

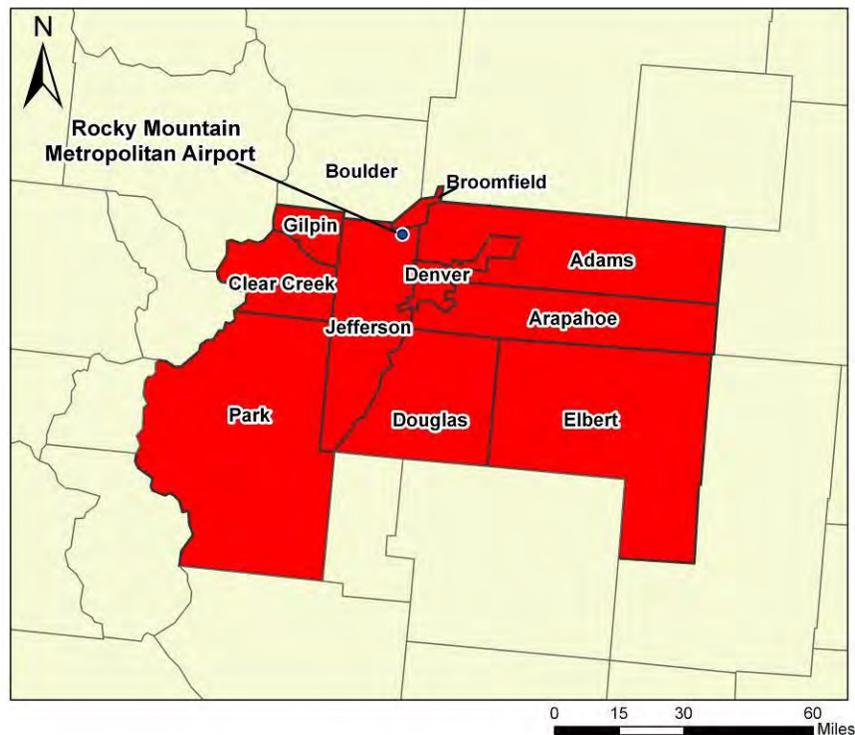
4 CHAPTER 4 AFFECTED ENVIRONMENT

The information in this Chapter is intended to provide general contextual information about the Rocky Mountain Metropolitan Airport (Airport) environment. **Chapter 5, *Environmental Consequences***, provides a detailed description of the effect the Airport presently has on the Airport Study Area, as well as the likely effects associated with the implementation of the Proposed Action.

4.1 AIRPORT LOCATION AND STUDY AREA

The Airport is approximately nine miles northwest of the City and County of Denver, situated among the borders of Jefferson County, the City and County of Broomfield, and Boulder County. The Airport is located in the northeast corner of unincorporated Jefferson County in the Denver-Aurora-Broomfield Metropolitan Statistical Area (MSA), which is shown in **Figure 4-1**. The Airport is accessible via US Hwy 36, the main transportation corridor from Denver to Boulder, then subsequently via State Highway 121 or State Highway 128. A map of the Airport location relative to County boundaries and County and State roadways is shown in **Figure 2-1**.

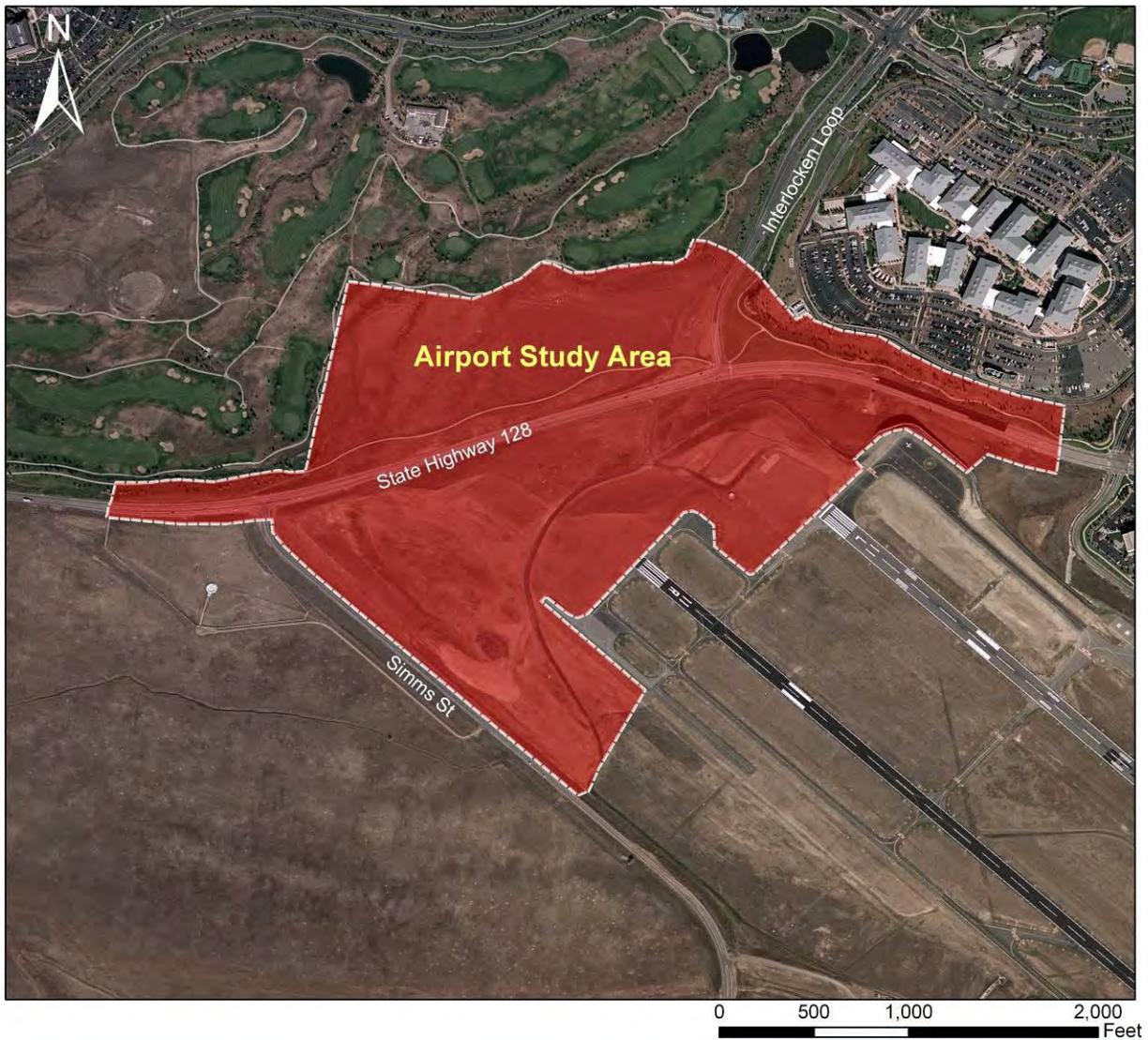
Figure 4-1
DENVER-AURORA-BROOMFIELD METROPOLITAN STATISTICAL AREA



SOURCE: US Census Bureau, 2010
PREPARED BY: RS&H, 2010

The Airport Study Area includes all on-Airport areas and those portions in the immediate vicinity of the Airport that could be directly or indirectly affected by the implementation of the Proposed Action or the No Action Alternative. The Proposed Action includes areas in both Jefferson County and the City and County of Broomfield. **Figure 4-2** is an aerial photograph indicating the boundaries of Airport Study Area.

Figure 4-2
AIRPORT STUDY AREA



SOURCE: Rocky Mountain Metropolitan Airport, 2010
PREPARED BY: RS&H, 2010

4.2 LAND USE AND ZONING

Land use and zoning dictate how both private and public entities are allowed to modify, regulate, or manage actions on land. The predominant land uses within the Airport Study Area are either Employment or Public/Community Facility as defined by City and County of Broomfield. The remainder of the Airport Study Area is designated as Commercial land use by Jefferson County. The Airport Study Area is zoned by Jefferson County as Planned Development while the City and County of Broomfield zones the Airport Study Area into three portions: General Aviation District, General Industrial District, and Planned Unit Development District.

In **Chapter 5, *Environmental Consequences, Section 5.3, Compatible Land Use***, provides a complete description of land uses and zoning designations within the Airport Study Area and the immediate vicinity. In addition, **Figure 5-1** and **Figure 5-2** graphically depict these land use and zoning designations. **Section 5.4, *Department of Transportation Act: Section 4(f) Lands***, provides a description of parks, recreation areas, open space, and historic sites, and wildlife and waterfowl refuges in the Airport Study Area.

4.3 DEMOGRAPHICS AND SOCIAL PROFILE

Demographics characterize human population based on profiles such as population, race, income, and home values. In order to properly distinguish the demographics of the Airport Study Area, which is in multiple jurisdictions, data was aggregated from Jefferson County, the City and County of Broomfield, and Boulder County.

4.3.1 Population

Population includes the total number of inhabitants within a given area. The State of Colorado, in addition to Jefferson County, the City and County of Broomfield and Boulder County, experienced significant growth since 1990. Population data at the County level provides an indication of historical growth trends for those Counties nearest the Airport. While the City and County of Broomfield experienced the largest percentage increase from 2000 to 2009, it is also the youngest County in Colorado and there is no directly comparable population data available prior to 2000.¹ See **Table 4-1** for the historic and estimated population totals.

Table 4-1
HISTORIC AND ESTIMATED POPULATION TOTALS

Area	1990	2000	2009	Growth (1990-2009)
State of Colorado	3,307,618	4,327,788	5,024,748	52%
Jefferson County	440,014	526,440	536,922	22%
City and County of Broomfield	N/A	39,558	55,990	N/A
Boulder County	226,374	271,651	303,482	34%

SOURCE: US Census Bureau, 2010
PREPARED BY: RS&H, 2010

¹ City and County of Broomfield, *Broomfield's History*, available at: <http://www.broomfield.org/history/>. Accessed March 11, 2011.

Racial and ethnic makeup play an important role in the region’s social profile. According to the U.S. Census Bureau, over 90 percent of the total population in Jefferson County, the City and County of Broomfield, and Boulder County are comprised of people of white ethnic decent. The largest minority race group for these Counties includes Asian/Pacific Islander/Native Hawaiian.² **Table 4-2** includes the breakdown of ethnicity according to 2009 statistics.

Table 4-2
DEMOGRAPHIC AND SOCIOECONOMIC DATA BY COUNTY

	City and County of		
	Jefferson County	Broomfield	Boulder County
Demographic Data			
Total Residents (2009 estimate)	536,922	55,990	303,482
Percent Change (2000-2009)	2.2%	42.9%	12.5%
Percent by Ethnicity Group (2009)			
Caucasian	92.7%	90.9%	92.5%
African-American	1.6%	1.4%	1.2%
Asian/Pacific Islander/Native Hawaiian	2.9%	5.2%	3.8%
American Indian/Alaska Native	1.0%	0.7%	0.8%
Reporting Two or More Races	1.8%	1.8%	1.7%
Socioeconomic Data			
Median Household Income (2008)	\$66,627	\$77,855	\$66,760
Persons Below Poverty Level (2008)	7.6%	5.0%	10.3%

SOURCE: US Department of Commerce, *Bureau of Census: State and County Quickfacts*. Last Revised July 1, 2009, <http://quickfacts.census.gov/qfd>. Accessed October 5, 2010.
PREPARED BY: RS&H, 2010

4.3.2 Employment

The unemployment rate, which represents a condition in which those individuals seeking jobs remain unhired, is used as the basic measurement for the economic health and strength of a given area regarding employment. Since unemployment rates are key indicators of the current economic conditions, unemployment rates for Jefferson County, City and County of Broomfield, and Boulder County were obtained and benchmarked against the State of Colorado. Both the State and the Counties followed the same unemployment rate trends as depicted by the historical unemployment rates collected by the U.S. Bureau of Labor Statistics found in **Table 4-3**.

² U.S. Census Bureau, *2006-2008 American Community Survey 3-Year Estimates*, available at: http://factfinder.census.gov/servlet/ACSSAFFacts?_event=Search&geo_id=01000US&geoContext=&street=&_county=broomfield&_cityTown=broomfield&state=04000US08&zip=&lang=en&sse=on&ActiveGeoDiv=geoSelect&useEV=&pctxt=fph&pgsl=010&submenuId=factsheet_1&ds_name=ACS_2008_3YR_SAFF&ci_nbr=null&q_r_name=null®=null%3Anull&keyword=&industry=. Accessed June 28, 2010.

Table 4-3
UNEMPLOYMENT RATE

Area	1990	2000	2008	Average 1990-2008
State of Colorado	5.9%	2.9%	4.6%	4.5%
Jefferson County	4.2%	2.5%	4.4%	3.7%
City and County of Broomfield	4.1%	2.5%	4.2%	3.6%
Boulder County	5.3%	2.6%	4.0%	4.0%

SOURCE: US Bureau of Labor Statistics, 2010
PREPARED BY: RS&H, 2010

In order to properly evaluate the employment outlook for the Airport and its vicinity, the Denver-Aurora-Broomfield MSA was chosen as the most comprehensive political boundary most representative of the Airport Study Area. The Denver-Aurora-Broomfield MSA economy has growing sectors in both renewable energy and healthcare. While the top seven employers in Metro Denver are government related, there are a number of healthcare and technology-based firms that employ Denver Metropolitan's private sector workforce. **Table 4-4** lists the top 10 largest employers including both public and private sector employers.

Despite the short-term plateau in housing, employment, and exports, economists from the Metro Denver Economic Development Corporation predict that the Denver Metropolitan area is geared for long-term growth given the stable housing market and future job growth.³

Table 4-4
TOP 10 LARGEST EMPLOYERS

Company	Employees
U.S. Government	37,302
State of Colorado	33,700
University of Colorado System	14,790
City & County of Denver	13,000
Jefferson County Public Schools	12,840
Denver Public Schools	12,580
HealthONE Corporation	9,340
Qwest Communications	7,700
Lockheed Martin Corporation	7,700
Exempla Healthcare	7,530

SOURCE: Metro Denver Economic Development Corporation, 2010
PREPARED BY: RS&H, 2010

The area of employment closest to the Proposed Action includes businesses within the City and County of Broomfield. The City and County of Broomfield has a diversified employment base which includes manufacturing, services, retail and wholesale trade, and construction. A majority of the employment in the City and County of Broomfield is centered around the Interlocken

³ Metro Denver Economic Development Council, *Economic Forecast*, available at: <http://www.metrodenver.org/metro-denver-economy/forecasts> . Accessed March 11, 2011.

Advanced Technology Environment, which is adjacent to the north of the Airport. High tech jobs near the Airport Study Area account for over half the jobs in the City and County of Broomfield. IBM, Ball Corporation, Level 3 Communication, Oracle, and Covidien are ranked as the Broomfield's top five largest private sector employers according to the Broomfield Economic Development Corporation.⁴

4.3.3 Income

Per Capita Income (PCI) is defined by the annual, monetary income received by an individual. This amount is the result of an average among population totals. Economists use this particular standard of measurement because it is useful in comparing a region's wealth at all geographic levels such as city, county, and state. Due to the Airport's vicinity relative to neighboring counties, data was collected for Jefferson County, the City and County of Broomfield, and Boulder County. No data is available for 1990 and 2000 for Broomfield, because it was not yet established as a County.

Jefferson County and Boulder County's PCI values have risen by 100 percent and 133 percent, respectively. **Table 4-5** presents historical income in 1990, 2000, and 2008 for the US, State of Colorado, Jefferson County, the City and County of Broomfield, and Boulder County.

Table 4-5
PERSONAL PER CAPITA INCOME

Area	1990	2000	2008
US	\$19,354	\$30,318	\$39,392
State of Colorado	\$19,377	\$33,977	\$42,449
Jefferson County	\$21,247	\$38,241	\$42,449
City and County of Broomfield	N/A	N/A	\$35,781
Boulder County	\$22,072	\$40,309	\$51,388

SOURCE: US Bureau of Economic Analysis, 2010
PREPARED BY: RS&H, 2010

4.4 PHYSICAL AND NATURAL ENVIRONMENT

Aside from the economic and social characteristics of the region, it is important to assess the geographical and physical conditions of the Airport. Data from the Denver Metropolitan Area was obtained to describe the geography and climate of the Airport Study Area.

4.4.1 Geography

Geography describes the natural features of the earth that may relate to topography, elevation, and vegetation of the Airport Study Area. The Airport is situated on the eastern edge of the Rocky Mountains just west of the high plains.

⁴ Broomfield Economic Development Corporation, *Employers*, available at: <http://broomfieldedc.com/economic-profile/employers/>. Accessed June 29, 2010.

The high plains of Colorado slope gently upward from elevation of 3,350 feet to an elevation of 6,500 feet at the base of the foothills of the eastern slope of the Rocky Mountains. This geographic area extending 200 miles west from the Colorado and Kansas border includes rolling prairies and farms broken by hills and bluffs.⁵ The high plains of Colorado are dominated by short plant species and semi-desert shrublands until reaching elevations of 7,000 feet. The Airport exists near foothills of the Rocky Mountains at the western edge of the eastern plains, and includes deciduous shrub communities and Pinon-Juniper woodlands.⁶

4.4.2 Climate

Climate describes the general weather conditions of a geographic location pertaining to such conditions as temperature, humidity, sunshine, cloudiness, and precipitation. The Denver Metropolitan Area has a relatively mild climate with low levels of humidity throughout the year according to data collected by the National Oceanic and Atmospheric Administration (NOAA).

Denver experiences approximately 245 clear and partly cloudy days per year according to the National Climatic Data Center.⁷ Climatology statistics for temperature and precipitation were presented in the *National Climatic Data Center (NCDC): U.S Climate Normals* report for the Denver Stapleton station as early as 1971. The NCDC report states that the annual mean temperature for the Denver Stapleton Station, which was the closest weather station to the Airport with historical data, is 50.1 degrees Fahrenheit with daily maximum of 64.2 degrees Fahrenheit and a daily minimum of 35.8 degrees Fahrenheit. Denver receives on average approximately 15.81 inches of precipitation per year with the highest amounts occurring between May and September. Due to Denver's geographic location, snowfall accounts for the largest type of precipitation during the winter months. According to NOAA, Denver receives approximately 60.5 inches of snowfall annually with the most snowfall occurring in March with a mean value of 11.6 inches.⁸

4.5 PAST, PRESENT, AND REASONABLE FUTURE ACTIONS

As required by FAA Order 1050.1E Change 1,⁹ past, present, and reasonably foreseeable future actions in the Airport Study Area were obtained. For aviation-specific projects, the Airport Capital Improvement Program (ACIP) was used as a basis for determining reasonable foreseeable future actions. No Jefferson County, State of Colorado, or City and County of Broomfield projects were located within the Airport Study Area. **Table 4-6** shows all the past, present, and reasonable future actions at the Airport.

⁵ Colorado State University, *The Plains of Colorado*, available at:

<http://ccc.atmos.colostate.edu/climateofcolorado.php>. Accessed October 5, 2010.

⁶ Colorado State University, *CMG GardenNotes #511 Colorado Plant Ecosystems*, August 2010.

⁷ National Climatic Data Center, *Data Through 2009*, available at:

<http://www.ncdc.noaa.gov/oa/climate/online/ccd/clpcdy.txt>. Accessed October 5, 2010.

⁸ National Climatic Data Center, *Climatology of the United States No. 2 1971-2000*, available at:

<http://cdo.ncdc.noaa.gov/climatenormals/clim20/co/052220.pdf>. Access October 5, 2010.

⁹ Federal Aviation Administration, Order 1050.1E Change 1, *Environmental Impacts: Policies and Procedures*, March 20, 2006.

Table 4-6
PAST, PRESENT, AND REASONABLE FUTURE ACTIONS

Year	Project	Completed
2000	Taxiway A3 and E construction	Yes
2001	Perimeter fencing installation	Yes
2001	Weather reporting equipment installation	Yes
2001	Environmental Study implementation	Yes
2001	Airfield guidance signs	Yes
2001	Taxiway K construction	Yes
2001	Service road improvement	Yes
2002	High-speed taxiway construction	Yes
2003	Land acquisition for Approaches	Yes
2003	Design Taxiway A Relocation Phase I	Yes
2003	Taxiway Extensions	Yes
2003	Improve Runway Safety Area 11L/29R	Yes
2004	Taxiway A Relocation Phase II - Design	Yes
2005	Taxiway A Relocation Phase II (East Central)	Yes
2005	South Terminal Area rehabilitation	Yes
2006	Taxiway A Relocation Phase III (Central)	Yes
2006	West GA Apron rehabilitation	Yes
2006	Northeast Apron construction	Yes
2007	Runway Safety Area Improvement	Yes
2007	Taxiway A Relocation Phase IV (West Central)	Yes
2007	Environmental Study	Yes
2008-2009	Taxiway A Relocation Phase V-VI	Yes
2010	Wildlife Hazard Assessment	No
2010	PAPI Installation	Yes
2013	Critical pavement rehabilitation for Runway 11L/29R	No
	East Development Area Improvement, Construct Taxiway A-3	
2014	Extensions	No
2014	Acquisition of Aircraft Rescue and Firefighting (ARFF) Truck	No
2015	Critical pavement rehabilitation for Runway 11R/29L	No
2016	FAR Part 139 Compliance, ARFF Truck	No
2016	Taxiway upgrades to Group III – Phase I	No
2016	Critical pavement rehabilitation for Runway 2/20	No
2017	Taxiway Upgrades to Group III – Phase I	No
2017	Taxiway C extension	No
2017	Taxiway B removal	No
2018	Northeast Development Area, Group II Taxilane	No
2018	High speed exit taxiway	No
2018	Taxiway C & D surface improvements	No
2019	Taxiway F Extension – Phase I of II	No
2019	Taxiway J Extension – Phase I of VI	No

SOURCE: Rocky Mountain Metropolitan Airport, 2010
PREPARED BY: RS&H, 2010