Master Plan Update

Durango La Plata County Airport

B. Aviation Activity Demand Forecasts

Forecasts of Aviation Activity

Introduction

Forecasting is a key element in the master planning process. The forecasts are essential for analyzing existing airport facilities and identifying future needs and requirements of the facilities. Forecasting, by its very nature, is not exact, but it does establish some general parameters for development and provides a defined rationale for various development activities as demands increase. The amount and kind of aviation activity occurring at an airport is dependent upon many factors, but is usually reflective of the services available to aircraft operators, the meteorological conditions under which the airport operates (daily and seasonally), the businesses located on the airport or within the community the airport serves, and the general economic conditions prevalent within the surrounding area.

Aviation activity forecasting generally commences by utilizing the present time as an initial point, supplemented with historical trends obtained from previous year's activity and recorded information. Due to the lack of previous planning documents, this data has evolved from a comprehensive examination of historical airport records from airport personnel, *Colorado Statewide Airport Inventory and Implementation Plan, Technical Summary Report, 2000,* FAA Form 5010-1 data, *FAA Terminal Area Forecasts,* and the *FAA Aviation Forecasts Fiscal Years 2001-2012.* These documents were assembled in different years, making the base year data quite variable, and emphasizing the need for establishing a well-defined and well-documented set of base information from which to project future aviation activity trends.

Prior to an examination of current and future activity levels at the airport, there are several conditions and assumptions that should be noted which form the basis or foundation for the development of the forecasts contained herein. These statements

cover a wide variety of physical, operational and socioeconomic considerations, and although not necessarily in order of importance or priority include:

- **Weather Conditions.** Existing weather data (i.e. visibility, ceiling and wind conditions) for Durango-La Plata County Airport were available for analysis from the National Oceanic and Atmospheric Administration (NOAA). With the exception of very few days annually, the airport is not adversely affected by poor weather conditions. Visual Flight Rules (VFR) meteorological conditions are experienced approximately 96.4% of the time annually; therefore, aircraft can operate at the airport on a regular basis throughout the year, with limited interruption due to weather. The potential negative impact of poor weather conditions on the operational capability of the airport is documented in the following chapter of this document. This information will be analyzed and evaluated in later chapters regarding the identification of potential instrument approach facility enhancements and the preparation of development alternatives for their implementation.

- **Airport/Community Location, Proximity and Role.** Durango-La Plata County Airport is uniquely situated within the San Juan Mountains of Southwestern Colorado, providing jet and commuter access to popular ski destinations such as Durango Mountain, Telluride, and Wolf Creek. Located approximately fourteen (14) miles southeast of Durango, the airport serves a region of the state that accommodates over 1,204,000 summer and winter tourists annually. Vehicular access to the airport is provided by U. S. 160, S. H 172, and existing county roads that link the airport to S.H. 172.

- **Regional Socioeconomic Conditions.** The existing socioeconomic condition of a particular region has historically impacted aviation activity within that area. The two primary socioeconomic indicators, which are often analyzed in the forecast of aviation activity, are population and employment statistics. However, in resort areas the impact of the tourism industry must also be carefully examined with respect to seasonal variations in visitation patterns. According to the Chamber of Commerce, tourism is the primary influencing factor on the regional economy. Therefore, this economic sector has the greatest influence on future aviation activity and air transportation services within the region.

  According to the latest population data prepared by the U.S. Census Bureau, La Plata County population in 2000 totaled 43,941 residents. This service area population group has increased at approximately 3.1% annually since 1990. The year 2021 population projections for La Plata County are expected to reach a total of 66,556, reflecting an average annual growth rate of 1.8%. This

compares to a projected statewide average annual growth rate of approximately 1.6% for the same period. According to the Colorado Department of Local Affairs, employment for La Plata County in 2000 was 23,353. Employment for La Plata County through the year 2021 is projected to increase to 35,148. This equates to an average annual growth rate of 1.9% for the years 2000 through 2021. In addition, as referenced by the Colorado Department of Local Affairs, per capita income in the year 2000 for La Plata County was $25,708 and is expected to increase to $81,000 by the year 2021.

- **Community Support.** Durango-La Plata County Airport benefits from the support of the surrounding cities and county governments, as well as local industry and residents. The airport is recognized as a vital county asset, which contributes to the stability and the future of the area's economy. The overall position of the county is one of continued growth and development, with special focus on the impetus that the airport provides to maintain and attract additional economic and aviation-related development to the region.

  Additionally, many of the surrounding county communities and much of the Southwestern Colorado region benefit from the close proximity of a regional commercial service aviation facility and, in turn, provide an economic base which can attract additional based aircraft, as well as industrial/business development to the airport.

- **Facilities Potential.** Durango-La Plata County Airport currently serves a vital commercial passenger service role to the economy of Southwestern Colorado. From a runway length standpoint (9,201 feet), it is the only airport within the regional service area that can accommodate the operation of air carrier jet aircraft. In addition, the airport can accommodate the operation of large business jet aircraft that are restricted from operating at the region's other general aviation airports.

- **Negative or Neutral Factors.** As a general comment, the airport has very few negative factors and is in an enviable position due to its many positive features and conditions. However, there are some factors that can and do have a negative impact on the airport, and the aviation industry, and these must be considered in the planning process. The first issue is the overall condition of the general aviation industry in the United States. Although the airport is not considered a "general aviation" airport, it does experience a significant number of general aviation operations. Since 1978, the general aviation industry has been in a significant recession, and the FAA has identified several factors that have contributed to this prolonged downturn. These include three economic recessions, two (2) fuel crises,

the enactment of the Airline Deregulation Act of 1978, the repeal of the GI Bill, and the repeal of the investment tax credit.

Other causes of this downturn include the expense of owning and operating an aircraft (i.e., costs of insurance, fuel, and maintenance), competition from commuter airlines in the more open aviation market since airline deregulation, changes in disposable discretionary income, increases in air space restrictions affecting fair-weather flying, reductions in personal leisure time, and shifts in personal preference as to how leisure time is spent. These factors have severely restricted the single-engine light aircraft segment of the industry in particular. In response, the general aviation industry has been focusing more on the business aircraft operator and less on the recreational operator.

The second factor having a negative impact on Durango-La Plata County Airport is commercial service competition to surrounding cities (i.e., Farmington, NM/ Albuquerque, NM). In order to obtain the best fare possible to their destination, a number of individuals currently commute to and depart out of alternate cities (Farmington, NM and Albuquerque, NM). This "passenger leakage" represents a loss of air transportation revenue for the airport, and complicates the effort to accurately predict future operation levels and to appropriately plan for facilities related to passenger and operation levels.

Another negative impact on the airport is the lack of poor radar coverage below a certain altitude for aircraft landing and flying in the vicinity of the airport. This lack of radar provides for a low IFR hourly acceptance rate of landing aircraft. Additionally, airspace surrounding the airport overlaps with airspace surrounding the airport at Farmington, NM.

However, there are a number of bright spots having a positive impact in certain segments of the general aviation industry. They include the passage of the long-awaited General Aviation Revitalization Act of 1994 that provides an eighteen (18) year limit on product liability lawsuits against general aviation aircraft and component manufacturers. As a result of this legislation, there is renewed interest and optimism among U.S. aircraft manufacturers, who are either re-entering the single engine aircraft market after several years' absence, or are increasing future production schedules to meet expected renewed demand. The growth in the amateur-built aircraft market, and the strength of the used aircraft market, indicate that demand for inexpensive personal aircraft is still strong. Increased general aviation instrument operations at FAA towered airports, and general aviation aircraft handled at FAA en route centers point to continued growth of the more sophisticated general aviation users. Additionally, operations at non-towered US airports has increased, supporting the belief held by many that much of general

aviation has been forced out of towered airports because of the increased commercial air carrier activity.

Other efforts to revitalize general aviation include the integration of new technology to general aviation by the FAA and NASA. The FAA is streamlining the certification process for new entry-level aircraft and implementing measures to provide regulatory relief and reduce user costs (i.e., reduced rules, improving the delivery of FAA services by decreasing excess layers of management, and the elimination of unneeded programs and processes). And finally, several groups are sponsoring programs encouraging more people to learn to fly, and to demonstrate the value of general aviation aircraft as an effective business tool.

Historical Airport Activity Summary

A tabulation of Durango-La Plata County Airport's historical aviation activity since 1990 is presented in Table B1, entitled *HISTORICAL AVIATION ACTIVITY, 1990-2002.* This table presents a summary of historic aviation activity at the airport, which includes four categories of aircraft operations, as well as total operations.

Table B1
HISTORICAL AVIATION ACTIVITY, 1990-2002
Durango-La Plata County Airport Master Plan Update

Year	Passenger Enplanements	Air Carrier Operations	Air Taxi Operations	General Aviation Operations	Military Operations	Total Operations
1990 (1)	97,067	0	14,008	40,000	500	54,508
1991 (1)	89,255	0	16,298	39,000	500	55,798
1992 (1)	98,090	0	16,398	39,000	500	55,898
1993 (1)	102,301 (2)	0	16,398	39,000	500	55,898
1994 (1)	92,907 (2)	0	22,152	43,000	600	65,752
1995 (1)	93,271 (2)	708	21,444	36,000	600	58,752
1996 (1)	96,897 (2)	700	12,500	35,000	556	48,756
1997 (1)	101,935 (2)	700	17,459	35,377	556	54,092
1998 (1)	105,544 (2)	700	17,874	35,641	700	54,915
1999 (1)	96,032 (2)	700	17,952	35,910	556	55,118
2000 (3)	90,556 (2)	9,986	2,120	35,000	1,000	48,106
2001 (3)	91,353 (2)	700	18,100	35,725	556	55,081
2002 (3)	102,963 (2)	700	18,175	35,996	556	55,427

Source: (1) FAA APO Terminal Area Forecasts, 1976-2020..
(2) Durango-La Plata County Airport Personnel.
(3) FAA Form OMB 2120-0015, 5010.

As can be seen, total aircraft operations (an operation is defined as either a takeoff or a landing) at Durango-La Plata County Airport has remained relatively flat through the last ten (10) years. Estimated annual counts have ranged from a low of 48,106 operations in 2000 to a high of approximately 65,752 operations in 1994.

- *Passenger Enplanements.* There has been a fluctuation in the number of passenger boarding since 1990. This trend will likely continue unless airlines offer additional service with reasonable fare structures. The additional service and fare structure could alleviate the need of individuals to commute to alternate departing cities, ultimately increasing the number of enplanements.

- *Commercial Service Aircraft Operations.* With the absence of an Airport Traffic Control Tower (ATCT) located on the field and air traffic records (produced by towers), accurate counting measures for air carrier service has been inconsistent during the 1990's. As provided by Durango-La Plata County

personnel, air carrier operations totaled 9,986 for the year 2000, but have declined slightly in recent years. Commercial passenger service is being provided by four (4) airlines – American Airlines, United Express, America West Express, and Rio Grande Airlines.[1] With the exception of American Airlines, commercial service is provided year-round.

- *General Aviation Operations.* General aviation operations are typically more directly tied to economic conditions than commercial passenger operations, and this trend is often reflected in the historical operations data for a particular airport. The amount of general aviation activity at many airports around the country has remained flat or declined since the early 1980's. The data available for Durango-La Plata County Airport illustrates slight fluctuations in general aviation activity since 1990. As economic conditions in the region change in the future, fluctuations in the number of general aviation operations at the airport will likely continue although an increasing trend is expected over the long-term.

- *Air Taxi Operations.* During the past decade the number of air taxi operations has fluctuated significantly, with a high of approximately 22,152 annual operations in 1994 and a low of approximately 2,120 in 2000. As categorized by Air Traffic Control personnel, "Air Taxi" includes those aircraft capable of seating less than 60 passengers, which are being utilized for passenger or air freight service and which use a three letter company designator or the "Tango" designation. For purposes of this study, air taxi operations will be included in the general aviation operations category.

- *Military Operations.* Historically, military aircraft have utilized Durango-La Plata County Airport for training purposes. A majority of the operations are associated with helicopters; however, other aircraft that frequent the airport include C-130's, T-34C, and F-18's. Operations during the year 2000 were 1,000, and are expected to remain the same throughout the planning period.

Passenger Enplanement Forecast

Passenger enplanement forecasts are an important part of the forecasting effort as they form the cornerstone of formulating air carrier and commuter operational projections. However, enplanement forecasting within Southwestern Colorado, and at Durango-La

[1] At the time of this printing, Rio Grande Airlines had discontinued service to Albuquerque, but new service to Albuquerque has been initiated by Air Midwest, a subsidiary of Mesa Air Group Inc.

Plata County Airport in particular, is unique due in part to the types of commercial passenger service, which are provided at the airport.

Historical enplanements at Durango-La Plata County Airport have fluctuated over the past decade. As can be seen from the historical data, the relationship between enplanements and operations has varied somewhat; however, in general, changes in the number of enplanements usually correspond to changes in the number of air carrier and air taxi aircraft operations. The variations in these numbers are often indicative of larger aircraft with greater seating capacity and/or more efficient scheduling. These variations also make the forecasting of enplanements and commercial aircraft operations more challenging.

Another consideration is that the commercial passenger market is expanding much more rapidly than that which would be realized because of population increases. The FAA Aviation Forecast Fiscal Years 2001-2012, published in March 2001, indicates that domestic air carrier passenger enplanements are expected to increase at a 3.6 percent annual rate through the year 2012.

Various passenger enplanement forecast scenarios are presented in the following table entitled, *COMMERCIAL AIRLINE ENPLANEMENTS FORECAST, 2000-2021.* A trend projection, as well as enplanement forecasts presented in the *Colorado Statewide Airport Inventory and Implementation Plan, 2000,* and those developed as part of the FAA's *Terminal Area Forecast* are included for comparison purposes. The Low-, Mid-, and High-Range Forecasts were formulated utilizing specific sets of observations and assumptions.

Low-Range Enplanement Forecast. Through the 1990's, enplanement levels have fluctuated at Durango-La Plata County Airport. The population in La Plata County is expected to grow by an average annual growth rate of 1.7% over the next twenty (20) years. The low-range enplanement forecast is partially based on the number of enplanements growing at a rate similar to the population growth forecast (1.7% per year). In addition, this forecast is reflective of a continuation of the trend that the number of enplanements at Durango-La Plata County Airport is increasing at a slower rate than the rate of increase for enplanements nationally.

Moderate-Range Enplanement Forecast. This forecast scenario is based on the projections contained in the *Colorado Statewide Airport Inventory and Implementation Plan, 2000,* which utilizes an average annual rate of growth for enplanements of 3% for Durango-La Plata County Airport. Using this same rate of growth and applying it to the current enplanement numbers derives a total of 168,461 enplanements by the end of the planning period. This scenario reflects a steady and progressive increase in enplanements at the airport that is contingent upon the continued expansion and

marketing of the year around tourism assets of the region. This scenario also reflects an increase in direct service, winter ski season flights.

High-Range Enplanement Forecast. This forecast scenario is based on the assumption that enplanements at Durango-La Plata County Airport will grow at the same rate as that which is forecast nationally. Strong growth is expected in airline passenger activity throughout the next decade and beyond. The FAA indicates in their forecasts, *FAA Aviation Forecasts Fiscal Years 2001-2012*, that domestic passenger enplanements are expected to increase at an approximate 3.6% average annual rate through the year 2012. In addition, this forecast scenario recognizes the continuing strength of the local and regional economy, and requires both an increase in direct service, winter ski season flights and an increase in the availability of competitive airfares to reduce passenger leakage to neighboring commercial serviced airports. The High-Range forecast utilizes an annual average growth rate of 3.6% as its basis.

Table B2
PASSENGER ENPLANEMENTS FORECAST, 2000-2021
Durango-La Plata County Airport Master Plan Update

Year	Trend	Colorado Statewide Plan, 2000	FAA Terminal Forecasts (1)	Low-Range Enplanement Forecast	Moderate-Range Enplanement Forecast (2)	High-Range Enplanement Forecast
2000	90,556	---	85,738	90,556	90,556	90,556
2001	96,105	---	96,190	92,095	93,273	93,816
2002 (3)	95,811	---	103,161	93,661	96,071	97,193
2003	95,517	105,001	103,336	95,253	98,953	100,692
2004	95,222	---	103,518	96,873	101,922	104,317
2005	94,928	---	103,700	98,519	104,979	108,073
2006	94,633	---	103,882	100,194	108,129	111,963
2008	---	121,570	104,246	103,630	114,714	120,170
2011	93,161	---	104,792	109,005	125,351	133,621
2016	91,689	---	105,702	118,591	145,316	159,468
2018	---	157,899	106,066	122,658	154,166	171,156
2021	90,217	---	---	129,020	168,461	190,315

Source: Barnard Dunkelberg & Company.
(1) FAA APO Terminal Area Forecasts, 1976-2020.
(2) Selected Forecast.
(3) The Airport recorded a total of 102,963 enplanements for the 2002 calendar year.

Use of Various Forecasts

The recommended/selected forecast is the *Moderate-Range Enplanement Forecast.* These projections were submitted for FAA approval, approved, and will be utilized throughout the remainder of this Master Plan as the basis for facility needs documentation. However, the low-range forecast and the high-range also have value that is recognized. Under almost any set of circumstances, the low-range forecast is expected to represent the minimum passenger growth rate anticipated at the Durango-La Plata County Airport. In other words, at a minimum passenger enplanements should grow at the same rate anticipated for population growth. The high forecast is expected to represent the maximum passenger growth that can reasonably be expected at the airport.

The high and low forecast numbers can be utilized to help test Master Plan recommendations for feasibility and flexibility. For example, the low end forecast is often utilized to test for financial feasibility. The question, "If activity is lower than anticipated, can the development plan be funded?", can only be answered if low-end forecast numbers are known. The high forecast numbers are required to answer the question, "will programmed facilities be adequate in capacity if aviation activity grows at the maximum reasonably anticipated rate?"

Commercial Service Operations Forecast

Durango-La Plata County Airport's is represented by a combination of narrow-body and commuter regional jet aircraft, including a variety of turboprop aircraft. Seasonal air carrier and commuter jet service has typically been offered between Thanksgiving and early April, with turboprop service being provided throughout the year. Three (3) different carriers currently provide between 9 and 11 daily flights during the week, depending on the season. The regional commuter service is provided by United Express, operating the Brasilia and Dash-8 turboprop aircraft, America West Express, utilizing both, the Canadair CRJ-200 regional jet and the Dash-8 aircraft, and Air Midwest, operating Beechcraft 1900 turbo-props. The following table, entitled *AIR CARRIER AND COMMUTER AIRLINE OPERATORS, 2000* provides detailed information on the existing air carrier and commuter carriers that were serving Durango-La Plata County Airport in 2002. Additionally, Durango Mountain Resort continues to investigate supplemental air carrier passenger service options to increase year round service to the Durango-La Plata region. This service would likely be accommodated by various types of aircraft ranging from regional jets to narrow-body jets.

Table B3
AIR CARRIER AND COMMUTER AIRLINE OPERATORS, 2002
Durango-La Plata County Airport Master Plan Update

Airline	Aircraft Type	Seating Capacity	City/ Destination	Stage Length (Nautical Miles)
Air Carrier/ Commuter Jets				
American	MD-80 (1)	140	Dallas, TX	600 NM
America West Express	CRJ-200	50	Phoenix, AZ	305 NM
Continental Express	ERJ-145	50	Houston, TX	755 NM
Commuter/ Turboprops				
America West Express	Dash 8	37	Phoenix, AZ	305 NM
United Express	Dornier 328	30	Denver, CO	220 NM
United Express	Dash 8	37	Denver, CO	220 NM
Air Midwest	Beechcraft 1900	19	Albuquerque, NM	130 NM
Rio Grande Air (2)	Cessna Caravan	9	Albuquerque, NM	130 NM

Source: Airport management records.
Some aircraft have weight restrictions that may decrease the total number of passengers departing Durango.
(1) At the time of this printing, American Airlines was operating this flight with the Embraer 145 Regional Jet.
(2) At the time of this printing, Rio Grande Air had ceased operations at Durango, with new service to Albuquerque being provided by Air Midwest.

Operations. The establishment of projected passenger enplanements, in addition to identifying fleet mix, is required to properly project commercial service operations. The Boarding Load Factor (BLF) of the airlines serving an airport is one method of determining the forecast of commercial service operations. The BLF is the ratio of seats available for passenger boarding on a particular aircraft to the number of passengers actually boarding (for example, if an aircraft has fifty seats available and twenty-five passengers board, the BLF is 50%). According to 2001 FAA estimates, average load factors of approximately 69.3% are presently being achieved by the air carrier industry, which compares to 57.6% for the regional commuter carriers. The following table presents the commercial service operational forecasts, as well as enplanements, average seats per departure and the projected BLFs. Due to the inability to know exactly what size and types of aircraft airlines

might utilize in the future to satisfy demand, a range of aircraft sizes, with variable seating arrangements have been assumed. Additionally, due to the altitude and warm temperatures during the summer season, some aircraft may be precluded from operating at the airport on a regular basis. As can be seen in the forecast table, it is projected that a combination of additional flights and larger seating capacity aircraft will be utilized to accommodate additional passenger demand.

Table B4
COMMERCIAL SERVICE OPERATIONS FORECAST, 2000-2021
Durango-La Plata County Airport Master Plan Update

	Seats	2000 (1)	2006	2011	2016	2021
Narrow Body Jet (2)	124-180	246	350	600	600	600
Regional Jets (3)	37-86	2,190	2,190	2,190	2,190	2,190
Turboprops	9-37	7,550	7,390	7,590	8,520	8,720
Total		9,986	9,930	10,380	11,310	11,510
Average Seats per Departure		33.45	37.54	38.84	38.56	40.70
Enplanements		90,556	108,129	125,351	145,316	168,461
Boarding Load Factor (BLF)		54.2%	58.0%	62.2%	66.6%	71.9%

Source: Barnard Dunkelberg & Company.
(1) Actual
(2) At the time of this printing, there are no commercial service narrow body jet operations being conducted at the airport, but these aircraft are likely to be reintroduced throughout the planning period.
(3) Operations conducted by the CRJ-200, ERJ 145, BAe 146, and or Avro RJ85 aircraft.

General Aviation Operations Forecast

In past years, general aviation activity throughout the country has been constrained by annual increases in aircraft ownership costs. These increases, which resulted from escalating product liability insurance expenses imposed upon general aviation aircraft manufacturers, reduced new general aviation aircraft shipments by approximately ninety-

five percent (95.5%) between 1979 and 1993. However, the product liability reforms contained in the General Aviation Revitalization Act of 1994 established an eighteen (18) year limit on product liability lawsuits against general aviation aircraft and component manufactures (for aircraft of 20 seats or less). The product liability reforms contained in this act have been slowly increasing the availability of new affordable aircraft, as well as reducing the ownership and operation costs of existing aircraft. According to data presented by the General Aviation Manufacturers Association (GAMA), industry billings for the first three quarters of 2000 were at all time highs, increasing 10.4% over 1999 figures. Aircraft shipments were also up 16.3% for the first three quarters to 2,000 aircraft. Durango-La Plata County Airport primarily accommodates the existing general aviation activity within La Plata County and the Four Corners Region, which includes Southwestern Colorado, Northwestern New Mexico, Southeastern Utah, and Northeastern Arizona. Durango-La Plata County Airport, located approximately fourteen (14) miles southeast of Durango, is a designated primary commercial service airport. Large business jet aircraft are not severely restricted and/or prohibited from operating at Durango-La Plata County Airport.

In 2000, approximately 37,120 general aviation operations were conducted at the airport, which includes an estimated 2,120 general aviation air taxi operations. Year-to-year variations in activity levels closely correlate with fluctuations in snowfall and ski traffic to the resorts. The estimated business/tourist-related use of the airport (i.e., the itinerant portion of general aviation activity) is estimated at near 37% for 2000.

In developing the general aviation activity projections, several existing general aviation forecasts were reviewed. As presented in the following table, entitled *GENERAL AVIATION OPERATIONS FORECAST, 2000-2021* this assessment has included an evaluation as presented by the *Colorado Statewide Airport Inventory and Implementation Plan, 2000* and the FAA's *Terminal Area Forecasts.* In addition, three sets of forecasts (i.e., Low, Moderate, and High) were developed to address varying levels of growth within the sector. The "Low" forecasts reflect the national average annual growth rate of 0.9%, at both FAA and contract towered airports, through the year 2012, as presented in the *FAA Aviation Forecasts Fiscal Years, 2001-2012.* The "Moderate" forecast reflect the average annual growth rate of 1.7%, which corresponds to the average annual population growth rate for La Plata County and is the recommended/selected forecast. The "High" forecast applies the average annual growth rate for turbine aircraft of 3.0%.

Table B5
GENERAL AVIATION OPERATIONS FORECAST, 2000-2021
Durango-La Plata County Airport Master Plan Update

Year	Trend	Colorado Statewide Plan, 2000	FAA Terminal Area Forecasts (1)	Low-Range Forecast	Moderate-Range Forecast (2)	High-Range Forecast
2000	37,120	---	36,179	37,120	37,120	37,120
2001	34,891	---	36,449	37,454	35,595	36,050
2002	34,417	---	36,719	37,791	36,200	37,132
2003	33,944	40,200	36,989	38,131	36,816	38,245
2004	33,470	---	37,259	38,474	37,441	39,393
2005	32,997	---	37,529	38,821	38,078	40,575
2006	32,523	---	37,799	39,170	38,725	41,792
2008	---	43,093	---	---	---	---
2011	30,156	---	39,150	40,965	44,683	51,383
2016	27,789	---	---	42,842	48,612	59,567
2018	---	38,081	---	---	---	---
2021	25,421	---	---	44,805	52,887	69,054

Source: Barnard Dunkelberg & Company.
(1) FAA APO Terminal Area Forecasts, 1985-2015.
(2) Selected Forecast.

Military Operations Forecast

There are generally three components in determining military aircraft use at an airport. The first is Department of Defense (DOD) funding, which has been declining in recent years. The second is a fueling contract the airport or FBO may have with the DOD. The third is the location, or proximity of the airport with adjacent aviation-related military bases or training areas. Currently, Durango-La Plata County Airport is home to a branch of the U.S. Forest Service, which utilizes C-130 tankers for forest fire uses. The FBO at Durango-La Plata County Airport does not have a fueling contract with the DOD and none is anticipated in the future. Therefore, military operations are projected to remain relatively low over the 20-year planning period of this document.

Table B6
MILITARY OPERATIONS FORECAST, 2000-2021
Durango-La Plata County Airport Master Plan Update

Year	Colorado Colorado Plan, 2000	FAA Terminal Area Forecast [2]	Selected Forecast
2000 [1]	---	556	1,000
2003	1,000	556	1,000
2006	---	556	1,000
2008	1,000	556	---
2011	---	556	1,000
2016	---	556	1,000
2018	1,000	556	---
2021	---	---	1,000

Source: Barnard Dunkelberg & Company.
[1] Actual
[2] FAA APO Terminal Area Forecasts, 1976-2020..

Operations Forecast By Aircraft Type

As can be noted, total annual operations are anticipated to increase by 35% through the planning period. Overall, operations are expected to increase from the current level of 45,986 to approximately 62,376 by the year 2021. This is similar to what has been projected by the *Colorado Statewide Airport Inventory and Implementation Plan, 2000* with 62,102 operations by the year 2018. It is projected that general aviation aircraft operations will continue to represent the majority percentage of airport activity through the planning period, totaling near 80% by the year 2021.

Table B7
SUMMARY OF OPERATIONS BY AIRCRAFT TYPE, 2000-2021
Durango-La Plata County Airport Master Plan Update

Operations By Type	2000 (1)	2006	2011	2016	2021
Commercial Service (2)	*9,986*	*9,930*	*10,380*	*11,310*	*11,510*
Air Carrier	246	350	600	600	600
Regional Jet	2,190	2,190	2,190	2,190	2,190
Turboprop	7,550	7,390	7,590	8,520	8,720
General Aviation (3)	37,120	*41,071*	*44,683*	*48,612*	*52,887*
Single Engine Piston	20,861	22,790	24,580	26,490	28,560
Multi-Engine Piston	9,280	10,060	10,720	11,420	12,160
Turboprop	4,640	5,340	6,030	6,810	7,670
Business Jet	2,339	2,870	3,350	3,890	4,500
Military	*1,000*	*1,000*	*1,000*	*1,000*	*1,000*
Various Aircraft	1,000	1,000	1,000	1,000	1,000
TOTAL OPERATIONS	48,106	52,001	56,063	60,922	65,397

Source: Barnard Dunkelberg & Company.
(1) Actual.
(2) At the time of this printing, there are no commercial service narrow body jet operations being conducted at the airport, but these aircraft are likely to be reintroduced throughout the planning period.
(3) Includes general aviation-related air taxi operations.

The airport currently experiences a large number of single- and multi-engine operations, approximately 81.2%, when compared with turbo-prop and business jet, approximately 18.8%, operations. Currently, operations conducted by single engine aircraft represent approximately 56% of the general aviation activity, while approximately 25% are multi-engine piston operations, 12.5% are turboprop operations, and 6.5% are business jet operations. It is estimated that through the planning period, the distribution percentage of operations for single- and multi-engine aircraft will decrease, while the distribution percentage of turboprop and business jet aircraft will increase.

Local and Itinerant Operations Forecast

The *Air Traffic Control Handbook* defines a local operation as any operation performed by an aircraft operating in the local traffic pattern or within sight of the tower, or aircraft

known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport. According to current FAA Form 5010-1 records, itinerant operations constituted 52% of the total operations at the airport. This existing percentage of itinerant activity can be attributed to the fact that, with respect to general aviation, the airport accommodates a significant number of business and tourist-related aircraft operations and currently experiences a limited amount of general aviation flight training activity.

It is forecast that the level of itinerant aviation activity will likely remain high. As can be seen in the following table, entitled *SUMMARY OF LOCAL AND ITINERANT OPERATIONS, 2000-2021,* Durango-La Plata County Airport will remain primarily a center for leisure and business related general aviation operations with the percentage of itinerant operational activity increasing only slightly, to 60%, through the planning period.

Table B8
SUMMARY OF LOCAL AND ITINERANT OPERATIONS, 2000-2021
Durango-La Plata County Airport Master Plan Update

Year	Local Operations	Itinerant Operations	Total Operations
2000 (1)	23,091 (48%)	25,015 (52%)	48,106
2006	23,920 (46%)	28,080 (54%)	52,001
2011	24,668 (44%)	31,395 (56%)	56,063
2016	25,587 (42%)	35,335 (58%)	60,922
2021	26,159 (40%)	39,238 (60%)	65,397

Source: Barnard Dunkelberg & Company.
(1) The existing local/itinerant operations breakdown was obtained from FAA Form 5010-1.

Peak Period Forecast

An additional element of assessing airport usage and determining various requirements necessitated by capacity and demand considerations is the determination of peak period activities. Although specific operational data for Durango-La Plata County Airport was unavailable to project peak period trends, some flying activity information was available to compare with generalized FAA operational statistics for airports with similar activity and peaking characteristics. This information was then utilized to formulate peak period forecasts. The peak period operation projections are depicted in the following table, entitled *PEAK PERIOD AIRCRAFT OPERATIONS, 2000-2021.*

Table B9
PEAK PERIOD AIRCRAFT OPERATIONS, 2000-2021
Durango-La Plata County Airport Master Plan Update

Year	Annual	Peak Month	Average Day of Peak Month	Peak Hour/ Average Day Ratio	Average Peak Hour
2000	48,106	4,811	155	9.0%	14
2006	52,001	5,200	168	9.0%	15
2011	56,063	5,606	181	9.0%	16
2016	60,922	6,092	197	9.0%	18
2021	65,397	6,540	211	9.0%	19

Source: Barnard Dunkelberg & Company.
Operation counts were tabulated based on methodology from FAA AC 150/5070-6A *Airport Master Plans* and FAA AC 150/5060-5 *Airport Capacity and Delay.*

General Aviation Based Aircraft Forecast

The number of general aviation aircraft, which can be expected to base at an airport facility, is dependent on several factors, such as airport radio communications, available facilities, airport operator services, airport proximity and access, aircraft basing capacity available at adjacent airports and similar considerations. General aviation operators are particularly sensitive to both the quality and location of their basing facilities, with proximity of home and work often being identified as the primary consideration in the selection of an aircraft basing location. Durango-La Plata County Airport will likely continue to be attractive to single and twin aircraft owners due to the airport's proximity to the larger population base and adjacent ski area. However, the airport is well suited to accommodate the basing requirements of the larger corporate and business jet aircraft fleet. The airport currently has fifty-three based aircraft, thirty-eight are stored in hangars and fifteen are stored on the general aviation apron. Based aircraft currently consist of forty (40) single engine, ten (10) multi-engine, one (1) turboprop, and two (2) business jets (i.e., the IAI Westwind and Cessna Citation III). According to airport personnel, there is an active waiting list of aircraft owners who desire to base their aircraft at the airport. It should also be noted that much of the existing demand for the basing business jet aircraft at Durango-La Plata County is seasonal and concentrated during either the winter or summer months of the year.

Generally, there is a relationship between aviation activity and based aircraft, stated in terms of operations per based aircraft (OPBA). Sometimes a trend can be established from historical information of operations and based aircraft. The national trend has been changing with more aircraft being used for business purposes and less for pleasure

flying. This impacts the OPBA in that business aircraft are usually flown more often than pleasure aircraft. In 2000, the OPBA at Durango-La Plata County Airport was approximately 673, below the average OPBA of 758 for the past ten years. It is expected that the number of operations per based aircraft will increase at the airport as more aircraft based there are used for business purposes. The following table, entitled *GENERAL AVIATION BASED AIRCRAFT, 2000-2021* presents the forecasts for the twenty-year planning period. Both historical and forecast data on based aircraft at Durango-La Plata County Airport was collected from FAA Terminal Area Forecasts.

Table B10
GENERAL AVIATION BASED AIRCRAFT FORECAST, 2000-2021
Durango-La Plata County Airport Master Plan Update

Year	TAF (1)	Selected Forecast
1990	38	---
1991	46	---
1992	46	---
1993	46	---
1994	54	---
1995	60	---
1996	57	---
1997	55	---
1998	55	---
1999	55	---
2000	---	53(2)
2001	---	54
2002	---	54
2003	---	55
2004	---	56
2005	---	57
2006	---	58
2011	---	65
2016	---	75
2021	---	82

Sources: Barnard Dunkelberg & Company.
(1) FAA APO Terminal Area Forecasts, 1985-2015.
(2) Durango-La Plata County Airport Personnel.

The mix of based aircraft for incremental periods throughout the planning period is illustrated in the following table, entitled *GENERAL AVIATION BASED AIRCRAFT FLEET MIX, 2000-2021*. With an existing high percentage of single engine aircraft based at the airport, the percentage of turboprop and business jet aircraft are expected to increase as a part of the total based aircraft population. This is in line, first of all, with overall trends in general aviation, but even more importantly, parallels the economic development and growth expectations and projections characteristic of the region. By the end of the planning period, single engine aircraft are anticipated to comprise 73% of the total based aircraft at the airport, with approximately 16% being multi-engine piston aircraft, 5% turboprops, and 6% being business jets.

Table B11
GENERAL AVIATION BASED AIRCRAFT FLEET MIX, 2000-2021
Durango-La Plata County Airport Master Plan Update

Aircraft Type	2000 (1)	2006	2011	2016	2026
Single Engine	40 (75.0%)	43 (74%)	47 (73%)	54 (72.5%)	59 (72.5%)
Multi-Engine	10 (19.2%)	10 (18%)	11 (17.5%)	13 (17%)	14 (16.5%)
Turboprop	1 (1.9%)	2 (3.5%)	3 (4%)	4 (5%)	4 (5%)
Business Jet	2 (3.8%)	3 (4.5%)	4 (5.5%)	4 (5.5%)	5 (6%)
TOTAL	53	58	65	75	82

Source: Barnard Dunkelberg & Company.
(1) Actual

Airport Reference Code (ARC) Analysis

The types of aircraft presently utilizing an airport and those projected to utilize the facility in the future are important considerations for planning airport facilities. An airport should be designed in accordance with the Airport Reference Code (ARC) standards that are described in AC 150/5300-13 "Airport Design". The ARC is a coding system used to relate and compare airport design criteria to the operational and physical characteristics of the aircraft intended to operate at the airport. The ARC has two components that relate to the airport's "Design Aircraft". The first component, depicted by a letter (i.e., A, B, C, D or E), is the aircraft approach category and relates to aircraft approach speed based upon operational characteristics. The second component, depicted by a roman numeral (i.e., I, II, III, IV, V or VI), is the aircraft design group and relates to aircraft wingspan (physical characteristic). Generally speaking, aircraft approach speed applies to runways and runway-related facilities, while aircraft wingspan is primarily related to separation criteria associated with taxiways and taxilanes. The

following table, entitled *SUMMARY OF OPERATIONS BY AIRPORT REFERENCE CODE, 2000-2021,* presents an estimated operations breakdown at the airport, by ARC, for the twenty-year planning period. Based on an examination of the current operation information, it has been determined that the appropriate ARC for Durango-La Plata County Airport is D-IV. This designation is based on a combination of the Canadair Regional Jet (CRJ-200) and the Lockheed 100-200/300 Hercules aircraft.

Table B12
SUMMARY OF OPERATIONS BY AIRPORT REFERENCE CODE, 2000-2021
Durango-La Plata County Airport Master Plan Update

Operations by ARC	2000	2006	2011	2016	2021
A-I through B-I	30,788	33,281	35,880	38,990	41,854
A-III, B-III and C-I through C-IV	14,913	16,120	17,379	18,886	20,273
D-I and D-IV (1)	2,405	2,600	2,803	3,046	3,270
TOTAL	48,106	52,001	56,063	60,922	65,397

Source: Barnard Dunkelberg & Company.
(1) Indicative of large Business Jet aircraft (Gulfstream II/IV, Gates Learjet 35A/36A) and Forest Service C-130 air tankers.

Summary

The following tables summarize the forecasts of aviation activity, which has been presented in this chapter. This information will be utilized in the following chapter to document and analyze both airside and landside facility requirements. Therefore, the forecasts of aviation activity are an important part of the information base, which will be used to develop future plans for the airport and formulate implementation decisions relating to airport development.

Overall, total aircraft operations at Durango-La Plata County Airport are anticipated to increase over the course of the twenty-year planning period.

Table B13
SUMMARY OF AVIATION ACTIVITY FORECASTS, 2000-2021
Durango-La Plata County Airport Master Plan Update

Operations	2000 (1)	2006	2011	2016	2021
Commercial Service	*9,986*	*9,930*	*10,380*	*11,310*	*11,510*
Air Carrier	246	350	600	600	600
Regional Jet	2,190	2,190	2,190	2,190	2,190 (2)
Turboprop	7,550	7,390	7,590	8,520	8,720 (2)
General Aviation	*37,120*	41,071	44,683	48,612	52,887
Single Engine	20,861	22,790	24,580	26,490	28,560
Multi-Engine	9,280	10,060	10,720	11,420	12,160
Turboprop	4,640	5,340	6,030	6,810	7,670
Business Jet	2,339	2,870	3,350	3,890	4,500
Military	*1,000*	*1,000*	*1,000*	*1,000*	*1,000*
Various Aircraft	*1,000*	1,000	1,000	1,000	1,000
TOTAL OPERATIONS	48,106	52,001	56,063	60,922	65,397
Local Operations	23,091	23,920	24,668	25,587	26,159
Itinerant Operations	25,015	28,080	31,395	35,335	39,238
Passenger Enplanements	90,556	108,129	125,351	145,316	168,461
Based Aircraft By Type					
Single Engine	40	43	47	54	59
Multi-Engine	10	10	11	13	14
Turboprop	1	2	3	4	4
Business Jet	2	3	4	4	5
Total	53	58	65	75	82

Source: Barnard Dunkelberg & Company.
(1) Actual.
(2) Since the preparation of these forecasts, many changes have occurred within the commercial passenger airline industry that will affect the aircraft fleet operated by commuter carriers. Due to these changes it is anticipated that the percentage of regional jet operations will increase to a more equivalent breakdown with that of turboprop operations during the latter years of the planning period.

Table B14
SUMMARY OF AVIATION ACTIVITY FORECASTS, 2000-2021 (FAA FORMAT)
Durango-La Plata County Airport Master Plan Update

Passenger Enplanements	**2000** [1]	**2006**	**2011**	**2016**	**2021**
Air Carrier/Commuter	90,556	108,129	125,351	145,316	168,461
Total Enplanements	90,556	108,129	125,351	145,316	168,461
Aircraft Operations					
ITINERANT OPERATIONS					
Air Carrier	246	350	600	600	600
Air Taxi/Commuter	9,740	9,580	9,780	10,710	10,910
General Aviation	13,734	16,839	20,107	22,848	26,443
Military	1,000	1,000	1,000	1,000	1,000
TOTAL ITINERANT OPERATIONS	23,913	26,814	29,966	33,725	37,425
LOCAL OPERATIONS					
General Aviation	23,385	24,231	24,576	25,764	26,444
TOTAL LOCAL OPERATIONS	23,385	24,231	24,576	25,764	26,444
TOTAL OPERATIONS	48,106	52,001	56,063	60,922	65,397

Source: Barnard Dunkelberg & Company.
[1] Actual.