feet of hangar space split between two hangars. Major services offered include:

- Fueling
- Rental cars
- Aircraft maintenance
- Aircraft charter
- Hangar rental
- Catering
- Gift shop.

Specialized Aviation Service Operators

Specialized Aviation Service Operators (SASO) are defined by the FAA as single-service providers or special fixed-base operators performing less than full services. Typical SASO services include aircraft sales, flight training, aircraft maintenance, or avionics services, just to name a few. SASOs found at PUB include:

- **CAE-Doss (off-airport property)** – Flight training exclusively for the Department of Defense
- **SoCo Flight Professionals** – Flight training
- **TravelAire Charter Service** – Aircraft charter.

Pueblo Weisbrod Aircraft Museum

The Pueblo Weisbrod Aircraft Museum (PWAM) is a non-profit museum owned by the City of Pueblo and managed by the Pueblo Historical Aircraft Society. The museum is located just south and west of the airport terminal building off Keeler Parkway. The museum was founded in 1972 by former City of Pueblo Town Manager Fred Weisbrod. The museum's aircraft collection and other artifacts are housed in two 30,000-square foot hangars built in 2001 and 2010. Likewise, some aircraft and vehicles are stored outside in an adjacent designated area. The PWAM is open daily and operated by an all-volunteer staff.

Aircraft Hangars

There are various types and sizes of aircraft storage hangars found at airports. Most hangars at PUB are large conventional (box) hangars and common-wall, nested T-hangars. T-hangars generally hold one aircraft, while box hangars can hold multiple aircraft. Corporate box hangars typically accommodate larger turbine aircraft and have more amenities such as office space and restrooms.

At PUB there is a combination of large and GA box hangars and T-hangars (see **FIGURE A8** for locations). The City of Pueblo owns two, 10-unit T-hangar structures on the east side apron and currently leases 18 of the spaces. According to the Airport, these T-hangars have been minimally maintained since construction and are in fair condition. Leaking roofs, poor drainage, and poor surrounding apron are some of the major concerns for these structures. There are 16 private box hangars located on the west side apron that are owned by individuals, but who pay a ground lease fee to the Airport. Finally, there are six large box hangars owned by the City but leased to various Airport tenants. These hangars are designated Hangars A-F, although Hangar E (Blitz hangar) is in un-usable condition. There is also one private large executive hangar on the far east side of the apron. A lack of proper identification signage for all hangars (as well as other buildings) is also a concern for the Airport. **TABLE A13** summarizes the hangars found at the airport.

TABLE A13 PUB Hangar Facilities

HANGAR TYPE	QUANTITY	TOTAL SQ FT
Box, Large/Executive	7 ¹	81,600
Box, Small/GA	16	121,150
T-hangar/Open Bay	20 ²	22,000

SOURCE: Pueblo Memorial Airport records and aerial imagery, 2020; Dibble Engineering.

NOTES: All square footage is approximate.

¹ Hangar E (Blitz) is in un-usable condition, although some aircraft are stored within at no cost. This hangar is approximately 35,000 sq ft. One hangar is also privately owned and is approximately 24,000 sq ft.

² Only 18 T-hangar units are currently leased for aircraft; one unit is damaged and the other serves as office space.

Support Facilities and Equipment

Several other support functions at PUB have facilities and/or equipment associated with their operations. These include the Airport Traffic Control Tower (ATCT), Aircraft Rescue and Fire Fighting (ARFF), aircraft fueling, snow removal, and other airport maintenance equipment.

Airport Traffic Control Tower

The primary method of controlling the immediate airport environment is visual observation from the Airport Traffic Control Tower (ATCT). The tower is a tall, windowed structure located on airport property. Air traffic controllers are responsible for the separation and efficient movement of aircraft and vehicles operating on the taxiways and runways of the airport itself, and aircraft in the air near the airport, generally 5 to 10 nautical miles depending on the airport procedures. PUB has a FAA staffed ATCT located directly east of the passenger terminal building. The tower is staffed from 6 am until 10 pm daily. There are eight vehicle parking spots directly east of the Tower that are available for FAA personnel.

Aircraft Rescue and Fire Fighting

A special category of firefighting on airports is known as ARFF; ARFF provides response, evacuation, and possible rescue of passengers and crew in an aircraft during and emergency. Since PUB is a 14 CFR Part 139 certificated airport, it is required to provide ARFF services. PUB currently falls within ARFF Index A, which is based on the length of the existing commercial service aircraft providing more than five daily departures at the airport.

The ARFF facility is centrally located on the apron adjacent to the air traffic control tower. The building is approximately 6,350 square feet and in overall good condition. However, in a recent building assessment conducted for the City, the building was found to be roughly 52 years old and at the end of its useful life. A recommendation to build a new station in the next several years based on the building's current age was made within the report. The ARFF vehicles and their corresponding amount of extinguishing agent carried is listed in **TABLE A14**.

TABLE A14 ARFF Response Vehicles

YEAR	MAKE/MODEL	WATER (GAL)	DRY CHEM (LBS)	AFFF ¹ (LBS)	CONDITION
2014	Rosenbauer Panther	1,500	500	200	Excellent
1991	E-1 Titan	3,000	450	400	Good
1980	Ford FMC	500	N/A	N/A	Good

SOURCE: Pueblo Memorial Airport, *Airport Certification Manual*, Revision dated November 17, 2017; Dibble Engineering.

NOTE: AFFF (Aqueous Film Forming Foam).

Snow Removal and Airport Maintenance Equipment

Because of Pueblo's climate, periodically the Airport must use snow removal equipment (SRE) to clear the runways, taxiways, and aprons of snow and ice. Additionally, the Airport uses various vehicles and equipment to perform airfield inspections and repairs/maintenance. Both the SRE and other airport maintenance equipment are stored at the maintenance facility and storage yard, located approximately 600 feet south of the main aircraft apron. PUB's SRE are summarized in **TABLE A15**.

TABLE A15 Snow Removal Equipment

EQUIPMENT TYPE	EQUIPMENT DETAILS
Plow	<ul style="list-style-type: none"> ▪ 1987 Chevrolet dump truck, 8-foot Fisher plow ▪ (2) 2006 International 7500 dump truck with 14-foot plow and sander ▪ 1998 Kenworth dump truck, 22-foot Viking plow ▪ 2001/02 John Deere tractor, 9-foot pull behind blade ▪ 2000 CAT grader ▪ 2015 Ford F250, 8-foot Western plow
Rotary Plow	<ul style="list-style-type: none"> ▪ 1994 Steward & Stevenson rotary plow
Multi-Purpose Equipment	<ul style="list-style-type: none"> ▪ 2009 John Deere loader and attachments ▪ 2008 Skid Steer and attachments

SOURCE: Pueblo Memorial Airport, *Snow and Ice Control Plan*, Revision dated August 17, 2018; Dibble Engineering.

Aviation Fueling Facilities

The Airport has its own fuel farm where both Jet A and 100LL fuel is stored. The City of Pueblo owns the fuel farm. It is located south of the aircraft parking apron between Skyway and Bell Streets and just west of the museum hangar. There are five above-ground, 40,000-gallon tanks of Jet A and three, 20,000-gallon tanks of 100LL. The tanks and containment area are in overall good condition. Furthermore, all fueling facilities are inspected on a regular basis according to the Airport Certification Manual (ACM) requirements.

Aircraft fueling at PUB is provided by Rocky Mountain Flower Aviation (FBO), TravelAire Charter Services, or by the self-serve system operated by Sibran. All three lease tanks from the City. Sibran maintains and operates one, 12,000-gallon tank of 100 LL. The self-service fueling apron and fuel tanks are located at the far west end of the apron adjacent to Taxiway D and are in good condition. CAE-Doss aircraft utilize Sibran's self-serve option for fueling.

Airport Access and Circulation Network

PUB's main access road is Keeler Parkway (four lane road with center median) which can be accessed from United Avenue, just north of US Highway 50. Keeler Parkway terminates at Bryan Circle, which will lead to the passenger terminal and vehicle parking lots. Additional surface roads are located throughout the Airport Industrial Park for access to other businesses. Both Keeler Parkway and Bryan Circle are in good condition, with the exception of an approximate 500-foot length section of pavement on the south bound Keeler Parkway from Bryan Circle to the intersection at Walt Basset Avenue; this section is in fair condition with numerous cracks.

Vehicle Parking

One main parking lot provides vehicle parking for both the passenger terminal and the FBO. The lot is located directly south of the terminal and east of the FBO adjacent to southbound Keeler Parkway. There are 104 spaces, and the pavement is in very good condition. Just north of the main lot there are an additional 20 vehicle parking spaces also for the general public. There are five spaces for the rental car company just prior to the passenger drop off area along the terminal curbside. Passenger parking at PUB is currently offered free of charge.

There are two additional parking lots located to the east of the terminal building. One is adjacent to the ATCT and ARFF station and the other is located just south of that. The lot adjacent to the ATCT and ARFF station is used as employee parking for the ARFF, airport, airline, and TSA personnel and contains 50 spaces; this lot is in fair condition. The other large lot just south of the ATCT/ARFF lot is reserved for future passenger parking; the pavement in this lot is in poor condition and needs resurfacing. Other concerns with this lot include limited lighting, no pedestrian sidewalks, no handicap parking spaces, and high maintenance requirements for weed removal in unpaved areas.

Emergency Response

Pueblo Memorial Airport is a FAA Part 139 commercially certificated airport and is required to have an Airport Emergency Plan (AEP) that outlines response expectations to incidents or accidents that may occur on the Airport. The Airport is responsible for the implementation of the emergency plan and coordination with all responding agencies. Initial response to an aircraft incident on the Airport will come from the on-site City of Pueblo Fire Department Station #10 that houses the Airport Rescue Firefighting (ARFF) equipment and personnel. Station #10 also serves the adjacent Airport Industrial Park.

Depending upon the needs of the incident command for response there is a list of organizations and agencies in the Airport Emergency Plan that are relied upon to provide emergency services support. Organizations identified in the emergency plan include City, County, State, and Federal agencies.

Utilities

Utilities at PUB include electricity, natural gas, telephone/internet, and water and sewer services. The service provider for each is listed below:

- **Electricity:** Black Hills Energy
- **Natural Gas:** Xcel Energy
- **Telephone/internet:** Qwest Communications
- **Water:** Pueblo Board of Water Works
- **Sewer:** City of Pueblo Wastewater Department.

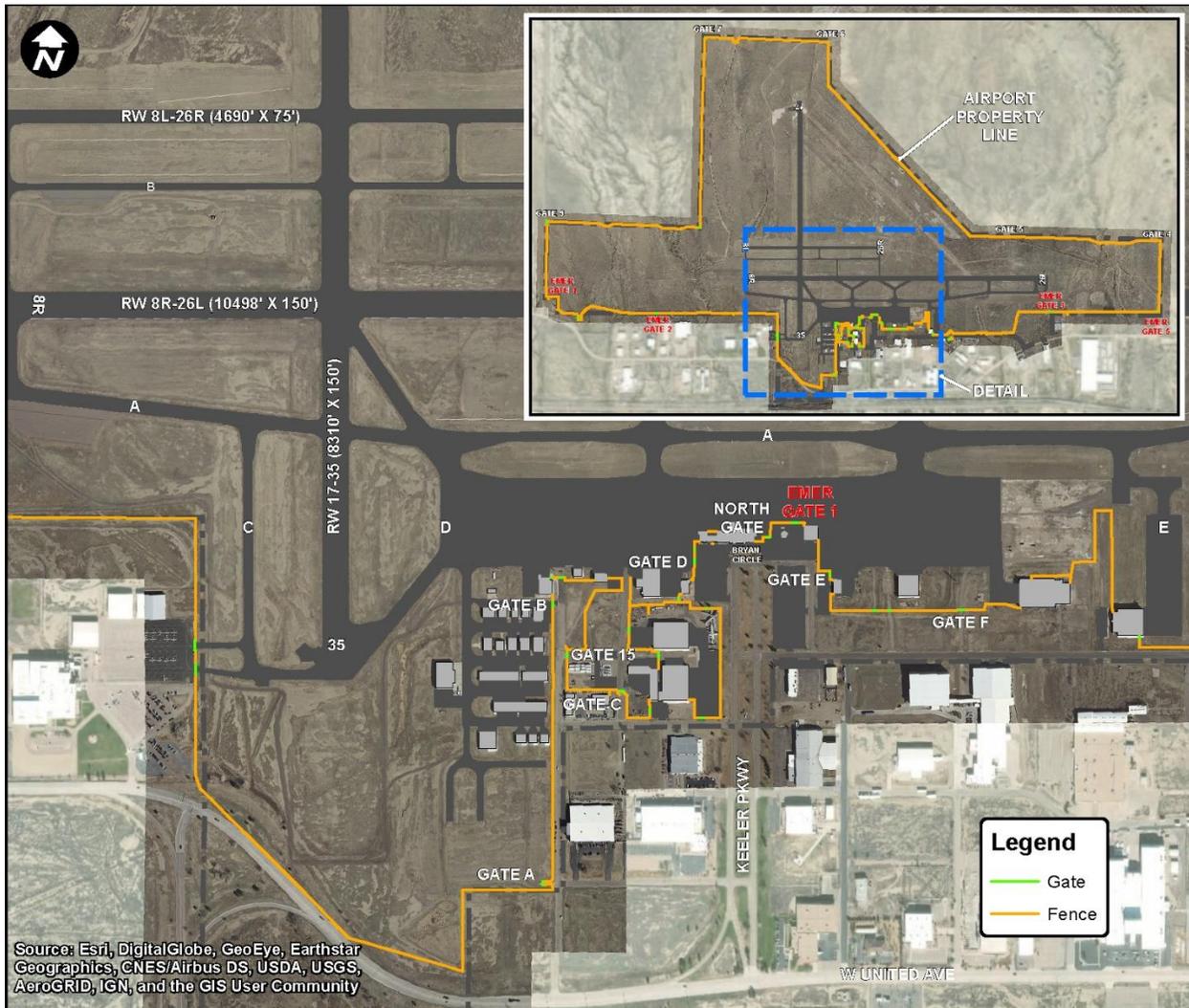
Fencing and Gates

Keeping the aircraft operations area (AOA) clear of unauthorized vehicles and pedestrians is required under Transportation Security Administration (TSA) security regulations for Part 139 certificated airports. Most airports, including GA, use fencing and access control gates to reduce the inadvertent entry of unauthorized people and vehicles, and wildlife as well, onto the airfield.

The terminal area and surrounding buildings are currently enclosed with eight-foot-tall chain link fencing with three strands of barbed wire on top. Based on the findings of PUB's 2018 Wildlife Hazard Assessment and Management Plan, 34,000 linear feet of new perimeter fencing was approved for installation. The new fencing is comprised of 10-foot-tall chain-link fence topped with 3-strand barbed wire. This fencing replaced older four-foot barbed wire fencing on most of the north, west, and east perimeters of the airfield. Phase 1 of the fencing project was completed in April of 2020; Phase 2 is scheduled to begin in June, with anticipated completion scheduled for August 2020.

In the terminal area there are 6 automatic vehicle access gates that provide entry to the airfield. Authorized personnel operate the gates with a magnetic gate card. Two pedestrian gates – one by Rocky Mountain Flower Aviation and one by the ARFF station – are operated via a programmable keypad lock. There are also five emergency vehicle access gates with access to the airfield; one is in the terminal area adjacent to the terminal and ATCT buildings, and two each are located on the southeast and southwest perimeter fence line. The location of the vehicle access gates and others are illustrated in **FIGURE A9**.

FIGURE A9 Existing Fencing and Gates



SOURCE: Dibble Engineering.

Airport Environs

Land Use Planning and Zoning

Designating land use and zoning on, adjacent to, and in the close proximity of an airport is an important task for municipal airport sponsors. Typical land use compatibility considerations include safety, height hazards, and noise exposure, all of which sponsors should address when designating land use and zoning ordinances on and around airports within their jurisdiction. In order to gain a better understanding of the land uses in the vicinity of the Airport, City of Pueblo land use maps were reviewed. As the future development of the Airport is laid out within the airport master planning process, it is essential the City planning efforts as it relates to land use are working in conjunction to prevent incompatible land use in the vicinity of the Airport.

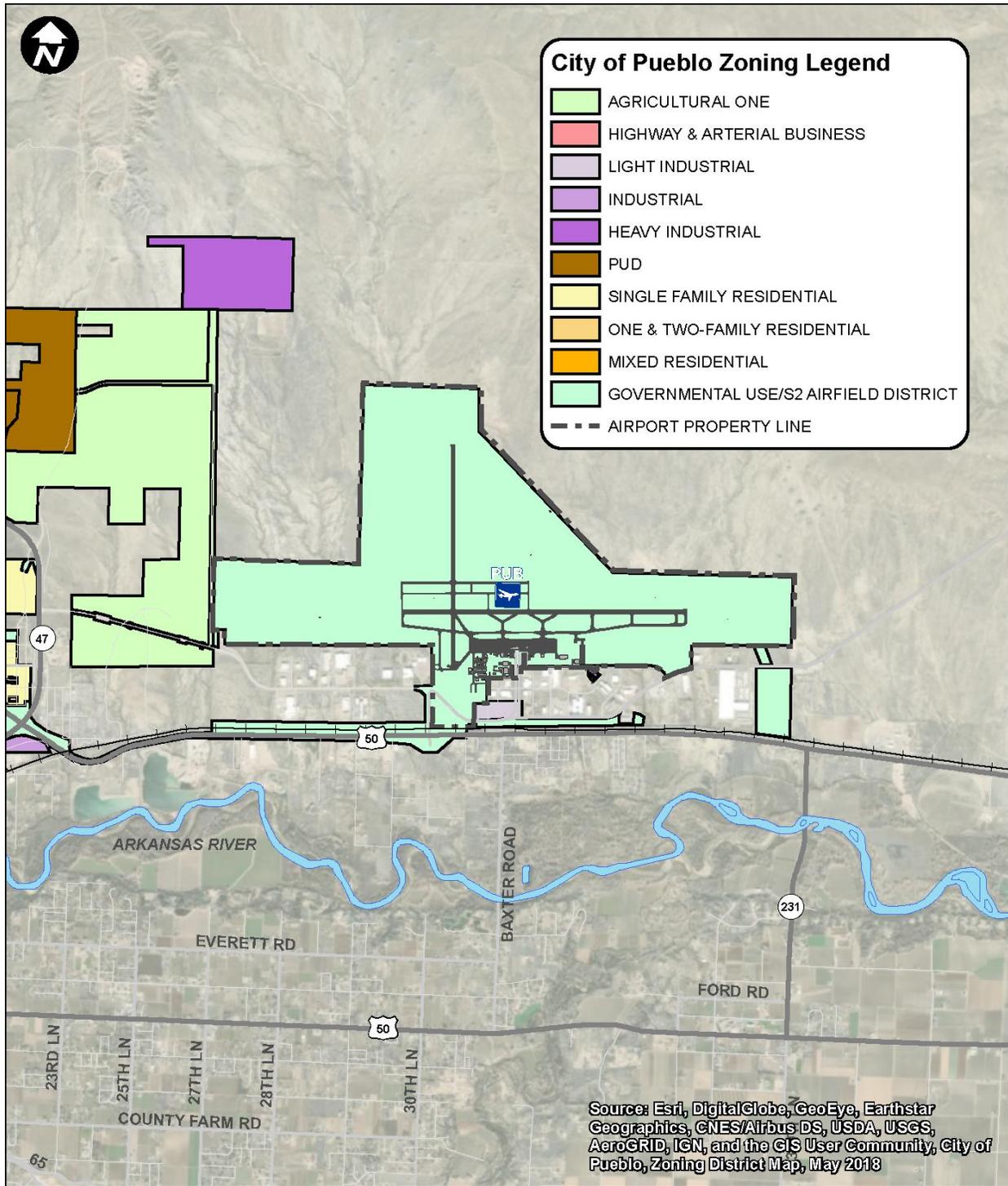
Existing Zoning

According to the City of Pueblo Zoning District Map, PUB and the surrounding industrial park area is zoned as S2 – Airfield District. Furthermore, according to the City of Pueblo Planning and Community Development, this district was designed to give added protection to the population, buildings, structures, and aircraft in close proximity to the airfield and supersede the height standards of the use district over which they may be applied. The height of structures, buildings, trees, or fences within the airfield zone shall not exceed the limits as defined by the 14 CFR Part 77 imaginary surfaces described in a preceding section. This includes the approach, horizontal, conical, and transitional surfaces associated with all three of the airport’s runways, as well as their RPZs. The existing zoning in and around the Airport is illustrated in **FIGURE A10**.

Future Land Use

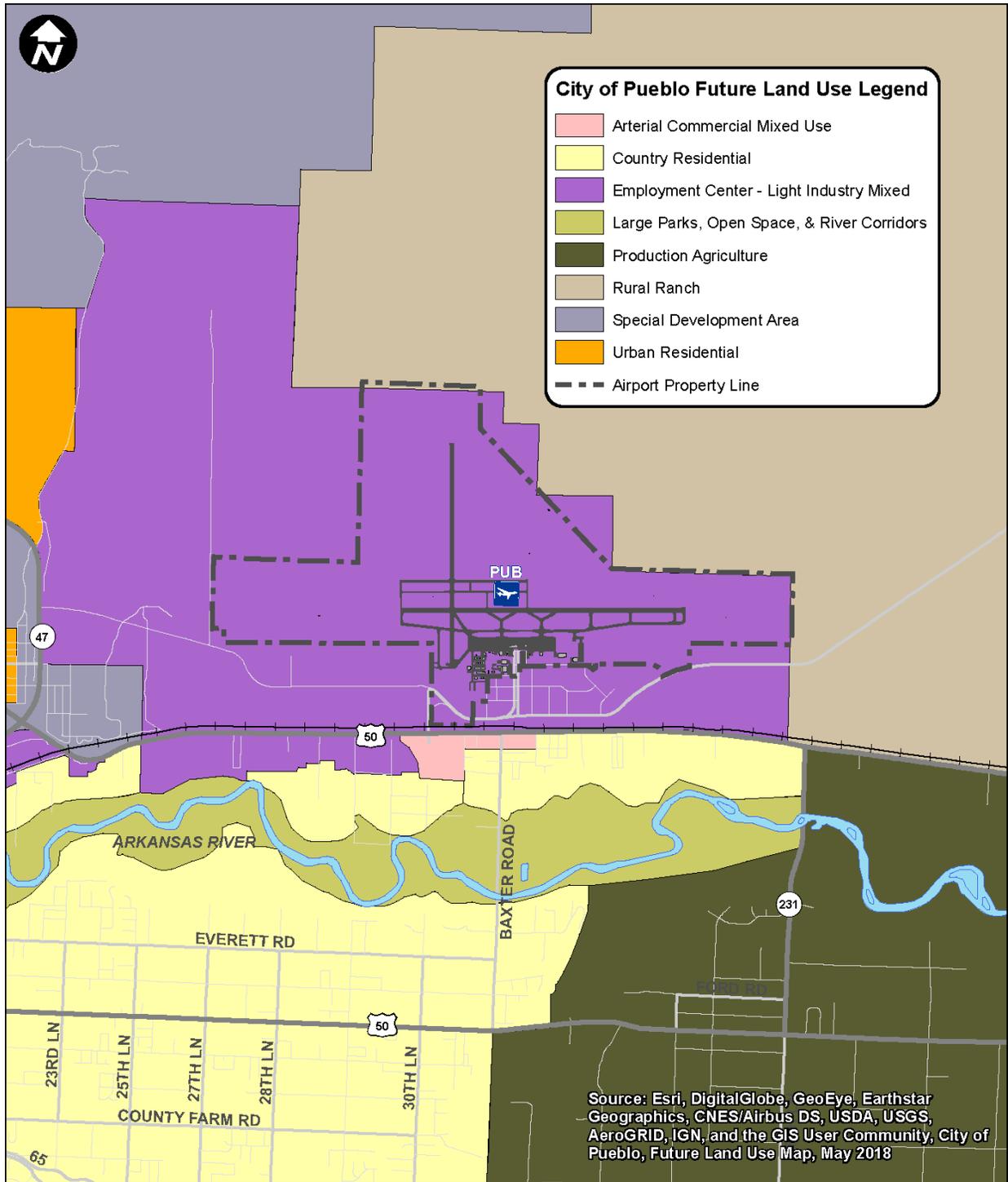
The City of Pueblo published the Pueblo Regional Development Plan Addendum in August 2014 in which the City continued to support compatible land use zoning in and around the airport by classifying the future land use in those areas as Employment Center – Light Industry Mixed Use. Land use in these areas, including the Airport Industrial Park (AIP), will support aeronautical activities, as well as manufacturing, assembly, research and development, and some commercial and office services. These activities will help provide tax revenues and employment for the region and limit the encroachment of residential and other non-compatible airport land uses. The future land use for the City of Pueblo is illustrated in **FIGURE A11**.

FIGURE A10 City of Pueblo Existing Zoning



SOURCE: Dibble Engineering.

FIGURE A11 City of Pueblo Future Land Use



SOURCE: Dibble Engineering.

Environmental Baseline Inventory

This section documents the existing baseline environmental conditions at the Airport and allows for the consideration of potential environmental impacts thorough the planning process including during the development of alternatives and recommendations.

FAA Orders 1050.1E, *Environmental Impacts: Policies and Procedures*, and 5050.4B, *National Environmental Policy Act: Implementation Instruction for Airport Actions*, address specific environmental resource categories to be evaluated in environmental documents in accordance with the National Environmental Policy Act (NEPA). This section summarizes the applicable environmental categories and their existence at PUB. The following environmental categories are not discussed as they are not relevant to PUB and/or they relate to impacts that would occur from a specific project:

- **Climate**
- **Coastal Resources**
- **Natural Resources and Energy Supply**
- **Socioeconomics, Environmental Justice, and Children’s Environmental Health and Safety Risks**
- **Cumulative Impacts**
- **Irreversible and irretrievable Commitments of Resources.**

Recommendations will be made to study these categories further under a NEPA analysis as specific projects are implemented.

Air Quality

Air quality analysis for federally funded projects must be prepared in accordance with applicable air quality statutes and regulations, including the Clean Air Act of 1970, the 1977 Clean Air Act Amendments, the 1990 Clean Air Act Amendments, and the National Ambient Air Quality Standards (NAAQS). The air pollutants of concern in the assessment of impacts from airport-related sources include six “criteria pollutants”; carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM-10 and PM-2.5), and sulfur dioxide (SO₂).

The Airport is located within Pueblo County and is designated by the U.S. Environmental Protection Agency (EPA) as being *in attainment* status for all parts of the County in all other criteria.

Biological Resources

Biological resources include fish, wildlife, plants, and their respective habitats. Requirements have been set forth by The Endangered Species Act (ESA), The Sikes Act, The Fish and Wildlife Coordination Act, The Fish and Wildlife Conservation Act, The Migratory Bird Treaty Act, Executive Order 13751 (Invasive Species), and various state and local regulations for the protection of fish, wildlife, and plants of local and national significance.

There does not appear to be suitable habitat for any of these species within the Airport property limits. A survey would need to be completed prior to any proposed development to determine if any listed threatened or endangered species are present on Airport property.

Species listed as threatened or endangered, or candidates that may be found within the Airport vicinity are depicted in **TABLE A16**.

TABLE A16 Threatened and Endangered Species in Pueblo County

GROUP	SPECIES	SCIENTIFIC NAME	STATUS
Birds	Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	Threatened
Insects	None		
Fish	Greenback Cutthroat Trout	<i>Oncorhynchus clarkii stomias</i>	Threatened
Mammals	Canada Lynx	<i>Lynx canadensis</i>	Threatened
Flowering Plants	None		

SOURCE: U.S. Fish and Wildlife Service, Information for Planning and Consultation (IPaC) Species Report, Pueblo Memorial Airport, 2020.

Department of Transportation Act, Section 4(f)

According to Section 4(f) of the Department of Transportation Act (re-codified as 49 USC, Subtitle I, Section 303), no publicly owned park, recreation area, wildlife or waterfowl refuge, or land of historic site that is of national, state, or local significance shall be used, acquired, or affected by programs or projects requiring federal assistance for implementation unless there is no feasible or prudent alternative.

The closest Section 4(f) property to the Airport is the Walking Stick Golf Course approximately 5 miles west of the Airport; however, no 4(f) properties are located within the Airport property boundary.

Farmlands

The Farmland Protection Policy Act (FPPA) regulates federal actions that may impact or convert farmland to a non-agricultural use. FPPA defines farmland as “prime or unique land as determined by the participating state or unit of local government and considered to be of statewide or local importance”.

All Airport property is categorized as “urban and urban build-up land” and the majority of the land within the immediate vicinity surrounding the Airport is categorized as “other”. No impacts to farmlands will result from implementation of master plan projects.

Hazardous Materials, Solid Waste and Pollution Prevention

Hazardous materials are defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) 42 United States Code (USC) 6901-6992. Hazardous materials include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or the environment.

The two statutes of concern to the FAA are the RCRA, as amended by the Federal Facilities Compliance Act, and the CERCLA, as amended by the Superfund Amendments Reauthorization Act (SARA) and by the Community Environmental Response Facilitation Act. RCRA governs the generation, treatment, storage, and disposal of hazardous wastes. CERCLA provides for consultation with natural resources trustees and cleanup of release of a hazardous substance, excluding petroleum, into the environment.

Sites of interest are defined as state cleanup sites, federal superfund cleanup sites, hazardous waste generators, solid waste facilities, underground storage tanks, dairies, and enforcement actions. The United States Environmental Protection Agency (EPA) does not list any sites. However, a search of a regulatory database report conducted for the 2009 EA identified four (4) closed cases concerning hazardous waste. The site is also associated with air emissions. No contamination of soil or groundwater was identified; therefore, any proposed master plan projects should not disturb any areas that contains or have previously contained hazardous materials.

Historical, Architectural, Archeological and Cultural Resources

Historical, architectural, archaeological, and cultural resources encompass a range of sites, properties, and physical resources associated with human activities, society, and cultural institutions. Federal law requires project sponsors who require federal funds or approvals to consider how their proposed projects would affect historic properties. In accordance with NEPA and Section 106 of the National Historic Preservation Act (NHPA), the FAA is the lead agency for identifying the potential impacts of a proposed project on these resources and consulting with federally recognized tribes, the State Historic Preservation Office (SHPO), and other agencies as necessary.

The FAA must also comply with the Archaeological and Historic Preservation Act to ensure the plan “provides the survey, recovery, and preservation of significant scientific, prehistorical, historical, archeological, or paleontological data when such data may be destroyed or irreparably lost due to a federal, federally licensed, or federally funded project.”

In the context of an Airport Master Plan, historic, archaeological, and cultural resources are districts, sites, buildings, structures, objects, landscapes, and Native American Traditional Cultural Properties (TCPs) that are on or eligible for listing on the NRHP. PUB does not have historic buildings or structures. The closest historic resource listed on the NRHP is Preston Farm, located over four miles north of Airport.

A Class III cultural resources survey was conducted as part of a previous airport project. The survey identified only one historic property, the Blitz Hangar, which was determined eligible for the NRHP in 1996.

A cultural resource survey would be required prior to any major development to determine if any historic, archaeological, and cultural resources appear on Airport property.

Noise and Noise-Compatible Land Use

According to the FAA Order 1050.1F, Desk Reference, Chapter 11, Noise and Noise-Compatible Land Use, “noise” is defined as unwanted sound that may interrupt activities such as sleep, conversation, or student learning. Aviation noise typically comes from the operation of aircraft during departures, arrivals, overflights, taxiing, and engine run-ups.

Per FAA Order 1050.1F, projects at airports that experience 90,000 annual piston-powered aircraft operations, 700 annual jet-powered aircraft operations, such as siting a new airport, runway relocation, runway strengthening, or a major runway expansion require a noise analysis including noise contour maps. According to the previous master plan (2017) the existing 65 Day-Night Average Sound Level (DNL) noise contour remains well within the Airport’s boundary. New noise contours will be generated as part of this study based on updated fleet mix and aviation demand forecast to determine if surrounding land uses would be impacted by aircraft noise.

Visual Effects

FAA Order 1050.1F defines light emissions as light that emanates from a light source into the surrounding environment (i.e. airfield and apron flood lighting, NAVAIDs, terminal lighting, parking lighting, roadway lighting, safety lighting). Visual resources may include structures or objects that obscure or block other landscape features (i.e. buildings, sites, traditional cultural properties, or other manmade landscape features).

The primary sources of light emissions at the Airport are the runway edge lights, approach lights, rotating beacon, PAPIs, and apron and parking lights, which aid in providing a safe environment for aircraft operations and produce an insignificant amount of light on the surrounding area. Light emissions and visual impacts should be considered prior to any future development projects.

Water Resources

Water resources are surface waters and ground water that are vital to society because they provide drinking water as well as support recreation, transportation and commerce, industry, agriculture, and aquatic ecosystems. Surface water, ground water, floodplains, and wetlands do not function as separate and isolated components of the watershed, but rather as a single, integrated natural system. Disruption of any one part of this system can result in consequences to the functioning of the entire system, which need to be considered as part of the planning process along with potential impacts to the quality of water resources.

Wetlands

The Clean Water Act (CWA) defines wetlands as:

...areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Federal regulations require that proposed actions avoid, to the greatest extent possible, long-term and short-term impacts to wetlands, including the destruction and altering of the functions and values of wetlands.

The US Fish and Wildlife Service (FWS) is the principal US Federal agency tasked with providing information to the public on the status and trends of our Nation's wetlands. The US FWS National Wetlands Inventory (NWI) is a publicly available resource that provides detailed information on the abundance, characteristics, and distribution of US wetlands.

The USFWS National Wetlands Inventory (NWI) online mapping system was reviewed to identify delineated wetlands on or near the Airport. According to NWI, no wetlands exist at PUB other than a system of riverines which primarily flow from south to north around the perimeter of the Airport property.

A Riverine System includes all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts of 0.5 ppt or greater. A channel is an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water.

Floodplains

A floodplain is generally a flat, low-lying area adjacent to a stream or river that is subject to inundation during high flows. The relative elevation of a floodplain determines its frequency of flooding.

Executive Order 11988 requires federal agencies “to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification floodplains and to avoid direct or indirect support of floodplain development whenever there is a practical alternative.”

According to FEMA’s National Flood Hazard Layer (NFHL) Viewer, the Airport has flood zones (Zone A) on the east and west sides of the Airport flowing from south to north. Zone A - areas are subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.

Surface Waters

Surface water is water that occurs above ground such as a wetland, river, stream or lake. There are three unnamed washes flowing into the Airport property from the north. These unnamed washes are tributaries to the Arkansas River. The wash on the western end and eastern end of the Airport property are located in a FEMA jurisdictional washes. The washes are located outside of the Airport runways and traverse the entire Airport property. There are several drainage swales and culverts located within the runway and taxiway area. The main hydrological features in the vicinity of the Airport are the Arkansas River, located approximately 1/2-mile south of the Airport, and Fountain Creek, which is located approximately 3 and ¼-mile west of the Airport.

Groundwater

Groundwater is subsurface water that occupies the space between sand, clay, and rock formations. Aquifers are the geologic layers that store or transmit groundwater to wells, springs and other water sources. The Safe Drinking Water Act and its implementing regulations (40 CFR Parts 141-149) prohibit federal agencies from funding actions that would contaminate an EPA-designated sole source aquifer or its recharge area. State and local agencies may also promulgate regulations to protect sole source aquifers and their recharge areas.

Wild and Scenic Rivers

Wild rivers are free of obstructions such as canals and dams, and normally so remote as to only be accessible by trail. Scenic rivers are free of obstructions and have undeveloped shorelines but may have road access. Wild and scenic rivers are protected by the 1986 Wild and Scenic Rivers Act. Wild and scenic rivers are managed by the Bureau of Land Management, the National Park Service, the USFWS, and the U.S. Forest Service.

According to the National Park Service (NPS) map of the National Wild and Scenic Rivers System, there are no wild and scenic rivers within or around the Airport. The nearest wild and scenic river is the Cache la Poudre Wild and Scenic River, located in northern Colorado.