

Omak Municipal Airport

Omak, Washington

AIRPORT LAYOUT PLAN REPORT

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Chapter One

INVENTORY

Airport Layout Plan Report

Omak Municipal Airport

The initial step in the preparation of the Airport Layout Plan Report for Omak Municipal Airport is the collection of information pertaining to the Airport and the area it serves. The information collected in this chapter will be used in subsequent analyses in this study. The inventory chapter presents the Airport's location, history, and a summary of the existing facilities. By establishing a thorough and accurate inventory, an appropriate forecast and recommendations for airfield and landside recommendations can be developed.

The information was obtained from several sources, including on-site inspections, airport records, reviews of other planning studies, the Federal Aviation Administration (FAA), various government agencies, a number of on-line (Internet) sites which summarize statistical information and facts about the Airport, and interviews with airport staff, planning associations, and airport tenants. As with any airport planning study, an attempt has been made to utilize existing data, or information provided in existing planning documents, to the maximum extent possible.

AIRPORT LOCATION AND ACCESS

Omak Municipal Airport is located in the City of Omak, Washington in Okanogan County. Located in north central Washington, the county is bordered by British Columbia, Canada on the north, the Cascade Mountain Range on the west and the Columbia River Basin and Lake Roosevelt on the south and east. Okanogan County is home to a wide variety of wildlife and spectacular scenery. The City of Omak is situated in central Okanogan County nestled in the

Okanogan Valley and is served by US Highway 97 and State Highway 155. Public transportation in Omak includes taxi service. The Airport is located three miles north of downtown Omak.

AREA TOPOGRAPHY

The Airport elevation (highest point on the runway) is 1,303 feet. The surrounding terrain is mountainous and forested. Mountain peaks on the eastern side of the City range between 5,000 and 7,000 feet, while peaks on the western side range between 6,000 and 8,000 feet. Omak's eastern edge borders the Colville Indian Reservation.

CLIMATE

Omak has a four season climate. The average high temperatures during the winter months (December through March) generally range from 21 to 38 degrees Fahrenheit with the coolest temperatures typically occurring in January. Average high temperatures during the summer months (June through September) generally range from 60 to 70 degrees Fahrenheit with the warmest days occurring in the month of July. Annual precipitation averages about 12.4 inches.

COMMUNITY AND AIRPORT HISTORY

Okanogan County is rich in Native American history. Many Native American tribes were in the area for hundreds of years prior to the first white settlers coming to the area. It is thought that the first white settlers came to the area in 1811 to trade furs. By 1860, fur trading was abandoned and mining became the main industry. Gold and silver were found along the banks of the Similkameen River. Mining brought many people to the Okanogan area. In 1888, Okanogan became a county. A few short years later, the price of silver dropped dramatically and mining was no longer prevalent. In the early 1900's lumber, cattle raising, and fruit producing began growing in importance. Today, agriculture is the main industry within the County. Native American culture is active as the Colville Indian Reservation borders Okanogan County.

The Omak Municipal Airport was originally constructed in 1943 as an alternate military landing field. The facilities were built to accommodate the B-17 and B-26 bombers. Today, Omak Municipal Airport sits on approximately 153 acres of land and is owned and operated by the City of Omak.

AIRCRAFT ACTIVITY DATA

Two types of aircraft activity data are discussed here: based aircraft and annual operations. Based aircraft are the number of aircraft that are stored at an airport (either in hangars or in tie-downs). Annual operations are the number of aircraft takeoffs and landings that occur yearly at an airport. There are currently 10 based aircraft at Omak Municipal Airport and annual operations are estimated to be 15,300. There are three daily (Monday through Friday) air freight

flights that operate at the Airport. Two of these flights are operated by Ameriflight using a Beech 99 and the other is operated by FedEx flight using a Cessna Caravan. Large tanker aircraft and helicopters used by the DNR for firefighting purposes also frequent the airport during the summer months. Projected based aircraft and annual operations will be presented in Chapter Two, *Forecasts*.

No significant airport service area studies have been conducted, however, based on discussion with the Airport, it is estimated that Omak Municipal Airport's service area includes Omak and the communities surrounding Omak in central Okanogan County.

CRITICAL AIRCRAFT

An airport is designed based on the characteristics of the most demanding aircraft, or critical aircraft, which currently uses an airport or that, is projected to use an airport at some point in the future. The critical aircraft for an airport must have 500 or more annual itinerant operations at that airport. The Washington State Department of Transportation (WSDOT) Aviation System Plan database records indicate that the critical aircraft for Omak Municipal Airport is a Cessna Caravan. This aircraft has a wingspan of 52.1 feet and a maximum takeoff weight of 8,750 pounds.

EXISTING FACILITIES

The airport reference code (ARC) is a criterion that defines the critical airport dimensions based on an airport's critical aircraft. The ARC is defined specifically by the approach category and the design group of the critical aircraft. The approach category is determined by 1.3 times the stall speed of the aircraft in its landing configuration at its maximum landing weight. The approach category is represented by the letters A, B, C, D and E. The design group of the aircraft is based the wingspan and is defined by roman numerals I, II, III, IV, V and VI. **Exhibit 1A** summarizes representative aircraft by ARC.

Omak Municipal Airport has an existing ARC of A-II (small). Approach category A includes those aircraft that have an approach speed less than 91 knots. Design group II includes those aircraft that have a wingspan of 49 feet up to but not including 79 feet. "Small" means that the maximum takeoff weight of the aircraft is 12,500 pounds or less. The Cessna Caravan, identified as the critical aircraft, fits this ARC.

Table 1A presents the existing Airport design standards and the design standards that the Airport should have in order to meet the ARC of A-II (small). The existing facilities at Omak Municipal Airport are discussed in the following paragraphs and are identified on **Exhibit 1B**.

Table 1A - Airport Design Standards

Design Feature	Existing (feet)	Standard A-II (small) (feet)
Runway Safety Area (RSA)		
-Width	435	150
-Runway 17 Length beyond runway end	1,000	300
-Runway 35 Length beyond runway end	1,000	300
Runway Object Free Area (OFA)		
-Width	500	500
-Runway 17 Length beyond runway end	1,000	300
-Runway 35 Length beyond runway end	1,650	300
Runway Obstacle Free Zone (OFZ)		
-Width	400	400
-Runway 17 Length beyond runway end	200	200
-Runway 35 Length beyond runway end	200	200
Runway Protection Zones	500 x 1,000 x 700	500 x 1,000 x 700

Sources: Existing – W & H Pacific, Inc.

Standard – FAA AC 150/5300-13, Change 8

As can be noted in Table 1A, all existing critical area dimensions either meet or exceed ARC A-II (small) standards.

AIRFIELD FACILITIES

All existing pavement sections and pavement conditions were obtained from Pavement Consultants Inc.'s 1999 pavement survey (see **Exhibits 1C** and **1D**). The pavement condition index (PCI) survey is an inventory of the existing pavement sections and pavement conditions at all state-funded airports. The survey is compiled by a consultant hired by the State of Washington. The consultant uses a form of pavement testing to get a rating for each pavement surface. The rating, based on a numbered scale of 0-100, with 0 being the lowest and 100 being the highest, corresponds to a pavement condition rating (PCR) ranging from poor to excellent. The State has hired another consultant to update this data in 2004/2005. Current pavement conditions discussed below are reported based on visual observations by W&H Pacific through a recent (September, 2004) airport field visit.

Runway

Omak Municipal Airport has one paved, asphalt runway, Runway 17-35, which is 4,672 feet long and 150 feet wide.

The pavement section for Runway 17-35 consists of twelve inches of aggregate base course, with four and one-half inches of asphalt and an additional two and one-half inches of asphalt (completed in 1974). The runway was crack sealed in the 1993. Pavement ratings for Runway 17-35 are as follows: 75,000 pounds for single-wheel gear aircraft, 200,000 pounds for dual-

wheel gear aircraft, and 400,000 pounds for dual tandem wheel gear aircraft. Based on these pavement ratings, the pavement strength is adequate in supporting operations by the critical aircraft. In regards to runway pavement, the center 75 feet of runway has recently received an overlay and is good condition. The remaining areas are in poor shape and contain heavy cracking; some cracks are up to two inches in wide. The runway has 75-foot gravel shoulders on both sides of the runway. It was noted during the Airport field observation that there are large ruts and ridges from snow plow operations and that some areas have large rocks just off of the pavement edges.

Runway orientation is determined by the direction of the prevailing winds. The FAA recommends that a runway have 95% wind coverage based on specified crosswind components. Omak Municipal Airport does not currently have a wind rose; however wind data from nearby Osoyoos, British Columbia has been obtained from the National Climatic Data Center. The facilities requirements chapter will further discuss prevailing winds as they relate to Omak Airport.

Taxiways and Taxilanes

Runway 17-35 has a full-length, 50-foot wide parallel taxiway (Taxiway A), which was constructed in 1997. Taxiway A has four different pavement sections. Exhibit 1B details each pavement section. Taxiway A was rated to be in excellent condition in 1999. There are also several connector taxiways at the Airport: Taxiway B, the north connector, Taxiway C, the midfield connector, and Taxiway E, the south connector. Taxiway D, the south midfield connector taxiway is closed. Each connector taxiway has a different pavement section which is shown in Exhibit 1B. Pavement conditions of the connector taxiways range from good to poor. Taxilanes between hangar buildings are in fair to poor condition.

Aprons and Aircraft Parking

Omak Municipal Airport has three aircraft apron areas, all located on the east side of the runway. The transient tie-down and fueling apron is the southern-most apron which was constructed in 1997 and is considered to be in excellent condition. It is an asphalt 325 by 200-foot area that includes ten tie-down positions with concrete anchors. The central apron is an asphalt 140 by 200-foot area that contains four tie-down positions with concrete anchors. The northern-most tie-down apron area is asphalt and has dimensions of 195 by 688 feet. This apron contains 19 tie-downs with concrete anchors. The pavement condition is good. The tie-down fee is \$10 per month.

Instrument Approach Procedures to Omak Municipal Airport

The Airport currently has a GPS approach to Runway 35, with visibility minimums greater than or equal to 1 mile. The Airport also has an NDB on the field, but currently there is no published approach procedure for it. There are only visual approaches available for Runway 17.

The Airport has been placed name by U.S. Congress for the installation of the Transponder Landing System (TLS). Appropriations for the facility have not yet been made, nor has the

Airport accepted the installation. A formal proposal for the TLS has not been made to the City of Omak that details who specifically is responsible for the installation and maintenance costs of the facility.

LANDSIDE FACILITIES

Hangars and Airport Buildings

There are a total of four hangar buildings on Airport property, all on the east side of the airfield. All are privately owned and maintained and have a ground lease with the City of Omak. In addition to hangar buildings, there is a terminal building located between the central and south tie-down aprons. The terminal building contains the Airport Manager's office, restrooms, a pilot's lounge, and telephone. There is also a storage shed located near the fueling station. Both the terminal building and the storage shed are owned and operated by the City of Omak. Off-property aviation-related buildings include six hangars located east of the field (through-the-fence operations). Several of the hangars are currently being used for storage purposes.

Through the Fence Access

Because on-airport tenants are paying ground rent, and those individuals who own hangar buildings located on private property are not paying any additional fees, it is possible that the Airport may not be in compliance with FAA grant assurances. The Airport may want to consider charging a fee for through the fence access. This is further discussed in Chapter Three.

Fixed Based Operators (FBOs)

A fixed based operator is an individual or a business that offers aviation-related services to Airport users, such as flight instruction, aircraft rental, aircraft maintenance, aircraft fueling, etc. There is one fixed based operator at the Airport. Omak Aircraft Services provides major airframe and powerplant repairs. The business is located adjacent to airport property and is a through-the-fence operation. There is also a private instructor who offers flying lessons at the Airport.

Internal Circulation, Access and Vehicle Parking

Vehicular traffic can access the Airport directly from Highway 97 by using Old Riverside Highway to Omak Airport Road. There are approximately five to six automobile parking spaces located adjacent to the terminal building. The Airport is unfenced and is therefore easily accessible by anyone at anytime.

AIRFIELD SUPPORT FACILITIES

Aircraft Rescue and Firefighting

There are no Aircraft Rescue and Firefighting (ARFF) facilities available at the Airport, however, in the event of an emergency, these services are provided by City of Omak Police and Fire Departments and/or the County Sheriff.

Fueling Facilities

There are two aircraft fueling tanks at the Airport, one for 100LL and the other for Jet A. Both tanks are located adjacent to the south tie-down apron area. The Airport has a 24-hour self-service, credit card fueling system available to pilots. Full service after-hours fueling is available for a \$40.00 fee.

Airport Maintenance

Airport maintenance is provided by the City of Omak.

Utilities

The City provides limited services to the Airport. A nearby well provides water to the terminal building, while a second well provides water to the hangars and fire retardant mixing area. The second well is metered and the City must pay the local irrigation district for the water used. The City has made numerous attempts to provide additional water service to the Airport, but has been unsuccessful thus far. Sanitary sewer is limited to a septic system in the airport office area. Power is provided to the Airport by the Okanogan County Public Utilities District, while telephone service is provided by US West.

Common Traffic Advisory Frequency (CTAF)

The Federal Communications Commission (FCC) issued Omak Municipal Airport a Common Traffic Advisory Frequency (CTAF) of 122.8 MHz. This frequency is used by pilots to communicate their intentions, via radio, to other pilots who may be in the vicinity of the Airport.

LANDING, HANGAR AND LEASE FEES

Omak Municipal Airport has several revenue sources. In addition to tie-down fees previously mentioned, some of the main income sources include fuel sales, landing fees, and rental fees. These fees are set by the Omak City Council. The City charges \$0.50 per gallon over the supplier's cost for aircraft fuel. Landing fees are charged to commercial contract carriers that do not purchase at least 20 gallons of fuel. The fee for these aircraft is \$40 per month. Fire retardant tanker aircraft and other commercial operators are also charged a landing fee if they do not purchase at least 20 gallons of fuel. The landing fee for these aircraft is charged on a per landing basis at a rate of \$0.20 per 1,000 pounds of maximum gross certified landing weight for fire retardant tanker aircraft and a rate of \$0.30 per 1,000 pounds of maximum gross certified landing weight for other commercial operators. In all cases, if at least 20 gallons of fuel is purchased, the landing fee is waived. In regards to hangar lease fees, all hangars are privately owned under a ground lease from the City of Omak at a rate of \$0.09 per square foot per year, minimum of \$20 per month.

AIRPORT NAVIGATIONAL AIDS

Airport Navigational Aids, or NAVAIDS, provide navigational assistance to aircraft for approaches to an airport. NAVAIDS are either visual approach aids or instrument approach aids; the former providing a visual navigational tool, and the latter being an instrument-based navigational tool. The types of approaches available at an airport are based on the NAVAIDS which are provided.

Instrument Approach Aids

Omak Municipal Airport currently has a Global Positioning System (GPS) approach to Runway 35 with visibility minimums greater than or equal to one mile. The Airport also has an NDB (non-directional beacon) on the field; however, there is currently no published approach procedure for the NDB.

Visual Approach Aids

Omak Municipal Airport is equipped with a rotating beacon to assist pilots in locating the Airport. All approaches to the Airport are made on a visual basis. The Airport has a 2-box Visual Approach Slope Indicator (VASI) on the left side of both runway ends. VASIs gives pilot on final approach glide slope information, by displaying sequences of different colored lights. Based on the lights displayed, a pilot can then make the necessary altitude adjustments to ensure the correct glide slope for landing.

Airport Lighting and Signing

Runway 17-35 is equipped with medium intensity runway lights (MIRL). The MIRL are pilot activated by using the CTAF frequency of 122.8 MHz. The Airport also has runway end identifier lights (REILs) on both runway ends. Taxiway edges are not lit, but are marked with reflectors.

Other NAVAIDS

Omak Municipal Airport has a lighted wind sock and a segmented circle. In addition, the Airport has an automated surface observation system (ASOS) located on the field. The ASOS provides hourly updates of weather information, such as wind direction and speed, visibility, sky conditions, temperature and dew point, local altimeter, and any relevant remarks. The ASOS can be listened to via aircraft radio by tuning to the published ASOS frequency or by calling the published telephone number.

LAND USE PLANNING AND ZONING

There are several land use requirements, on the Federal, State, County and City levels, that need to be considered when reviewing existing land uses and planning for future development at and around an airport.

Federal regulations are generally concerned with airspace protection (14 CFR Part 77) and noise levels, particularly for areas that fall within the 65 decibel (dBA) noise contour line. 14 CFR Part 77, *Objects Affecting Navigable Airspace*, establishes obstruction standards used for purposes of public notification of potential hazards to air navigation and FAA review. Imaginary surfaces are used as the basis for protecting the airspace around an airport by WSDOT – Aviation and the airport owner. There are five imaginary surfaces, each with specific controlling measures: a primary surface, an approach surface, a transitional surface, a horizontal surface and a conical surface. It is ideal to keep these surfaces clear of any and all obstructions.

Under FAA guidelines, before FAA grants can be received, the airport sponsor must provide assurances that appropriate actions have been (or will be) taken to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport, to activities and purposes compatible with normal airport operations.

Washington State regulations are based on the Growth Management Act (GMA), Chapter 36.70A of the Revised Code of Washington (RCW), which requires most counties and cities to establish goals, evaluate community assets, and write comprehensive plans to discourage the siting of incompatible uses near airports that are operated for the benefit of the general public. The requirements to plan under GMA are based on the city or county's population or rate of population growth. Areas that do not meet specified growth rates may choose whether or not to plan under GMA requirements.

The GMA establishes four basic principles related to public use airports:

- Local comprehensive plans and development regulations must discourage development of incompatible land uses adjacent to public-use airports
- Formal consultation with airport owners, pilots and WSDOT Aviation prior to adoption of protective ordinances
- WSDOT Aviation to provide technical assistance program to develop such protection
- Airport to be identified as an Essential Public Facility (EPF) in the Comprehensive Plan.

Okanogan County does not participate in Washington's Growth Management Act. However, the County is required to plan for Critical Areas and Natural Resources Lands.

The following subsections describe the existing land uses and zoning that are currently in place.

Existing Land Use

The land uses immediately adjacent to airport property are primarily open space and agricultural lands. The north and west sides are open space areas, while the south and east sides are agricultural lands. A portion of the land east of the property, closest to the aircraft apron, contains aircraft hangars that are considered through the fence operations. There are also low density housing associated with the agricultural areas.

Existing Zoning

Chapter 18 of the City of Omak Municipal Code and Chapter 17 of Okanogan County Code describe their respective zoning designations. Descriptions of the specific zones from both the City and the County that are relevant to the Airport are included in Appendix B. Each is summarized below.

Okanogan County Zoning

The City of Omak and Omak Municipal Airport are located within Okanogan County's minimum requirement district. The purpose of this district is to maintain broad controls in preserving rural character and protecting natural resources. Permitted uses in this district include auto sales, banks, dairy farms, single and multi family residences, day care facilities, wholesale and retail stores, maintenance shops, restaurants, gravel pits less than three acres in size, hospitals, light manufacturing, parks and golf courses, hotels/motels, and others. This district allows a minimum density of one acre per single family unit and a minimum of 9,600 square feet per multi-family unit or mobile home park unit. The maximum height of buildings and structures within this zone ranges from 35 feet to 200 feet, depending on its use. For example grain elevators and water tanks can be no higher than 100 feet, while the maximum height for most agricultural uses is limited to 65 feet.

Okanogan County also has an Airport Safety Overlay District which applies to lands classified by the FAA as visual, utility, non-precision, and precision runways. The purpose of this overlay district is to protect lives and property on lands which lie within the transition and approach zone surrounding an airport or landing field. Also, the district is intended to prevent the establishment of airspace obstructions through height restrictions. The district prohibits uses such as schools, churches, and auditoriums (i.e., assemblies of people), uses which create electrical interference with navigational signals or radio communications, and uses which foster an increased bird population. There is also language in the ordinance prohibiting emission of smoke, ash, dust, vapor and other forms of air pollution, and materials that may produce glare. The heights of building or structures within this overlay zone are limited by Part 77 Regulations. Exhibit 1E shows the County's zoning map and the Airport Overlay District for the Omak area.

City of Omak Zoning

The Airport is located within the City's Airport Industrial (AI) District. The purpose of this district is to allow for the development of uses that are compatible with airports and to provide uses that complement the airport and protect major residential areas from noise and traffic impacts. Uses permitted in this zone include aircraft operations, sale and storage of fuel and oil, aircraft sales, storage, maintenance and repairs, aviation equipment, offices, restaurants, ARFF facilities, and others. One residential dwelling is permitted in this district, for use by airport personnel. Buildings and other height limitations are controlled by two overlay zones – FAA Notification Overlay and Flight Pattern Overlay. The FAA Notification Overlay requires property owners to notify the FAA of any proposed construction or alteration that may penetrate the notification surface, which is defined as a surface extending outward and upward from the runway edges at a slope of 100:1 for a horizontal distance of twenty thousand feet in all

directions. The Flight Pattern Overlay prohibits structures and objects within the boundaries of the Part 77 primary, approach, transitional, horizontal, and conical surfaces.

Due to the Airport's location outside of the official City Limits of Omak, the zoning within a two mile radius of the Airport falls under the County's Minimum Requirement District, which is described above.

Comprehensive Plan Goals and Policies

Okanogan County Comprehensive Plan

Since Okanogan County is not required to plan under GMA, a comprehensive plan is not required. The County is required, however, to plan for Critical Areas and Natural Resources Lands. The County will have its first update of the Critical Areas and Natural Resources Lands completed by December 1, 2007. Okanogan County does have a comprehensive plan, however it is in the process of being revised; a draft document is in place, dated June, 2005. The Transportation Element of the plan is not addressed in this draft document.

City of Omak Comprehensive Plan

The City of Omak adopted a comprehensive plan in March, 2004. The Airport is addressed under the Transportation Element of the plan. The main objective the City has for the Airport is to continue to upgrade and expand the Airport by developing a water source for industrial development, reconstructing the existing runway, and adding passenger service. A description of the existing airport facilities, a brief history, and a list of recent improvements is included in the comprehensive plan text. The Airport is not specifically addressed as an Essential Public Facility and there are no specific policies discouraging development of incompatible land uses adjacent to the Airport.

Chapter Two

FORECAST

Airport Layout Plan Report
Omak Municipal Airport

INTRODUCTION

Aviation demand forecasts help to determine the size and timing of needed airport improvements. This chapter indicates the types and levels of aviation activity expected at Omak Municipal Airport during the forecast period of 2005 through 2025. The methodology followed is from “Forecasting Aviation Activity by Airport,” GRA, Incorporated, July 2001.

STEP 1: AVIATION ACTIVITY PARAMETERS AND MEASURES TO FORECASTS

For Omak Municipal Airport, the following activity categories are projected:

- Based Aircraft, including fleet mix.
- Annual Aircraft Operations, including air taxi, general aviation (GA), military, local vs. itinerant and annual instrument approaches.
- Airport Reference Code, which defines the appropriate FAA criteria for airport design and is determined by the most demanding aircraft that regularly uses the airport.

STEP 2: COLLECT AND REVIEW PREVIOUS AIRPORT FORECASTS

The following previous airport forecasts for Omak Municipal Airport were reviewed:

- FAA Terminal Area Forecast (TAF). The FAA provided an advance copy of the draft 2004 TAF.
- Washington State Department of Transportation (WSDOT) Aviation Division, *Aviation System Plan – Forecast and Economic Significance Study*. (2000)

STEP 3: GATHER DATA AND STEP 4: SELECT FORECAST METHODS

This section describes the historical aviation data, aviation forecasts, and socioeconomic information that was collected and evaluated for the Omak Municipal Airport forecasts. Also described is how the information was used in the three forecast methods applied to the based aircraft and aircraft operations forecasts for Omak.

For based aircraft, the three methods were:

- TAF growth rates, extrapolated to 2025
- WSDOT growth rates, extrapolated to 2025
- Okanogan County Intermediate population growth rates

For aircraft operations, the three methods were:

- TAF growth rates, interpolated to 2025
- WSDOT aircraft utilization (operations per based aircraft) method, with slight growth in aircraft utilization over the forecast period
- Okanogan County Intermediate population growth rates

HISTORICAL AVIATION DATA

Historical aviation data for based aircraft and aircraft operations were obtained from the FAA TAF, and are summarized in Table 2A.

TABLE 2A - FAA TAF Historical Aviation Data

	1980	1985	1990	1995	2000
Based Aircraft					
Single Engine	28	27	21	23	14
Multi Engine	4	2	2	2	1
Annual Operations					
Itinerant:					
Air Taxi	0	3,500	3,300	3,300	3,300
GA	7,000	15,000	12,000	12,000	12,000
Military	10	150	75	75	75
Local					
GA	3,000	2,800	3,500	3,500	3,500
Instrument Ops	0	0	0	0	0

CURRENT AVIATION DATA

Current aviation data for based aircraft and aircraft operations was obtained from the following sources:

- FAA TAF
- FAA Airport Master Record, Form 5010
- WSDOT *Aviation System Plan - Forecast and Economic Significance Study*.

The based aircraft numbers from these sources were compared with numbers of based aircraft obtained in discussion with the airport manager during 2004. A summary of current data is shown in Table 2B. The date of the study data is shown in each column heading.

TABLE 2B - Current Aviation Demand

	FAA TAF (2003)	FAA Master Record (2002)	WSDOT Aviation Study (2000)	Airport Manager Discussion (2004)
Based Aircraft				
Single Engine	14	14	8	10
Multi Engine	1	1	1	0
TOTAL	15	15	9	10
Annual Operations				
Itinerant:				
Air Taxi	3,600	3,600	3,300	Not Available
GA	12,000	12,000	12,000	Not Available
Military	75	75	75	Not Available
Local:				
GA	3,500	3,500	3,500	Not Available
Military	0	0	0	Not Available
TOTAL	19,175	19,175	18,875	15,300
Calculated Utilization Rate(ops/based aircraft)	2,397	1,278	2,097	1,530
Instrument Operations	0	Not Available	0	Not Available

Because the conversation with the Airport manager took place during 2004, the number of based aircraft provided by the airport manager is the most recent. Consequently, the base year number of based aircraft used for the Omak forecasts was 10 single engine aircraft.

The base year operations used for the Omak forecast is also based on discussions with the airport manager. The base year number of annual operations used for the forecasts was 15,300. Because the fleet mix was not given, it was assumed that the base year military operations would remain at 75 annual operations, and all other operations would be allocated as shown in the TAF forecast.

FORECAST #1: FAA TERMINAL AREA FORECAST GROWTH RATE

The FAA annually prepares aviation demand forecasts called the Terminal Area Forecasts (TAF) for all airports included in the National Plan of Integrated Airport Systems (NPIAS). The FAA TAF provides forecast data for based aircraft, annual operations, and annual growth rates for each. The TAF annual growth rate for all components of aviation activity at Omak is 0%.

This growth rate was applied to the selected base year based aircraft and operations data to create Forecast #1.

FORECAST #2: WSDOT AVIATION FORECAST GROWTH RATE/METHODOLOGY

WSDOT Aviation Division's *Aviation System Plan – Forecast and Economic Significance Study* contains the forecasts for Omak Municipal Airport. Registered aircraft in the state were forecast by using the average of five forecasting models:

- 1) Time-Series Analysis (continuation of historical trends).
- 2) Regression analysis that examined per capita personal income (PCPI) in Washington compared to that in the United States.
- 3) Regression analysis using state population and PCPI as independent variables.
- 4) The FAA's nationwide growth rates for registered aircraft.
- 5) A multiple regression analysis that used pilot population as one of the variables.

The registered aircraft forecasts were distributed among the counties according to the actual distribution in 1998, with adjustments in the future to consider different population and PCPI growth forecast by the State. Based aircraft for individual airports were forecast by holding constant the market share of the aircraft based in the county to the number of aircraft registered in that county.

The average annual growth rate projected for based aircraft at Omak Municipal was 0.5% between 2000 and 2020. This growth rate was applied to the selected base year based aircraft to create Forecast #2. The growth rate was extrapolated to year 2025 for this forecast.

To forecast aircraft operations, the WSDOT methodology was to calculate a utilization rate (operations per based aircraft) for the base year. Except where specific conditions were noted, the utilization rate at each airport was increased uniformly by 0.3% for 2005, 0.33% for 2010, .36% for 2015, and 0.39% for 2020.

The WSDOT study did not forecast into year 2025. To apply the WSDOT methodology to the forecast for Omak through 2025, the utilization rate was increased by 0.42%, matching the +0.03% change in utilization rate increase for each previous five-year period. The utilization rates were applied to the selected based aircraft forecast to create Forecast #2 of aircraft operations.

FORECAST #3: SOCIOECONOMIC DATA – POPULATION FORECAST GROWTH RATE

An analysis of local socioeconomic data was incorporated into this airport planning forecast. Population growth within an airport’s service area can be a significant factor in the growth of aviation activity at the airport.

Projections of the total resident population of Okanogan County were obtained from the State of Washington Office of Financial Management. The population projections included low, intermediate, and high projections for years 2005 – 2025, using base year data from 2000. Based on the intermediate population projections, average annual growth rates were calculated for each five year period, as shown in Table 2C:

TABLE 2C - Okanogan County Population

Year		Population		
1980		30,663		
1985		32,687		
1990		33,350		
1995		38,943		
2000		39,564		
Forecasts				
	Low	Intermediate	High	
2005	39,219	41,458	43,904	
2010	40,712	44,061	47,850	
2015	41,776	46,315	51,549	
2020	42,170	47,920	54,629	
2025	42,394	49,410	57,661	
Average Annual Growth Rates				
1980-1985		1.29%		
1985-1990		0.40%		
1990-1995		3.15%		
1995-2000		0.32%		
2000-2005	-0.18%	0.94%	2.10%	
2005-2010	0.75%	1.23%	1.74%	
2010-2015	0.52%	1.00%	1.50%	
2015-2020	0.19%	0.68%	1.17%	
2020-2025	0.11%	0.61%	1.09%	

Source: State of Washington Office of Financial Management, Projections released January 2002

The intermediate growth rates were applied to base year based aircraft and aircraft operations to create Forecast #3.

OTHER FAA FORECASTS

Two other FAA forecasts were reviewed for an understanding of GA activity trends nationwide. None of the growth rates in these forecasts were used in the Omak forecasts, but the information helped in forecast selection.

FAA-APO-03-3, *FAA Long-Range Forecasts, Fiscal Years 2015, 2020, 2025, and 2030*, June 2003, contains forecasts of long-term growth in GA aircraft, GA hours flown, and pilots. GA activity is very sensitive to changes in fuel price and economic growth. Forecast assumptions include sustained economic growth, relative stability in fuel prices, and continued growth in fractional ownership programs and corporate flying. Also important to GA growth is continued investment in production by GA aircraft manufacturers. Pilot growth is aided by recent industry program initiatives designed to promote GA. According to FAA-APO-03-3, the number of active GA aircraft is expected to increase at an average annual growth rate of 0.5%, with slower growth for the piston engine portion of the fleet than the turbine portion, reflecting more business and corporate use of GA aircraft in an expanding U.S. economy (see Table 2D). Flight hours are projected to increase at a faster rate than the fleet, 1.5% annually through 2014, and 1.2% annually from 2015 through 2030. The number of pilots is forecast to grow at an average annual rate of 1.2% over the 28-year period.

TABLE 2D - FAA Long-Range GA Forecasts (Average Annual Growth Rates)

	2002-2005	2005-2010	2010-2015	2015-2025
Piston	0.2%	0.3%	0.2%	0.2%
Turbine	2.2%	3.2%	2.6%	2.3%
Helicopters	0.5%	0.9%	0.5%	0.5%
Experimental	3.0%	1.9%	1.5%	1.0%
Hours Flown	1.3%	1.6%	1.5%	1.3%

Source: FAA-APO-03-3

FAA-APO-04-1, *FAA Aerospace Forecasts Fiscal Years 2004-2015*, March 2004, contains the FAA's latest national forecasts for GA. The document begins with an assessment of recent trends. GA aircraft manufacturing has been declining: an estimated 15.9% decline in 2003 shipments compared to 2002. The active GA fleet declined 0.1% and hours flown increased 0.1% from the previous year. The business/corporate segment continues to offer the greatest potential for GA growth; fractional ownership activity has been increasing, with flight hours up 3.8% in 2003. Student pilots also increased in 2003, up 1.5% from 2002.

**TABLE 2E - FAA Forecasts for GA and Air Taxi Active Fleet
(Average Annual Growth Rates)**

	2002-2005	2005-2010	2010-2015
Single Engine Piston	0.0%	0.4%	0.3%
Multi-Engine Piston	-0.5%	-0.5%	-0.5%
Turboprop	0.8%	1.6%	1.4%
Turbojet	2.6%	5.9%	5.3%
Rotorcraft (Piston)	1.2%	1.2%	0.8%
Rotorcraft (Turbine)	-0.1%	0.6%	0.4%
Experimental	0.2%	0.6%	0.3%
Sport Aircraft		3.1%	3.0%

Source: FAA-APO-04-1

The FAA’s forecasts for 2004–2015 assume there will not be any successful terrorist incidents against either U.S. or world aviation. Business use of GA is projected to expand more rapidly than that for personal and sport use. The business/corporate side of GA should continue to benefit from safety concerns for corporate staff, increased processing times for airline travel, and the bonus depreciation provision of the Presidents economic stimulus package that should help stimulate jet sales. The new Eclipse jet aircraft is assumed to add 4,600 aircraft to the fleet by 2015. The Eclipse, priced under \$1 million, is believed to have the potential to redefine the business jet segment and support a true on-demand air taxi business. Starting in 2003, owners of ultralight aircraft can begin registering these aircraft as “light sport” aircraft, and the GA fleet forecast includes 20,915 aircraft in this new category by 2015. The active GA fleet is projected to increase at 1.3% annually over the forecast period, while the GA hours flown are projected to increase at 1.6% per year over the last 11 years of the forecast period (see Tables 2E and 2F).

**TABLE 2F - FAA Forecasts for GA and Air Taxi Hours Flown
(Average annual growth rates)**

	2002-2005	2005-2010	2010-2015
Single Engine Piston	-0.3%	0.9%	0.7%
Multi-Engine Piston	-0.6%	-0.4%	-0.4%
Turboprop	-0.2%	0.5%	0.5%
Turbojet	2.5%	8.0%	6.3%
Rotorcraft (Piston)	1.2%	2.0%	0.9%
Rotorcraft (Turbine)	-0.3%	1.4%	0.7%
Experimental	0.1%	0.9%	0.6%
Sport Aircraft		3.2%	3.2%

Source: FAA-APO-04-1

STEP 5: EVALUATE RESULTS

The results of the three based aircraft forecast methods are shown in Table 2G.

TABLE 2G: Comparison of Based Aircraft Forecasts

Year	Forecast #1: FAA TAF Growth Rate*	Forecast #2: WSDOT Growth Rate**	Forecast #3: Population Growth Rate***
Base Year			
2004	10	10	10
Forecast			
2005	10	10	10
2010	10	12	11
2015	10	14	12
2020	10	17	12
2025	10	20	12

*0.0% annual growth from Terminal Area Forecasts, August 2004

**Annual growth rate from Washington Aviation System Plan – Forecast and Economic Significance Study

***Annual growth rates from intermediate population projections of State of Washington Office of Financial Management, Table 2C

Because the historical data provided in the TAF has shown that the number of based aircraft at the airport has been decreasing, the FAA TAF was selected for the Omak forecast.

Using the selected based aircraft forecast, the aircraft operations forecast was calculated using the WSDOT study methodology. The results of the WSDOT forecast are compared with the operations forecast using FAA TAF and population growth rates in Table 2H.

TABLE 2H: Comparison of Aircraft Operations Forecasts

Year	Forecast #1: FAA TAF Growth Rate*	Forecast #2: WSDOT Growth Rate**	Forecast #3: Population Growth Rate***
Base Year			
2004	15,300	15,300	15,300
Forecast			
2005	15,300	15,346	16,032
2010	15,300	15,397	17,039
2015	15,300	15,452	17,911
2020	15,300	15,512	18,531
2025	15,300	15,577	19,108

*0.0% annual growth from Terminal Area Forecasts, August 2004

**WSDOT growth = growing aircraft utilization method from Washington Aviation System Plan – Forecast and Economic Significance Study

***Annual growth rates from intermediate population projections of State of Washington Office of Financial Management, Table 2C

Because a slight increase in utilization is consistent with national FAA forecasts for hours flown in GA piston aircraft, the WSDOT forecast was selected as the 2005-2025 aircraft operations

forecast. The selected forecast uses the State Aviation System Plan’s aircraft utilization method. Annual operations per based aircraft are projected to grow from 15,300 now to 15,577 in 2025.

STEP 6: SUMMARIZE RESULTS

Table 2I presents the selected forecasts for based aircraft and aircraft operations.

TABLE 2I: Omak Municipal Airport Aviation Demand Forecasts

Year	Based Aircraft		Aircraft Operations					
	Single Engine	Total	Local GA	Itinerant GA	Itinerant Air Taxi	Itinerant Military	Total Operations	Inst. Approaches
Base Year								
2004	10	10	2,790	9,566	2,869	75	15,300	656 ^{1/}
Forecast								
2005	10	10	2,798	9,595	2,878	75	15,346	662
2010	10	10	2,808	9,626	2,887	75	15,397	690
2015	10	10	2,818	9,661	2,897	76	15,452	720
2020	10	10	2,829	9,699	2,909	76	15,512	751
2025	10	10	2,841	9,739	2,921	76	15,577	784

^{1/} Estimated based on discussion with Airport Management.

Omak Municipal Airport currently has a GPS instrument approach. The actual number of instrument approaches in 2004 has been estimated based on discussion with airport management. Annual instrument approach projections have been calculated by using the same growth rate used to project annual operations (0.085%).

Table 2J shows the operational fleet mix by ARC and local versus itinerant operations projected to utilize the Airport.

Table 2J - Operations Mix

Airport Reference Code	A-I	A-II	B-I
Takeoff Weight (pounds)	Small (max. 12,500)	Small (max. 12,500)	
Base Year (2004)			
Local	2,604	0	0
Itinerant	11,676	500	520
2005			
Local	2,612	0	0
Itinerant	11,709	502	522
2010			
Local	2,621	0	0
Itinerant	11,750	503	523
2015			
Local	2,630	0	0
Itinerant	11,792	505	525
2020			
Local	2,640	0	0
Itinerant	11,839	507	527
2025			
Local	2,651	0	0
Itinerant	11,889	509	529

There has been no indication that the percentage of itinerant versus local operations or A-I versus A-II versus B-I operations will change in the future.

STEP 7: COMPARE RESULTS WITH TAF

Table 2K compares the selected forecasts for Omak Municipal Airport with the TAF forecast numbers.

TABLE 2K - Comparison of Selected Forecasts with Terminal Area Forecasts

Year	Based Aircraft Forecast			Operations Forecast		
	FAA TAF	Selected	Difference	FAA TAF	Selected	Difference
Base Year	15	10	- 50%	19,175	15,300	-20.2%
2005	15	10	- 50%	19,175	15,346	-20.0%
2010	15	10	- 50%	19,175	15,397	-19.7%
2015	15	10	- 50%	19,175	15,452	-19.4%
2020	15	10	- 50%	19,175	15,512	-19.1%
2025	15	10	- 50%	19,175	15,577	-18.8%

The selected forecasts for based aircraft are 50% lower than the FAA TAF numbers, because the current number of based aircraft was found to be lower.

AIRPORT REFERENCE CODE

As discussed in Chapter One, the Airport Reference Code (ARC) is an important parameter for airport design. The appropriate ARC for an airport is determined by its design, or critical, aircraft, which is the most demanding aircraft that regularly, uses the airport. Regular use is defined as at least 500 annual itinerant operations--equivalent to an average of one departure per weekday.

The current ARC for Omak Municipal Airport is A-II (small), based on the minimum activity threshold of 500 annual operations. The current critical aircraft operating at Omak Municipal airport is the Cessna Caravan.

As discussed in Chapter One, Inventory, there are currently three daily air freight flights at the airport, Monday through Friday. Two of the flights are operated by Ameriflight using a Beech 99 (wingspan of 45.1' and MTOW of 11,300 pounds), which is classified under ARC B-I (small). Because this results in 520 annual operations, the Beech 99 should also be the critical aircraft.

Combining the two critical aircraft for the airport (Cessna Caravan and Beech 99), the future ARC for the airport is proposed to be a B-II (small).

OPERATIONS FORECAST FOR TAF

The GA operations forecast using the WSDOT Methodology has been selected as the recommended forecast for use in facilities programming associated with this airport layout plan update. However, the FAA does not accept the premise of an increased utilization rate at this time, since the rate exceeds FAA's recommended estimates of operations per based aircraft, and since actual traffic counts or other documentation from airport users is currently unavailable. Therefore the FAA TAF will utilize a flat line operational count for their projections.

Chapter Three

AIRPORT FACILITY

REQUIREMENTS/ALTERNATIVES

Airport Layout Plan Report
Omak Municipal Airport

In this chapter, existing components of the airport are evaluated so that the capacities of the overall system are identified. Once identified, the existing capacity is compared to the forecast activity levels prepared in Chapter Two to determine where deficiencies currently exist or may be expected to materialize in the future. Once deficiencies in a component are identified, a more specific determination of the approximate sizing and timing of the new facilities can be made.

The objective of this effort is to identify, in general terms, the adequacy of the existing airport facilities, outline what new facilities may be needed, and when these may be needed to accommodate forecast demands. Having established these facility requirements, alternatives for providing these facilities will be evaluated to determine the most cost-effective and efficient means for implementation.

As indicated earlier, airport facilities include both airfield and landside components. Airfield facilities include those facilities that are related to the arrival, departure, and ground movement of aircraft. These components include:

- Runways
- Taxiways
- Navigational and Approach Aids
- Lighting, Marking, and Signage

- Weather Reporting

Landside facilities are needed for the interface between air and ground transportation modes. This includes components for general aviation needs such as:

- General Aviation Terminal
- Aircraft Hangars and Parking Aprons
- Auto Parking and Access
- Airport Support Facilities

PLANNING HORIZONS

Cost-effective, safe, efficient, and orderly development of an airport should rely more upon actual demand at an airport than a time-based forecast figure. Thus, in order to develop an airport layout plan that is demand-based rather than time-based, a series of planning horizon milestones have been established that take into consideration the reasonable range of aviation demand projections.

Utilizing milestones allows the airport to develop facilities according to need generated by actual demand levels. The demand-based schedule provides flexibility in development, as development schedules can be slowed or expedited according to actual demand at any given time over the planning period. The resultant plan provides airport officials with a financially responsible and need-based program.

Table 3A presents the planning horizon milestones for each aircraft activity category. The planning milestones essentially correlate to the five, ten, and twenty-year periods used in the previous chapter.

TABLE 3A - Aviation Demand Planning Horizons

Demand Category	Current	Short Term (2010)	Intermediate Term (2015)	Long Term (2025)
<i>Operations</i>				
Local GA	2,790	2,808	2,818	2,841
Itinerant GA	9,566	9,626	9,661	9,739
Air Taxi	2,869	2,887	2,897	2,921
Military	75	75	76	76
Total	15,300	15,397	15,452	15,577
<i>Based Aircraft</i>	10	10	10	10

AIRFIELD REQUIREMENTS

Airfield requirements are those facilities which are needed for and related to the arrival and departure of aircraft. The adequacy of existing airfield facilities at Omak Municipal Airport has been analyzed from a number of perspectives, including airfield capacity, runway length, runway pavement strength, airfield lighting, navigational aids, and pavement markings.

AIRFIELD DESIGN STANDARDS

The selection of the appropriate FAA design standards for the development and location of airport facilities is based primarily upon the forecast ARC for the airport. Planning for future aircraft use is of particular importance since design standards are used to plan separation distances between facilities. These standards must be determined now since the relocation of these facilities will likely be more costly at a later date.

As discussed in the previous chapter, the existing ARC for Runway 17-35 (and the facility) is A-II (small). The forecasts anticipate that the future ARC will be B-II (small). This change in the ARC does not create a new set of design standards; it does however change the approach category of the aircraft anticipated to use the Airport. In other words, it assumes that throughout the planning period, faster aircraft will begin to use the Airport, while size of the aircraft (in wingspan) will remain similar to the current operational fleet. Facility requirements will be developed based on these assumptions.

The FAA has established airport design standards to protect aircraft operational areas and keep them free from obstructions that could affect the safe operation of aircraft. These include the runway safety area (RSA), object free area (OFA), object free zone (OFZ), and runway protection zone (RPZ).

The RSA is “a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or an excursion from the runway.”

An OFA is an area on the ground centered on the runway or taxiway centerline provided to enhance the safety of aircraft operations. No above-ground objects are allowed except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

An OFZ is a volume of airspace that is required to be clear of objects, except for frangible items required for navigation of aircraft. It is centered along the runway and extended runway centerline.

The RPZ is defined as an area off the runway end to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape and centered about the extended runway centerline. The dimensions of an RPZ are a function of the runway ARC and approach visibility minimums.

Table 3B summarizes the design requirements of these safety areas by airport reference code for Omak Municipal Airport. The FAA expects these areas to be free from obstructions. As shown in the table, the airport currently meets the required dimensions for ARC B-II (small) standards.

TABLE 3B: Airfield Design Standards

Category	Actual	Recommended for B-II (small)
Runway Width	150'	75'
Runway Centerline to Parallel Taxiway Centerline Separation	300'	240'
RSA		
-Width	435'	150'
-Length beyond runway end (17/35)	1,000'/1,000'	300'
OFA		
-Width	500'	500'
-Length beyond runway end (17/35)	1,000'/1,650'	300'
OFZ		
-Width	400'	400'
-Length beyond runway end (17/35)	200'/200'	200'
RPZ		
(Inner Width x Outer Width x Length)	500 x 1,000 x 700	500 x 1,000 x 700
Threshold Siting Surface		
-Distance out from threshold to start of surface	0'	0'
-Width at start of trapezoid	250'	250'
-Width at end of trapezoid	700'	700'
-Length of trapezoidal section	2,250'	2,250'
-Length of rectangular section	2,750'	2,750'
-Slope of Surface	20:1	20:1
Taxiway Width	50'	35'
Taxiway Safety Area Width	49'	49'
Taxiway Object Free Area Width	89'	89'
Type of Instrument Approach	GPS (Rwy 35)	Same as actual
Instrument Approach Visibility Minimums	Visual/ \geq 1 mile	Same as actual

Source: FAA Advisory Circular 150/5300-13, Change 8

RUNWAY

The adequacy of the existing runway system at Omak Municipal Airport was analyzed and is presented in the following subsections. Based on this information, requirements for runway improvements were determined.

Airfield Capacity

A demand/capacity analysis measures the capacity of the airfield configuration in order to identify and plan for additional development needs. Annual capacity of a single runway configuration with a suitable parallel taxiway and appropriately located exit taxiways can reach

230,000 operations (AC 150/5060-5). Since the forecasts for Omak Municipal Airport remain well below 230,000 operations, the capacity of the existing runway and taxiway system will not be reached, and the airfield will be able to meet operational demands.

Runway Orientation

For the operational safety and efficiency of an airport, it is desirable for the primary runway of an airport's runway system to be oriented as close as possible to the direction of the prevailing wind. This reduces the impact of wind components perpendicular to the direction of travel of an aircraft that is landing or taking off (defined as a crosswind).

FAA design standards recommend additional runway configurations when the primary runway configuration provides less than 95 percent wind coverage at specific crosswind components. The 95 percent wind coverage is computed on the basis of crosswinds not exceeding 10.5 knots for small aircraft (those weighing less than 12,500 pounds and from 13 to 20 knots for aircraft weighing over 12,500 pounds).

Current wind data from the National Climatic Data Center (NCDC) is unavailable for Omak Municipal Airport. A review of nearby airports indicates that the Airport in Osoyoos, British Columbia is the airport nearest to Omak Municipal Airport with historical wind data, and was therefore used to calculate wind coverage percentages, as shown in **Table 3C**. A review of the wind data indicates that the FAA recommended wind coverage of 95% is exceeded for both all weather and Instrument Flight Rules (IFR) conditions.

TABLE 3C: Wind Coverage Percentages

MAXIMUM CROSSWIND COMPONENT	10.5 KNOTS		13 KNOTS		16 KNOTS		20 KNOTS	
	ALL WEATHER	IFR						
RUNWAY 17-35	98.65%	99.68%	99.53%	99.77%	99.90%	99.89%	99.99%	99.95%

Source: FAA Airport Design Computer Program, National Climatic Data Center

Runway Length

The runway length requirements for an airport are based on five primary factors: airport elevation; mean maximum temperature of the hottest month; runway gradient (difference in runway elevation of each runway end); critical aircraft type expected to use the airport; and stage length of the longest nonstop trip destination. Aircraft performance declines as elevation, temperature, and stage lengths increase.

The local airport elevation is 1,303 feet above mean sea level (MSL) and the mean maximum temperature of the hottest month is 85 degrees Fahrenheit (F). Runway end elevations vary by approximately 6 feet along the length of the runway.

Using the site-specific data described above, runway length requirements for the various classifications of aircraft that may operate at the airport were examined using the FAA Airport Design computer program, Version 4.2D. The program groups general aviation aircraft into several categories, reflecting the percentage of the fleet within each category and useful load (passengers and fuel) of the aircraft. Table 3D summarizes FAA’s generalized recommended runway lengths for Omak Municipal Airport.

TABLE 3D - Runway Length Requirements

AIRPORT AND RUNWAY DATA	
Airport elevation	1305 feet
Mean daily maximum temperature of the hottest month	85° F
Maximum difference in runway centerline elevation	6 feet
Wet and slippery runways	
RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN	
Small airplanes with less than 10 passenger seats	
To accommodate 75 % of these small airplanes	2,890 feet
To accommodate 95 % of these small airplanes	3,440 feet
To accommodate 100 % of these small airplanes	4,070 feet
Small airplanes with 10 or more passenger seats.....	4,430 feet
Large airplanes of 60,000 pounds or less	
To accommodate 75% of these large airplanes at 60% useful load	5,500 feet
To accommodate 75% of these large airplanes at 90% useful load	7,000 feet
To accommodate 100% of these large airplanes at 60% useful load	5,650 feet
To accommodate 100% of these large airplanes at 90% useful load	8,460 feet

Source: FAA’s airport design computer software utilizing Chapter Two of AC 150/5325-4A, Runway Length Requirements for Airport Design, no changes included.

The current runway length of 4,672 feet accommodates 100% of the small aircraft operating at Omak Municipal Airport and will be adequate throughout the planning period.

Runway Width

The width of the existing runway was also examined to determine the need for facility improvements. Runway 17-35 is currently 150 feet wide. The center 75 feet of the runway has recently been reconstructed and is in good condition. The remaining areas are in poor shape and contain heavy cracking. The existing runway width exceeds Airport Design Group (ADG II) standards.

Runway Pavement Strength

The most important feature of airfield pavement is its ability to withstand repeated use by aircraft of significant weight. Runway 17-35 has a current strength rating of 75,000 pounds single wheel gear loading, 200,000 pounds dual wheel gear loading, and 400,000 pounds dual wheel tandem

gear loading, based on the most recent Airport Master Record. Although these strength ratings are not necessary for the critical aircraft, the PBY-Catalina, one of the tanker aircraft used by the DNR during fire season, has a Maximum Takeoff Weight of about 35,000 pounds. It is recommended that the Airport maintain the existing strength rating to accommodate all aircraft that need to use the Airport.

TAXIWAYS

Taxiways are constructed primarily to facilitate aircraft movements to and from the runway system. Some taxiways are necessary simply to provide access between the aprons and the runways, whereas other taxiways become necessary as activity increases at an airport to provide safe and efficient use of the airfield.

Taxiway width is determined by the ADG of the critical aircraft. According to FAA design standards, the minimum taxiway width for ADG II is 35 feet. Omak Municipal Airport is served by a 50' wide full-length parallel taxiway (Taxiway A). There are four connector taxiways and one former connector taxiway that is currently marked as closed. There are also turnarounds at each end of the runway. The connector taxiways and turnarounds all meet the minimum width requirement of 35 feet.

Runway to taxiway separation distance was also examined. This distance should ensure that no part of an aircraft (tail tip, wing tip) on the taxiway/taxilane centerline is within the runway safety area (RSA) or penetrates the obstacle free zone (OFZ). The current distance between the Runway 17-35 centerline and the parallel taxiway centerline is 300 feet, which exceeds FAA standards for ADG II, which is 240 feet.

NAVIGATIONAL AND APPROACH AIDS

Omak currently has a GPS approach to Runway 35. This approach will be adequate throughout the planning period. There is also a non-directional beacon (NDB) located on the field, however, it is currently inactive.

As mentioned in Chapter One, the Airport has been placed name by Congress for the installation of a TLS. The TLS is classified as a precision instrument approach. Typically precision instrument approaches require a primary surface width of 1,000 feet, however, at this point, it is unknown if this approach procedure will require a 1,000-foot primary surface width. The Airport's existing primary surface width is 500 feet and it is not deemed feasible to expand it an additional 500 feet. If the TLS does indeed require an expanded primary surface width, the Airport would not be able to accommodate this type of approach.

AIRFIELD LIGHTING, SIGNAGE AND MARKING

Airports commonly include a variety of lighting and pavement markings to assist pilots using the airport. These lighting systems and marking aids assist pilots in locating the airport during the day, at night, in poor weather conditions, and while taxiing.

Identification Lighting

Omak Municipal Airport is equipped with a rotating airport beacon that assists pilots in locating the airport at night. The airport also has a lighted wind cone and a segmented circle. The existing beacon, lighted wind cone and segmented circle are sufficient and should be maintained through the planning period.

Runway and Taxiway Lighting

Airport lighting systems provide critical guidance to pilots during nighttime and low visibility operations. Runway 17-35 is equipped with MIRL, which will be adequate throughout the planning period.

Effective ground movement of aircraft at night is enhanced by the availability of taxiway lighting. There is currently no taxiway lighting system at the Omak Municipal Airport, but the taxiways are equipped with reflectors. Consideration should be given to installing medium intensity taxiway edge lighting (MITL).

Visual Approach Lighting

In most instances, the landing phase of any flight must be conducted in visual conditions. To provide pilots with visual guidance information during landings to the runway, visual glide slope indicators are commonly provided at airports. Both ends of the runway currently have Visual Approach Slope Indicators (VASI). These should be replaced with 4-box Precision Approach Path Indicators (PAPI).

Runway identification lighting provides the pilot with a rapid and positive identification of the runway end. The most basic system involves runway end identifier lights (REILs). Currently, there are REILs at both runway ends. This should be sufficient, and the REILs should be maintained throughout the planning period.

Pilot-Controlled Lighting

Omak Municipal Airport is equipped with pilot-controlled lighting, which allows pilots to control the intensity of runway lighting using the radio transmitter in the aircraft. This system should be maintained through the planning period.

Airfield Signage

Existing signage at the Airport includes directional signs at hold signs. This signage identifies runways and taxiways to aid pilots in determining their position on the airport and provide directions to their desired location on the airport. It is recommended that lighted hold signs and directional signs be installed at the Airport.

Pavement Markings

Runway markings are designed according to the type of instrument approach available on the runway. FAA Advisory Circular 150/5340-1H, *Marking of Paved Areas on Airports*, provides the guidance necessary to design airport markings. Basic markings are in place on Runway 17-35. Besides routine maintenance of the striping, the markings should be sufficient through the planning period.

WEATHER REPORTING

Omak Municipal Airport is equipped with a lighted wind sock, which provides pilots with information about wind conditions and local traffic patterns. These facilities are required when an airport is not served by a 24-hour Airport Traffic Control Tower (ATCT).

The airport also has an Automated Surface Observation System (ASOS) that provides hourly updates of weather information. This should be maintained throughout the planning period.

LANDSIDE REQUIREMENTS

Landside facilities are those necessary for handling of aircraft and passengers while on the ground. These facilities provide the essential interface between the air and ground transportation modes. The capacities of the various components of each area were examined in relation to projected demand to identify future landside facility needs.

GENERAL AVIATION TERMINAL BUILDING

The airport currently has a terminal building, which includes the Airport Manager's office, restrooms, a pilot's lounge, and telephone. The terminal building is owned and operated by the City of Omak and should be maintained throughout the planning period.

The Airport has been approached in the past by airlines desiring to provide service from Omak. The City of Omak also desires scheduled commercial service from Omak to Seattle and Spokane. Based on the type of aircraft and passenger numbers that may potentially serve Omak, the existing terminal facilities are adequate to support this type of passenger service. Cosmetic changes and/or tenant improvements may be required in the building at the discretion of the airline, but the size and location of the building would meet the needs of commercial air service. Due to the lack of security systems in place, including fencing of the Airport, connecting to an airport such as Sea-Tac would be unlikely, although connections to Boeing Field in Seattle may be possible with limited increases in security needs. The terminal building appears to have adequate ground access for passenger service.

HANGARS

There are currently four hangar buildings located on airport property. All of these hangars are privately owned. In addition, there are six hangar buildings located off of airport property

(through the fence operations). Through-the-fence access is further discussed in the next subsection.

Utilization of hangar space varies as a function of local climate, security, and owner preferences. The trend in general aviation aircraft, whether single or multi-engine, is toward higher performance aircraft. Therefore, many aircraft owners prefer enclosed hangar space to outside tie-downs.

The demand for aircraft storage hangars is dependent upon the number and type of aircraft expected to be based at the airport in the future. Omak Municipal Airport forecasts indicate no growth in based aircraft. It is important to note, though, that over the last few years the Airport has received several inquiries regarding availability of hangar space and ground leases to construct hangar space. It is worth noting that hangar development should be based upon actual demand trends and financial investment conditions, not solely on forecasts. With this in mind, potential hangar layouts are shown in the “Development Alternatives” section of this chapter.

In addition, the Border Patrol has initiated conversations with the City of Omak regarding the possibility of constructing a complex that the Border Patrol can rent from the City. The complex would consist of a hangar for two fixed wing aircraft and a helicopter as well as a helicopter parking pad and an administration building with restroom facilities and auto parking. If/when the Border Patrol facility is constructed; there will be a need to review existing helicopter traffic patterns to ensure a safe operating environment for both fixed wing and rotorcraft. This can be accomplished using Advisory Circular 150/5390-2A, Heliport Design.

THROUGH THE FENCE ACCESS

The Airport should review the current and any potential through the fence arrangements to confirm several items: One, that the Airport assess fair and equitable fees for all ingress/egress arrangements (per FAA grant assurance requirements). Two, private property owners cannot obtain an increase in their land value at the expense of the public lands. Three, private property owners that operate a business cannot obtain a competitive advantage over a potential on-airport business due to access rights and could jeopardize Federal airport grant aid..

AIRCRAFT PARKING APRON

The FAA recommends that tie-down space be provided for all based aircraft not stored in hangars. There are a total of 33 tie-down positions at the Airport. At this time there are not designated areas for based and transient aircraft. The following subsections will discuss the requirements for both types of tie-downs.

Based Aircraft Tie-Downs

There are currently three based aircraft using tie-downs. There is no hangar space available for these aircraft at this time. Although the City has not maintained a waiting list for hangars, it is understood that the owners of these aircraft would like to have hangar space, if it were available. Since the Airport is used by both fixed wing and helicopters, on a frequent, but short duration during the summer months for fire fighting, tie-down space is needed for numerous aircraft during this time. It is recommended that the Airport maintain the existing apron space and reallocate a portion of the tie-downs for use by transient aircraft.

Transient Aircraft Tie-Downs

In regard to transient aircraft tie-downs, the FAA has developed an approach for determining the number of tie-downs needed for itinerant aircraft operating at an airport. The following methodology was taken from FAA Advisory Circular (AC 150/5300-13, Appendix 5, Change 8):

- Number of annual itinerant operations (from Chapter Two), multiplied by 50 percent (50 percent of annual itinerant operations are departures), divided by 12 (12 months per year), divided by 30 (30 days per month), and then reduced by 60 percent to account for aircraft that do not remain at the Airport. Written as $\left[\left\{ \left(15,577 \times 0.50 \right) \div 12 \right\} \div 30 \right] \times 0.60 = 9$

Using this methodology, the Airport will need to have transient tie-down space for nine aircraft by 2025. The FAA recommends 360 square yards (SY) of space per transient aircraft tie-down. Based on this allocation 3,240 SY of space is needed by 2025.

Tie-Down Summary

There are currently 33 tie-downs at the Airport. While no tie-downs are needed for based aircraft; it is recommended that nine be designated for transient use over the long-term planning period. The existing tie-down apron's 33 tie-downs may be more than needed for current and future demand. It is possible that some of the area currently designated as tie-downs could be re-allocated for hangar development.

VEHICLE PARKING AND PERIMETER ROAD

The airport currently has a gravel automobile parking lot located next to the terminal building. The existing parking area is expected to be adequate for the planning period and should be maintained.

It is recommended that space be preserved along the property line for a future gravel perimeter road for airport maintenance and operations use.

HELICOPTER FACILITIES

The existing helicopter facilities at the Airport include an unsurfaced area adjacent to the aircraft

apron. This is inadequate as large clouds of dust and dirt are generated during helicopter take-off and landing phases. It is recommended that a paved helicopter parking facility be constructed to accommodate 3 helicopters.

SUPPORT FACILITIES

Various facilities that do not logically fall within classifications of airfield, terminal building, or general aviation areas have also been identified. These other areas provide certain functions related to the overall operation of the airport, and include: aircraft rescue and firefighting, fuel storage, and airport maintenance facilities.

AIRCRAFT RESCUE AND FIREFIGHTING

There are no Aircraft Rescue and Firefighting (ARFF) Facilities at the airport. In the event of an emergency, these services are provided by the City of Omak's Fire and Police Departments. This should be sufficient for the planning period.

AIRPORT MAINTENANCE/STORAGE FACILITIES

There are currently no maintenance facilities at the airport. The airport should consider construction of a maintenance facility. There is currently an 8 by 16-foot storage building.

AVIATION FUEL STORAGE

The City of Omak operates the self-service fueling facilities at the Airport and provides 100LL and Jet A aircraft fuel. The existing fuel facilities are expected to be adequate for the planning period and should be maintained.

SECURITY FENCING

The airport does not have any security fencing. While neither the FAA nor the Transportation Security Administration requires fencing, it is recommended that perimeter fencing and security gates be installed. Controlling the access of vehicles, pedestrians, and wildlife to the airfield will enhance safety and security.

UTILITIES

There is a septic system at the airport and telephone and power services are provided by the local utility companies. Water is provided from a well located at the airport, however, the pressure is very low and the well does not produce an adequate water supply. It is recommended that consideration be given to drilling an additional well at the airport to provide better water flow for firefighting purposes and general water demand. During the kick-off meeting of the advisory committee, one local citizen suggested there may be a well located off airport property that could be used to provide water service to the airport. Due to the dry weather conditions at Omak, vegetation does not grow very well and the airport has problems with dust and tumbleweeds which are difficult to mow. It would be easier to maintain the airport if enough water was

available to plant grass in unpaved areas adjacent to aircraft movement areas.

A septic system and an additional well will be required for construction of a Border Patrol Complex.

OTHER FACILITIES

The Department of Natural Resources (DNR) is interested in constructing a mobile unit at the Airport for purposes of storing their firefighting equipment and housing personnel. The location of this mobile unit is depicted on the alternatives drawings. A 7460 application was submitted to the FAA for the installation of the DNR mobile unit and a “No Objection” letter was obtained from the FAA for the preferred alternative.

LAND USE PLANNING AND ZONING

There are several items that should be complete with regard to the land use and zoning around Omak Municipal Airport. These recommendations are provided below. The Capital Improvement Plan (CIP) will provide a cost estimate to implement these recommendations.

City of Omak & Okanogan County Comprehensive Plan Recommendations:

- The final Airport Layout Plan should be adopted by reference into the Comprehensive Plan for Okanogan County and the City of Omak.
- Identify Omak Municipal as an Essential Public Facility
- Add a summary of planned improvements identified in the Airport Layout Plan to the transportation inventory of the County Plan and revise the City Plan to incorporate the planned improvements from this Airport Layout Plan
- Insert a description of Omak Municipal Airport and its facilities (i.e., runway dimensions, runway orientation, number of hangars, aviation activity levels) into the County’s Comprehensive Plan.

Other Recommendations:

- Discourage incompatible land use adjacent to Omak Airport
- Adopt a title notice or similar requirement to inform purchasers of property within one mile of the Airport that their property is located adjacent to or in close proximity to Omak Airport and that their property may be impacted by a variety of aviation activities. Note that such activities may include but are not limited to noise, vibration, chemical odors, hours of operations, low overhead flights, and other associated activities.

SUMMARY

The intent of this chapter has been to outline the facilities required to meet potential aviation demands projected for Omak Municipal Airport through the long term planning horizon. The next step is to develop alternatives for development that best meet these projected needs. The remainder of the airport layout plan will be devoted to outlining this direction, its schedule, and costs.

Chapter Three-Subpart One

DEVELOPMENT ALTERNATIVES

Airport Layout Plan Report

Omak Municipal Airport

Based on the facility requirements just presented, development alternatives were created. Since Omak Municipal Airport is in compliance with FAA airfield design standards, there are no alternatives to show for how to meet standards. Two different ways to develop the airport were analyzed, which are shown in **Exhibits 3A and 3B** (Alternatives 1 and 2). In addition to these two alternatives, which are described below, there is a no-build option in which the Airport would not make any significant changes to the existing facilities. Although it would have the lowest capital cost of the three alternatives, a no-build alternative is likely to lead to reduced quality of services provided by the Airport (i.e., additional hangar buildings, tie-downs, and other airport patron services would not be constructed and existing facilities would not be improved). A no-build alternative may also affect the Airport's ability to obtain funding to maintain the viability of the facility. It is important to mention that the final decision with regard to pursuing a particular development plan rests with the Airport sponsor.

AIRSIDE DEVELOPMENT

Airside development includes:

- Replace VASIs with 4-box PAPIs on both runways.

- Install hold signs and guidance signs.
- Install medium intensity taxiway edge lights.

LANDSIDE DEVELOPMENT

Landside development includes:

- Construct new maintenance facility.
- Construct new t-hangars.
- Construct hangar, helicopter pad, administration building with septic system and parking for Border Patrol use.
- Drill an additional well to provide adequate flows for border patrol complex, airport maintenance and fire fighting purposes.
- Install perimeter fencing around the airport property line with automatic gates at each entrance.
- Construct mobile unit for DNR fire fighting equipment and personnel

Chapter Three-Subpart Two

PREFERRED ALTERNATIVE

Airport Layout Plan Report

Omak Municipal Airport

The Airport Advisory Committee has selected Alternative 1 to improve facilities at Omak Municipal Airport. This option provides tie-down space for large and small aircraft, shows potential east side hangar build-out options, and incorporates a potential access road around the perimeter of the Airport property. This alternative also meets all FAA design standards for runway/parallel taxiway separation, runway safety and object free areas, and maintains a clear approach. The preferred alternative is depicted in **Exhibit 3C** and will be used as the basis for completing the ALP set.

Chapter Four

AIRPORT PLANS

Airport Layout Plan Report
Omak Municipal Airport

The airport plans are one of the last steps in the development of an airport layout plan report. They are a pictorial representation and summarization of the efforts made in the airport layout planning process. The previous chapters on Inventory, Forecasting, and Facility Requirements/Alternatives and the reviews provided by the Airport Advisory Committee supply the basis for the future airport layouts that are shown in the airport layout drawings. As was previously discussed, the development at an airport should rely more on actual demand rather than a time-based forecast. The development shown in the airport plans reflects planned development, but the course and timing of this development must be carried forward as airport activity demands rather than in the exact form it has been presented.

AIRPORT LAYOUT PLAN DRAWING SET

Cover Sheet

The cover sheet shows both the location and the vicinity map for Omak Municipal Airport, as well as the All Weather and IFR wind roses and their corresponding data tables. A sheet index to the airport layout plan drawing set is also provided on this sheet.

Airport Layout Plan Drawing

The airport layout plan depicts the current airport layout and the proposed improvements to the airport for the 20-year planning period. Descriptions of the improvements and costs over the next 20-years are included in *Chapter 5, Capital Improvement Projects (CIP)*. The needs defined in Chapter 3 and the reviews provided by the Advisory Committee were the basis for determining the proposed improvements at the Airport. The future airport development is shown on the airport layout plan as required by the FAA. The plan can be modified to accommodate development as dictated by demand.

Runway visibility minimums, runway protection zones, object free areas, safety areas and other standard airport dimensions are shown in the plan and in the runway data tables. Other tables include an airport data table, buildings/facilities table, modifications to standards, and a non-standard conditions and disposition table.

Airport Airspace Plan Drawing

This drawing shows the Part 77 Imaginary Surfaces for the future layout of Omak Municipal Airport with a USGS map as the background. Airport imaginary surfaces consist of five different types of surfaces. The surface shapes and dimensions as they apply to the Airport are as follows:

Primary Surface: A rectangular surface with a width (centered on the runway centerline) that varies for each runway and a length that extends 200 feet beyond each end of the runway. The elevation of the primary surface corresponds to the elevation of the nearest point of the runway centerline. The width of the primary surface of Runway 17-35 is 500 feet.

Approach Surface: A surface centered on the extended runway centerline, starting at each end of the primary surface (200 feet beyond each end of the runway), at a width equal to that of the primary surface and an elevation equal to that of the end of the runway. The approach surfaces at Omak Municipal Airport reflect the most precise approach available at the Airport, which is a non-precision instrument approach (GPS on Runway 35). The surface extends at a horizontal distance of 5,000 feet to a width of 2,000 feet at a slope of 20:1.

Transitional Surface: A sloping 7:1 surface that extends outward and upward at right angles to the runway centerline from the sides of the primary surface and the approach surfaces.

Horizontal Surface: An elliptical surface at an elevation 150 feet above the established airport elevation created by swinging arcs of a 5,000-foot radius from the center of each end of the primary surface.

Conical Surface: A surface extending outward and upward from the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.

It is ideal to keep these surfaces clear of obstructions whenever possible. The Part 77 surfaces are the basis for protection of the airspace around the airport. Obstructions to these surfaces are

identified in the Obstruction Data Tables (on sheets 3 and 4), along with the distribution to address the described obstructions. Obstructions to the Part 77 surfaces were determined based on a review of the USGS map and a preliminary survey of obstructions performed by W&H Pacific and RLW Consulting in 2004. Past obstruction removal and the FAA 5010 form were also used to identify the existing obstructions. Obstruction removal has been incorporated into the capital improvement program.

Runway Approach Plan & Profile Drawing

This drawing provides a plan and profile view of any obstructions within the primary and approach surfaces of the runway. Obstruction Data Tables with proposed dispositions are included for both existing and future scenarios.

Land Use Plan Drawing

A land use plan has been developed for the airport and the surrounding area. This plan includes the zoning on and around the airport per the Okanogan County Code.

In general, land use concerns associated with the areas around airports fall into one of the following categories:

- Lighting
- Glare, Smoke and Dust
- Bird Attractions/Landfills
- Airspace Obstructions and Height Restrictions
- Electrical Interference
- Concentrations of People
- Noise Impacts

Any of these activities can create safety concerns for airport users and people on the ground or can be impacted adversely by airport operations. It is important that these issues be addressed in the land use zoning and development around an airport.

Airport Property Map Exhibit “A” Drawing

An Exhibit “A” drawing is a map depicting existing property ownership and future land acquisition areas by parcel. A data table is included listing existing land owners, acreages, type of interest, recorded dates, and any FAA project numbers. A similar table is also depicted for proposed acquisition or easement areas. At Omak Municipal Airport, a land trade is proposed. The parcel of property that the Airport currently owns would require relocation of several roads if it were developed. A local property owner is willing to swap land for the benefit of the airport and to allow the airport to develop. The trade is shown on the Exhibit “A” map.

Chapter Five

CAPITAL IMPROVEMENT PROJECTS

Airport Layout Plan Report
Omak Municipal Airport

Through the evaluation of the facility requirements and the development of the airport layout plan, the improvements needed at Omak Municipal Airport over the next 20-year period have been determined. The capital improvement plan provides the basis for planning the funding of these improvements. The planned phases of development are in the 5-, 10- and 20-year time frames.

CAPITAL IMPROVEMENT PROJECTS

The Capital Improvement Plan (CIP) develops both the timeline for the airport improvements and estimated costs for those improvements. The plan is divided into three phases: Phase I, 2006-2010, Phase II, 2011-2015, and Phase III, 2016-2025.

Phase I

Phase I is the first five years of the planning period, 2006 to 2010. The projects included in this stage are focused on improving existing facilities and removing obstructions:

- Obstructions Removal
- Property Trade/Land Acquisition
- Hangar Site Development, Internal Access Road & Hangar Construction
- Helipad Construction

- Office Building Construction
- Installing east side perimeter fencing
- Construct Hold Bays at each Runway end
- Pavement Maintenance (Crack & Slurry Seal)

Phase II

Phase II is the second five years of the planning period, 2011- 2015. The projects planned during this stage focus on maintaining existing facilities.

- Install taxiway edge lights
- Install perimeter fencing on west side
- Install PAPI on both runway ends
- Construct conventional hangars
- Pavement Maintenance (Crack & Slurry Seal)

Phase III

Phase III is the last ten years of the planning period, 2016 – 2025. These projects include:

- Hangar site development & construction of conventional and T-hangars
- Runway, Taxiway, and Apron Overlay
- Construct Airport Perimeter Road
- ALP Update

PROJECT COSTS

A list of improvements and costs over the next 20-years are included in **Table 5A** at the end of this chapter. All costs are estimated in 2005 dollars. Total project costs include construction, temporary flagging and signing, construction staking, testing, engineering, administration, and contingency, as applicable. Utilities including phone and power are included in all new hangar projects, along with septic costs. No water service cost was added for the hangar developments. **Table 5B** presents the CIP in the FAA’s formatted spreadsheet.

FUNDING SOURCES

Funding for a CIP can come from several different sources, including the FAA, the State of Washington, the City of Omak, and private sources. Each project listed in the CIP has been assigned a total cost, which is then assigned a percentage based on its funding source(s) eligibility.

FAA

Federal grants are available through the current Airport Improvement Program (AIP) legislation called Vision 100 – Century of Aviation Reauthorization Act. This program was funded at \$3.4 billion in fiscal year 2004 and is allowed to increase \$100 million each year through 2007. Under most circumstances, projects that qualify for AIP funding are eligible for up to 95 percent of total project costs through 2007. It is anticipated that a similar reauthorization will continue in fiscal year 2008 and beyond. Typically, the remaining 5 percent of the project cost is funded by the airport sponsor. It is important to note that even though a project may be eligible for federal funding, this does not ensure that funds will be available or granted to the project by the FAA.

State

The Washington State Department of Transportation also provides grants. For projects eligible for AIP funding, the State typically matches the local share on a 50/50 basis, therefore, the funding percentages could be FAA -95%, State – 2.5%, Local – 2.5%. For projects funded by the State only, the minimum sponsor share is 5%.