

1. Introduction

This element of the Pullman-Moscow Regional Airport Master Plan provides projections of future aviation demand at the airport. Projections of short, intermediate, and long-term activity at the airport are based on 5-, 10-, and 20-year milestones (2010, 2015, and 2025), using 2005 as the base year of analysis.

Projections of aviation demand provide the basis for several key analyses of the Master Plan process including:

- Determining the role of the airport, with respect to the type of aircraft to be accommodated in the future;
- Evaluating the capacity of existing airport facilities and their ability to accommodate projected aviation demand;
- Estimating the extent of improvements required in future years to accommodate projected demand.

This chapter provides discussions of the methodologies and findings used for projecting passenger enplanements at Pullman-Moscow Regional Airport. The projections of aviation demand are documented in the following sections:

- A. Role of the airport
- B. Industry trends
- C. Forecasting approach
- D. Passenger enplanement projections
- E. Passenger Demand Analysis as related to passenger projections
- F. Airport/community comparative analysis
- G. Passenger enplanement projections conclusion & recommendations

The most recent enplanement activity available at Pullman-Moscow Regional Airport is used to project future levels of aviation demand through the year 2025. The forecast analysis contained in this chapter includes methodologies based on historical aviation trends at the airport, as well as other socioeconomic trends related to the Pullman-Moscow area. National projections of aviation activity developed by the Federal Aviation Administration (FAA) were also reviewed within the context of this forecast.

A. Role of the airport

In order to project aviation demand at Pullman-Moscow Regional Airport, it is important to understand the role of the airport. This section presents historical data that define the airport's role, including the geographical area served by the airport.

Table B-1. Flight schedule

Carrier	Flight #	Days	Destination	Depart	Aircraft
Horizon Air	2023	MTWTFSS	SEA	6:40 AM	de Havilland Dash 8
Horizon Air	2026	MTWTFSS	LWS	11:43 AM	de Havilland Dash 8
Horizon Air	2027	MTWTFSS	SEA	3:35 PM	de Havilland Dash 8
Horizon Air	2028	MTWTFSS	LWS	5:57 PM	de Havilland Dash 8
Horizon Air	2021	MTWTFSS	SEA	7:40 PM	de Havilland Dash 8
Horizon Air	2020	MTWTFSS	LWS	11:40 PM	de Havilland Dash 8

Source: Official Airline Guide – week of January 16, 2006

Note: LWS = Lewiston, WA; SEA = Seattle, WA

B. Industry trends

To project aviation demand at Pullman-Moscow Regional Airport, it is important to understand changes occurring locally and those within the U.S. aviation industry as a whole. Local trends and development at competing airports have an obvious effect on the use of the airport, especially with regard to air service. U.S. trends also have an effect on aviation demand. The following subsections provide some discussion of these dynamics.

(1) Local aviation trends

Pullman-Moscow Regional Airport experienced a period of decline in enplanements over the past 10 years. Enplanements declined from a high in 1996 of 37,687 to a low in 2004 of 20,869. Much of this decline is related to service reductions by Horizon Air. In 1996, Horizon Air provided daily service to Spokane, Lewiston, Portland, and Seattle and limited service to Boise equaling an average of 13 departures per day during 1996. By the end of 1997, only service to Lewiston and Seattle remained with significant reductions in the Lewiston service. Average departures per day dropped to four by the end of 1997. Departures remained fairly stable for several years; however, Horizon Air has fluctuated service between nonstops to Lewiston versus Seattle. Fewer nonstop flights to Seattle directly impact enplanements. For example, the drop in enplanements in 2004 is in part due to a shift of nonstop flights from Seattle to Lewiston.

Although the 10-year trend points to an overall decline in enplanements, most recently Pullman-Moscow Regional Airport experienced a significant increase in enplanements. From 2004 to 2005, enplanements increased 10.5 percent. This increase is in part due to a concerted effort by the community, particularly Washington State University, to promote use of the local airport. In addition, airfares decreased from 2004 to 2005 by 8.6 percent in the first quarter and 11.7 percent in the second quarter.

Despite the decrease in enplanements and associated decrease in available seats prior to 2004, load factors have seen a remarkable improvement in recent years. From 1996 to 1998, load factors averaged 55 percent, a reasonable load factor in terms of airline performance in a turboprop aircraft. From 1999 to 2003, load factors improved to the 57 to 65 percent range. Most recently, in 2004 and 2005, load factors jumped to 70 to 73 percent. A load factor of 70 percent or higher in a turboprop aircraft like the one used by Horizon Air at Pullman-Moscow Regional

Airport is considered to be excellent. High load factors typically indicate a need for additional capacity in the market and provide a strong argument in recruiting new service to the airport.

(2) National aviation trends

Each year the FAA publishes the FAA Aerospace Forecasts. The forecasts are prepared to meet budgeting and planning needs of the constituent units of the FAA and to provide information that can be used by state and local authorities, the aviation industry, and the general public. The current edition of this annual forecast is FAA Aerospace Forecasts-Fiscal Years 2005-2016. The following are excerpts from this document:

- *Domestic capacity (large air carriers) is forecast to increase 0.6 percent in 2005 and 4.8 percent in 2006, the relatively slow growth in 2005 reflecting legacy carrier capacity reductions implemented during winter 2004/05. Thereafter, capacity is expected to increase at an average annual rate of 3.5 percent over the final 10 years of the forecast period.*
- *Domestic enplanements are projected to increase by 0.7 percent in 2005 and 3.7 percent in 2006, the slow growth in 2005 reflecting a reduction in the number of seats flown by legacy carriers in that year. Enplanements are forecast to increase 2.9 (percent) annually between 2007 and 2016.*
- *Regional/commuter capacity is forecast to increase an additional 20.7 percent in 2005 and 11.9 percent in 2006, the large increases due to the projected delivery of an additional 439 regional jets over this 2-year period. Growth in capacity is expected to slow to 4.9 percent annually over the remainder of the forecast period and to average 6.7 percent over the 12-year forecast period.*
- *Passenger growth (regional/commuter) is expected to be less than that forecast for RPMs (revenue passenger miles), growing by 15.4 percent in 2005 and 9.9 percent in 2006. Over the 12-year forecast period, regional/commuter passengers are forecast to increase 5.5 percent a year, from 128.9 million in 2004 to 245.5 million in 2016.*

C. Forecasting approach

There are a number of different forecasting techniques available for use in the projection of aviation activity, ranging from subjective judgment to sophisticated mathematical modeling. Since a large number of variables affect a master plan, it is important that each variable be considered in the context of its use in the plan. Several forecasting techniques were used to minimize the uncertainty associated with the range of the forecast variables that significantly affect the nature and extent of facility consideration.

This analysis includes the assessment of historical trends on aviation activity data at the local, regional, and national level. Historic aviation activity statistics on passenger enplanements were collected, reviewed, and analyzed. Similarly, socioeconomic factors such as population were analyzed for the effect they may have had on aviation growth. The comparison of relationships among these various indicators provides the initial step in the development of realistic forecasts of aviation demand.

The following general methodologies were used in projecting various components of aviation demand at the airport.

(1) Trend line methodologies

Historical trend lines and linear extrapolation are some of the most widely used methods of forecasting. These techniques use time-series types of data and are most useful for a pattern of demand that demonstrates a historical relationship with time. In using this technique, an assumption is made that the same factors that have influenced demand will continue to affect future demand. While this is a broad assumption, it often provides a reliable benchmark for comparing the results of other analyses. Linear extrapolation establishes a linear trend by fitting a straight line using the least squares method to known historic data. Historic trend lines, as used in these analyses, examine historic compounded annual growth rates and extrapolate future data values by assuming a similar compounded annual growth rate in the future.

(2) Market share methodologies

Market share, ratio, or top-down models are used to reduce large-scale, national aviation activity down to a local level. Inherent to the use of such a method is the demonstration that the proportion of the large-scale, national activity that can be assigned to the local level is a regular and predictable quantity. This method has been used extensively in the aviation industry for aviation demand forecasting at the local level. Its most common use is in the determination of the share of total national traffic activity that will be captured by a particular region or airport. Historical data is examined to determine the share of local airport traffic to total national traffic. From outside data sources, in this case the FAA, projected levels of national activity are determined and then proportioned to the airport based upon the observed and projected trends.

(3) Socioeconomic methodologies

Socioeconomic, or correlation analysis, examines the direct relationship between two or more sets of historical data. In this case, socioeconomic analyses have been performed, relating historical aviation activity to historical population levels within the Pullman and Moscow Micropolitan Statistical Areas (Micro). Based upon the observed and projected correlation between historical aviation activity and the socioeconomic data sets, future aviation activity projections are developed based upon the projected socioeconomic data sets. In this case, projected population levels were obtained from Woods & Poole Economics, Inc., an independent firm that specializes in long-term economic and demographic projections. The accuracy of this forecasting methodology is dependent on how closely the local demographic activity reflects airport activity.

D. Passenger enplanement projections

This section presents projections of scheduled commercial passenger enplanements (i.e., passenger boardings) at the airport. Airport enplanements are a function of a variety of factors including population, the local economy, the level/quality/cost of air service, and the availability of alternatives. It is important to understand the local air service market and the factors that influence enplanements. Accordingly, the Pullman-Moscow Regional Airport Master Plan evaluates enplanements from several perspectives with special emphasis on the local and regional factors that impact enplanements.

The demographic characteristics of an airport's market area (referred to as the airport catchment area), including population, the economic base, employment, tourism, and per capita income to a large extent, determine demand for commercial air service. Increasing population and economic activity in an airport catchment area usually results in increased demand for commercial air service. Certain types of employers such as universities, research oriented firms, high tech companies, and activities such as tourism/recreation tend to generate higher demand for air service.

As air service improves, economic activity increases between the linked communities. The result is incremental economic activity that would otherwise not occur. Companies conducting site evaluations for business locations often rank commercial air service high on their list of desired services. Depending on the make-up of the particular community, air service may be important to maintaining the vitality of existing businesses as well as attracting new companies to the area.

These combined factors, considered together, are used to determine an area's demand for air service and conversely the level of air service that the area can support. Theoretically, in a deregulated environment, the level of air service available in a community should be determined by the demand of air service and the carrier's cost of serving the market. However, air carriers make air service decisions based on two primary factors: return on investment and company strategy. As the commercial airline industry has consolidated, the number of air carriers has been reduced as well as the level of competition in many markets. The result is many underserved and overpriced markets, especially smaller markets. Likewise, enplanements are also influenced by the proximity of larger competing commercial service airports that attract travelers from the local airport catchment area due to price and/or a broader array of air service availability.

To develop an overall perspective regarding passenger enplanements at Pullman-Moscow Regional Airport, it is important to answer four questions:

- What share of the airport catchment area population is currently using the local airport?
- How many enplanements can the airport's catchment area generate with the current level of air service?
- How would improvements to commercial air service impact enplanements?
- What are reasonable projections for future passenger enplanements?

In completing the Pullman-Moscow Regional Airport enplanement projections, three basic projection methodologies have been used: trend line methodology; market share methodology; and socioeconomic

methodology. With regard to the three projection methodologies, the task of this Master Plan is to decide which of the three methodology options best reflects what will happen to passenger enplanements at Pullman-Moscow Regional Airport in the future. To assist in this task, it is useful to draw on the Pullman-Moscow Regional Airport Passenger Demand Analysis and the Airport/Community Comparative Analysis provided later in this chapter. Use of these tools provides perspective regarding selection of the most appropriate enplanement projection method for Pullman-Moscow Regional Airport.

(1) Trend line methodology

This is a trend line projection, which basically assumes future trends will mimic those of the past. The trend line methodology documents recent historic trends and assumes that the factors affecting those trends will continue to influence demand levels at similar rates in the future. Trend line projections are typically used in planning studies to provide a baseline that represents static market conditions. The results of this type of projection, in small markets, are influenced by abrupt changes in available service or aircraft fleet.

The projections of passenger enplanements that result from the trend line methodology are presented in Table 2-2. Over the 10-year period, enplanements decreased at Pullman-Moscow Regional Airport. The decrease in enplanements as discussed previously is largely due to the significant service reduction over the 10-year period. The historical decrease in enplanements results in a continued projected decrease into the future. As shown, passenger enplanements are projected to decrease from 23,059 in 2005 to 7,740 in 2025, representing a compounded annual decline of 5.3 percent. This projection methodology assumes that service reductions as experienced over the 10-year period will continue into the future.

Table B-2. Trend line methodology

Year	PUW enplanements	Annual change
Historical		
1996	37,687	
1997	34,283	-9.0%
1998	28,524	-16.8%
1999	34,858	22.2%
2000	33,196	-4.8%
2001	28,128	-15.3%
2002	27,023	-3.9%
2003	24,108	-10.8%
2004	20,869	-13.4%
2005	23,059	10.5%
CAGR 1996-2005		
	-5.3%	
Projected		
2010	17,551	-4.8%
2015	13,359	-4.8%
2025	7,740	-4.2%
CAGR 2005-2025		
	-5.3%	

Source: Historical enplanement data - PUW records

Note: PUW = Pullman-Moscow Regional Airport; CAGR = compounded annual growth rate

(2) Market share methodology

The airport's share of total U.S. domestic enplanements over the last 10 years is presented in Table 2-3. As shown in Table 2-3, the airport's market share has varied over the time period 1996 to 2005, from a high of 0.00614 percent in 1996 to a low of 0.00303 percent in 2004. Changes in enplanements at the airport are directly correlated to the air service available. This is a key point in evaluating demand relative to the overall market. For example, air service reductions in 1997 and 1998 resulted in a significant decrease in enplanements at the airport.

With these fluctuations, Pullman-Moscow Regional Airport enplanements decreased at a 5.3 percent compounded annual rate over the period between 1996 and 2005. This compares with a compounded annual growth rate in U.S. enplanements of 2.0 percent. Therefore, the airport's share of U.S. enplanements over the 10-year period decreased at a compounded annual rate of 7.1 percent. For the 10-year period, Pullman-Moscow Regional Airport's share of U.S. enplanements was 0.00438 percent. This demand scenario assumes that the market share will approximate the average over the last 10 years and remain at this average with no significant growth or decline in the market share throughout the projection period.

This assumption reflects the FAA's forecast that envisions moderate U.S. growth in the next few years and more aggressive growth in latter years. Enplanements are projected to increase from 23,059 in 2005 to 57,197 in 2025. This increase represents a compounded annual growth rate of 4.6 percent, which is not unreasonable given the historic (1996 to 2005) U.S. market share and recognizing recent air service improvements from 2004 to 2005 that show early promise in increasing passenger activity at the airport.

With the significant reduction in air service at Pullman-Moscow Regional Airport between 1996 and 2000, it is useful to review the market share for the most recent five years, 2001 to 2005. The average market share from 2001 to 2005 was 0.00364 percent. Using this market share to project future growth, enplanements would increase from 23,059 in 2005 to 47,565 in 2025, a compounded annual growth rate of 3.7 percent. This is a more conservative projection compared to using the average market share over the entire 10-year period.

Table B-3. Market share methodology

Year	PUW enplanements	U.S. enplanements	PUW market share	Annual change	
				PUW	U.S.
Historical					
1996	37,687	613,609,364	0.00614%		
1997	34,283	637,688,362	0.00538%	-9.0%	3.9%
1998	28,524	649,059,977	0.00439%	-16.8%	1.8%
1999	34,858	675,555,685	0.00516%	22.2%	4.1%
2000	33,196	704,888,349	0.00471%	-4.8%	4.3%
2001	28,128	693,179,287	0.00406%	-15.3%	-1.7%
2002	27,023	627,684,013	0.00431%	-3.9%	-9.4%
2003	24,108	643,260,786	0.00375%	-10.8%	2.5%
2004	20,869	688,313,141	0.00303%	-13.4%	7.0%
2005	23,059	731,770,095	0.00315%	10.5%	6.3%
CAGR 1996-2005					
	-5.3%	2.0%	-7.1%		
Market share 1996-2005					
			0.00438%		
Projected					
2010	36,953	844,241,432	0.00438%	9.9%	2.9%
2015	42,739	976,428,569	0.00438%	3.0%	3.0%
2025	57,197	1,306,718,987	0.00438%	3.0%	3.0%
CAGR 2005-2025					
	4.6%	2.9%			

Source: Historical/projected U.S. enplanements - APO Terminal Area Forecast (TAF) 2005

(3) Socioeconomic methodology

Changes in an area's population, employment, and income all impact the propensity of that area's residents to use air travel. Therefore, a socioeconomic methodology for the projection of enplanements was also used in this study. For the Pullman-Moscow Regional Airport, population of the Pullman and Moscow Micros was used as the independent variable. It is assumed under this methodology that as a market area's population increases or decreases, the level of enplanements at the area's associated airport will fluctuate in a corresponding manner.

Enplanement projections were derived based on the ratio of enplanements occurring at Pullman-Moscow Regional Airport to the population of the airport's market area. The calculation of enplanements per person is then applied to accepted population projections for the airport's market area, producing projections of future enplanements at Pullman-Moscow Regional Airport. The ratio of enplanements per person is assumed to be 0.3844 over the projection period, representing the historical average.

Enplanement projections using the socioeconomic methodology indicate that enplanements at Pullman-Moscow Regional Airport can be expected to increase from 23,059 in 2005 to 33,985 in 2025 (Table 2-4). This growth represents a compounded annual growth rate of 2.0 percent.

Table B-4. Socioeconomic methodology

Year	PUW enplanements	Micro population	Enplanement per person
Historical			
1996	37,687	75,257	0.5008
1997	34,283	75,110	0.4564
1998	28,524	75,406	0.3783
1999	34,858	75,794	0.4599
2000	33,196	75,572	0.4393
2001	28,128	75,529	0.3724
2002	27,023	75,849	0.3563
2003	24,108	76,357	0.3157
2004	20,869	76,812	0.2717
2005	23,059	77,311	0.2983
CAGR 1996-2005	-5.3%	0.3%	
Average per person 1996-2005			0.3844
Projected			
2010	30,672	79,797	0.3844
2015	31,720	82,524	0.3844
2025	33,985	88,418	0.3844
CAGR 2005-2025	2.0%	0.7%	

Source: Woods & Poole Economics, Inc.

Note: Micro = Micropolitan Statistical Area; includes both Moscow and Pullman

E. Passenger Demand Analysis as related to passenger projections

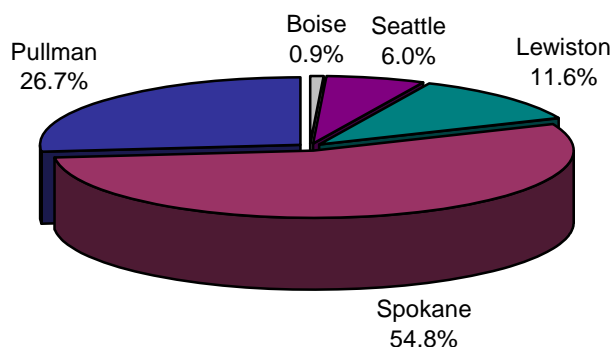
The 2006 Pullman-Moscow Regional Airport Passenger Demand Analysis is a stand-alone report. The Passenger Demand Analysis provides a mix of information on passenger traffic, airlines, fares, and passenger destinations associated with air travelers in the Pullman-Moscow market. However, for the purpose of forecasting enplanements at Pullman-Moscow Regional Airport, there are three key products in this study that are relevant. First, passenger diversion of local passengers to a competing airport is key to calculating the share of the local air travel market that is using the local airport. Second, data produced in this study provides the basis for calculating the total size of the local air travel market, called the “true market”, and the volume of traffic traveling to specific destinations. Finally, based on analysis of the data in the study, a situation analysis was completed to identify potential air service opportunities.

(1) Market share

Based on information developed in the Pullman-Moscow Regional Airport Passenger Analysis, the local airport is capturing 27 percent of the passenger traffic in the airport’s catchment area. Fifty-five percent of the market is originating air travel at Spokane International Airport, 12 percent originate at Lewiston Nez-Perce County Regional Airport, and the balance, seven percent, use

Seattle-Tacoma International Airport or Boise Airport. Naturally, more flight options and, in some cases, lower airfares account for the passenger loss to these competing airports.

Exhibit B-2. Market share



Source: Passenger Demand Analysis

Air travelers must drive 75 to 85 miles to access air service at Spokane International Airport or approximately 35 miles to Lewiston Nez-Perce County Regional Airport. The lower overall fares offered at the competing airports and the higher level of air service offered attract the air traveler that doesn't mind traveling the additional miles. A retention level of 27 percent provides significant opportunity for Pullman-Moscow Regional Airport to increase enplanements at the airport by improving retention. This typically can be achieved via improved service including new destinations, additional flights to existing destinations, or changes in aircraft type. A strategic marketing plan targeting local air travelers and increasing awareness of existing service at the local airport can also improve retention.

(2) Destinations

From the Pullman-Moscow Regional Airport catchment area, 69 percent of air travelers were destined for the top 25 destinations. The top 10 destinations represented approximately 47 percent of the total market. Of those top 10 destinations, six were located in the West region, three in the Northwest region, and one in Alaska. Seattle, WA was the number one survey destination comprising 15 percent of the total survey air travelers. Los Angeles, CA was the second most popular survey destination with Anchorage, AK rounding out the top three. Table 2-5 lists the top 10 survey destinations by originating airport.

Table B-5. Top 10 destinations

Rank	Destination	Originating airport			
		Pullman	Spokane	Lewiston	Other
		%	%	%	%
1	Seattle/Tacoma, WA	61.8	31.1	7.1	0.0
2	Los Angeles, CA	17.1	72.8	5.9	4.2
3	Anchorage, AK	20.4	53.7	9.3	16.7
4	Orange County, CA	14.5	67.3	14.5	3.8
5	Phoenix, AZ	14.0	63.5	18.9	3.6
6	Portland, OR	36.8	53.1	5.9	4.2
7	Sacramento, CA	24.6	68.0	4.4	3.1
8	Boise, ID	10.0	11.7	78.3	0.0
9	San Diego, CA	27.4	59.3	6.3	7.0
10	Ontario, CA	16.7	69.7	10.6	3.0
Total domestic markets		27.0	55.2	12.1	5.7

Source: Passenger Demand Analysis

Identifying top destinations and where air travelers are accessing air service to those destinations provides an understanding of opportunities to improve air service at the local airport. The nonstop service to Seattle from Pullman/Moscow makes Seattle their top destination and provides a high retention of local air travelers to Seattle. Increased frequency to Seattle or nonstop service to a hub that provides ample connecting opportunities to their top destinations would significantly improve retention to those markets. Additionally, nonstop service to a new destination would stimulate the market.

(3) True market

Pullman-Moscow Regional Airport's true market is estimated by mathematically combining passenger diversion information from the Passenger Demand Analysis with U.S. Department of Transportation airline report information. This is done on a destination-by-destination basis to determine the number of air travelers for each specific destination and the size of the total air travel market within the area served by Pullman-Moscow Regional Airport. The true market is estimated at 170,029 annual enplaned passengers.

Pullman-Moscow Regional Airport is losing an estimated 73 percent, or 124,604 passengers per year, of its enplaned passenger potential to competing airports. Is there a way for the airport to capture a larger share of the market? Because of its proximity to larger competing airports, Pullman-Moscow Regional Airport will continue to lose a portion of its passenger traffic potential to other airports. However, the total air travel market served is capable of supporting increased use of Pullman-Moscow Regional Airport with targeted air service improvements and/or marketing efforts.

(4) Air service opportunities

In the immediate future, the Pullman-Moscow Regional Airport catchment area's primary service need is nonstop service to Salt Lake City. It is the nearest multi-directional hub and provides one stop connecting service to the east and south. Such service would be relatively competitive with Spokane International Airport service except in their nonstop markets. Salt Lake City service from Lewiston Nez-Perce County Regional Airport was initiated in February 2005 and achieved a 66 percent load factor through October. The presence of two major universities near the Pullman-Moscow Regional Airport provides a promising base for supporting Salt Lake City service and future traffic growth. The major obstacle to achieving such service is whether Delta Air Lines will consider serving two airports within 35 miles of each other. This is doubtful with the likely result that Pullman-Moscow Regional Airport and Lewiston Nez-Perce County Regional Airport will find themselves in competition for air service.

Current indicated market sizes suggest the Pullman-Moscow Regional Airport catchment area could not support additional service beyond the nonstop Salt Lake City service at this time. However, in the future, a regional network of air service appears plausible which would link Pullman-Moscow Regional Airport with Portland, Boise, Missoula, and perhaps Bozeman with 19-seat aircraft. The potential demand for such service centers on business travel between major universities located in these cities which is enhanced by distance, topography, and weather factors which may impede such travel.

F. Airport/community comparative analysis

Because enplanements are closely tied to community economics and demographics, the type and level of available commercial air service, and the distance of the local airport from a larger competing airport, the airport/community comparative analysis uses all of these factors in the analysis of enplanement projections. This methodology incorporates comparisons with other communities with similar characteristics to Pullman/Moscow but different levels of air service to evaluate the effect of air service changes on passenger enplanements.

Of the three variables mentioned in the previous paragraph, the process used to estimate the economic and demographic strength of each community requires additional explanation. First, the three primary economic and demographic indicators (population, employment, and income) are calculated for the Northwest region and each Metropolitan Statistical Area (MSA)/Micro within the Northwest region (Table 2-6). The MSA/Micro share of the Northwest region is then calculated for each MSA/Micro and ranked among the other MSA/Micros in the region. Using this method, the combined Pullman and Moscow Micros have a regional economic/demographic rating of 0.35 percent. In Table 2-6, the combined Pullman/Moscow Micro is shown in comparison to the 10 MSA/Micros ranking above and 10 MSA/Micros ranking below the combined Pullman/Moscow Micro in terms of economic and demographic rating points.

Table B-6. Northwest region MSA/Micro economic and demographic rating points

Rank	MSA/Micro	Population	Employment	Personal income	Total points	Regional share
39	Bozeman, MT	0.41	0.49	0.35	1.26	0.42%
40	Great Falls, MT	0.43	0.43	0.37	1.24	0.41%
41	Pocatello, ID (PIH)	0.47	0.43	0.33	1.23	0.41%
42	Pendleton-Hermiston, OR (PDT)	0.47	0.39	0.33	1.19	0.40%
43	Casper, WY (CPR)	0.37	0.40	0.40	1.18	0.39%
44	Oak Harbor, WA	0.43	0.31	0.39	1.13	0.38%
45	Helena, MT (HLN)	0.38	0.40	0.33	1.11	0.37%
46	Moses Lake, WA (MWH)	0.44	0.37	0.30	1.10	0.37%
47	Edwards, CO	0.32	0.41	0.35	1.08	0.36%
48	Grants Pass, OR	0.44	0.32	0.32	1.08	0.36%
49	Pullman-Moscow, WA-ID (PUW)	0.38	0.36	0.30	1.04	0.35%
50	Twin Falls, ID (TWF)	0.37	0.38	0.27	1.02	0.34%
51	Port Angeles, WA	0.37	0.29	0.32	0.98	0.33%
52	Centralia, WA	0.39	0.31	0.28	0.98	0.33%
53	Aberdeen, WA	0.38	0.28	0.27	0.93	0.31%
54	Klamath Falls, OR (LMT)	0.36	0.30	0.26	0.91	0.30%
55	Lewiston, ID-WA (LWS)	0.32	0.31	0.27	0.90	0.30%
56	Coos Bay, OR (OTH)	0.34	0.26	0.26	0.86	0.29%
57	Walla Walla, WA (ALW)	0.31	0.29	0.23	0.83	0.28%
58	Durango, CO	0.27	0.30	0.25	0.82	0.27%
59	Ontario, OR-ID	0.29	0.24	0.18	0.72	0.24%
Total Northwest region		100.00	100.00	100.00	300.00	100.00%

Source: Woods & Poole Economics, Inc.

Note: Northwest region as defined by the FAA includes CO, ID, MT, OR, UT, WA, and WY.

Next, Pullman-Moscow Regional Airport’s enplanements are compared with other airports in the same region whose regional economic rating points are similar to Pullman/Moscow. A rating point is equivalent to the socioeconomic share of the MSA/Micro in the region. By selecting airports that have comparable economic/demographic rating points but different levels of air service (fleet and carrier mix), it is possible to estimate Pullman-Moscow Regional Airport’s enplanements based on hypothetical changes in the level of air service at the airport (Table 2-7). For the initial comparison, the airports in Casper, WY, Helena, MT, Moses Lake, WA, Pendleton, OR, and Pocatello, ID were compared to Pullman-Moscow Regional Airport. Each of these airports in the initial comparison have slightly higher economic/demographic rating points than the combined Pullman/Moscow Micro.

Table B-7. Airport/community comparative analysis

Statistic	CPR	HLN	MWH	PDT	PIH	PUW
Mileage to competitive airport	305	243	103	206	168	82
Competitive airport (small hub or larger)	DEN	BIL	GEG	PDX	SLC	GEG
Enplanements - calendar year 2005	90,992	183,727	3,787	6,960	42,269	23,059
Carriers serving	3	4	1	1	2	1
Hubs served	3	6	2	2	2	2
Turboprop seats per week	1,830	1,530	342	703	1,449	1,554
Regional jet seats per week	350	1,950	0	0	0	0
Total available seats per week	2,180	3,480	342	703	1,449	1,554
Metropolitan Statistical Area (MSA)						
MSA/Micro population (estimated 2005)	68,321	69,975	80,781	86,254	86,102	77,311
MSA/Micro percent of regional economy	0.39%	0.37%	0.37%	0.40%	0.41%	0.35%
MSA enplaned paxs per economic rating point	231,958	498,330	10,343	17,502	102,823	66,819
Estimated enplanements at PUW	80,047	171,971	3,569	6,040	35,484	23,059

Source: Mileage – Microsoft MapPoint 2004; Enplanement Data – Airport Management Records; Carriers/ Hubs/Available Seats – Official Airline Guide (January 2006); Population – Woods & Poole Economics, Inc.

Note: DEN=Denver; BIL=Billings; GEG=Spokane; PDX=Portland; SLC=Salt Lake City

The following is a summary of each of these communities compared to Pullman-Moscow Regional Airport:

Casper, WY (CPR) – Pullman/Moscow: A primary difference in comparing the Casper and Pullman/Moscow markets is the proximity to a competing airport. Casper is almost 300 miles from Denver International Airport, a large hub airport, and Billings Logan International Airport, a small hub airport. The remoteness of this community and lack of competing service lends itself to a higher level of air service and a much higher retention of local passengers although the economic/demographic rating is similar to Pullman/Moscow. In fact, the Pullman/Moscow community has a slightly larger population base, 77,311 versus 68,321; however, the proximity to Spokane International Airport less than 100 miles distant has inhibited the level of air service and enplanements at Pullman/Moscow.

The Casper community enjoys an additional 626 seats per week, 350 regional jet seats and 276 turboprop seats, compared to Pullman/Moscow. This equates to one roundtrip per day on the regional jet and approximately one additional turboprop roundtrip. The Pullman/Moscow community has demonstrated its ability to support this level of frequency of air service in the past. If Pullman/Moscow enjoyed the same level of air service as Casper, it is estimated that the community would generate a significantly higher level of enplanements. Additional air service would increase the retention of local area passengers as well as stimulate additional air travel in the area.

Helena, MT (HLN) – Pullman/Moscow: The closest small hub or larger airport is Billings, MT located approximately 243 miles from Helena. However, several nonhub airports including Missoula International Airport, Butte's Bert Mooney Airport, and Bozeman's Gallatin Field Airport compete for Helena passengers. With Missoula 121 miles distant, Butte 68 miles away, and Bozeman 91 miles from Helena,

local air travelers have several choices of competing airports. Although Helena's population is slightly less than Pullman/Moscow's population, Helena retains a significantly higher number of local air travelers. Helena currently has more than double the available seats than offered at Pullman/Moscow including a significant number of seats on regional jets. Also, Helena has service to six hubs by four air carriers. With the exception of the distance to a competing airport, Helena and Pullman/Moscow have similar economic and demographic ratings. This indicates that Pullman/Moscow could support additional air service.

Moses Lake, WA (MWH) – Pullman/Moscow:

Moses Lake is located approximately 103 miles from Spokane International Airport, a similar distance as Pullman/Moscow. However, Moses Lake has significantly less air service with only 342 available seats per week compared to Pullman/Moscow's 1,554 available seats. As expected, this analysis estimates that Pullman/Moscow's enplanements would be much less than the current level if air service were to drop to the Moses Lake level.

Pendleton, OR (PDT) – Pullman/Moscow:

Pendleton is located approximately 200 miles from the nearest small hub or larger airport, Portland International Airport. However, competing air service exists 65 miles away at Pasco's Tri-Cities Airport, a non-hub airport. The local airport in Pendleton does not enjoy a high level of air service with only 703 available turboprop seats per week, less than half offered at Pullman/Moscow Regional Airport. Similar to the Moses Lake analysis, if Pullman/Moscow's air service decreased to the level of Pendleton's air service, enplanement levels would decrease dramatically.

Pocatello, ID (PIH) – Pullman/Moscow:

The Pocatello community has the highest economic/demographic rating of the five comparison communities. Currently, Pocatello's available seats are less than that offered at Pullman/Moscow. However, this is due to a recent reduction in air service by Horizon Air on January 6, 2006. During calendar year 2005, Horizon Air provided three nonstop flights per day with a 37-seat turboprop. This service was replaced by Big Sky Airlines' 19-seat turboprop service. Calendar year 2005 enplanements related to this higher level of air service; therefore, this analysis is based on a higher not lower level of air service compared to Pullman/Moscow. Based on Pullman/Moscow's economic/demographic rating, if air service in Pullman/Moscow were similar to air service offered at Pocatello in 2005, the Pullman/Moscow Regional Airport would experience enplanements of approximately 35,484.

Overall, the comparison of the five communities with similar economic/demographic rating points to Pullman/Moscow indicates that Pullman/Moscow could support additional air service and generate more enplanements given its share of the regional economy. In general, Pullman/Moscow has a lower level of air service compared to other airports in the Northwest region with similar economic and demographic characteristics. This is largely due to the area's proximity to competing airports including Lewiston and Spokane. This exercise supports the notion that Pullman-Moscow Regional Airport, compared to the other five airports, provides a low level of air service for the community that it serves (enplanements are low relative to the economic strength of the community).

To provide further comparison with other communities in the Northwest region, five other MSA/Micros with an economic/demographic rating slightly below Pullman/Moscow were chosen for comparison purposes (see Table 2-8): Walla Walla, WA, Klamath Falls, OR, Lewiston, ID, North Bend, OR, and Twin Falls, ID. The communities can be compared on a passenger per rating point basis to indicate whether or not Pullman/Moscow can generate additional enplanements with increased air service.

Table B-8. Airport/community comparative analysis

Statistic	ALW	LMT	LWS	OTH	TWF	PUW
Mileage to competitive airport	180	301	110	245	134	82
Competitive airport (small hub or larger)	GEG	PDX	GEG	PDX	BOI	GEG
Enplanements - calendar year 2005	24,693	28,795	66,076	35,956	35,644	23,059
Carriers serving	1	1	2	1	1	1
Hubs served	1	1	4	1	1	2
Turboprop seats per week	740	740	1,554	740	1,050	1,554
Regional jet seats per week	0	0	700	0	0	0
Total available seats per week	740	740	2,254	740	1,050	1,554
Metropolitan Statistical Area (MSA)						
MSA/Micro population (estimated 2005)	57,269	65,749	59,252	63,186	67,738	77,311
MSA/Micro percent of regional economy	0.28%	0.30%	0.30%	0.29%	0.34%	0.35%
MSA enplaned paxs per economic rating point	88,865	94,856	219,481	124,861	104,637	66,819
Estimated enplanements at PUW	30,667	32,734	75,742	43,089	36,110	23,059

Source: Mileage – Microsoft MapPoint 2004; Enplanement Data – Airport Management Records; Carriers/ Hubs/Available Seats – Official Airline Guide (January 2006); Population – Woods & Poole Economics, Inc.

Walla Walla, WA (ALW) – Pullman/Moscow: Walla Walla has slightly lower economic/demographic strength than Pullman/Moscow with 0.28 percent of the economy. Walla Walla also has a lower level of air service as compared to Pullman/Moscow with 740 available seats per week versus 1,554 available seats per week out of Pullman/Moscow. Both communities are within driving distance to a larger competing airport, specifically Spokane International Airport; however, Walla Walla is further away, 180 miles versus Pullman/Moscow at 82 miles. Competing nonhub air service exists at Pasco's Tri-Cities Airport just 51 miles away. The closer proximity to Spokane likely reduces retention of local air travelers compared to the retention at Walla Walla.

Although Walla Walla has weaker economic/demographic strength with a population base approximately 20,000 less than Pullman/Moscow and has fewer available seats in the market, both communities produce similar number of enplanements. Given this comparison, Pullman/Moscow should be producing a higher number of enplaned passengers per economic and demographic rating point than it currently is. The lower retention of local Pullman/Moscow air travelers is in large part creating the lower level of enplanements in comparison to Walla Walla.

Klamath Falls, OR (LMT) – Pullman/Moscow: Similar to the Walla Walla comparison, this comparison uses a community, Klamath Falls, which has a lower economic/demographic rating (0.30 percent of the Northwest region economy) and a lower level of air service but produces a higher level of enplanements. Klamath Falls is 300 miles from a small hub or larger competing airport. However, Medford's Rogue Valley International Airport, a nonhub airport 80 miles distant, pulls a significant number of Klamath Falls' passengers from the local airport.

Klamath Falls produces a higher number of enplanements than Pullman/Moscow per economic/demographic rating point. As a result, the estimated enplanement projections (32,734) for Pullman/Moscow are higher than actual enplanements (23,059) using Klamath Falls' performance as a base. Similar to the Walla Walla example, this example shows that Pullman/Moscow could support a higher level of air service given the current economics and demographics in the community.

Lewiston, ID (LWS) – Pullman/Moscow: Of the communities included in the comparison, Lewiston, ID is the most similar in terms of geography and distance to a competing airport. The Lewiston community has a lower economic rating (0.30 percent of the regional economy) and 23 percent lower population than Pullman/Moscow. However, the Lewiston community enjoys a higher level of air service than Pullman/Moscow. This higher level of air service has produced a significantly higher level of enplanements. Given the economics/demographics of the Pullman/Moscow community, if Pullman/Moscow had air service similar to Lewiston, estimated enplanements would be approximately 75,742.

North Bend, OR (OTH) – Pullman/Moscow: Compared to Pullman/Moscow, North Bend has lower economic strength (0.29 percent of the regional economy) as well as 18 percent lower population, 52 percent less available seats, and a significantly longer driving distance to a small hub or larger competing airport. The North Bend community is 105 miles from a competing nonhub airport, Eugene Airport. However, North Bend has 56 percent more enplanements in 2005 than Pullman/Moscow. The result is that, per rating point, Pullman/Moscow's enplanements should be 43,089 given the economics and demographics of the community in comparison to North Bend.

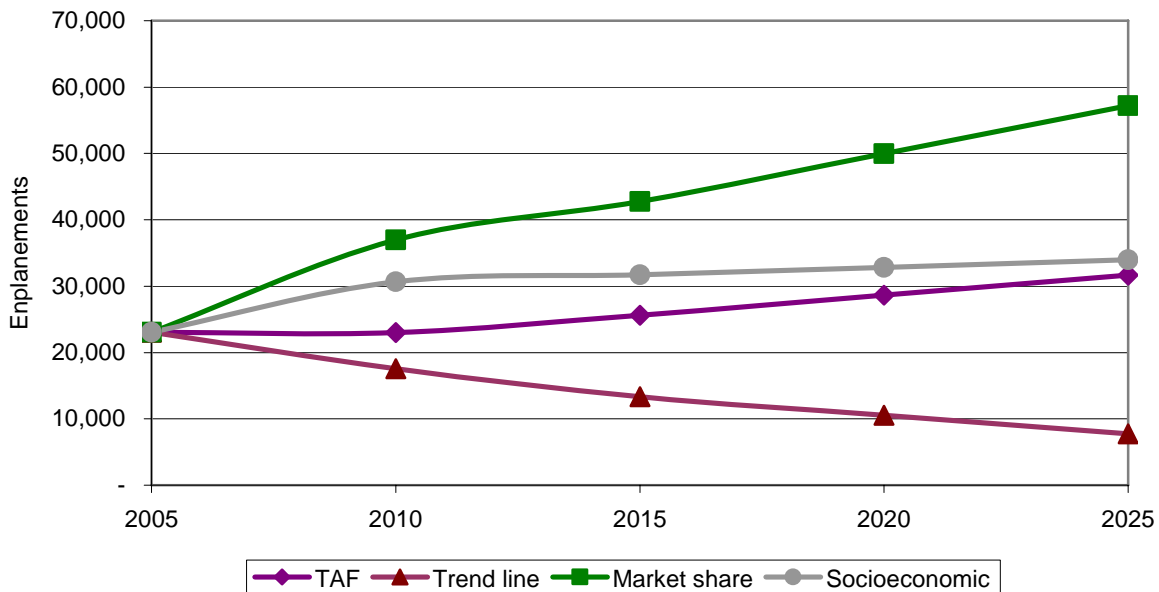
Twin Falls, ID (TWF) – Pullman/Moscow: The Twin Falls community has a similar economic/demographic rating to Pullman/Moscow, with 0.34 percent of the Northwest region compared to Pullman/Moscow's 0.35 percent. In addition, Twin Falls is located 134 miles from Boise Airport, a small hub airport which is similar to Pullman/Moscow's location 82 miles distant from Spokane International Airport, also a small hub airport. Although Twin Falls has 32 percent fewer available seats than Pullman/Moscow, Twin Falls had 55 percent more enplanements. With the similar distance to a competing airport and a similar economic/demographic rating, Pullman/Moscow is producing a low level of enplanements compared to Twin Falls. If Pullman/Moscow produced the same level of enplanements as Twin Falls per economic rating point, Pullman/Moscow would enplane approximately 36,110 passengers, an increase of 57 percent over existing enplanements for 2005.

How does this play out in the context of forecasting enplanements? First, from an air service perspective, Pullman/Moscow is an underserved community. Air service improvements can be made that will increase enplanements. Second, the local economy is generating a high number of enplanements; however, a significant percentage of passengers are not using the local airport and are diverting to Spokane International Airport. Accordingly, air service improvements will stimulate the local market to produce more air travelers and will retain more of the existing passenger base that is currently using other airports to originate air travel.

G. Passenger enplanement projections conclusions and recommendations

Each year, the FAA prepares Terminal Area Forecasts (TAF) for use in the FAA's decision-making and planning process. The TAF includes all U.S. airports which have at least one of the following: an air traffic control tower; commercial airline service; 60,000 itinerant or 100,000 total annual operations; or at least 10 based aircraft. The current TAF for Pullman-Moscow Regional Airport is based on 2004 data and forecasts annual activity through the year 2025. To provide a more comprehensive comparison of trends and projection methodologies, the TAF was compared to the projections produced in this Chapter (Exhibit 2-3 and Table 2-9).

Exhibit B-3. Methodology comparisons



Source: APO Terminal Area Forecast

Table B-9. Enplanement projection comparison

Year	TAF	Linear trend	Market share	Socio-economic
Projected				
2010	22,998	17,551	36,953	30,672
2015	25,595	13,359	42,739	31,720
2025	31,702	7,740	57,197	33,985
CAGR 2005-2025	1.6%	-5.3%	4.6%	2.0%

Source: TAF = APO Terminal Area Forecast

In evaluating the projection methodologies depicted in Table 2-9, it is helpful to consider the results of the Passenger Demand Analysis and the Airport/Community Comparative Analysis. The Passenger Demand Analysis indicates that approximately 124,604 enplanements per year from the Pullman-Moscow market are using an airport other than Pullman-Moscow Regional Airport to originate air travel. This passenger loss represents 73 percent of the total Pullman/Moscow market. The bulk of the passenger diversion is due to more service options and lower airfares available at the larger competing airports, specifically Spokane International Airport. Because Pullman-Moscow Regional Airport has a low level of air service for the size of the market that it serves, it is reasonable to expect service improvements at Pullman-Moscow Regional Airport of the type and level it would take to retain a larger share of the diverted passengers and to stimulate additional passengers in the market.

With regard to the Airport/Community Comparative Analysis, the Pullman-Moscow market generates a high number of enplanements related to the economic and demographic strength of the community; however, the local airport retains only a small percentage of those air travelers. The quality and level of air service at the Pullman-Moscow Regional Airport retains a low number of enplaned passengers compared to other communities with similar economic and demographic characteristics. With very high load factors on existing service, this analysis indicates local air service is well supported by the Pullman-Moscow community but additional air service is needed to meet the demand based on the economic and demographic profile of the community.

In the near term of the forecast period, regional jet service to Salt Lake City could have a significant impact on enplanement forecasts. The effect of these service improvements would be that the airport would capture a larger share of the existing market and additional air travelers would be stimulated with the nonstop service. Additionally, with the high load factors experienced in 2004 and 2005, opportunity exists for more frequency or larger aircraft to Seattle. Between 2004 and 2005, enplanements increased significantly, over 10 percent. These facts, combined with the large number of diverted passengers, suggest the potential for moderate growth in future passenger enplanements.

The Socioeconomic method (2.0 percent) of projecting passenger enplanements is recommended for long-range planning of Pullman-Moscow Regional Airport. The TAF predicts a 1.6 percent compounded annual growth rate for Pullman-Moscow Regional Airport. This method tracks the FAA's TAF and recognizes conditions in the Pullman-Moscow market that indicate continued moderate growth.