Table of Contents

Rosalia Municipal Airport
Rosalia, Washington

AIRPORT LAYOUT PLAN REPORT

"The preparation of this document may have been supported, in part, through the Airport Improvement Program financial assistance from the Federal Aviation Administration (Project Number 3-53-5300-03) as provided under Title 49, United States Code, section 47104. The contents do not necessarily reflect the official views of policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws."

Chapter One - INVENTORY

Chapter One – TABLES

Chapter One - EXHIBITS

Chapter Two – FORECASTS

Chapter Two – TABLES

Chapter Three – AIRPORT FACILITY REQUIREMENTS/ ALTERNATIVES

Chapter Five - TABLES

APPENDICES

Chapter One
INVENTORY

The initial step in the preparation of the Airport Layout Plan Report for Rosalia 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. This chapter summarizes Airport location, history and existing facilities. By establishing a thorough and accurate inventory, an appropriate forecast and recommendations for airfield and landside facilities 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

Rosalia Municipal Airport is located in Rosalia, Washington in Whitman County. Whitman County is one of the largest wheat producing areas in the world and is also a large exporter of peas and lentils. The City of Rosalia is situated in northern Whitman County about 30 miles

south of Spokane, and 45 miles north of Pullman. Rosalia is served by US Highway 195. Greyhound bus service, by charter, is available in Rosalia. The Airport is located two miles west of downtown Rosalia.

AREA TOPOGRAPHY

The Airport elevation (highest point on the runway) is 2,169 feet. The surrounding terrain consists of rolling hills. Rosalia is an agricultural community and is surrounded by wheat fields. The elevation of the Runway 2 end is 2,169', while the elevation of the Runway 20 end is 2,159'. Existing ends of runway survey to an accuracy of 0.006 meters latitude, 0.012meters longitude, and 0.035 meters elevation.

CLIMATE

Weather data from Spokane (located 30 miles north of Rosalia) has been used to represent weather conditions in Rosalia, since the City does not have a weather reporting station. Rosalia has a four season climate with the average high temperatures during the winter months (December through March) generally ranging from 32 to 47 degrees Fahrenheit and the average high temperatures during the summer months (June through September) generally ranging from 73 to 83 degrees Fahrenheit. The coolest temperatures typically occur during the month of January, while the usually occur in the month of July. Annual precipitation averages about 16.9 inches, while annual snowfall averages about 50.4 inches.

COUNTY AND AIRPORT HISTORY

As with many communities in Washington State, Rosalia is rich in Native American history. The area is famous for the battle between the soldiers of the Fort of Walla Walla, led by Col. Steptoe, and the surrounding Indian tribes. This battle is known as the Steptoe Battle. The first white settlers to arrive in Rosalia occurred in 1872. The first post office was established in 1875. The town is named after Rosalia Favorite, the postmaster's wife. Establishment of the post office, were a blacksmith shop and a school house. Rosalia was officially incorporated on February 20, 1894. The construction of the railroad drew many people to the Rosalia area. Over the years the population has fluctuated a great deal, but has consistently remained at about 650 people throughout the last two decades.

The exact date of construction of the Rosalia Municipal Airport is unknown. The Airport was privately owned for many years and operated as a turf strip. In 1989, the Airport was given to the City of Rosalia. Today, the airport is owned and operated by the City.

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 tiedowns). Annual operations are the number of aircraft takeoffs or landings that occur yearly at an airport. There are currently nine based aircraft, including three that are located in a hangar on

private property adjacent to the Airport. The FAA's Airport Master Record (Form 5010) estimates that current total annual aircraft operations at the Airport are 7,000 (4,000 general aviation local operations and 3,000 general aviation itinerant operations). Projected based aircraft and annual operations will be presented in Chapter Two, *Forecasts.*

No significant airport service area studies have been conducted, but discussions with the Airport have indicated that the primary service area of the Airport includes the City of Rosalia, and the surrounding communities in northern Whitman County.

CRITICAL AIRCRAFT

An airport is designed based on the characteristics of the most demanding aircraft in terms of approach speed and wingspan, which currently use 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. Itinerant operations are defined as an operation involving a trip extending more than 20 miles from and/or to the Airport. The Washington State Department of Transportation (WSDOT) System Plan database records indicate that the critical aircraft for Rosalia Municipal Airport is a Cessna 310. This aircraft has a wingspan of 37.06 feet and a maximum takeoff weight of 5,100 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 on the aircraft's wingspan and is defined by roman numerals I, II, III, IV, V and VI. **Exhibit 1A** summarizes representative aircraft by ARC.

Rosalia Municipal Airport has an existing ARC of A-I (small). Approach category "A" includes those aircraft that have an approach speed of less than 91 knots. Design group "I" includes those aircraft that have a wingspan of up to, but not including 49 feet. "Small" means that the maximum takeoff weight of the aircraft is 12,500 pounds or less. The Cessna 310, identified as the critical aircraft, fits this ARC. The existing facilities at Rosalia Municipal Airport are discussed in the following paragraphs and are identified on **Exhibit 1B**.

Table 1A presents the existing Airport design standards and the design standards that the Airport should have in order to meet FAA's recommendations for ARC of A-I (small).

Table 1A - Airport Design Standards

Design Feature	Existing (feet)	Standard A-I (small) (feet)
Runway Safety Area (RSA)		
-Width	70	120
-Runway 2 Length beyond runway end	60	240
-Runway 20 Length beyond runway end	110	240
Runway Object Free Area (OFA)		
-Width	250	250
-Runway 2 Length beyond runway end	60	240
-Runway 20 Length beyond runway end	120	240
Runway Protection Zones (RPZ)	250 x 1,000 x 450	250 x 1,000 x 450

Sources: Existing – W& H Pacific, Inc.
Standard – FAA AC 150/5300-13, Change 8

As can be noted in Table 1A, many of the Airport's critical area dimensions do not meet A-I (small) ARC standards. These variances will be discussed in the facilities requirements chapter.

AIRFIELD FACILITIES

Airfield facilities consist of all aircraft movement areas such as the runway, taxiways, and apron facilities.

All existing pavement sections and pavement conditions described in the subsequent text 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 a 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 (October, 2004) airport field visit.

Runway

Rosalia Municipal Airport has one paved runway, Runway 2-20, which is 2,800 feet long and 40 feet wide. The pavement section for Runway 2-20 consists of 3.5 inches of aggregate sub base, 3 inches of aggregate base, and a single layer of bituminous surface treatment (BST). The runway was slurry sealed in 1985 and again in 1995. The existing pavement strength rating is unknown. The runway pavement is in poor condition, and has heavy thermal cracking and surface irregularities.

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.

Rosalia Municipal Airport does not currently have a wind rose; therefore, current wind coverages can not be identified. As part of the Facilities Requirements chapter, an effort will be made to obtain wind data for the Airport.

Taxiways and Taxilanes

Runway 2-20 has four taxiways. Taxiway A is a 25-foot wide full-length parallel taxiway with pavement sections consisting of three and a half inches of aggregates subbase, three inches of aggregate base, and a single layer of bituminous surface treatment (BST). Taxiway A was slurry sealed in 1986. Portions of the taxiway were also seal coated and slurry sealed in 1995. Taxiway A pavement is in fair condition. Taxiways B, C, and D are the north, midfield, and south connector taxiways, respectively. All three connector taxiways are 115 feet long. Taxiway B is 30 feet wide, while Taxiways C and D are 25 feet wide. All three connector taxiways have a similar pavement section as the runway and parallel Taxiway A and are in poor condition.

Aprons and Aircraft Parking

Rosalia Municipal Airport has one paved aircraft apron located on the north side of the field, east of the runway. The apron pavement is in very poor condition. The surface is raveling and weeds are growing up through the cracks. There are 20 tie-downs with concrete anchors located on the apron. The Airport does not charge a fee for tie-down use.

LANDSIDE FACILITIES

Landside Facilities consist of hangars and other on-airport buildings, and access and parking facilities.

Hangars and Airport Buildings

There are two hangar buildings at the Airport: A 3,000 square foot city-owned hangar located east of the runway, and a large 7,200 square foot hangar located on private property (through-the-fence) at the north end of the field. There are no other aviation-related buildings located at the Airport.

Fixed Based Operators (FBOs)

A fixed based operator is an individual or a business that offers aviation-related services to Airport users. These services include flight instruction, aircraft rental, aircraft maintenance, full-service aircraft fueling, etc. There are currently no fixed based operators at Rosalia Municipal Airport.

Internal Circulation, Access and Vehicle Parking

There is wire fencing around the north and west perimeters of the Airport, however it is in very poor condition. Vehicular access to the Airport from downtown Rosalia is via Whitman Avenue to Malden Road to Squaw Road. There is no designated automobile parking area at the Airport.

AIRFIELD SUPPORT FACILITIES

Airfield Support Facilities are facilities that are needed to support the operation of the Airport.

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 the County Sheriff's Department and the local rural volunteer fire department.

Fueling Facilities

There is one self-service 100LL fuel storage tank available at the Airport. The tank is owned by the City of Rosalia and is available to all pilots. The fueling tank is operated by a credit card system.

Airport Maintenance

Airport maintenance is provided by the City of Rosalia.

Utilities

Utility availability is limited at the Airport. Water is provided through a well on the north side of the field. Power service is provided by the local utility companies. There are no telephone, sewer or septic services at the Airport.

Common Traffic Advisory Frequency (CTAF)

The Federal Communications Commission (FCC) issued Rosalia Municipal Airport a Common Traffic Advisory Frequency (CTAF) of 122.9 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.

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

There is no airport traffic control tower (ATCT) or any instrument approach aids at Rosalia Municipal Airport.

Visual Approach Aids

All approaches to the Airport are made on a visual basis.

Airport NAVAIDS

The Airport is equipped with a rotating beacon to assist pilots in locating the Airport during night time or low visibility conditions. The Airport also has an unlighted wind cone to help pilots determine the wind direction prior to landing, and a segmented circle to inform pilots of the traffic pattern direction.

Airport Lighting and Signing

Runway 2-20 is equipped with low intensity runway lights (LIRL). The LIRL are pilot activated by using the frequency of 122.8 MHz. There is no lighting on the airport taxiways; however all four taxiways are equipped with reflectors. The Airport has a Precision Approach Path Indicator (PAPI) on the left side of Runway 20. PAPIs contain multiple light units that are angled to provide the pilot with information on whether he is approaching too low or too high. There is no airport signage.

LAND USE PLANNING AND ZONING

There are several land use requirements that need to be considered in planning for the future of an airport. These include Federal, State, County, and City regulations. A review of the regulations pertaining to the Rosalia Airport is included in the following section.

Federal regulations cover airspace protection through the establishment of the CFR 14 Part 77 requirements and establish a threshold of noise concern for 65 dBA DNL as an area of potential effect. CFR 14 Part 77, *Objects Affecting Navigable Airspace*, establishes obstruction standards used to identify potential adverse effects to air navigation and establishes notice standards for proposed construction. Imaginary surfaces are the basis for protecting the airspace around the airport. It is ideal to keep these areas clear of any obstructions. Part 77 consists of five surfaces, each with specific controlling measures. The surfaces include: a primary surface, an approach surface, a transitional surface, a horizontal surface and a conical surface. There are currently obstructions to the approach surfaces of Runways 2 and 20. The controlling obstruction for Runway 2 is a 66-foot tree located 1,274 feet from the runway end and 39 feet east of the extended centerline. The controlling obstruction to Runway 20 is a road located 238 feet from the runway end. Additional obstructions to the approach surface, as well as obstructions to the other Part 77 surfaces, will be addressed in subsequent chapters.

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. Depending on airport characteristics, location and amount of usable open space adjacent to a general aviation airport, incompatible land uses may include public assembly/large concentrations of people, residential density, intensity of nonresidential development, structure height issues, hazardous or explosive material, wildlife hazards/wetlands, light/glare, air quality and electronic signals. 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.

From an airport protection standpoint, the principles established under the GMA are valuable for every public use airport, regardless of jurisdictional planning status. These four basic principles related to public use airports are as follows:

- Local comprehensive plans and development regulations must discourage development of incompatible land uses adjacent to public-use airports
- Formal consultation with airport owners, ports, pilots and WSDOT Aviation prior to adoption
- 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.

Rosalia Municipal Airport is owned and operated by the City of Rosalia; however the Airport is in Whitman County, outside of the Rosalia City limits. The airport, as well as properties surrounding the airport are subject to Whitman County planning rules. Whitman County currently administers planning, land use controls, development regulations and zoning for all areas outside incorporated city limits, including the airport area. Whitman County is not required to plan under the Growth Management Act and has chosen not to plan under GMA.

The County maintains a comprehensive plan and a zoning ordinance, but does not have an adopted zoning map at this time. The County does not have any ordinances specific to essential public facilities in place. The following subsections describe the existing land use and zoning.

Existing Land Use

The land uses immediately adjacent to Rosalia Municipal Airport include agriculture and very low density rural residential uses in support of agriculture. There is one residence off the north end of the runway, beyond the FAA's design guidelines of the runway safety area, runway object free area, and the runway protections zone based on the current airport configuration. The remaining land around the airport is either actively cultivated or used for grazing. There is one hangar located on Airport property and a second hangar adjacent to the property boundary ("through the fence").

Existing Zoning

Rosalia Municipal Airport is controlled by Whitman County's zoning ordinance. The Airport resides in the County's "Airport Commercial" zone. The County describes the purpose of this district as a district that provides an area and minimum standards for commercial airport operations and aviation-related commercial uses. The County's permitted uses include accessory structures necessary for the storage, servicing and sales of aircraft and aviation supplies, eating establishments serving air terminal passengers and personnel, vehicles parking, and small antenna facilities and antenna support structures up to 40 feet in height.

Zoning for the area around the Airport is Agriculture. This zone allows cultivation of crops, livestock, and residences in support of agricultural activities. Agricultural zoning also allows land to be converted to residential uses if the land has not been actively used for agriculture for three years, and certain other requirements are met.

The County also has an Airport Overlay Zone that was adopted into the code in 1979. The County Planner acknowledges that it may be out of date and is proposed for revision in the future. The County Planner mentioned that the City of Pullman has approached the County about revising the Airport Overlay Zone as it relates to the Pullman-Moscow Airport, but no action is currently on the County's work plan.

Since 1996, the County has conducted an ongoing Zoning Code and Comprehensive Plan revision. Revisions are made by subject area. Currently, the County is in the process of revising it's Agricultural Zone and associated Comprehensive Plan chapters. The revisions may affect the process for converting Agricultural land to residential uses.

Whitman County Comprehensive Plan

Whitman County maintains a Comprehensive Plan which provides a broad vision for the County. This vision is implemented through an array of goals and policies. The County's Comprehensive Plan does not acknowledge the Rosalia Airport in the Transportation Chapter. In the general policies section, it references the Rosalia Airport as a minor airport to be used for recreational use, private aviation, and agricultural activities. The Comprehensive Plan does not designate Rosalia Airport as an Essential Public Facility.

The County's Airport Commercial Zone appears to provide an appropriate level of protection for the airport property, but may not cover off-airport land for an appropriate distance. At this time, it appears that additional protections may need to be enacted by Whitman County in order to comply with the RCW and CFR requirements. These are defined in the Facility Requirements Chapter.

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 Rosalia 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 Rosalia 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 Rosalia 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 to create the Rosalia Municipal Airport forecasts. Three methodologies were used to create the based aircraft and aircraft operations forecasts for the Airport: FAA TAF growth rates, extrapolated to 2025, WSDOT growth rates, extrapolated to 2025, and Whitman County Intermediate population growth rates. Each is discussed in the text that follows.

HISTORICAL AVIATION DATA

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

Table 2A, FAA TAF Historical Based Aircraft Data

Year	Single Engine	Multi Engine	Other Light Misc. Craft	Total Based Aircraft
1985	23	1	0	24
1986	16	1	0	17
1987	16	1	0	17
1988	16	1	0	17
1989	16	1	1	18
1990	22	1	1	24
1991	12	0	1	13
1992	12	0	1	13
1993	12	0	1	13
1994	5	0	1	6
1995	5	0	1	6
1996	0	0	0	0
1997	5	0	1	6
1998	5	0	1	6
1999	5	0	1	6
2000	5	0	1	6
2003	5	0	1	6

Table 2B, FAA TAF Historical Aircraft Operations Data

	1995	2000
Annual Operations		
Itinerant GA:	3,000	3,000
Local GA:	4,200	4,000
Instrument Operations	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 2C. The year of the study data is shown in each column heading.

TABLE 2C, Current Aviation Demand

	FAA TAF (2003)	FAA Master Record (2002)	WSDOT Aviation Study (1998)	Airport Manager Discussion (2004)
Based Aircraft				
Single Engine	5	5	9	9
Other Light Aircraft	1	1	0	0
TOTAL	6	6	9	9
Annual Operations				
Itinerant:				
Air Taxi	0	0	0	Not Available
GA	3,000	3,000	3,000	Not Available
Military	0	0	0	Not Available
Local				
GA	4,000	4,000	4,200	Not Available
Military	0	0	0	Not Available
TOTAL	7,000	7,000	7,200	Not Available
Calculated Utilization Rate(ops/based aircraft)	1,167	1,167	800	-
Instrument Operations	0	0	0	Not Available

Because the conversation with the Airport manger 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 Rosalia Municipal forecasts was 9 single engine aircraft.

The base year operations used was 7,200, as shown in the WSDOT Aviation Study.

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 Rosalia Municipal is 0%.

This growth rate was applied to the selected base year based aircraft and operations data to create Forecast #1 (presented in Table 2H).

FORECAST 2: WSDOT AVIATION FORECAST GROWTH RATE/METHODOLOGY

WSDOT Aviation Division's *Aviation System Plan – Forecast and Economic Significance Study* contains the forecasts for Rosalia 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 Rosalia Municipal was 0.0% between 2000 and 2020. This growth rate was applied to the selected base year based aircraft to create Forecast #2 (shown in Table 2H). 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 Rosalia Municipal 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 Whitman 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 2D:

TABLE 2D, Whitman County Population

Year		**Population**	
1980		40,103	
1985		39,512	
1990		38,775	
1995		40,138	
2000		40,740	
		Forecasts	
	Low	**Intermediate**	**High**
2005	38,119	40,445	45,966
2010	37,651	41,149	48,967
2015	37,579	42,342	52,652
2020	37,540	43,651	56,615
2025	37,343	44,856	60,578
		Average Annual Growth Rates	
1980-1985		-0.30%	
1985-1990		-0.38%	
1990-1995		0.69%	
1995-2000		0.30%	
2000-2005	-1.32%	-0.15%	2.44%
2005-2010	-0.25%	0.35%	1.27%
2010-2015	-0.04%	0.57%	1.46%
2015-2020	-0.02%	0.61%	1.46%
2020-2025	-0.11%	0.55%	1.36%

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

The intermediate growth rates were applied to the selected 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 Rosalia Municipal 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. 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 2E, 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 2F, 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.

TABLE 2G, 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 2H.

TABLE 2H, 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	9	9	9
Forecast			
2005	9	9	9
2010	9	9	9
2015	9	9	9
2020	9	9	10
2025	9	9	10

**0.0% annual growth from draft Terminal Area Forecasts, August 2004*
***0.0% annual growth 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 2D*

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 growth rate forecast was selected for the Rosalia forecast. Table 2I shows the based aircraft fleet mix forecast.

Table 2I, BASED AIRCRAFT FLEET MIX

Year	Single Engine	Multi Engine	Jet	Helicopter	Utility	Total
Base Year						
2004	9	0	0	0	0	9
Forecast						
2005	9	0	0	0	0	9
2010	9	0	0	0	0	9
2015	9	0	0	0	0	9
2020	9	0	0	0	0	9
2025	9	0	0	0	0	9

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

TABLE 2J, Comparison of Aircraft Operations Forecasts

Year	Forecast #1: FAA TAF Growth Rate*	Forecast #2: WSDOT Method**	Forecast #3: Population Growth Rate***
Base Year			
2004	7,200	7,200	7,200
Forecast			
2005	7,200	7,222	7,148
2010	7,200	7,245	7,272
2015	7,200	7,272	7,483
2020	7,200	7,300	7,714
2025	7,200	7,330	7,927

**0.0% annual growth from draft 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 2D*

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 7,200 to 7,331 in 2025.

STEP 6: SUMMARIZE RESULTS

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

TABLE 2K, Rosalia Municipal Airport Aviation Demand Forecasts

	Based Aircraft		Aircraft Operations			
Year	Single Engine	Total	Local GA	Itinerant GA	Total Operations	Inst. Approaches
Base Year						
2004	9	9	4,200	3,000	7,200	
Forecast						
2005	9	9	4,213	3,009	7,222	
2010	9	9	4,227	3,019	7,246	63
2015	9	9	4,242	3,030	7,272	63
2020	9	9	4,258	3,042	7,300	63
2025	9	9	4,276	3,054	7,330	63

The airport does not have an instrument approach now. The Washington Aviation System Plan forecasts assumed that all public-use airports in the state would have a minimum of one GPS approach. For this Airport Layout Plan Report, it is assumed that Rosalia Municipal Airport will have an instrument approach in place by 2010. The forecast of instrument approaches in Table

2J follows the methodology in the Washington Aviation System Plan. Instrument weather is estimated to occur 9% of the time east of the Cascade Mountains where Rosalia Municipal Airport is located and 46.1% of GA aircraft approaches are assumed instrument approaches

All aircraft operations now and in the future are in ARC A-I, small (max. 12,500 pounds) aircraft.

STEP 7: COMPARE RESULTS WITH TAF

Table 2L compares the selected forecasts for Rosalia Municipal Airport with the TAF numbers.

TABLE 2L: Comparison of Selected Forecasts with Terminal Area Forecasts

	Based Aircraft Forecast			Operations Forecast		
Year	FAA TAF	Selected	Difference	FAA TAF	Selected	Difference
Base Year						
2004	6	9	+ 50%	7,200	7,200	0.0%
Forecast						
2005	6	9	+ 50%	7,200	7,222	+ 0.3%
2010	6	9	+ 50%	7,200	7,245	+ 0.6%
2015	6	9	+ 50%	7,200	7,272	+ 1.0%
2020	6	9	+ 50%	7,200	7,300	+ 1.4%
2025	6	9	+ 50%	7,200	7,331	+ 1.8%

The selected based aircraft forecast is greater than the FAA TAF forecast by 50%, because the current number of based aircraft used was found to be greater.

The selected operations forecast is 1.8% higher than the TAF by year 2025. This is due to the increasing utilization of operations per based aircraft.

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 and forecast ARC for Rosalia Municipal Airport is an A-I (small), which covers the current and future critical aircraft, based on the minimum activity threshold of 500 annual operations. The critical aircraft operating at Rosalia Municipal airport is the Cessna 310 (A-I (small)), which has a Maximum Takeoff Weight of 5,500 lbs and a wingspan of 37.06 feet.

RECOMMENDED OPERATIONS FORECAST VERSUS TAF

The GA operations forecast uses the WSDOT methodology as the recommended forecast for use in facilities programming associated with 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 not available. Therefore, the FAA TAF will utilize a flat line operational count for their TAF projections.

Chapter Three
AIRPORT FACILITY REQUIREMENTS/ALTERNATIVES

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 and outline what new facilities may be needed and when they 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.

Airport facilities include both airfield and landside components. Airfield facilities include facilities that are related to the arrival, departure, and ground movement of aircraft. These components include:

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

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

- Aircraft Hangars
- Aircraft Parking Aprons
- Auto Parking and Access
- Airport Support Facilities

PLANNING HORIZONS

The cost-effective, efficient, and orderly development of an airport should rely more upon actual demand at an airport than a time-based forecast figure. 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 for Rosalia Municipal Airport that take into consideration the reasonable range of aviation demand projections.

It is important to consider that the actual activity at the airport may be higher or lower than projected activity levels. By planning according to activity milestones, the resultant plan can accommodate unexpected shifts, or changes in the area's aviation demand. It is important that the plan accommodate these changes so that the Airport can respond to unexpected changes in a timely fashion. These milestones provide flexibility, while potentially extending this plan's useful life if aviation trends slow over the period.

The most important reason for utilizing milestones is that they allow 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 activity demand category.

TABLE 3A: Aviation Demand Planning Horizons

Demand Category	Current	Short Term (2010)	Intermediate Term (2015)	Long Term (2025)
Operations				
Local	4,200	4,227	4,242	4,276
Itinerant	3,000	3,019	3,030	3,054
Total	7,200	7,246	7,272	7,330
Based Aircraft	9	9	9	9

Note: Itinerant forecast includes air taxi.

AIRFIELD REQUIREMENTS

The adequacy of existing airfield facilities at Rosalia 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

In order to determine facility requirements, the Airport Reference Code (ARC) must be referred to in order for the appropriate airport design criteria to be applied. As discussed in Chapter Two, the existing ARC for Rosalia Municipal Airport is A-I (small) and the critical aircraft is a Cessna 310. The forecasts anticipate the Airport maintaining the current operational fleet mix, which will continue to place the Airport in the A-I (small) category. Facility requirements will be developed based on these assumptions.

The FAA has established several 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), obstacle 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: Airfield Design Standards

Category	Actual	Recommended for A-I (small)
Runway Width	40’	60’
Runway Centerline to Parallel Taxiway Centerline Separation	150’	150’
RSA		
-Width	70’	120’
-Length beyond runway end (2/20)	60’/110’	240’
OFA		
-Width	250’	250’
-Length beyond runway end (2/20)	60’/120’	240’
OFZ		
-Width	250’	250’
-Length beyond runway end (2/20)	200’/200’	200’
RPZ[1/] (Inner Width x Outer Width x Length)	250 x 450 x 1,000	250 x 450 x 1,000
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	2250’	2250’
-Length of rectangular section	2750’	2750’
-Slope of Surface (2/20)	16:1 / 2:1	20:1
Taxiway Width	25’-30’	25’
Taxiway Safety Area Width	49’	49’
Taxiway Object Free Area Width	79’	79’
Type of Instrument Approach	None	Circling GPS
Instrument Approach Visibility Minimums	Visual	$\geq$ 1mile

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

[1/] The Airport does not own the existing RPZs.

As shown in Table 3B, the RSA width for Runway 2-20 is 50 feet narrower than the 120 foot FAA recommended standard. The RSA length beyond both ends is also shorter than FAA recommendations. To meet FAA standards, it is recommended that grading be completed along the edges of the runway, and fill be placed beyond the Runway 2 end. For the Runway 20 end to meet standards, it will be necessary to relocate Squaw Road or shorten the available runway length by moving the threshold forward so that the road is outside of the RSA. Options for addressing compliance with FAA standards will be discussed in more detail in the Development Alternatives section of this report.

RUNWAYS

The adequacy of the existing runway system at Rosalia Municipal Airport was analyzed from a

number of perspectives, including airfield capacity, runway orientation, runway length, runway width, and pavement strength. From this information, requirements for runway improvements were determined for the airport.

Airfield Capacity

A demand/capacity analysis measures the capacity of the airfield configuration. Planning standards indicate that when demand reaches 60% of capacity, new facilities should be planned. When demand reaches 80% of capacity, new facilities should be in place. To determine the airfield capacity at Rosalia Municipal Airport, Advisory Circular 150/5060-5, Airport Capacity and Delay was referenced. A typical airport with a single runway configuration and a full-length parallel taxiway, similar to Rosalia Municipal Airport has an annual capacity of 230,000 operations. Since the forecasts for Rosalia Municipal Airport remain well below this threshold, the capacity of the existing runway will not be reached; therefore 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 specify that additional runway configurations are needed 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 weighing less than 12,500 pounds and from 13 to 16 knots for aircraft weighing over 12,500 pounds.

Current wind data from the National Climatic Data Center (NCDC) is unavailable for Rosalia Municipal Airport. A review of nearby airports indicates that Spokane International Airport is the airport nearest to Rosalia 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.

TABLE 3C: Wind Coverage Percentages

MAXIMUM CROSSWIND COMPONENT	10.5 KNOTS		13 KNOTS		16 KNOTS		20 KNOTS	
	ALL WEATHER	IFR	ALL WEATHER	IFR	ALL WEATHER	IFR	ALL WEATHER	IFR
RUNWAY 2-20	96.09%	97.79%	98.28%	99.29%	99.48%	99.84%	99.87%	99.95%

Source: National Climatic Data Center, Asheville, NC.
Data for Spokane, WA, Period – 1995-2004

Runway Length

The determination of runway length requirements should consider both takeoff and landing requirements. Takeoff requirements are a factor of airport elevation, mean maximum temperature of the hottest month, critical aircraft type (or family of aircraft types) expected to use the airport, and stage length of the longest nonstop trip destinations. Aircraft performance declines as each of these factors increase. Landing requirements are a factor of airport elevation, aircraft landing weight and the runway condition (i.e. dry conditions or wet conditions).

The local airport elevation is 2,169 feet above mean sea level (MSL) and the mean maximum temperature of the hottest month (July) is 83 degrees Fahrenheit (F) as reported in Spokane. Runway elevation varies by approximately twelve feet along Runway 2-20.

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 Rosalia Municipal Airport. (See Appendix C for print out of recommended runway lengths).

As shown in the table, the current runway length of 2,800 feet accommodates less than 75% of small airplanes with less than 10 passenger seats. It is important to note that small aircraft with more than 10 passenger seats may also use the Airport, however, the aircraft's fuel or passenger load may need to be reduced. Because the current runway length of 2,800 feet accommodates less than 75% of small aircraft with 10 passenger seats, it is recommended that the runway be lengthened by at least 370 feet, if possible, to provide capacity for 75 % of these small airplanes.

TABLE 3D: Runway Length Requirements

AIRPORT AND RUNWAY DATA	
Airport elevation	2,169 feet
Mean daily maximum temperature of the hottest month	83 F
Maximum difference in runway centerline elevation	12 feet
Wet and slippery runways	
RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN	
Small airplanes with less than 10 passenger seats	
75 percent of these small airplanes	3,170 feet
95 percent of these small airplanes	3,830 feet
100 percent of these small airplanes	4,400 feet
Small airplanes with 10 or more passenger seats	4,580 feet

Source: FAA's Airport Design Computer Program, Version 4.2D utilizing Chapter Two of AC 150/5325-4A, Runway Length Requirements for Airport Design, no changes included.

Runway Width

The width of the existing runway was also examined to determine the need for facility improvements. Runway 2-20 is currently 40 feet wide. According to FAA Standards, the minimum runway width for Airport Design Group (ADG) I, with not lower than three-fourths mile approach visibility minimums is 60 feet. It is recommended that Runway 2-20 be widened to 60 feet to meet ADG I standards.

Runway Pavement Strength

The most important feature of airfield pavement is its ability to withstand repeated use by aircraft of significant weight. At Rosalia Municipal Airport, this includes primarily small single-engine aircraft. The existing strength-rating for Runway 2-20 is unknown. The critical aircraft (Cessna 310) has a maximum takeoff weight (MTOW) of 5,100 pounds. Since the existing runway pavement is in fair to poor condition and the strength rating in unknown, it is recommended that Runway 2-20 be reconstructed to provide a strength rating of 12,500 pounds (the minimum FAA recommended pavement strength).

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/hangar areas and the runways, whereas other taxiways become necessary as activity increases and efficient use of the airfield becomes priority.

Taxiway width is determined by the ADG of the most demanding aircraft to use the taxiway. According to FAA design standards, the minimum taxiway width for ADG I is 25 feet. Rosalia Municipal Airport has a full-length parallel taxiway (Taxiway A) at a width of 25 feet. Taxiway B, the north connector, is 30 feet wide and Taxiways C and D, the midfield and south connector taxiways, respectively, are 25 feet wide. All taxiways meet FAA recommended standards.

The FAA recommends a runway centerline to taxiway centerline separation distance of 150 feet for ADG I. The Airport's runway and taxiway centerline separation distance meets FAA recommendations.

NAVIGATIONAL AND APPROACH AIDS

As discussed in Chapter One, the Airport has a few NAVIDS: an unlighted windcone and a segmented circle. The windcone is currently located inside of the Runway OFA; it is recommended that the windcone be relocated outside of the OFA. Because the windcone is not lit, it is difficult to locate during nighttime operations. It is recommended that a light source be installed to aid pilots flying at night.

There are no visual or instrument approach aids available at the Airport; however, pilots flying into or out of Rosalia Municipal Airport can utilize approach aids at nearby airports to get them in the general vicinity of Rosalia. A VORTAC is available at Spokane International Airport,

which is located approximately 21 miles north of Rosalia Municipal Airport and a VOR/DME is available at Pullman-Moscow Regional Airport, approximately 35 miles southeast of Rosalia Municipal Airport.

The advent of GPS technology can ultimately provide the airport with the capability of establishing new instrument approaches at minimal cost since there is not a requirement for the installation and maintenance of costly ground-based transmission equipment at the airport. The FAA is proceeding with a program to transition from existing ground-based navigational aids to a satellite-based navigation system utilizing GPS technology.

The FAA commissioned the Wide Area Augmentation System (WAAS) in July 2003. The WAAS refines the GPS guidance for enroute navigation and approaches. General aviation, corporate, air taxi, and regional airline operators are expected to benefit from this augmentation to GPS signals. The FAA is certifying new approaches at the current rate of about 300 per year, nationally.

GPS approaches fit into three categories, each based upon the desired visibility minimum of the approach. The three categories of GPS approaches are: precision, non-precision with vertical guidance, and non-precision. To be eligible for a GPS approach, the airport landing surface must meet specific standards as outlined in *FAA AC 150/5300-13*, Airport Design, Change 8. The FAA requires that airports having a non-precision GPS approach must have a minimum runway length of 3,200 feet and depending on the visibility minimums, may be required to have an approach lighting system. However the Airport Design AC does state that airports having runways as short as 2,400 feet could support an instrument approach if the lowest Height Above Touchdown (HAT) is based on clearing a 200-foot obstacle within the final approach segment.

Chapter Two: Forecasts, notes that the Washington Aviation System Plan forecasts assume that all public-use airports in the State would have a minimum of one non-precision GPS approach and that Rosalia Municipal Airport will have a GPS approach procedure in place by 2010.

In regard to implementing an instrument approach procedure at Rosalia Municipal Airport, the FAA Flight Procedures Office (FPO) has determined that a straight-in approach to both runway ends would be feasible. However, implementing a straight-in approach would require the Airport to increase their primary surface from the existing 250’ width to a 500’ width. This increase would have a significant adverse impact on the buildings/facilities located at the Airport. Based on this, it is recommended that the Airport implement a circling GPS approach to both ends with visibility minimums equal to or greater than one statute mile. This type of approach would allow the Airport to maintain the existing primary surface width of 250’.

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 are used to locate the airport during the day, at night, during poor weather conditions, and assisting in the ground movement of aircraft.

Identification Lighting

Rosalia Municipal Airport is equipped with a rotating beacon which is located east of the runway, near the Runway 2 end. The beacon, while sufficient, is not currently located on airport property. It is recommended that the beacon be relocated within the airport property boundary.

Runway and Taxiway Lighting

Airport lighting systems provide critical guidance to pilots during nighttime and low visibility operations. Runway 2-20 is currently equipped with low intensity runway lighting (LIRL). This system is outdated and is hard to maintain. It is recommended that the Airport upgrade their runway lighting system to medium intensity runway lighting (MIRL).

Effective ground movement of aircraft at night is enhanced by the availability of taxiway lighting. Currently, there are reflectors on all four taxiways. Taxiway lighting is not required, and a system of edge reflectors will be adequate to serve the needs of the Airport. Should taxiway lighting become necessary, it is recommended that medium intensity taxiway lighting (MITL) be installed.

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, visual glide slope indicators are commonly provided at airports. Presently, the Airport has a Precision Approach Path Indicator (PAPI) on the left side of Runway 20. PAPIs contain multiple light units that are angled to provide the pilot with information as to whether he/she is approaching too high or too low. It is recommended that a PAPI be installed on Runway 2.

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). There are no REILs available at the Airport at this time. If a night time instrument approach is implemented, it is recommended that REILs be installed on both runway ends.

Pilot-Controlled Lighting

Rosalia Municipal Airport is equipped with pilot-controlled lighting (PCL), which allows pilots to activate the lighting systems at the Airport using the radio transmitter in the aircraft. This system should be maintained through the planning period.

Airfield Signage

Airfield signage is used to identify runways, taxiways, and apron areas. These aid pilots in determining their position on the airport and provide directions to their desired location on the airport. Rosalia Municipal Airport does not currently have any signs. At a minimum, it is recommended that hold signs be installed on all taxiway adjoining the runway.

Pavement Markings

Runway markings are designed according to the type of approach available on the runway. FAA Advisory Circular 150/5340-1J, *Standards for Airport Markings*, provides the guidance necessary to design airport markings. Runway 2-20 is currently marked for visual approaches. If the Airport implements a circling GPS approach as previously discussed, the existing visual markings will be appropriate. The markings for the runway are currently faded and need to be re-marked.

Taxiway and apron areas also require marking. Yellow centerline stripes are currently painted on all taxiways; however, the stripes are faded and need to be re-marked. Taxiway B is the only taxiway with a hold line and it is also faded. It is recommended that hold lines be painted on all of the connector taxiways.

WEATHER REPORTING

Rosalia Municipal Airport is equipped with an unlighted wind cone and a segmented circle, 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). Consideration should be given to installing a lighted wind cone when the edge lights are upgraded. The wind cone and segmented circle also need to be moved away from the runway safety area and object free area. This will be shown in the alternatives.

The FAA requires that establishment of an instrument approach procedure requires the ability to obtain the local altimeter setting. If a GPS approach is developed for Rosalia Municipal Airport, a weather reporting system, such as an Automated Weather Observation System (AWOS) or a Super Unicom, will be needed. Based on the surrounding terrain, limited airport property, and strict siting criteria and installation costs associated with an AWOS, it has been determined that a Super Unicom would be more adequate for the Airport. A Super Unicom is a low cost alternative to an AWOS that does not require special siting criteria. If an instrument approach procedure is implemented, it is recommended that a Super Unicom be installed near the Airport's windsock.

LANDSIDE REQUIREMENTS

Landside facilities include hangars, aircraft apron, aircraft tie-downs, and automobile parking. 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.

HANGARS

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. For planning purposes, it is necessary to estimate hangar requirements based upon forecast operational activity. In the case of Rosalia Municipal Airport, the forecasts indicate that the number of based aircraft is expected to remain the same throughout the planning period meaning that additional storage is not needed. It is worth mentioning, though, that hangar development should be based on actual demand trends and financial investment conditions, not solely on forecasts. With this in mind, potential hangar layouts have been created and are depicted in the graphics at the end of the chapter. The development shown exceeds the 20 year planning period.

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 20 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

Three of the nine based aircraft at the Airport are currently 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 assumed that the owners of the aircraft currently stored in tie-downs would prefer to have hangar space if it were available. Since not all of the existing tie-downs are being used, it is recommended that the airport maintain three tie-downs for based aircraft and reallocate a portion of the remaining tie-downs for larger transient aircraft.

The FAA allots 300 square yards of space per based aircraft tie-down. Using this ratio, 900 square yards is needed by 2025 to accommodate based aircraft tie-down spaces.

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 steps were 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 50 percent to account for aircraft that do not remain at the Airport. Written as: {[(7,330 x 0.50) ÷ 12] ÷ 30} x 0.50= 5.

Using this methodology, the Airport will need to have transient tie-down space for five aircraft by 2025. The FAA allocates 360 square yards of space per transient aircraft tie-down resulting in total space needs of 1,800 square yards by 2025 for transient aircraft tie-downs.

Tie-Down Summary

The methodologies described above conclude that a total of eight tie-down spaces are needed through 2025; five tie-downs for transient aircraft and three tie-downs for based aircraft. Due to the poor condition of the existing apron, it is recommended that the apron be reconstructed and reconfigured. Options for potential apron layouts will be shown in the development alternatives at the end of the chapter.

VEHICLE PARKING

The airport does not currently have a designated area for automobile parking. It is typical at general aviation airports, such as Rosalia Municipal Airport, for pilots to park their vehicles in their hangars while utilizing their aircraft. For this reason, it is not necessary to provide parking for the same number of vehicles as the number of based aircraft. For apron tie-down users, a designated automobile lot will reduce the need for vehicles to drive on aircraft movement areas; it will also provide a location for airport patrons and transient traffic to park their vehicles. It is recommended that a parking lot be constructed to accommodate approximately six vehicles. Planning standards use a ratio of about 44 square yards per vehicle. Using this ratio, an area of approximately 264 square yards is needed to accommodate six vehicles.

SUPPORT FACILITIES

Various facilities that do not logically fall within classifications of airfield or landside have also been identified. These other areas provide certain functions related to the overall operation of the airport, and include: pilot lounge area, aircraft rescue and fire fighting, fuel storage, and airport maintenance facilities.

PILOT LOUNGE

There is currently no pilot lounge area or waiting room at the Airport. It is recommended that a small building be constructed or an existing area be designated for the purposes of pilot flight planning and a resting area. This building should also have a public telephone and public restrooms.

AIRCRAFT RESCUE AND FIREFIGHTING

Aircraft rescue and firefighting (ARFF) is not a required service at Rosalia Municipal Airport. Emergency response services are available through the County Sheriff's Department and the local rural volunteer fire department. This will be adequate through the planning period.

AIRPORT MAINTENANCE/STORAGE FACILITIES

The City of Rosalia currently maintains the Airport. It is recommended that the City continue to provide airport maintenance through the planning period.

AVIATION FUEL STORAGE

The City of Rosalia operates the 5,000 gallon, 100LL, self-service fueling facility at the Airport. The current fueling facility should be maintained through the planning period.

SECURITY/FENCING

There is currently wire fencing around the north and west perimeter of the Airport; however, the fencing is in poor condition. It is recommended that new fencing and security gates be considered. The FAA will support a phased plan to install fencing; however, fencing is not required.

UTILITIES

Utility availability is limited at the airport. Water is provided from a well on the north side of the Airport however, this water may not be potable. Telephone and power service are provided by the local utility companies. There is no sewer service at the Airport. It is recommended that the well be developed to provide adequate flows for fire fighting purposes. A septic system will be needed if a pilot's lounge with restrooms is constructed.

LAND USE AND ZONING RECOMMENDATIONS

There are several items Whitman County should complete with regard to land use in the County's comprehensive plan goals, policies and development regulations to protect and enhance the Rosalia Airport facility. The following recommendations have been provided. The recommended actions should be included in the Capital Facilities Plan (CIP).

- The final Airport Layout Plan should be adopted by reference into the Comprehensive Plan for Whitman County.
- Amend the comprehensive plan of Whitman County to strengthen existing goals and policies as part of the ongoing Comprehensive Plan and Zoning revisions.
- Identify Rosalia Municipal Airport as an Essential Public Facility
- Add a summary of planned improvements identified in the Airport Layout Plan to the transportation inventory.
- The specific uses defined in the Airport Commercial Zone are compatible with airports; however, it is recommended that the County and the Airport review the land uses at the Airport to ensure that Airport property is being used solely for aviation-related purposes as described in Whitman County's zoning ordinance. The County Planner mentioned interest in a potential Residential Airpark at Rosalia and cautioned that zoning should allow this as an outright or conditional use.
- Enlarge Airport Commercial Zone or enact other protective measures to cover areas within one mile of the airport to discourage incompatible land use adjacent to the Rosalia Municipal Airport.
- Adopt a title notice or similar requirement to inform purchasers of property within 1 mile of the airport that their property is located adjacent to or in close proximity to the Rosalia Airport and that their property may be impacted by a variety of aviation activates. Note

that such activities may include by are not limited to noise, vibration, chemical odors, hours of operation, 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 Rosalia Municipal Airport through the long term planning horizon. The next step is to develop alternatives that best meet these projected needs. Below is a summary of the recommended facility improvements:

- Create standard RSAs & OFAs on both runway ends and along the sides of the runway
- Extend runway to a minimum of 3,170' to meet FAA recommended length for 75% of small aircraft with 10 passenger seats or less.
- Widen runway to 60'
- Reconstruct runway pavement to obtain strength rating of 12,500 pounds
- Relocate windcone outside of OFA and install light source for windcone
- Relocate rotating beacon onto airport property
- Install MIRL edge lights
- Install PAPI on Runway 2 end
- Install hold signs at all taxiways adjoining the runway
- Remark runway & taxiway centerline and existing hold line. Mark new hold lines on taxiways that do no currently have any
- Install Super Unicom if instrument approach is implemented
- Develop potential hangar layouts
- Reconstruct existing apron and reallocate/reconfigure tie-down spaces
- Construct auto parking lot
- Construct a pilot lounge with restrooms
- Install perimeter fencing with security gates

Based on the facility requirements previously identified, two development alternatives were created. The alternatives are shown in **Exhibit 3A** (Alternative 1) and **Exhibit 3B** (Alternative 2). In addition to these two alternatives, which are presented below, there is a no-build option in which the Airport would not make any significant changes to the existing facilities at the Airport. Though this option is desirable in the sense that cost is not a factor, a no-build alternative is likely to lead to reduced quality of service and potentially affect the Airport's ability to obtain funding to maintain the viability of the facility. Implementing a no-build alternative would leave the Airport with several non-standard configurations. Funding for significant improvements may not be available until these non-standards issues are corrected. It is important to mention that the final decision with regard to pursuing a particular development plan rests with the Airport sponsor.

AIRSIDE DEVELOPMENT

No Build Alternative

- Non-standard RSA & OFA
- Non-standard runway width
- Inadequate runway lighting system
- No additional navaids (visual or instrument)
- No additional landside development
- No future GPS approach

- No obstructions removal
- Runway would be too short for some small aircraft

Alternative 1 proposes the following airside development:

- Grade along the edges of the runway and place fill at the ends of the runway to allow standard RSA & OFA dimensions on both runway ends.
- Relocate Squaw Road on north side (Option 1) or west side (Option 2) of Airport
- Extend the Runway 20 end 300 feet. Extend the Runway 2 end 100 feet. Both extensions will create a total runway length of 3,200 feet which will accommodate more than 75% of small airplanes with less than 10 passenger seats and also provides the minimum runway length needed for a GPS approach. Runway 20 end will be displaced 470' to clear the hill.
- Widen the runway to 60 feet to meet standard width requirements.
- Extend parallel taxiway to the full length of the runway and construct new connector taxiway.
- Replace LIRLs with MIRLs.
- Install light source for windcone and relocate it and the segmented outside of the OFA
- Install PAPI on Runway 2.
- Install hold signs & paint hold markings
- Re-mark runway and taxiway centerlines
- Install perimeter fencing around the airport property line with automatic gates at each entrance.
- Install Super Unicom

Alternative 2 proposes the following airside development:

- Grade along the edges of the runway, place fill at the ends of the runway, to allow standard RSA and OFA dimensions on both runway ends.
- Relocate the Runway 20 threshold 440 feet to the southeast to allow standard RSA & OFA dimensions on that runway end. Extend Runway 2 end 100 feet. With this option the runway length will be decreased to 2,460 feet.
- Widen the runway to 60 feet to meet standard width requirements.
- Replace LIRLs with MIRLs.
- Install light source for windcone and relocate it and segmented circle outside of OFA
- Install PAPI on Runway 2.
- Install hold signs and paint hold markings
- Re-mark runway and taxiway centerlines
- Install perimeter fencing around the airport property line with automatic gates at each entrance.
- Install Super Unicom

LANDSIDE DEVELOPMENT

Landside alternatives contain the same options. Land side development includes:

- Reconstruct/reconfigure tie down apron with space for seven tie-downs
- Construct an automobile parking lot for six vehicles
- Construct additional hangar buildings
- Construct pilot lounge with restrooms
- Develop the well to provide adequate flow for fire fighting purposes

The Airport Advisory Committee has selected an alternative that most closely matches the drawing presented in Exhibit 3A. The 3,200-foot runway length will accommodate 75% of small aircraft with less than 10 passenger seats and will also provide the minimum length required by the FAA to receive a GPS approach. This length will be achieved by extending the runway a total of 400 feet - 300 feet to the north and 100 feet to the south[1]. However, due to the terrain located beyond the north end, the threshold will need to be displaced to provide a clear approach. The displaced threshold will reduce the landing distance available on the Runway 20 end to 2,730 feet.

The Committee has offered additional input on road relocation, and hangar and apron layouts; this input has been incorporated into the preferred alternative. The Committee has chosen to relocate Squaw Road on the west side of the runway. In addition, the hangar layout has been reconfigured to maximize space and provide a more efficient flow of aircraft movement in the hangar area. The auto parking lot and pilots lounge have been moved further south.

This option provides the necessary runway length needed for the types and amounts of operations expected at the Airport, provides tie-down space for large and small aircraft, provides a designated automobile parking lot, shows potential build-out options for hangars, and provides

[1] These recommendations will maximize the landing distance available on the Runway 20 end. A full 400' extension on the north side would require additional threshold displacement thereby reducing the pavement available for landing.

a circling GPS approach to both runway ends. 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. It is worth noting that the preliminary engineering data may require a runway length less than 3,200 feet in order to establish a standard RSA, OFA, OFZ, and clear approach, based on actual survey data and engineering requirements.

Chapter Four
AIRPORT PLANS

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.

AIRPORT LAYOUT PLAN DRAWING SET

Cover Sheet

The cover sheet shows both the location and the vicinity map for Rosalia Municipal Airport, the all weather and IFR windroses and corresponding wind coverages, and a sheet index to the airport layout plan drawing set.

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 Plan (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 Rosalia 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 2-20 is 250 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 Rosalia Municipal Airport reflect the most precise approach available or planned at the Airport, which is a circling GPS approach to both runway ends. The surface extends at a horizontal distance of 5,000 feet to a width of 1,250 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 disposition to address the described obstructions. Obstructions to the Part 77 surfaces were determined based on a review of the USGS map and a preliminary assessment 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 Whitman 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.

At Rosalia Municipal Airport, there are floodplains near the vicinity of the Airport property. The floodplains shown on the Land Use Drawing are per the Federal Emergency Management Agency (FEMA) maps are and representative of the general vicinity of the floodplain. The proposed road relocation will not be within the 100-year floodplain boundary. The exact location of the road and the floodplain will be confirmed with survey prior to construction.

A note on the Land Use Drawing indicates that an old city landfill is located adjacent to Airport property. The landfill is not proposed for purchase as future Airport property, but will be used for a road right-of-way easement, therefore environmental documentation may be necessary.

Chapter Five
CAPITAL IMPROVEMENT PROJECTS

Through the evaluation of the facility requirements and the development of the airport layout plan, the improvements needed at Rosalia 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:

- Environmental Assessment/Preliminary Design for Runway/Taxiway Projects
- Land Acquisition (RSA/OFA/OFZ/RPZ)
- Relocate Squaw Road (includes land acquisition cost)
- Obstructions Removal/Relocation (includes relocating windcone & installing light source)
- Runway/Taxiway Reconstructions/Extensions (MIRL, PAPI, Hold Signs, Markings)

- Install Super Unicom

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 and developing hangar areas.

- Apron Reconstruction/Expansion
- Relocate Beacon
- Install Perimeter Fence
- Construct Hangars

Phase III

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

- Construct Pilot Lounge
- Construct Auto Parking Lot
- Construct Hangars
- Pavement Maintenance
- 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, City of Rosalia, 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%.