

# Chapter Two

## Inventory & Forecasts



Methow Valley State Airport  
Airport Layout Plan Update

## CHAPTER TWO

### INVENTORY OF EXISTING CONDITIONS AND FORECASTS OF AVIATION ACTIVITY

#### Introduction

Methow Valley State Airport is owned and operated by the Washington Department of Transportation (WSDOT) Aviation Division. The airport is home to the U.S. Forest Service (USFS) North Cascades Smoke Jumper Base, which is located on USFS-owned property immediately adjacent to the east side of the runway.

Methow Valley State Airport accommodates general aviation aircraft used in business, personal, and government travel; medical evacuation (medevac) flights; and government agency owned and contracted aircraft used in seasonal firefighting efforts. The majority of general aviation activity consists of small single-engine and multi-engine piston aircraft, although the airport also accommodates a variety of turbine aircraft (turboprop, business jets, etc.) on a limited basis. General aviation activity is generated by local residents, businesses, and visitors to the area. Fire-related activity includes some piston engine aircraft, although large twin-engine turboprops and helicopters account for the majority of aircraft operations.

The Methow Valley is one of Washington's most unique year-round destinations and has long attracted visitors and residents for its wilderness setting and unique recreational opportunities, including the nearby Sun Mountain Lodge.

This chapter documents existing conditions at the airport. This Chapter includes the best information and data available at the time the data collection was completed and is a snapshot of the conditions at the airport. Existing airfield facilities were examined during on-site inspections to update facility inventory data collected in prior planning efforts. Data from a variety of sources are used in this evaluation:

- **Washington State Aviation System Plan (WSASP) Database – Airport Facilities and Services Report**
- **Washington Long Term Air Transportation Study (LATS) – Forecasts (July 2007)**
- **Methow Valley State Airport 2005 Pavement Management Report (Applied Pavement Technology, Inc., 2005)**

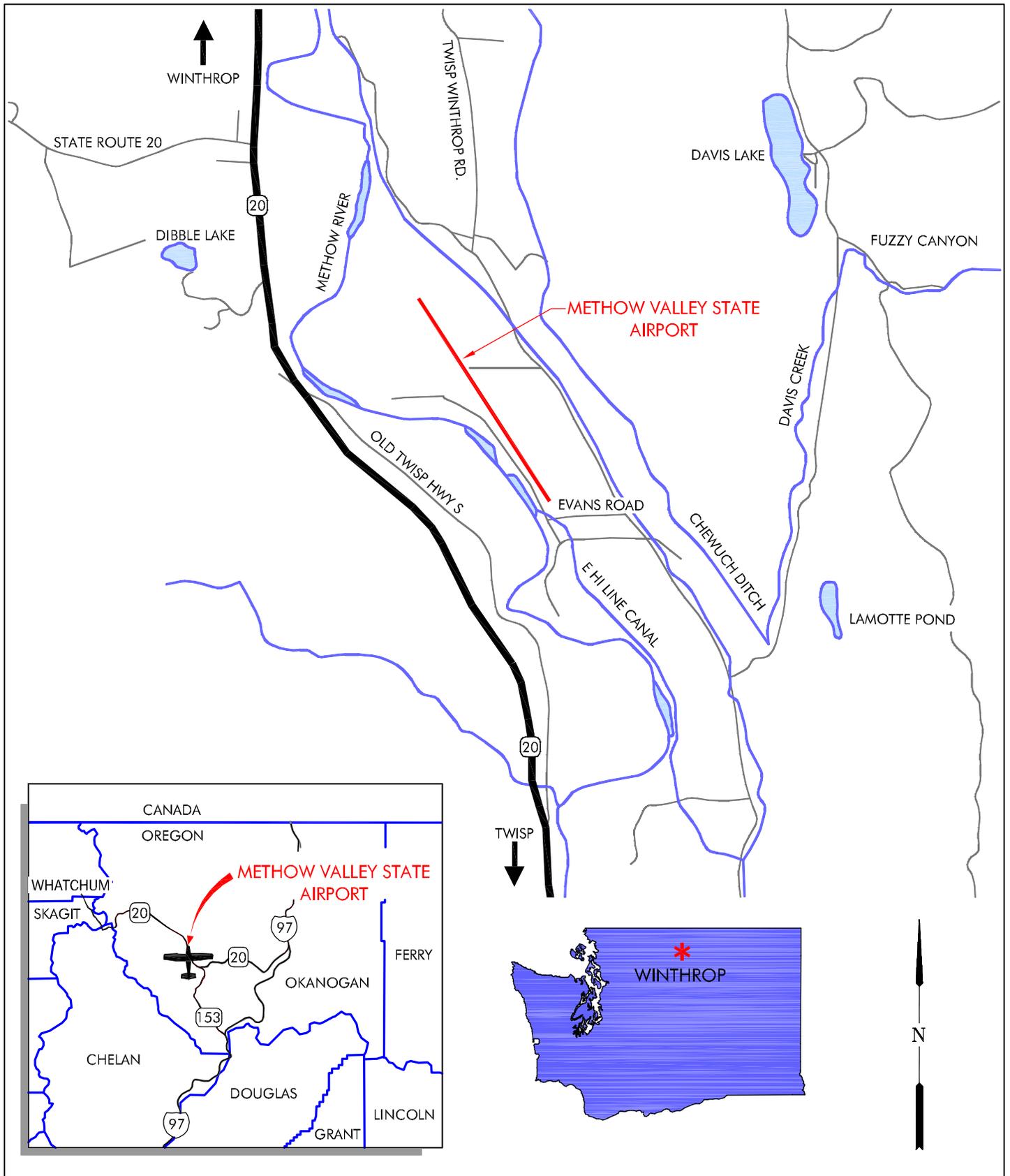
- **1995 Airport Layout Plan Set** (W&H Pacific)
- **Airport Master Plan - Intercity Airport/Methow Valley State Airport** (Reid Middleton & Associates and Robert O. Brown, April 1986)
- **FAA Airport Master Record Form (5010-1)**
- **FAA Terminal Area Forecasts**
- **Seattle Sectional Aeronautical Chart; IFR Enroute Low Altitude (L-1) Chart; Airport/Facility Directory** (U.S. DOT FAA, National Aeronautical Charting Office)

## AIRPORT LOCALE

Methow Valley State Airport is located approximately 3 miles southeast of Winthrop and 4 miles northwest of Twisp, in the western part of Okanogan County in North-Central Washington. Okanogan County is Washington's largest county, totaling approximately 5,268 square miles. It is sparsely populated, with large portions located within the Okanogan National Forest and the Colville Indian Reservation. Winthrop and Twisp are the two western-most incorporated communities in Okanogan County. Omak is the county seat, located 45 miles east of Winthrop, via State Highway 20.

The airport is located in the Methow Valley, surrounded by mountainous terrain in all directions. A location map is provided in **Figure 2-1**. The Methow River forms the airport's southeast property line. Surface access to Methow Valley State Airport is provided via Twisp-Winthrop Eastside Road, which travels north and east of the Methow River and State Highway 20, connecting Twisp and Winthrop.

State Highway 20 is a major east-west travel route that extends through northern Washington from Puget Sound to eastern Washington. A section of Highway 20 located west of Winthrop is closed during the winter months. U.S. Highway 2 (Stevens Pass) and Interstate 90 (Snoqualmie Pass) provide the primary access to the west side of Washington during the winter months, via U.S. Highway 97. State Highway 153 connects Highway 20, east of Twisp, to U.S. Highway 97 at Pateros. By highway, Winthrop is located 8 miles from Twisp; 46 miles from Omak; 60 miles from Chelan; 99 miles from Wenatchee; and 133 miles from Burlington (Interstate 5).




 Washington State  
 Department of Transportation  
 Aviation Division


**CENTURY WEST**  
 ENGINEERING CORPORATION

LOCATION MAP

FIGURE

**METHOW VALLEY STATE AIRPORT  
AIRPORT LAYOUT PLAN**

**2-1**

## AIRPORT HISTORY

As noted earlier, Methow Valley State Airport is home to the North Cascades Smoke Jumper Base, which is operated by the U.S. Forest Service (USFS). According to the USFS publications, modern smoke jumper techniques were developed in the Methow Valley beginning in 1939.

The current airport site was originally known as Inter-City Airport, constructed in the late 1940s. Historic airport pavement information indicates that some of the older taxiway pavements were constructed in 1955. Ownership of Intercity Airport was transferred via Quitclaim Deed from the USFS to the Aeronautics Division of WSDOT in 1982. Several facility improvements including runway reconstruction, lighting and construction of the public use aircraft apron have been completed by WSDOT Aviation since the mid-1990s.

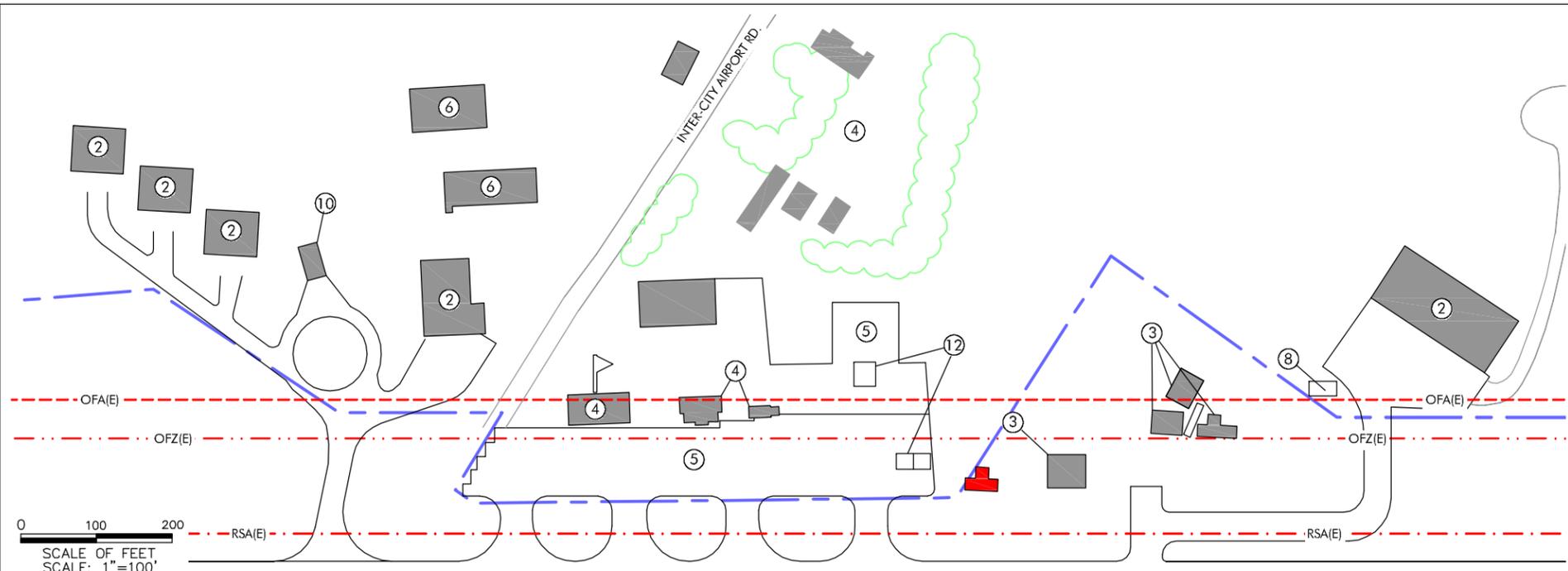
## AIRPORT FACILITIES

Methow Valley State Airport has a small land base (approximately 90.52 acres<sup>2</sup>) with limited development areas available within airport property on the sides of the runway. The airport has a single runway oriented in a northwest-southeast direction, with landside facilities (aircraft parking aprons, hangars, etc.) located on the east and west sides of the runway. Vehicle access to both sides of the airport is provided by roadway connections to Twisp-Winthrop Eastside Road. **Table 2-1** summarizes airport data. **Figure 2-2** illustrates existing facilities at the airport.

**TABLE 2-1: AIRPORT DATA**

Airport Name/Designation	Methow Valley State Airport (S52)
Airport Owner	Washington Department of Transportation – Aviation Division
Date Established	1948 (estimated)
Airport Category	National Plan of Integrated Airport Systems (NPIAS) General Aviation FAA Airport Reference Code: A-II (as noted on the 1995 ALP) Washington Aviation System Designation: General Aviation Airport
Airport Acreage	90.52 acres (per WSDOT property records)
Airport Reference Point Coordinates	N 48° 25' 30" W 120° 08' 45"
Airport Elevation	1,706 feet Mean Sea Level (MSL)
Airport Traffic Pattern Configuration/Altitude	Left Traffic (Rwy 13 & 31) Approximately 2,500 to 2,700 feet above mean sea level (MSL)

<sup>2</sup> Airport acreage based on review of property ownership records by WSDOT Real Estate Division.



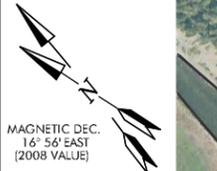
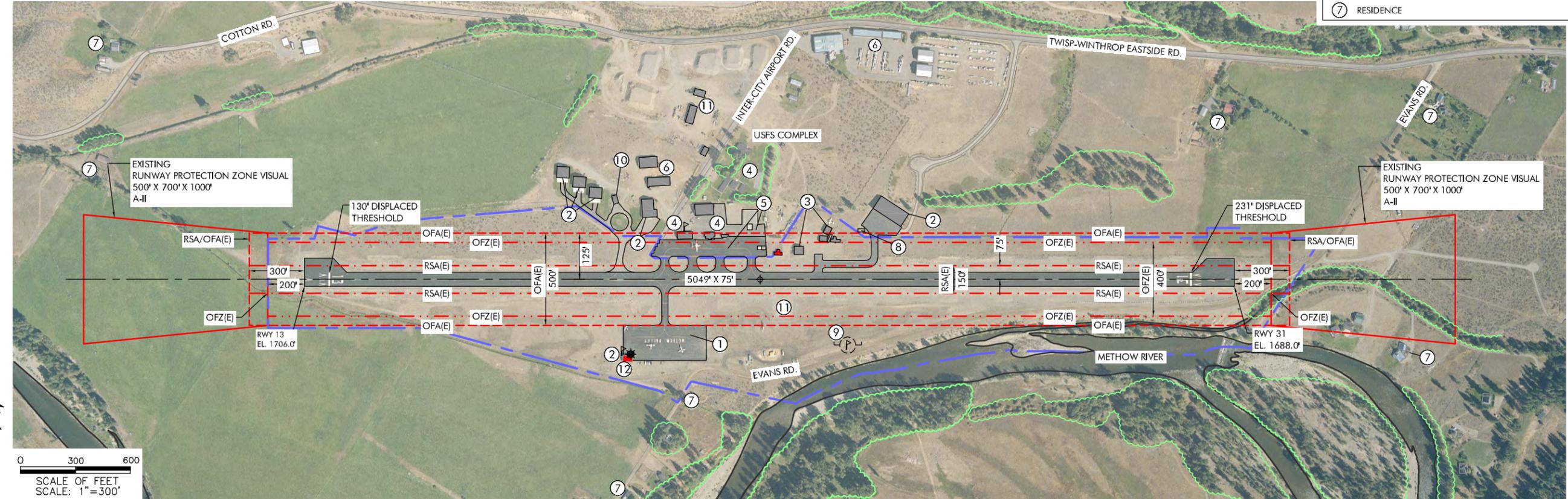
SCALE OF FEET  
SCALE: 1"=100'

**EAST LANDSIDE FACILITIES**

**NOTE:**  
1. RPZS AND PROTECTED AREAS AS DEPICTED ON 1995 ALP.

LEGEND		
	EXISTING	FUTURE
FACILITIES		
BUILDINGS		
RUNWAY		
BUILDING RESTRICTION LINE (BRL)		
AIRCRAFT PARKING LINE (APL)		
AIRPORT PROPERTY LINE		
RUNWAY SAFETY AREA (RSA)		
OBJECT FREE AREA (OFA)		
TAXIWAY OBJECT FREE AREA (TOFA)		
OBSTACLE FREE ZONE (OFZ)		
RUNWAY PROTECTION ZONE (RPZ)		
GROUND CONTOURS		
AIRPORT REFERENCE POINT (ARP)		
REIL		
VISUAL GUIDANCE INDICATORS		
WIND INDICATOR		
FENCE		
BEACON		
THRESHOLD LIGHTS		
SEGMENTED CIRCLE WIND INDICATOR		
BUILDINGS HAVE BEEN REMOVED		

BUILDING/FACILITY KEY	
① TIEDOWN APRON	⑧ AWOS
② HANGAR (OFF AIRPORT)	⑨ SEGMENTED CIRCLE & TETRAHEDRON
③ HANGAR (ON AIRPORT)	⑩ AIRCRAFT FUEL (PRIVATE)
④ USFS SMOKE JUMPER BASE	⑪ COUNTY ROAD SHOP
⑤ USFS APRON	⑫ USFS HELICOPTER PARKING PAD
⑥ NON AVIATION	
⑦ RESIDENCE	



SCALE OF FEET  
SCALE: 1"=300'

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**VERIFY SCALES**  
BAR IS ONE INCH ON ORIGINAL DRAWING.  
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

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APPROVAL DATE: \_\_\_\_\_  
MANAGER, SEATTLE ADO

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION APPROVAL  
APPROVAL DATE: \_\_\_\_\_  
SIGNATURE

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DATE: NOVEMBER 2008    PROJECT NO: 41402007

**METHOW VALLEY STATE AIRPORT**  
**EXISTING CONDITIONS**

FIGURE NO. **2-2**  
SHEET NO.

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### Landside Facilities - West Side of Runway

The west side of the airport accommodates a public use aircraft parking apron located near the middle of the runway. A hangar previously located at the northwest corner of the apron was removed in 2008 after its roof collapsed. This area is also used for long-term vehicle parking. There are no other permanent facilities currently located on the west side of the runway, although seasonal fire-related helicopter operations are accommodated in the areas along the runway. Vehicle access to the west side of the airport is provided by Evans Road, which travels around the south end of the runway.

### Landside Facilities – East Side of Runway

Aviation facilities on the east side of the runway are located both on and off airport property. The USFS facilities and several privately owned hangars are located off airport property and users access the airport “through-the-fence.” Four older hangars are located on airport property, immediately south of the USFS facilities. One additional hangar in this area was removed in 2008. These hangars are located on property that was acquired by WSDOT Aviation in 1991 to accommodate future runway-taxiway improvements. The original purchase agreements called for the hangars to be removed or relocated to sites elsewhere on the airport (locations to be determined later). Surface access to the four hangars is not clearly defined, which requires users to cross through private parcels or the USFS complex. Occasional conflicts are reported between vehicles and USFS operations.

The USFS facilities are located near the middle of the runway and the complex includes ten buildings, two aircraft aprons, and helicopter parking pads. The aircraft apron is connected to the runway by four short taxiways. The smokejumper base operates on a seasonal basis (summer months) and generates substantial aircraft activity including fixed wing turboprops (de Havilland DHC-6 Twin Otter, Casa 212, etc.) and variety of helicopters. The USFS complex consists of approximately 18.3 acres abutting the south side of Intercity Airport Road.

A private (off airport) hangar development is located north of the USFS facilities that currently includes four newer hangars, three other structures, and aircraft fuel storage & dispensing facilities (not currently in use). Aircraft access to these facilities is provided by a single taxiway that extends from the runway, approximately 200 feet north of the USFS apron. A binding site plan was approved by Okanogan County for the land area that contains 17 small hangar parcels, including three hangars that were previously constructed along the access taxiway. Surface access to the development is provided by Intercity Airport Road.

A newer 3-unit hangar and privately owned automated weather observation system (AWOS) is located off airport property, south of the USFS facilities. A taxiway extends from the runway to

provide access to the hangar and a small apron. Surface access to the hangar is provided by a private road (Park Place) that connects to the Twisp-Winthrop Eastside Road.

## RUNWAYS & TAXIWAYS

**Table 2-2** summarizes existing runway and taxiway facilities.

### Runway

Methow Valley State Airport has one runway (13/31) that is oriented in a northwest-southeast direction (130-310 degree magnetic alignment). Runway 13/31 is paved and lighted with a published length of 5,049 feet and a width of 75 feet. Both ends of Runway 13/31 have displaced thresholds to improve obstruction clearance for the runway approaches.

Runway 13 has a 130-foot displaced threshold. The FAA 5010 Airport Record Form indicates that the controlling obstruction for Runway 13 is a fence, resulting in a 5:1 clear approach slope. The WSDOT [Airport Facilities and Services Report](#) indicates that the controlling obstruction for Runway 13 has an elevation of 1,712 feet (6 feet above the runway end elevation), is located 236 feet from the runway end, and results in a 5:1 actual slope. The type of obstruction is not indicated, but it appears to be consistent with a typical range fence.

Runway 31 has a 231-foot displaced threshold. The FAA 5010 Airport Record Form indicates that the controlling obstruction for Runway 31 is a road, resulting in a 0:1 clear approach slope. Evans Road travels around the end of Runway 31 and provides public access to the west side of the airfield and to several private residences located along the river. As a public roadway, a vehicle height of 15 feet is added to the road elevation in order to determine the height of the obstruction. The WSDOT [Airport Facilities and Services Report](#) indicates that the controlling obstruction for Runway 31 has an elevation of 1,685 feet (3 feet below the runway end elevation), is located 202 feet from the runway end, and results in a 0:1 actual slope. The type of obstruction is not indicated. It appears that the survey data does not include the height of a vehicle on the roadway since the road and runway are relatively level in this area.

The effective gradient of Runway 13/31 is approximately 0.356 percent, with the high point (surveyed 1,706 feet MSL) located at the north end (Rwy 13) of the runway. The runway has a published weight bearing capacity of 30,000 pounds for aircraft equipped with single-wheel landing gear. The runway has edge lighting and threshold lighting. Neither runway end is equipped with visual guidance indicators (VGI).

**TABLE 2-2: RUNWAY & TAXIWAY DATA**

Runway 13/31	
Dimensions	5,049 x 75 feet Rwy 13 Displaced Threshold: 130' Rwy 31 Displaced Threshold: 231'
Effective Gradient	0.356%
Surface/ Condition	Asphalt Very Good (as rated in the 2005 Pavement Report) Fair (as observed during 2008 inventory)
Weight Bearing Capacity	30,000 pounds (single wheel landing gear)
Marking	Basic (white paint): runway numbers, centerline stripe, threshold bars, displaced threshold markings (both runway ends); taxiway lead-in lines (yellow paint)
Lighting	Medium Intensity Runway Edge Lighting (MIRL); threshold lights (flush mounted on Rwy 31) ; Pilot activated by radio CTAF 122.8 MHz
Signage	Directional, Informational, 4 Dual Sided Distance To Go Signs [4] [3] [2] [1]
Other Items	Segmented circle and tetrahedron (west side of runway); lighted wind cone located adjacent to west tiedown apron; wind cone roof mounted on USFS operations building.
Wind Coverage	N/A
Taxiways	
East USFS Apron Taxiways (4)	Approximately 175 x 40 feet (asphalt surface). Taxiways connect the smoke jumper apron and runway. Yellow centerline stripes on 2 exits; aircraft hold lines on all connections to the runway (125 feet from runway centerline).
East Hangar Taxiway	Approximately 600 x 30 feet (asphalt surface). Taxiway provides access to hangars and aircraft fueling area. Yellow centerline stripe (partial) and aircraft hold line 125 feet from runway centerline.
South (east) Hangar Taxiway	Approximately 500 x 38 feet (asphalt surface). No markings or aircraft hold lines observed. Centerline of parallel section of taxiway is approximately 85 feet east of the runway centerline.
West Tiedown Apron Taxiway	Approximately 244 x 35 feet (asphalt surface). Yellow centerline stripe and aircraft hold line 125 feet from runway centerline.
Aircraft Turnarounds (Rwy 13 & 31 ends)	Approximately 75 x 183 feet. Located immediately adjacent to the runway on east side. No markings observed.
Taxiway/Taxilane Lighting	No taxiway lighting observed. Blue cylindrical edge reflectors on USFS east apron taxiways. No reflectors observed on west apron taxiway or on east hangar taxiways.

Runway 13/31 has basic (visual) markings (runway numbers and centerline stripe). Threshold bars (10 feet wide) are located at each runway end, corresponding with the displaced thresholds. The displaced threshold markings at both ends of the runway include a centerline arrow and three arrow heads leading to the threshold bar. The markings are generally in fair condition, although some markings were in poor condition (worn paint). All runway markings are painted in white.



Moderate transverse and block cracking was observed on the runway during a recent site visit. Some cracks are approximately  $\frac{3}{4}$ -inch to  $1\frac{1}{2}$ -inch wide, although most are less than  $\frac{3}{4}$ -inch wide. Some prior crackfilling is evident, although most cracks have re-opened. Isolated areas of cracking were observed (early 2008 site visit) that were wide enough to reveal the aggregate course under the asphalt. The surface is moderately weathered and some wear from snowplows (tire chains) was observed. The runway condition was

rated “very good” in the most recent (2005) comprehensive pavement evaluation. It appears that crackfilling, sealcoating and repainting markings is currently needed. However, if the runway requires more extensive rehabilitation in the near future, the scheduling of other pavement maintenance items should be coordinated to maximize the value of the improvements.

#### Taxiways and Taxilanes

Runway 13/31 is not served by a parallel taxiway. The runway has aircraft turnarounds located on its east side at both ends. Aircraft access between the runway and adjacent landside facilities is provided by seven paved taxiways (all 90-degree exits) and by directly taxiing from hangars on unpaved surfaces. Most of the taxiways were rated “very good” or “excellent” in the 2005 pavement evaluation.

Four paved taxiways extend from the runway to adjacent USFS facilities. The taxiways are short exits (175 feet by 40 feet) that connect to the main aircraft apron. A taxiway (approximately 600 feet by 30 feet) located north of the USFS complex provides access to a private aircraft hangar development. The hangar taxiway is in good condition, although a portion of the taxiway was observed to have considerable buildups of dirt and gravel on the surface (near the corner where the diagonal section begins) which made it difficult to determine the condition of pavement edge. The short connecting taxiways are in excellent condition and have edge reflectors. The USFS apron has a single taxilane (parallel to the runway) located approximately 170 feet east of the runway centerline.

A paved taxiway (approximately 500 feet long and 38 feet wide) is located south of the USFS complex that serves a large 3-unit hangar and several smaller hangars on the east side of the runway. A portion of the taxiway is parallel to the runway, with a centerline-to-centerline separation of approximately 85 feet. This taxiway is in good condition and has no markings, lighting or reflectors.

A single taxiway is located on the west side of the runway (244 feet by 35 feet) that connects the aircraft apron to the runway. The apron has a single taxilane (parallel to the runway) that provides access to two rows of aircraft tiedowns. The taxilane centerline is located approximately 310 feet east of the runway centerline. The taxiway and apron taxilane appears to be in similar condition as the runway, although the cracking was light to moderate.

Taxiway markings (yellow paint) include lead-in lines, taxiway centerlines and aircraft hold lines. The taxiway lead-in lines guide aircraft from the runway to taxiway exits and continue as taxiway/taxilane centerline stripes. Lead-in lines are located for three east-side taxiways and the west taxiway. Aircraft hold lines are located on all of the taxiways that connect to the runway, with the exception of the southern-most taxiway on the east side of the runway, which has no markings. All aircraft hold lines are located 125 feet from runway centerline, which correspond to the edge of the obstacle free zone (OFZ) for runways serving small airplanes, identified on the previous airport layout plan (ALP). The USFS apron and the west tiedown apron both have center taxilanes which are parallel to the runway; the apron taxilanes lead to taxiways connecting to the runway. Some taxiway markings are worn and require repainting.

## Aircraft Apron

Methow Valley State Airport has a one public aircraft apron located on the west side of Runway 13/31 that accommodates locally-based and transient aircraft parking and provides access to an adjacent hangar area. Several apron areas on the east side of the runway are located off airport property. Most of the apron sections were rated “very good” or “excellent” in the 2005 pavement evaluation. **Table 2-3** summarizes existing aircraft apron facilities.

### West Tiedown Apron

The main aircraft tiedown apron is located near the middle of Runway 13/31, with a single taxiway connection to the runway. The airport name “Methow Valley” is painted on the main apron (20 foot tall white letters). The paved apron is approximately 450 feet by 189 feet and has eleven (11) small aircraft tiedowns and two (2) large aircraft tiedowns in two single rows. The tiedowns are configured with the parking positions facing inward toward a taxilane that runs the length of the apron (parallel to the runway).

The large tiedowns are 48 feet wide and 41 feet deep (anchor spacing in the “T”); the smaller tiedowns are standard size for small aircraft. The tops of the painted tiedowns are located 41 feet from the taxilane centerline. It is noted that a large business jet (Gulfstream III), operated by a local ranch, parks on the south end apron (in the area of the large tiedowns) on a semi-regular basis. When the aircraft is parked on the ramp, the large aircraft tiedowns are not available.

The apron appears to be in similar condition as the runway, with surface weathering and light-to-moderate cracking ( $\frac{1}{2}$  to  $\frac{3}{4}$ -inch). The apron condition was rated “very good” in the 2005 pavement inspection. The apron markings (taxilane centerline stripe and aircraft tiedowns) appear to be in fair condition.

#### USFS Apron

The apron includes a rectangular section (approximately 600 feet long and 100 feet wide) located immediately adjacent to the runway; a rear section of apron is connected to the southern portion of the rectangular apron. The rectangular apron section has a single taxilane (parallel to the runway) with four short taxiway connections to the runway. According to the airport’s pavement maintenance plan, most sections of the USFS apron were constructed or resurfaced between 1996 and 2003. The pavement and markings appear to be in very good condition.



**TABLE 2-3: AIRCRAFT APRON DATA**

Tiedown Apron (West) <i>(On Airport)</i>	Approximately 189' x 450' (9,444 square yards) Surface: Asphalt (with concrete tiedown anchors) 11 Small Aircraft Tiedowns 2 Large Aircraft Tiedowns
USFS Main Apron <i>(Off Airport)</i>	Approximately 600' x 100' (6,994 square yards) Surface: Asphalt 0 Aircraft Tiedowns <i>(apron used primarily for aircraft ground operations)</i>
USFS Apron (Rear Section) <i>(Off Airport)</i>	Approximately 400' long (variable width) (4,679 square yards) Surface: Asphalt 0 Aircraft Tiedowns <i>(apron used primarily for aircraft ground operations)</i>
Southeast Hangar Apron <i>(Off Airport)</i>	Approximately 190' wide (variable depth) (2,274 square yards) Surface: Asphalt 0 Aircraft Tiedowns <i>(apron used primarily for hangar access and temporary aircraft parking)</i>
Northeast Hangar Apron <i>(Off Airport)</i>	Approximately 100' x 80' Surface: Asphalt 0 Aircraft Tiedowns <i>(apron used primarily for hangar access and temporary aircraft parking)</i>

### Southeast Hangar Apron

A small apron is located in front of the 3-unit hangar located near the southeast corner of the airport. The apron is located at the end of the taxiway that extends from the runway to the hangar. The apron condition was rated “very good” in the 2005 pavement inspection.

### Northeast Hangar Apron

A small apron is located in front of the hangar located immediately north of the USFS complex, on the north side of Inter-City Airport Road. The apron connects to the taxiway that extends from the runway to the northeast hangar area. The apron condition was rated “very poor” in the 2005 pavement inspection.

## **Airfield Pavement Condition**

WSDOT Aviation manages a statewide program of pavement evaluation and maintenance for Washington’s general aviation airports. This evaluation provides standardized pavement condition index (PCI) ratings, pavement features and current conditions. Through the use of MicroPAVER computer software, current pavement condition ratings are entered into the system with the specifics of each pavement section. The program is able to predict the future condition of the pavements if no action is taken (i.e., rate of deterioration) while also identifying the recommended measures needed to extend the useful life of the pavement section.

**Table 2-4** summarizes airfield pavement conditions for Methow Valley State Airport based on the data contained in the airport’s 2005 pavement study.<sup>3</sup> The 2005 inspection branch report indicates

<sup>3</sup> Methow Valley State Airport 2005 Pavement Management Report (Applied Pavement Technology, Inc., February 2006)

that Methow Valley State Airport had approximately 706,792 square feet (SF) of airfield pavement, which equals approximately 16.23 acres of surface area. In 2005, the area-weighted average condition for all airfield pavements at Methow Valley State Airport was 84 (= very good rating) with ratings ranging from 13 to 100.

In the 2005 inspection, the runway and most taxiways and aprons were rated “very good” or better. Two small sections of apron were rated “good” and “fair.” The circular taxiway located adjacent to the fueling area was rated “very poor.”

The condition of the airfield pavements observed during recent site visits conducted for this project were generally consistent with the 2005 pavement evaluations. The runway and taxiway pavement surfaces are in generally good or fair condition, with moderate transverse and longitudinal cracking, some weathering (oxidation) and surface wear observed. Although the older cracks (1/2-inch to 1-1/2 inch) have been previously filled, many have reopened and newer cracks have appeared. In some isolated areas of the runway, the crushed aggregate base beneath the 3-inch asphalt surface course was visible through open cracks. It appears that the pavement surfaces will require maintenance (crack filling, repair and sealcoats) or more extensive rehabilitation in the near term.



**TABLE 2-4: SUMMARY OF AIRFIELD PAVEMENT CONDITION  
(2005 PCI DATA)**

Pavement	Section Design/Age	PCI Rating <sup>1</sup>	Condition
Runway 13/31	3" Asphalt (AC) Surface (1996); 6" Crushed Aggregate Base (1996); 5" Aggregate Base (1996)	82-83	Very Good
Holding Areas at Rwy 13 & 31 Ends	3" Asphalt (AC) Surface (1996); 6" Crushed Aggregate Base (1996); 5" Aggregate Base (1996)	Rwy 13: 89 Rwy 31: 88	Excellent
West Access Taxiway (to apron)	3" Asphalt (AC) Surface (1996); 6" Crushed Aggregate Base (1996); 5" Aggregate Base (1996)	90	Excellent
West Tiedown Apron	3" Asphalt (AC) Surface (1996); 6" Crushed Aggregate Base (1996); 5" Aggregate Base (1996)	81	Very Good
East Access Taxiways to USFS Operations Apron (4)	3" Asphalt (AC) Surface (1996); 6" Crushed Aggregate Base (1996); 5" Aggregate Base (1996)	94-100	Excellent
USFS Operations Apron (main section)	Unknown AC (2003)	97	Excellent
USFS Operations Area (east sections)	Unknown AC (2003)	57 -100	Fair to Excellent
East Access Taxiway (to Hangars)	3" Asphalt (AC) Surface (1996); 6" Crushed Aggregate Base (1996); 5" Aggregate Base (1996)	83	Very Good
East Hangar Access Taxiway (diagonal section)	Unknown AC (2002)	100	Excellent
East Hangar Access Taxiway (circular section)	Unknown AC (1955)	12	Very Poor
East Access Taxiway (southeast hangars)	Unknown AC (1996)	80	Very Good
Southeast Hangar Apron	Unknown AC (1996)	85	Very Good

1. The Pavement Condition Index (PCI) scale ranges from 0 to 100, with seven general condition categories ranging from "failed" to "excellent."

## LANDSIDE FACILITIES

### Hangars and Airport Buildings

There are nine conventional hangars currently located at the airport.—all located on the east side of the runway. Two older hangars (one on each side of the runway) were recently removed due to their deteriorated condition. Currently, five hangars are located off airport property and four hangars are located on airport property. All of the hangars located off airport property are privately owned. The four hangars located on airport property are owned by WSDOT (purchased in 1991). The USFS facilities are located off airport property and include ten buildings that support a variety of uses within the smokejumper base complex. Existing aviation-related buildings are summarized in **Table 2-5** and depicted in **Figure 2-2**, earlier in the chapter.

**TABLE 2-5: AIRPORT (AVIATION RELATED) BUILDINGS**

Bldg. No.	Building
1	Small Conventional Hangar (east side of runway; on airport) <i>[WSDOT Owned]</i>
2	Small Conventional Hangar (east side of runway; on airport) <i>[WSDOT Owned]</i>
3	Small Conventional Hangar (east side of runway; on airport) <i>[WSDOT Owned]</i>
4	Small Conventional Hangar (east side of runway; on airport) <i>[WSDOT Owned]</i>
5	USFS Large Operations Building (adjacent to older section of apron; off airport)
6	USFS Operations Building (on east side of apron; off airport)
7	USFS Operations Quonset Building (on east side of apron; off airport)
8	USFS Operations Building (on east side of apron; off airport)
9	Conventional Hangar (Large – north of USFS of apron; off airport) <i>[Privately Owned]</i>
10	Conventional Hangar (Medium – adjacent to diagonal taxiway; off airport) <i>[Privately Owned]</i>
11	Conventional Hangar (Medium – adjacent to diagonal taxiway; off airport) <i>[Privately Owned]</i>
12	Conventional Hangar (Medium – adjacent to diagonal taxiway; off airport) <i>[Privately Owned]</i>
13	Aircraft Fueling Building (adjacent to diagonal & circular taxiways; off airport) <i>[Privately Owned]</i>
14	Large (3-unit) Conventional Hangar (east side of runway- south of USFS apron; off airport) <i>[Privately Owned]</i>



## Airport Lighting

Methow Valley State Airport accommodates day and night operations in visual flight rules (VFR) conditions. The airport is equipped with runway edge lights and a lighted wind sock. The runway is not equipped with visual guidance indicators (VGI), such as visual approach slope indicators (VASI) or precision approach path indicators (PAPI). **Table 2-6** summarizes existing airfield lighting at the airport. The FAA Airport/Facility Directory indicates that both the runway lights and airport beacon are pilot-activated on the Common Traffic Advisory Frequency (CTAF) at 122.8 MHz.

**TABLE 2-6: AIRPORT LIGHTING**

Component	Type	Condition
Runway 13/31	Medium Intensity Runway Edge Lighting (MIRL); Threshold Lights	Fair/Poor
Taxiway Lighting	None (Blue edge reflectors)	N/A <i>(Reflectors – Good/Fair)</i>
Lighted Airfield Signage	None (Reflective Signs)	N/A <i>(Reflective Signs– Good)</i>
Runway Approach Lighting	None	N/A
Visual Guidance Indicators	None	N/A
Wind Indicators	Lighted Wind Cone (west side of runway)	Good (wind cones)
	Unlighted Wind Cone (roof mounted east side of runway)	
	Tetrahedron (west side of runway, within segmented circle)	Poor (tetrahedron)
Airport Lighting	Rotating Beacon (removed from service)	N/A

The airport does not currently have an operating rotating beacon. A rotating beacon was previously mounted on the roof of a hangar adjacent to the west apron. The hangar was removed in the winter of 2007-2008 after its roof collapsed and the beacon was discarded. A pole-mounted replacement airport beacon is planned. A rotating beacon mounted on the roof of a USFS building on the east side of runway is not operational.

The runway edge lights and Runway 31 threshold lights are mounted on 30-inch elevated standards to improve visibility when snow accumulates along the sides of the runway. The lights appear to be in generally fair condition, although the functionality could not be determined during a recent daytime site visit. Some edge lights appeared to be illuminated during daytime hours, although no aircraft activity was observed.

Airport management reports that the pilot control for the runway lights is out of service indefinitely. There are currently three NOTAMs published: *“Airport Beacon out of service, Pilot control lighting out of service, and runway lighting stuck on low intensity.”*

Threshold lights are located adjacent to both displaced thresholds; no lights are located at either end of the runway pavement. Since displaced thresholds are part of the useable runway, threshold lights should be located both at the end of the runway and at the landing threshold. The recommended lens colors for threshold lights depend on the runway configuration and whether standard runway safety areas are provided beyond the runway ends. The threshold lights for both displaced thresholds consist of 3 units per side with split red/green lenses.

- Runway 13 has flushed-mounted threshold lights. The lights located left (east) of runway centerline are imbedded in the asphalt surfaced aircraft turnaround. The lights appear to function properly, although minor damage (scraped and worn surface) was observed from snow plowing operations. The flush mounted threshold lights located right of centerline (west side) are installed directly into the ground surface. These lights appear to operate normally and are in good condition.



- Runway 31 threshold lights are mounted on 30" standards on both sides of the runway.

The airport has a lighted wind cone mounted on a pole adjacent to the west tiedown apron (SW corner). Note: the airport beacon was temporarily removed when the adjacent collapsed hangar was removed. An unlighted wind cone is mounted on the roof of the USFS Quonset operations building adjacent to the east apron.

No taxiway lighting is installed on the airport; blue cylindrical taxiway edge reflectors are installed on the taxiways serving the USFS apron. Edge reflectors were not observed on the west apron taxiway or other taxiways on the airport.

Airport signage includes Taxiway/Runway Hold Position Signs [red background with white numbers: **13-31** and **31-13**] on the two main taxiways connected to the runway; a directional sign [yellow background with black letters: **TRANSIENT PARKING**→]; and four Runway Distance Remaining Signs [green background with white numbers: **4, 3, 2, 1**]. All signs are reflective (non-illuminated) and are in good condition.

## AIRSPACE & NAVIGATIONAL AIDS

Methow Valley State Airport has no electronic navigational aids or published instrument approaches and operates under visual flight rules (VFR) conditions. The airspace surfaces previously

planned for Runway 13/31 are based on visual approach capabilities for small aircraft.<sup>4</sup> The 1992 Airport Master Plan concluded that a conventional instrument approach would not provide effective minimum descent altitudes for Runway 13/31. However, the master plan suggested a microwave landing system (MLS) could provide effective approach capabilities in the mountainous area. The FAA phase out of the MLS program coincided with development of satellite based instrument approaches (i.e., global positioning system), which became the primary area for technology advancement. Based on the terrain surrounding the airport, it appears that a circling approach may be feasible, although the approach minimums would be affected by mountainous terrain. For planning purposes the potential development of a nonprecision instrument approach with a visual final approach segment is compatible with visual airspace surfaces, as defined by FAR Part 77. It is noted that Runway 13/31 regularly accommodates large aircraft operations, which should be reflected in the airspace associated with the runway.

An airport user has a privately owned Automated Weather Observation System (AWOS-3) that is located on the east side of the runway, adjacent to the southern-most hangar (off airport property).

**Table 2-7** summarizes existing navigational aids and related items. **Table 2-8** summarizes special airspace designations and established aircraft routes in the vicinity of Methow Valley State Airport, as identified on the Seattle Sectional Aeronautical Chart. **Figure 2-3** depicts the airspace surrounding Methow Valley State Airport. The airport is located within the boundaries of a defined area of Class E airspace (with the floor at 8,500 feet above mean sea level). Beneath the floor of the Class E airspace is uncontrolled airspace (Class G) that extends from the surface upward. The nearest enroute instrument airway is Victor 120, approximately 60 miles south of the airport at its nearest point. The airway extends between the Wenatchee, Seattle and Ephrata VORTACs with a minimum enroute altitude of 5,500 feet MSL (12,000 feet MSL west of Wenatchee VORTAC).

IR 348, a military training route (MTR), passes about 8 miles northwest of Methow Valley State Airport, with the direction of flight identified as southwest to northeast. As noted in aeronautical charts, MTRs may extend upward from the surface and there is no specific width defined.

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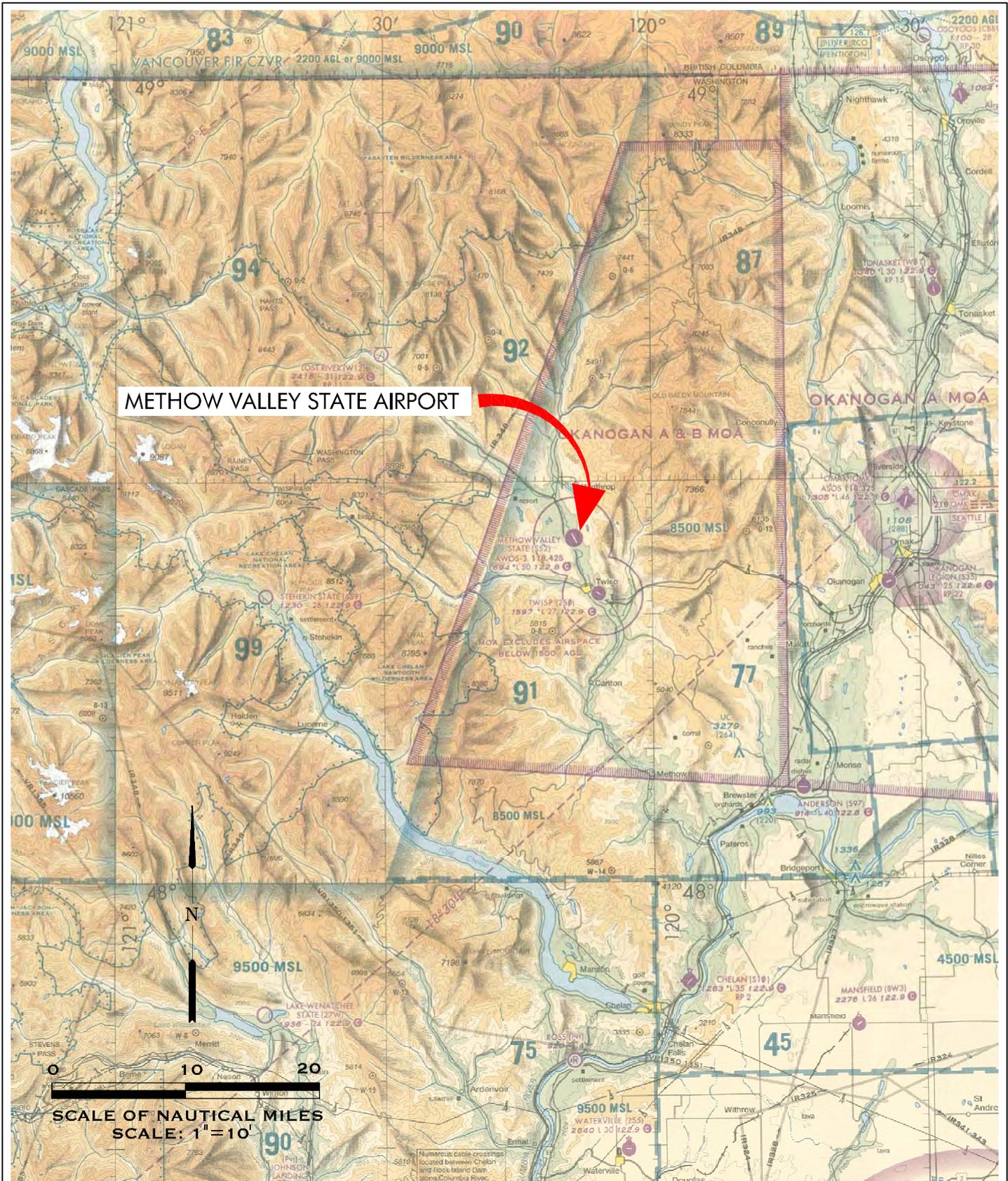
<sup>4</sup> FAR Part 77. Utility aircraft weighing less than 12,500 pounds, as depicted on the 1995 Airport Layout Plan (W&H Pacific)

**TABLE 2-7: NAVIGATIONAL AIDS AND RELATED ITEMS**

Type	Facilities
Electronic Navigational Aids	None  <u>Nearby Facilities:</u>  Wenatchee VOR/DME (EAT) Frequency: 111.00 MHz - 61 nm S) Ephrata VORTAC (EPH) Frequency: 112.60 MHz - (69 nm SE) Moses Lake VOR/DME (MWH) Frequency: 115.00 MHz - (80 nm SE) Omak NDB (OMK); Frequency: 219 LHz; - (25 nm E)
Instrument Approaches	None
Weather Observation	AWOS-3 118.425 MHz; (509) 997-0142 (on site; privately owned)  <u>Nearby Facilities:</u>  Wenatchee ASOS 119.925 MHz 61 nm S) Moses Lake ASOS (509) 762-5082 HIWAS 115.0 MHz (80 nm SE) Omak ASOS: 118.325 MHz (25 nm E) Ephrata ASOS: 135.775 MHz (69 nm SE)
Communication	Unicom/Common Traffic Advisory Frequency (CTAF)(122.8 MHz)

**TABLE 2-8:  
NEARBY AIRSPACE/INSTRUMENT ROUTES/LOCAL OBSTRUCTIONS**

Airspace Item	Description	Location
Military Training Routes (MTR)	Surface Upward	Low-altitude training routes located within 8 miles of airport (northwest)
Military Operations Areas (MOA)	300 feet AGL to 18,000 feet MSL	Okanogan A & B surrounds the airport in all directions; 3 nautical mile radii extending from Methow Valley State and Twisp airports define an area that is excluded from MOA (below 1,500 feet AGL).
Lake Chelan Sawtooth Wilderness Area	2,000 feet AGL altitude restrictions for over flights.	Begins 7- 10 miles NW & SW of airport



 Washington State  
Department of Transportation  
Aviation Division

 CENTURY WEST  
ENGINEERING CORPORATION

AREA AIRSPACE

**METHOW VALLEY STATE AIRPORT**

FIGURE

**2-3**

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## AIRPORT SUPPORT FACILITIES/SERVICES

### Aircraft Fuel

Methow Valley State Airport does not have aviation fuel available for purchase. A privately owned fuel storage and dispensing facility is located off airport property on the east side of the runway (north of the USFS facility). Aircraft fueling associated with USFS operations is accomplished through use of this tank or other mobile fuel storage tanks or trucks.

### Surface Access and Vehicle Parking

Surface access to Methow Valley State Airport is provided via Twisp-Winthrop Eastside Road, which connects Twisp and Winthrop and State Highway 20. All access to the airport and surrounding parcels is provided through connections to the highway. The local roadways serving the airport and surrounding areas are gravel surfaced or dirt.

Inter-City Airport Road connects directly to Twisp-Winthrop Eastside Road and provides access to several facilities located on the east side of airport including the North Cascades Smoke Jumper Base, a county road maintenance shop, a commercial lumber yard (Bear Creek Lumber), and a private hangar development (Ram's Head) located north of the USFS facilities. A second road (Park Place) located immediately south of the lumber yard serves a private development area on the airport's east side, south of the USFS facilities. This area includes a newer 3-unit hangar that is located within the Methow Valley Airport Trading Center, a platted 10-lot industrial/business park.

No defined vehicle access is provided to four older owned hangars located on the east side of the runway, immediately south of the USFS facilities. Access is obtained by traveling through the USFS aviation facilities (apron) or other unimproved routes within the USFS complex, or from Park Place and the private road that serves the new 3-unit hangar, which is not fenced or gated. Vehicle access to these hangars and inadvertent public intrusion into the non-public areas within USFS complex have been identified as important issues that need to be addressed in the plan update.

Evans Road provides access to the west side of the airport, in addition to serving several residential parcels located along the Methow River. Evans Road connects with Twisp-Winthrop Eastside Road approximately 0.6 miles south of Inter-City Airport Road and passes within 75 feet of the end of Runway 31 before heading north northwest along the west of the runway. An unpaved airport access road (approximately 150 feet long) connects to Evans Road to the east end of the aircraft apron.

Vehicle parking is currently accommodated along the back of the west aircraft apron. It appears that many of the vehicles are parked for extended periods by part-time residents or regular visitors. Vehicles also park adjacent to hangars on the east side of the airport.

## Fencing

Limited range fencing is located along portions of the airport perimeter. A small double swing gate is located at the airport access road connection to Evans Road. Sections of wood post/wire fencing are located along the north property line (eastern section). A continuous line of large concrete highway barriers are installed along approximately 1,500 feet of Evans Road to limit unauthorized access to the runway end.

## Utilities

The airport has electrical power, but no water or sanitary sewer service. Adjacent off-airport facilities have separate water and septic, in addition to electrical service.

## AIRPORT SERVICE AREA

The airport service area refers to the area surrounding an airport that is directly affected by the activities at that airport. Normally a 30 or 60-minute surface travel time is used to approximate the boundaries of a service area. **Table 2-9** lists the public airports within a 50 nautical mile radius of Methow Valley State Airport. However, despite their relatively close proximity to Winthrop, the surface travel times to these airports are substantial due to limited surface access routes available. There are four public use airports located within about a 60 to 70 minute drive time from Winthrop: Twisp, Okanogan, Omak, and Chelan. According to current airport facility directories, aviation fuel is not available for purchase at Twisp, but is available at Okanogan, Omak and Chelan.

Based on the close proximity of Twisp Municipal Airport, activities such as recent hangar construction have the potential of affecting facility demand (for small airplanes) at Methow Valley State Airport. Twisp Municipal Airport has a single paved and lighted runway (Runway 10/28 - 2,701 x 36 feet). In 2007, Twisp Municipal had 21 based aircraft and 19 hangars.

**TABLE 2-9: PUBLIC USE AIRPORTS IN VICINITY**

Airport	Location	Runway Dimension (feet)	Surface	Lighted Runway?	Fuel Available?
Twisp Municipal	4.9 NM SE	2,701 x 36'	Asphalt	Yes	No
Stehekin State	23.4 NM W	2,630 x 100'	Turf	No	No
Okanogan Legion Field	23.5 NM E	2,533 x 36'	Asphalt	Yes	Yes
Omak Airport	25.1 NM E	4,667 x 150'	Asphalt	Yes	Yes
Anderson Field (Brewster)	25.6 NM SE	4,000 x 60'	Asphalt	Yes	Yes
Tonasket Airport	32.5 NM NE	3,053 x 50'	Asphalt	Yes	No
Lake Chelan Airport	33.5 NM S	3,503 x 60'	Asphalt	Yes	Yes
Dorothy Scott Airport (Oroville)	43.3 NM NE	4,014 x 50'	Asphalt	Yes	Yes
Lake Wenatchee State	43 NM SW	2,473 x 100'	Turf	No	No
Mansfield Airport	42.2 NM SE	2,570 x 46'	Asphalt	Yes	No
Waterville Airport	46.3 NM S	2,978 x 50'	Asphalt	Yes	Yes

## LAND USE

Methow Valley State Airport is zoned **Airport Development District (AP)** by Okanogan County (Okanogan County Code: Title 17 – Zoning, Chapter 17.12). The **AP** zone permits all aviation related uses and a wide variety of non-aviation uses (not including residential), either as outright permitted or conditional uses. The **AP** zone includes the airport and most of the adjoining areas between the airport and Twisp-Winthrop Eastside Road (excluding the county maintenance facility and the area located near the southeast corner of the airport, between Evans Road and the platted Methow Valley Airport Trading Center).

Okanogan County zoning maps identify the land areas surrounding the airport as having **Valley Floor** zoning. A **Valley Floor** zoning is defined in Chapter 17.14 – **Methow Review District (MRD)**. The **MRD** is established to “protect” the sensitive environment, aesthetic, and economic qualities of the Methow Valley through review and the imposition of more stringent development and subdivision standards.” The legal description of the **Methow Review District** indicates that **MRD** zones are located along the valley floor. The **MRD** designated areas in the vicinity of the airport are **MRD 5 or 20** acre parcels (1 dwelling unit per 5 or 20 acres).

Okanogan County has airport overlay zoning in place (**Airport Safety Overlay District – Chapter 17.32**) for Methow Valley State Airport. The ordinance indicates that restrictions apply to the “transition and approach zones.” This suggests that the runway approach and transitional surface dimensions previously defined for the airport in prior airport layout plans represent the boundaries

of the district. As noted earlier, the FAR Part 77 airspace surfaces previously defined for Runway 13/31 were based on small airplane standards; current airport use by large aircraft indicates a need to update the ordinance and mapping when the airport layout plan is updated.

Current FEMA mapping depicts the 100-year floodplain for the Methow River adjacent to the southwest part of the airport. The airfield is considerably higher than the adjacent river channel or the areas located west of the river. The floodplain extends well beyond the river on its west side in the low-lying areas west of the airport.

## FORECAST ADDENDUM

### POPULATION

#### Historic Population

The population within the incorporated areas of Winthrop and Twisp has fluctuated over the last fifty years ranging from about 1,100 to 1,400. Population estimates for the unincorporated areas in the Methow Valley are not maintained, although it appears that the local area (Winthrop, Twisp and unincorporated areas) could account for about 6 percent of Okanogan County's population.

Population growth within Okanogan County has historically averaged less than 1 percent annually, punctuated with periodic surges and declines. On an overall basis, Okanogan County's population has grown at a slightly faster rate than Winthrop or Twisp over the last several decades. As a percentage of Okanogan County's population, the combined population of Winthrop and Twisp (incorporated areas only) has declined from a high of 4.4 percent in 1960 to 3.5 percent in 2008. However, the local area has outpaced county growth over the last eight years. It also appears that the pattern of local residential development outside the defined incorporated areas may contribute to the population trends within the incorporated areas.

The 2008 Washington Office of Financial Management (OFM) population estimate for Winthrop and Twisp (within incorporated areas) was 1,385, an increase of 98 residents from the 2000 Census (1,287)<sup>5</sup>. The OFM estimate for Okanogan County population in 2008 was 40,100, an increase of 536 residents since 2000. For the most recent eight-year period, Winthrop and Twisp grew faster than the county and accounted for 18.3 percent of the net increase in Okanogan County's population, despite accounting for less than 4 percent of total population. The Winthrop/Twisp share of county population increased from 3.3 percent to 3.5 percent during the period, reversing the 30-year trend of declining share. Historic local and county population data are summarized in **Table 2-10**.

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<sup>5</sup> Washington Office of Financial Management (OFM) Forecasting Division (April 1, 2008 estimate); 2000 U.S. Census.

The service area for Methow Valley State Airport includes both the incorporated areas of the local communities and outlying areas. Based on this, an assumed share of county-wide population will be used to evaluate future population change affecting local airport activity.

**TABLE 2-10: HISTORIC POPULATION**

Year	Winthrop and Twisp (incorporated areas only)	% of County Population	Okanogan County
1950	1,172	4.0%	29,131
1960	1,109	4.4%	25,520
1970	1,127	4.4%	25,687
1980	1,324	4.3%	30,663
1990	1,176	3.5%	33,350
2000	1,287	3.3%	39,564
2008	1,385	3.5%	40,100
<u>Average Annual Rates (AAR) of Growth:</u>	<u>Winthrop/Twisp</u>		<u>Okanogan County</u>
1950-2008	0.29%		0.55%
1960-2008	0.46%		0.95%
1970-2008	0.54%		1.18%
1980-2008	0.16%		0.96%
1990-2008	0.91%		1.03%
2000-2008	0.92%		0.17%

## Population Forecasts

The modest population growth experienced in Okanogan County in recent years is expected to continue and is reflected in current long-term population forecasts. In 2007, the Washington Office of Financial Management (OFM) updated its long term county Growth Management Act (GMA) population forecasts, based on a comparison of actual growth and their 2002 forecasts. The 2007 “GMA Medium Forecast” was determined to compare most closely to the 2002 projection for Okanogan County and actual population trend that occurred during the subsequent five years (2002-2007). Based on these considerations, the “GMA Medium Forecast” appears to provide a reasonable projection of county population through 2030, averaging **0.88 percent** annual growth between 2005 and 2030. **Table 2-11** summarizes the OFM population forecasts, including the low and high scenarios.

**TABLE 2-11: OKANOGAN COUNTY GMA POPULATION FORECASTS**

	2005	2008	2010	2015	2020	2025	2030
Low Series (0.01% 25-year AAR)	39,600	--	39,064	39,846	40,012	39,998	39,688
Intermediate Series (0.88% 25-year AAR)	39,600	--	42,739	44,923	46,526	48,016	49,239
High Series (1.59% 25-year AAR)	39,600	--	46,414	50,000	53,040	56,034	58,790
Winthrop & Twisp/ Okanogan County Actual Population	<u>1,287</u> 39,564	<u>1,385</u> <sup>1</sup> 40,100					
Winthrop & Twisp % of Okanogan County	3.3%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
Projected Winthrop & Twisp Population <sup>2</sup>			1,496	1,572	1,628	1,680	1,723

1. 2008 OFM Estimate.
2. Projection developed for ALP planning purposes only. Projection assumes that current 3.5% local share of county population is maintained (applied to “intermediate series” GMA forecast).

## ECONOMY

The economy of the Methow Valley is based on tourism, recreation, services, natural resources, and government. The area is a long established year-round destination for visitors and in recent years, has attracted a growing number of full time and part time residents. The growth in new home construction in the valley over the last several years is evident, reflecting the area’s growing popularity. The U.S. Forest Service Smokejumper Base, located at Methow State Airport, is a leading government employer. Sun Mountain Lodge, located near Winthrop, is a premier destination resort and a leading private employer in the community.

Okanogan County provides the following description of the region’s economy “Agriculture and forestry are the major economic generators for the county and are the foundation for the region,

which employs approximately 5,756 people. Government, retail trade, services, and manufacturing are a few of the major employers within the county.”

Unemployment levels in the county typically run well above statewide averages. The seasonal and cyclical nature of the economy contributes to high unemployment levels. The unemployment rate for Okanogan County in January 2009 was 12.0 percent, up from 9.1 percent in January 2008.

Shifts in the local and regional economy do not appear to significantly drive activity at Methow Valley State Airport. However, the area’s growing residential and recreational popularity has the potential to attract and generate more private aircraft activity at the airport.

## AVIATION ACTIVITY FORECASTS

### Introduction

The purpose of this section is to prepare forecasts of aviation activity for Methow Valley State Airport for the twenty-year planning period addressed in the Airport Layout Plan Update (2008-2027). The forecasts will provide the basis for determining future facility needs. The scope of work for this project requires use of the 2007 Washington State Long Term Air Transportation Study (LATS) forecasts developed for Methow Valley State, in addition to developing one other projection based on population growth rate or another measurable factor. The aviation activity forecasts are summarized later in the chapter.

## CURRENT AIRPORT ACTIVITY

### Recent Estimates

The current FAA 5010-1 Airport Master Record form (12 months ending in December 2002) for Methow Valley State Airport lists 9 based aircraft and 7,650 annual aircraft operations (takeoffs and landings). These numbers are also listed in the FAA’s Terminal Area Forecast (TAF).

The 2007 Washington Long Term Air Transportation Study (LATS) estimated activity for Methow Valley State Airport in 2005 (the base year for its updated forecasts) at 9 based aircraft and 2,600 operations. The overall activity averages 7 operations per day. The operational split included 117 local operations and 2,483 itinerant operations (4% local/96% itinerant). Itinerant operations are arrivals or departures associated with travel between two airports; local operations are conducted in the vicinity of an airport and include flights that begin and end at the airport, including touch and go landings.

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## Current Estimate - Based Aircraft

There are currently nine (9) hangars located on the airport or on adjacent privately-owned parcels, with “through-the-fence” airport access. Eight of the hangars are small/medium conventional hangars (typically one aircraft per hangar) and one hangar is a large 3-unit hangar. A recently developed off-airport hangar area currently has 4 of 17 platted hangar lots developed.

Based aircraft are currently estimated at 9, with 4 located on the airport and 5 located off the airport. All based aircraft are single-engine piston models weighing less than 12,500 pounds. The airport also accommodates several business class (business jet or turboprop) aircraft on a regular basis that are operated by local residents or businesses, but are based at other airports.

## Current Estimate - Aircraft Operations

For Methow Valley State Airport, aircraft operational data (takeoffs and landings, touch and go landings, etc.) are limited to estimates. As a non-towered airport, no record of activity is regularly maintained. It has been noted during the research conducted in preparing the forecasts that Methow Valley State Airport accommodates some unique flight activity in addition to the locally-generated and transient general aviation flight activity:

## Business Aviation Activity

Methow Valley State Airport accommodates a variety business class aircraft on a limited basis. Based in large part on the available runway dimensions and pavement strength, a wide variety of business jets and turboprop aircraft are known to use the airport. It is estimated that this segment of activity totals approximately 100 to 200 annual operations. Based on local accounts of the aircraft types observed at the airport, they range from turboprops and smaller business jets (ARC B-II, C-I) to large business jets (ARC C-II, D-II). One example is a Gulfstream III business jet (ARC C-II) that transports the owners of a local ranch from Seattle, on average about two or three trips per month, for about half the year (estimated to be less than 50 annual operations). A Pilatus PC-12 single-engine turboprop based in Seattle operates regularly at the airport (estimated to be less than 100 annual operations) and is stored in one of the large hangars located at the airport.

Sun Mountain Lodge also indicates that they provide courtesy guest pick-ups at the airport on a regular basis.

## Medical Evacuation (MEDEVAC) Flights

Methow Valley State Airport accommodates regular medical evacuation (medevac) flights with primarily fixed-wing aircraft. Helicopter medevac flights typically land in town or at designated

areas along the highway. Northwest MedStar, affiliated with Inland Northwest Health Services, provides medevac service throughout central and eastern Washington from Felts Field in Spokane. Air Lift Northwest operates fixed-wing aircraft from their base in Wenatchee and helicopters from the Seattle area. Local emergency medical personnel estimate that medevac flights generate approximately 20 annual operations at Methow Valley State Airport, consisting of Beechcraft King Air 200 twin-engine turboprop and a Learjet 35. The addition of an instrument approach and/or visual guidance indicators or other runway lighting in the future may allow the airport to accommodate a larger number of medevac flights, including helicopters at night or during poor weather.

## U.S. Forest Service North Cascades Smokejumper Base

The North Cascades Smokejumper Base generates seasonal activity that includes fixed-wing aircraft and helicopters. The majority of this activity is associated with firefighting efforts that occur during the summer fire season (typically mid-May to mid-September). USFS officials indicate that the current level of flight activity is expected to remain steady in the future.

Historically, the design aircraft for Methow Valley State Airport has been the largest aircraft used on regular basis to support smoke jumper operations. A variety of twin-engine turboprops are used in smokejumper operations including the de Havilland Twin Otter (DHC-6), CASA 212, Shorts C-23 Sherpa and a turboprop-conversion DC-3TP. Most of these aircraft are included in Aircraft Approach Category A and Airplane Design Group II, which results in Airport Reference Code A-II (as noted on the 1995 ALP). The Shorts Sherpa is a B-II aircraft and the DC-3TP is an A-III aircraft. Small single engine fire spotting aircraft (Cessna 182, 206, etc.) operated by the USFS and private contractors, occasionally use Methow Valley State Airport when working fires in the area. The activity depends entirely on the location and frequency of fires in the region.

Flight volumes vary considerably depending on the level of response required during the fire season. Local estimates of aircraft activity range from a few hundred per season to several thousand. Unfortunately, the smokejumper base does not log aircraft movements. For planning purposes, a moderate estimate of 400 fixed-wing and 600 helicopter operations was developed to approximate typical activity. A total of 1,000 aircraft operations over a typical 5-month peak fire season yield an average of 6.7 operations per day from mid-May to mid-September.

It is recognized that actual activity may significantly exceed the estimates in any given fire season. USFS officials indicate that periods of intense activity, particularly with helicopters, are common when local response is required. The airport may accommodate 10 to 15 aircraft simultaneously during these periods, each making multiple trips daily until the fire is controlled. During a slow fire season, the smokejumper base may generate only a few hundred operations. However, the

moderate estimate noted above provides a general indication of activity that can be used to define facility needs.

## Existing Aircraft Operations – Summary

The FAA provides planning guidance for general aviation airports without control towers when estimating aircraft activity. The FAA uses a ratio of the average number of operations per based aircraft to account for both locally based and transient general aviation aircraft activity. The recommended ratios include 250 operations per based aircraft for small airports with low activity; 350 for airports with moderate local and itinerant activity; and 450 for high activity urban or regional airports.

It appears that the general aviation itinerant activity at Methow State Airport - in relation to its based aircraft total – is higher than typically found at airports in smaller rural communities. The airport regularly accommodates aircraft for extended periods that are based at other airports. Some of the newer hangars constructed off airport property are occupied on a part-time basis with these aircraft. The Methow Valley's ability to attract visitors and to support a mobile local resident population are unique factors affecting airport activity. To reflect the trend, a slightly higher activity ratio (300 operations per based aircraft) will be used to estimate the current level of general aviation activity.

Based on the conditions noted above, the following method was used to estimate aircraft operations (using 2008 base year data) at Methow Valley State Airport in this forecasting application:

- A. **USFS North Cascades Smokejumper Base = 1,000 annual operations.** Forest Service and private contractors operating fixed-wing aircraft and helicopter. These operations are estimated to be 100 percent itinerant. This level of activity is assumed to be constant for the planning period based on historic and planned activity patterns.
- B. **Medevac activity = 20 annual operations.** Northwest MedStar and Airlift Northwest fixed-wing operations. 100 percent itinerant. This activity has the potential to increase in the future with the addition of an instrument approach to aid night and poor weather operations for fixed-wing aircraft and helicopters.
- C. **Military activity = 25 annual operations.** Occasional helicopter activity. This level of activity is assumed to be constant for the planning period.
- D. **Locally based and transient general aviation activity = a ratio of 300 operations per (9) based aircraft, for a total of 2,700 annual operations.** This level of activity is expected to increase as based aircraft increase during the planning period.

- 
- E. All activity segments combine for a **2008 base year total of 3,700 operations.**

Based on the approach outlined above, **the 2008 estimate of aviation activity for Methow Valley State Airport is 9 based aircraft and 3,700 annual operations.**

## Existing Fleet Mix

Existing air traffic is predominantly fixed-wing (estimated at 84%) with most helicopter activity occurring during the summer fire season (estimated at 16%). An operational split between local (15%) and itinerant (85%) activity appears to be reasonable for purposes of estimating current activity and forecasting future activity. A summary of current air traffic operations and distribution is provided in **Table 2-12.**

**TABLE 2-12: SUMMARY OF CURRENT ACTIVITY  
METHOW VALLEY STATE AIRPORT**

Activity	2008
<i>Based Aircraft</i>	9
<i>Ratio of Operations per Based Aircraft (GA activity)</i>	300
General Aviation Operations	2,675
Military Operations	25
North Cascades Smokejumper Base Activity	1,000
<b>Total Operations</b>	<b>3,700</b>
<b><i>Aircraft Operations</i></b>	
<i>Local Operations (15%)</i>	555
<i>Itinerant Operations (85%)</i>	3,145
<b>Total Operations (100%)</b>	<b>3,700</b>
<b><i>Operations By AC Type</i></b>	
Fixed-wing (84%)	3,100
Rotor Wing (16%)	600
<b>Total Operations (100%)</b>	<b>3,700</b>
<b><i>Operations by ARC, Weight or Type</i></b>	
A-I & B-I Operations (<12,500#)	2,525
A-II/B-II Operations (<12,500#)	50
A-II/B-II Operations (≥12,500#)	450
C-II/D-II Operations (≥12,500#)	50
Helicopter Operations	625
<b>Total Operations</b>	<b>3,700</b>
<i>Subtotal ADG I Operations</i>	2,575
<i>Subtotal ADG II Operations</i>	500

## Design Aircraft

Based on FAA criteria, the design aircraft, or family of aircraft, must have a minimum of 500 annual *itinerant* operations. The 1995 Airport Layout Plan and the 2007 WSDOT LATS forecast identifies the de Havilland Twin Otter (DHC-6) as the “existing” design aircraft. The Twin Otter is included in Aircraft Approach Category A and Airplane Design Group II (ADG II), which results in Airport Reference Code (ARC) A-II. The future design aircraft was previously identified as a Beechcraft King Air 200, a business class turboprop. The King Air was identified as the future design aircraft on the 1995 ALP and in the 2007 WSDOT LATS forecasts (beginning in 2020).

The combination of smokejumper and itinerant ADG II aircraft appears to meet the FAA minimum of 500 annual operations required for the design aircraft or family of design aircraft. The CASA 212 and Shorts 330 are representative of the A-II and B-II type of aircraft used in smokejumper operations. The other ADG II aircraft activity consists of a wide range of general aviation and business class aircraft (Approach Categories A to D). Based on the unique blend of ADG II aircraft operating at the airport, **Airport Reference Code B-II (large airplanes) is recommended for current and long-term planning purposes.** The FAA airport design standards for Approach Category A and B aircraft in Airplane Design Group II are identical. ARC B-II represents a reasonable midpoint within the wide range of ADG II aircraft using the airport.

## FORECASTS OF ACTIVITY

The forecasts of aviation activity for Methow Valley State Airport include two existing forecasts (WSDOT LATS and FAA TAF) and one updated market-based projection. The LATS forecasts were developed for airports throughout the state, through the use of regional growth assumptions. The TAF provides broad-based projections that are consistent with the FAA's long term expectations of demand for general aviation in the U.S. The LATS and TAF are used to provide baseline projections for use in the ALP project.

An updated forecast was also developed to reflect several local factors that have the potential to affect activity at Methow Valley State Airport. This projection provides a slightly more aggressive growth trend that is be reflected in both based aircraft totals and airport operations.

### Washington Long-Term Air Transportation Study (LATS) Forecast

The LATS Phase II Report (July 2007) examined a wide range of conditions affecting airports and air transportation in Washington. Although the forecasts have limited application for airport-specific planning, they do provide a general indication of activity. The statewide study included 25-year projections of based aircraft and aircraft operations for Washington's public use airports. The LATS forecasts project based aircraft at Methow Valley State Airport to increase from 9 in 2005 to 14 in 2030, which reflects average annual growth of **1.78 percent** during the 25-year planning period. The composition of the based aircraft fleet transitions from predominantly conventional single-engine aircraft to a growing share of "other" aircraft being added to the fleet mix. By FAA definition, "other" aircraft generally include ultralights, experimental and light sport aircraft. By 2030, "other" aircraft are projected to account for 36 percent of locally based aircraft at Methow Valley State, with conventional single-engine aircraft accounting for 64 percent.

The LATS forecasts project aircraft operations at Methow Valley State Airport to increase from 2,600 in 2005 to 3,850 in 2030, which reflects average annual growth of **1.58 percent** during the 25-year period. The operations forecasts reflect activity ratios fluctuating between 275 to 289

operations per based aircraft. The LATS forecasts for Methow Valley State Airport are summarized in **Table 2-16**, later in the chapter.

## FAA Terminal Area Forecast (TAF)

The FAA's TAF projects a static (no growth) trend for based aircraft and aircraft operations at Methow Valley State Airport through 2020. The absence of change in a TAF projection typically reflects previously estimated activity and the absence of an FAA-approved forecast to gauge future change. As such, the TAF projection does not reflect current and recent activity trends at the airport and is not reliable for use in determining facility needs.

## Market Projection

A new forecast of aviation activity was developed for Methow Valley State Airport that considers several market conditions that can affect airport activity. These include the following:

### Population

As noted earlier in the chapter, the population within the local Winthrop/Twisp area increased at a higher rate than for the overall county since the 2000 Census, after many decades of slower growth. This projection assumes that local area population growth will keep pace with overall county growth over the next twenty years. Population growth and growth in economic capacity are favorable conditions for stimulating aviation activity.

### Existing Landside Capacity

This projection assumes that the two existing off airport hangar developments will continue to fill available capacity during the current planning period. The Ram's Head hangar development consists of 17 sites, of which 4 hangars are currently developed. This projection assumes that 75% of the platted sites will be developed by 2030. Other existing off-airport hangar capacity includes a newer 3-unit hangar. It is assumed that this hangar will consistently maintain 2/3 occupancy during the current planning period. It is also assumed that no other "through-the-fence" hangar development will be permitted by WSDOT Aviation.

### Local Market Conditions

Twisp Municipal Airport has experienced an active period of hangar construction in recent years. This activity surge provides an indication of strong demand for general aviation facilities within the local service area. However, it appears that Twisp Municipal Airport's future ability to accommodate demand will be limited by available land capacity. The recently updated airport layout plan identifies only 10 hangar sites remaining on the airport. The 2007 LATS forecasts for Twisp Municipal Airport projects a small increase (+4) in based aircraft between 2005 and 2030.

These factors suggest that Methow Valley State Airport has an opportunity to increase its share of a growing locally-based aircraft population.

The development of private hangars adjacent to Methow Valley State Airport is an indication that demand for general aviation facilities exists. It is reasonable to assume that on-airport development can also grow during current planning period in conjunction with ongoing off-airport development.

### Based Aircraft

As noted earlier, the rate of population growth projected for Okanogan County is modest over the next 20 years. It is reasonable to assume that growth in based aircraft at Methow Valley State Airport can be sustained as the local community and outlying areas grow and facility improvements are made.

The current total of nine (9) based aircraft equals 0.224 based aircraft per 1,000 residents in Okanogan County. Although historic airport activity data is limited, it appears that a similar relationship between airport activity and population has existed in the large, sparsely populated county in recent years. However, recent and planned hangar construction at the airport suggests strong potential exists for local airport growth to exceed county-wide population growth over the long-term planning period.

It is reasonable to assume that the current based aircraft-population ratio will increase as a result of airport-specific activity. For example, an increase of just one additional based aircraft at the airport today would represent an 11 percent increase in the size of the based aircraft fleet and would increase the ratio to 0.250 based aircraft per 1,000 county residents. With county population growth expected to average about 1 percent annually through 2030, it is evident that even a marginal increase in based aircraft would exceed population growth *in terms of percentage*. Assuming modest growth in based aircraft in line with on- and off-airport facility capabilities, historic development patterns and market potential, the ratio of based aircraft to county population is projected to increase from 0.224 to 0.447 over the twenty-year planning period. The population-based forecast of based aircraft is summarized in **Table 2-13**.

**TABLE 2-13: BASED AIRCRAFT FORECAST  
(MARKET & POPULATION BASED)**

	2008	2010	2015	2020	2025	2030
Okanogan County Population (OFM Medium Projection)	40,100	42,739	44,923	46,526	48,016	49,239
Based Aircraft Ratio (per 1,000 Population)	0.224	0.281	0.334	0.365	0.396	0.447
Based Aircraft (4.15 % AAR 2008-2030)	9	12	15	17	19	22

Based on a gradually increasing population ratio, the number of based aircraft at Methow Valley State Airport is projected to increase from 9 to 22 over the twenty-year planning period. This forecast reflects an average annual growth rate of **4.15 percent**. This growth rate is considerably higher than broader statewide projections of general aviation growth; however, the local factors described above suggest that the development potential of Methow Valley State Airport is exceptional.

It is estimated that 15 of the 22 based aircraft (68 percent) projected for 2030 will be located in adjacent off-airport hangar developments that currently exist or are currently under development. The remaining 32 percent (7 aircraft) will be located on airport property. It should be noted that once the development capacity of all existing through-the-fence development is reached (approximately 20 to 25 aircraft), 100 percent of future demand would be accommodated on airport property. In this sense, the facility needs beyond the current 20-year planning period should be considered when making current planning decisions.

#### Aircraft Operations

The updated forecast of aircraft operations is derived by applying a ratio of 300 operations per based aircraft through the 20-year planning period. As noted earlier, the use of a slightly higher activity ratio appears to be justified based on the higher proportion of transient activity generated by a wide range of visiting aircraft or aircraft that are not permanently based at the airport. Other activity segments at the airport, including the North Cascades Smokejumper Base, military, and commercial/air taxi are expected to remain similar to current levels during the planning period. This projection results in an increase from approximately 3,700 annual operations to 7,600 by 2030. This forecast reflects an average annual growth rate of **3.33 percent**. This rate of growth is consistent with the expectations for based aircraft and aircraft utilization levels.

The LATS, FAA TAF, and the market-based forecasts of activity are summarized in **Table 2-14**.

**TABLE 2-14: EXISTING & UPDATED AVIATION FORECASTS**

Source	2005	2008	2010	2015	2020	2025	2030
<b>Based Aircraft</b> <b>12/2008 Count: 9</b>							
2007 WSDOT LATS Forecast (1.78% AAR 2005-2030)	5	--	10	12	13	13	14
TAF (0.0% AAR: 2005-2020)	9	9	9	9	9	9	--
<b>2008 ALP Market Based Forecast (preferred)</b> <b>(4.15% AAR 2008-2030)</b>	<b>9</b>	<b>9</b>	<b>12</b>	<b>15</b>	<b>17</b>	<b>19</b>	<b>22</b>
<b>Aircraft Operations</b> <b>2008 Estimate: 3,700</b>							
2007 WSDOT LATS Forecast (1.58% AAR 2005-2030)	2,600	--	2,850	3,350	3,600	3,600	3,850
TAF (0.0% AAR: 2005-2020)	7,350	7,350	7,350	7,350	7,350	--	--
<b>2008 ALP Market Based Forecast (preferred)</b> <b>(3.33% AAR 2008-2030)</b>	<b>--</b>	<b>3,700</b>	<b>4,600</b>	<b>5,500</b>	<b>6,100</b>	<b>6,700</b>	<b>7,600</b>

## Preferred Forecast

For facility planning purposes, the market-based forecasts are recommended as the preferred forecast for Methow Valley State Airport. The preferred forecasts are summarized in **Table 2-15**.

## Fleet Mix

The preferred forecast assumes that A-I & B-I (small) piston-engine aircraft will continue to represent the majority of the based aircraft fleet and generate the majority of airport operations during the current twenty-year planning period. However, twin-engine turboprop aircraft used in smokejumper operations and a variety of turbine aircraft used for emergency medical and general transportation represent the most demanding aircraft using the airport on a regular basis. The majority of these aircraft are included in Airplane Design Group II (Approach Categories ranging from A to D). The current distribution of aircraft operations at Methow Valley State Airport is estimated as follows:

- A/B-I (small): 68 percent
- A/B-II 13 percent
- C/D-II 1 percent
- Helicopters: 17 percent

The distribution of operations by airport reference code (ARC) is included in **Table 2-15**. The aircraft fleet mix is expected to shift slightly during the planning period as the number of small general aviation aircraft based at the airport increases through hangar construction.

## Peak Month

Based on the seasonal nature of fire-related aviation activity at the airport and the active summer season for general aviation, peak month traffic is assumed to account for 18 percent of annual activity.

**TABLE 2-15: SUMMARY OF PREFERRED AVIATION FORECASTS**

Activity	2008	2010	2015	2020	2025	2030
<b>Based Aircraft</b>						
Single Engine Piston	8	10	11	12	13	14
Multi-Engine Piston	0	0	1	1	1	1
Turbine (prop/jet)	0	0	0	0	1	1
Ultralights/Experimental	1	1	1	1	1	2
Light Sport Aircraft (LSA)	0	1	2	3	3	4
<b>Total</b>	<b>9</b>	<b>12</b>	<b>15</b>	<b>17</b>	<b>19</b>	<b>22</b>
<b>Aircraft Operations</b>						
Local						
<b>Total Local (all GA)</b>	<b>555</b>	<b>690</b>	<b>825</b>	<b>915</b>	<b>1,005</b>	<b>1,140</b>
Itinerant						
General Aviation	2,020	2,785	3,550	4,060	4,570	5,335
Commercial/Air Taxi	100	100	100	100	100	100
Military	25	25	25	25	25	25
Fire Related	1,000	1,000	1,000	1,000	1,000	1,000
<b>Total Itinerant</b>	<b>3,145</b>	<b>3,910</b>	<b>4,675</b>	<b>5,185</b>	<b>5,695</b>	<b>6,460</b>
<b>TOTAL LOCAL AND ITINERANT</b>	<b>3,700</b>	<b>4,600</b>	<b>5,500</b>	<b>6,100</b>	<b>6,700</b>	<b>7,600</b>
<i>Ratio of GA Operations Per Based Aircraft</i>	300	300	300	300	300	300
<i>Peak Month Operations (18%)</i>	670	830	990	1,100	1,210	1,370
<i>Design Day Operations Overage day in peak month</i>	22	27	32	35	39	44
<b>Aircraft Operations by ARC and Weight</b>						
A-I & B-I Operations (<12,500#)	2,525	3,395	4,265	4,835	5,405	6,255
A-II/B-II Operations (<12,500#)	50	60	80	100	120	150
A-II/B-II Operations (≥12,500#)	450	470	480	490	500	520
C-II/D-II Operations (≥12,500#)	50	50	50	50	50	50
Rotor Wing	625	625	625	625	625	625
<b>Total Operations</b>	<b>3,700</b>	<b>4,600</b>	<b>5,500</b>	<b>6,100</b>	<b>6,700</b>	<b>7,600</b>