CHAPTER FOUR
AIRPORT DEVELOPMENT ALTERNATIVES

The evaluation of development options for Methow Valley State Airport is intended to address both FAA airport design standards and demand-driven facility needs (aircraft parking, hangars, etc.). Based on these needs, a set of preliminary runway-taxiway and landside development alternatives have been developed to address the specific facility requirements as outlined in Chapter Three.

The preliminary development alternatives are described later in the chapter with graphic depictions (**Figures 4-1 through 4-4**) provided to illustrate the key elements of each alternative. A summary of planning-level costs for the preliminary alternatives is presented in Tables 4-1 and 4-2. At this stage of the evaluation process, the costs are very rough; additional refinement will be performed as needed through the alternatives evaluation process.

The preliminary alternatives are intended to facilitate a discussion and evaluation about the best path for the airport to meet FAA standards and meet the facility needs of the airport. As noted in the Facility Requirements analysis, the existing runway system does not meet several FAA clearance standards, particularly at the south end of Runway 13/31 (Evans Road). A primary focus of the alternatives evaluation is to identify the potential improvement options that may be available to improve the facility and meet FAA safety standards. Since the existing airport site has a relatively small land base, most of the options being considered would require acquisition of property in order to accommodate the required safety areas associated with the runway or to develop landside facilities (aircraft parking, hangars, etc.). The current practice of off-airport development (also referred to as "through-the-fence" access) is not supported by the FAA, and no additional off-airport aviation use facilities will be developed beyond those previously approved by WSDOT Aviation.

Overview of Alternatives Evaluation Process

It is anticipated that the cost of upgrading or expanding existing airport facilities to meet FAA standards and to accommodate demand-related items will involve considerable financial resources. There are two financial scenarios available to the airport sponsor. (1) The airport sponsor may determine that it wants to upgrade the airfield facilities to following FAA design standards per the ALP and is willing to commit to fund the matching grant share for these improvements. The FAA

will assign the maximum annual non-primary entitlement funds to the airport. Though other Airport Improvement Program (AIP) grant funds may be available, these will likely not be used at Methow Valley State, except for higher priority safety work, as determined by the FAA. (2) The airport sponsor may determine that upgrading the airfield facilities to meet FAA standards is too difficult or costly – not financially realistic at this time. The airport owner could potentially enter into a "maintenance only" mode using reduced non-primary entitlement funds for small maintenance projects.

The Airport Capital Improvement Plan (ACIP) should be considered a work in progress. The airport sponsor should work closely with FAA and WSDOT Aviation in both the development and implementation of the ACIP. The airport sponsor may refine its project list and financial plan based on receiving only non-primary entitlements. A reasonable approach, at this time, may include an "airport maintenance" program that preserves airfield pavement and other eligible projects such as lighting, signage, marking and lighting to meet RSA and obstruction removal requirements. This assumes FAA concurrence with an airport "maintenance only program" whereby the airport sponsor's budget for AIP eligible projects is limited to nonprimary entitlement (NPE) only.

It should also be recognized that selection of a preferred alternative that addresses FAA standards conformance does not necessarily guarantee that adequate funding will be available to complete all projects. However, creating a viable plan that addresses FAA design standards and larger scale facility upgrades in a systematic manner through the 20-year planning period, while also supporting the airport's ability to expand on its existing user base, can provide tangible benefits in both safety and airport financial stability.

PRELIMINARY DEVELOPMENT ALTERNATIVES

For the purposes of evaluating runway configuration needs, three preliminary development options are presented for consideration. A fourth option (no action) also exists, in which the airport would essentially maintain existing facilities without performing facility upgrades or expansion to address future demand ("maintenance only" option).

The runway configurations presented in the preliminary alternatives will enable the majority of FAA airport design standards to be met while minimizing existing obstructions to FAR Part 77 airspace surfaces. The following items are among the FAA's highest priorities to enhance airport safety:

- **Clear Approaches to Runway Ends** – Unobstructed approaches (FAR Part 77 or through use of FAA Alternative Threshold Siting Criteria)

- **Runway Safety Area (RSA)** - Standard dimensions, surface gradient, surface condition (no objects > 3" above grade unless frangible) along the sides and beyond the ends of the runway
- **Obstacle Free Zone (OFZ)** – Standard dimensions without physical obstructions along the sides and beyond the ends of the runway
- **Primary Surface** – Unobstructed flat surface along the sides and beyond the ends of the runway
- **Object Free Area (OFA) -** Standard dimensions without physical obstructions along the sides and beyond the ends of the runway

In addition to runway and taxiway configurations, options for future landside development areas will provide adequate clearances from the runway-taxiway system, its protected areas and the associated airspace surrounding the runway. The landside components include the following:

- Aircraft Apron (tiedown, fueling area reserve)
- Helicopter Parking
- Hangar Sites
- Taxiway and Taxilane Access to Apron and Hangars
- Vehicle Access and Parking

Runway Option A

Option A (see Figure 4-1) addresses the current non-standard clearance between the south end of the runway and Evans Road by shifting the runway to the north approximately 1,200 feet and eliminating approximately 1,900 feet of existing runway at the south end. The reconfigured runway length is approximately 4,260 feet. A displaced threshold (approximately 277 feet) would be required for Runway 31 to provide clearance over vehicles traveling on Evans Road. The location of the north end of the reconfigured runway is limited by the Methow River and a riparian habitat conservation zone (based on the runway object free area and runway safety that extends beyond the runway end).

Primary benefits include:

- No change in existing surface access (Evans Road) for the airport and adjacent properties located west of the airport.

Primary impacts include:

- Reduction in current runway length and airport function
- Increased cost for runway construction/reconfiguration (compared to Option B)
- Increased property acquisition requirements (compared to Option B)

Runway Option B

Option B (see Figure 4-2) addresses the current non-standard clearance between the south end of the runway and Evans Road by closing the section of road that conflicts with the protected areas of the runway. Access to the properties located south of the runway would not be affected. Access to the west side of the airport and adjacent private parcels is provided by extending a new access road from nearby existing highways.

Four conceptual roadway alignments are depicted, extending from the Twisp-Winthrop Eastside Road (west options) or Old Twisp Highway Road South (west option). The west option requires a two-lane bridge to cross the Methow River. All of the options require property acquisition (assumed to be a 50-foot roadway right of way). The evaluation of potential road options is also be affected by the proposed landside options that involve acquisition of property to develop future aircraft parking apron and hangar facilities. The eastside road options offer different connecting points (to existing roads), but have the same alignment beyond the north end of the runway to meet approach clearance requirements.

The south end of Runway 13/31 is reconfigured to meet the FAA standard for runway safety area (currently limited by the river channel and Evans Road). A minor extension at the north end of the runway compensates for the loss of runway at the south end. The reconfigured runway length is approximately 5,012 feet.

Primary benefits include:

- No reduction in existing runway capabilities or airport function
- Lower costs for runway construction/reconfiguration (compared to Option A)
- Reduced property acquisition requirements (compared to Option A)

Primary impacts include:

- Property acquisition requirements and cost to accommodate new roadways
- Larger number of property owners affected (1+ mile of road right of way)

- Bridge option (cost)

Runway Option C

Option C (see Figure 4-3) addresses the current non-standard clearances between the ends of the runway and the airport property ownership by reducing the length of Runway 13/31 to contain the most critical surfaces within airport property. No changes in existing surface access are required and no additional roadway access is required.

The south end of Runway 13/31 is reconfigured to meet the FAA standard for runway object free area (currently limited by Evans Road). A minor reduction at the north end of the runway is also required to conform to the object free area standard. The reconfigured runway length is approximately 2,943 feet. A displaced threshold for Runway 31 similar to Option A would also be required.

Primary benefits include:

- No property acquisition requirements
- No changes in existing surface access roadways

Primary impacts include:

- Significant reduction in existing runway capabilities or airport function
- May require downgrade in airport design category (ADG I)
- Adversely affects USFS Smokejumper Base Operations
- Could limits FAA funding for improvements (Maintenance Only Airport)

Landside Options

Three conceptual landside options (see Figure 4-4) identify potential development of aircraft parking apron and hangar areas. As noted in earlier analyses, the existing developable landside areas on the west side of the runway are limited and may be further reduced by development of a west parallel taxiway, The locations identified in the figure illustrate the functional placement of these facilities in relation to the runway-taxiway system. Each of the three areas require property acquisition and surface access. East and west side parallel taxiways are depicted based on standard ADG II runway separation requirements. Relocation of existing hangars and other facilities on the east side of the runway is needed to accommodate a full-length taxiway. The aircraft apron would provide light aircraft tiedowns, large aircraft parking, and a fueling area. Hangar development areas are located at

the rear of the parking apron. Actual property acquisition requirements (acreage) to be determined based on specific configuration of facilities.

TABLE 4-1: COMPARISON OF PLANNING LEVEL COST ELEMENTS (RUNWAY)

Project Elements	Runway Option A (Runway Shift)	Runway Option B (Road Relocation Options)	Runway Option C (No Road Changes or Property Acquisition)
Runway Improvements (Extension, Shift or Pavement Removal Cost); Lighting	$1,450,000	$350,000	$500,000
Roadway Improvements	--	$600,000 to $10 M (Bridge Option)	--
Property Acquisition	$1,040,000	$300,000 - $540,000	--
Subtotal	**$2,490,000**	**$1,250,000 to 10,900,000**	**$500,000**
40% Contingency, Engineering, Environmental and Sales Tax	$996,000	$500,000 to $4,360,000	$200,000
Total	**$3,486,000**	**$1,750,000 (no Bridge) to $15,900,000 (Bridge)**	**$700,000**

TABLE 4-2: COMPARISON OF PLANNING LEVEL COST ELEMENTS (PARALLEL TAXIWAY)

Project Elements	West Parallel Taxiway Option (3,200' x 35')	East Parallel Taxiway Option (5,049' x 35')
Taxiway Improvements	$1,400,000	$2,200,000
Subtotal	**$1,400,000**	**$2,200,000**
40% Contingency, Engineering, Environmental and Sales Tax	$560,000	$880,000
Total	**$1,960,000**	**$3,080,000**