



Denver International Airport

Noise Release Study

February 28, 2008



INTRODUCTION

This Noise Release Study was prepared pursuant to Section 4.5.3 “Noise Studies” of the Intergovernmental Agreement dated April 21, 1988 between Adams County and the City & County of Denver related to the Denver International Airport (“airport”). Section 4.5.3 provides that the airport shall conduct a noise study complying in form with 14 CFR 150, subparts A and B, for the purpose of determining whether Noise Release Conditions have occurred with respect to land use in Adams County adjacent to the boundaries of the airport. The first study of this type by the airport under the terms of the Intergovernmental Agreement (“IGA”) was completed and transmitted to Adams County on February 28, 2000. Subsequent studies, per IGA requirements, were completed in 2002, 2004, and 2006. This current study (2008) thus continues the mandated every-two-year schedule.

Part 150 is a regulation developed under the Aviation Safety and Noise Abatement Act of 1979 (49 USC 2101 et seq) and addresses noise compatibility planning activities of operators of all public use airports. The Denver International Airport is a public use airport. Subpart A covers the general scope of Part 150 and its purpose and Subpart B covers the development of noise exposure maps and noise compatibility programs. The purposes and process of both subparts have been modified to comply with the objectives of the IGA as it relates to Noise Release Conditions as that term is defined within the IGA.

DENVER INTERNATIONAL AIRPORT STATISTICS

Denver International Airport is located approximately 17 miles northeast of downtown Denver. The airport and its access corridor occupy 53 square miles of land which had previously been used primarily for agricultural purposes.

DIA currently has six operating runways, five of which are 12,000’ long, with the sixth at 16,000’ in length. The airport also currently has a 1.5 million square foot main terminal building, with three remote concourses of varying sizes. Both the airfield and the terminal/concourse complex can be expanded to accommodate future growth. DIA has been designed to ultimately support as many as 12 runways, as well as a doubling of the current size of the main terminal, and the construction of two additional concourses.

DIA opened on February 28, 1995, replacing Stapleton International Airport as Denver’s primary commercial airport. DIA is served by a variety of domestic and international air carriers, and is the second largest hub for United Airlines. DIA is also the home and hub for Frontier Airlines. Passenger traffic at DIA has continued to grow since recovering from the effects of September 11, with 49,863,352 passengers using the airport in 2007, a record number, and a 5.4% increase over 2006. The number of aircraft operations increased by 1.6% to 619,314.

LAND USES

The current land uses within the Adams County Noise Overlay Zone are agricultural and rural residential. Three residential subdivisions, Stonehouse Farms, Van Aire, and Green Estates, lie within the Noise Overlay Zone (2000 Study - Figure 1). The outside boundary of the Noise Overlay Zone was based on the projected 60 L_{dn} contour for the airport. All three subdivisions continue to remain outside of the airport's operating 60 L_{dn} contour.

The Adams County 2004 Comprehensive Plan states as a matter of policy that agricultural uses will be encouraged within the 60 L_{dn} contour. See enclosed Noise Exposure Maps (Figures 1 & 2) for depictions of existing land uses as approved by FAA per FAR Part 150 process.

NOISE MEASUREMENT METHODOLOGY

For the purposes of this study, the City and County of Denver contracted with HNTB Corporation to prepare a set of Noise Exposure Maps. These maps illustrate the location of the 55, 60, and 65 L_{dn} contour lines for the years 2007 and 2012.

HNTB prepared the contour maps using the FAA's Integrated Noise Model (INM) version 7.0. INM is a computer model which uses aircraft operations data, correlated with known acoustical information for each type of aircraft, to calculate noise contours. Contours for the 2007 base case were generated based upon actual 2007 DIA operations data. For the 2012 projection, HNTB used the 2007 data as well as forecasts of aircraft operations levels and fleet mix derived from the "DIA Master Plan – Revised Baseline Forecast."

NOISE CONTOURS

Figures 1 and 2 in this 2008 Study Report illustrate the location of the 55, 60, and 65 L_{dn} noise contours for the years 2007 and 2012.

Each of the contour lines encloses a geographic region within which the same average annual sound level (due to aircraft) exists. These levels are expressed in terms of a measurement unit called L_{dn} (also sometimes referred to as DNL). These L_{dn} levels represent the average annual aircraft-produced sound exposure within each contour line. Additionally, the L_{dn} metric includes a 10 decibel weighting factor which is applied to any events which occur during the nighttime hours, defined for this purpose as 10:00 pm to 7:00 am.

It should be noted that the 2007 L_{dn} contours depicted in Figure 1 may not be identical to the contours contained in the DIA Noise Abatement Office's 2007 annual noise report. The Integrated Noise Model (INM) was used to calculate the contours for the Noise Release Study,

while the contours in the 2007 Annual Report were calculated by a program called ARTSMAP. INM is limited in the number of individual aircraft flight paths it can use in the calculation process and is designed primarily to predict future aircraft noise. ARTSMAP calculates noise based upon thousands of actual radar flight tracks and, as such, is not very useful for predicting future noise.

LAND USE IMPACTS 2012

The projections for 2012 indicate that the contours will expand slightly in all directions as compared to 2007. It should be noted that the FEIS projections were based on the airport operating at full capacity with 12 runways; therefore the current contour of the Noise Overlay Zone should be maintained until full build-out of the airport.

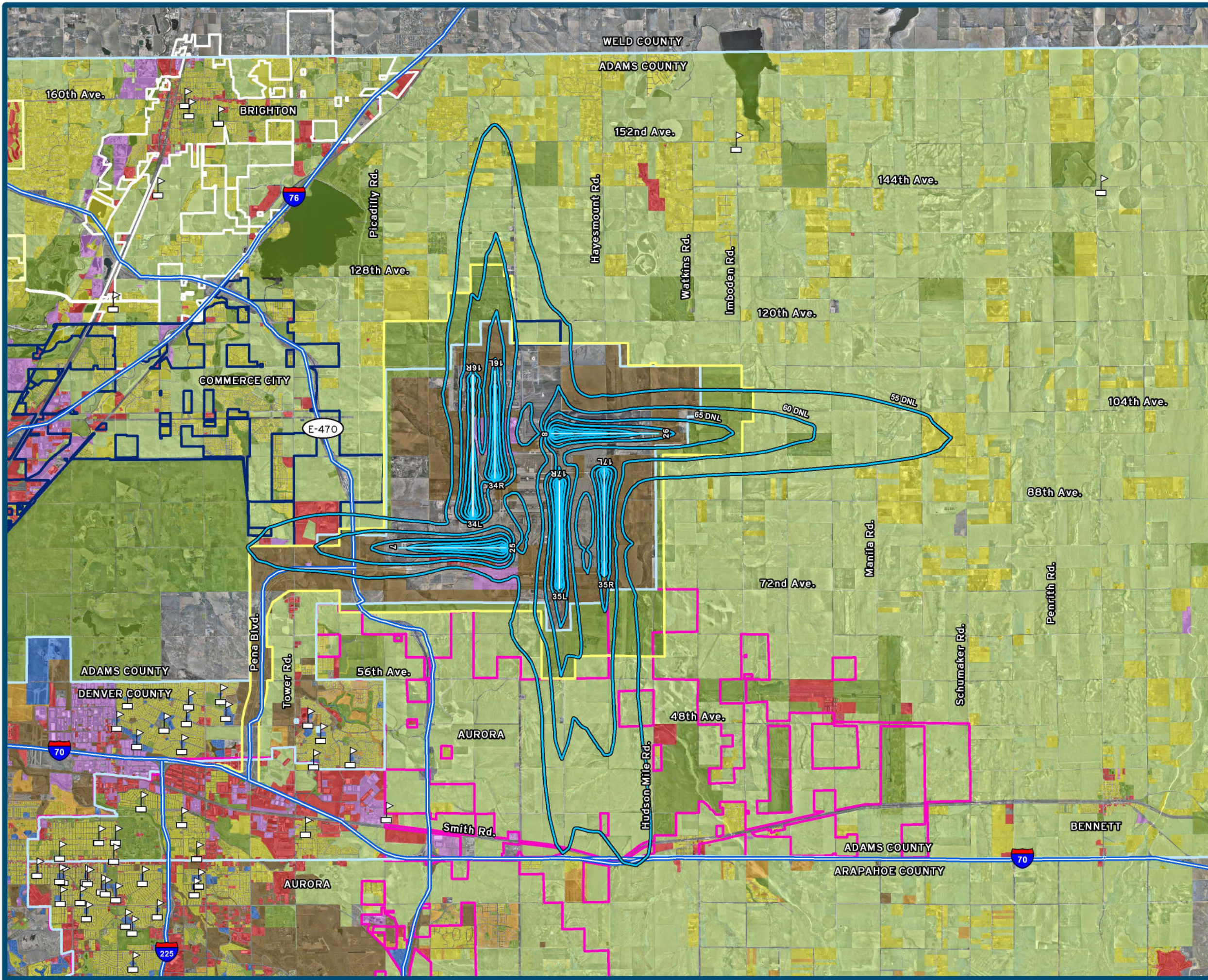
It should also be noted that on both the 2007 and 2012 contour maps, numerous areas to the east and north of the airport are colored yellow, indicating residential land use. Most of the areas so designated are not residentially zoned, but are rather agricultural zones within which Adams County permits one home to be built on a parcel of land having a minimum size of 35 acres. The source of all Adams County land use data used on these maps is Adams County.



Figure 1

2007 DNL Contours





Legend

- 2007 DNL Contours
- Residential
- Agricultural
- Exempt / Parks / Open Space
- Commercial
- Industrial
- Public / Institutional
- Vacant Residential
- Vacant
- DIA Property Boundary
- County Boundary
- Aurora Jurisdiction
- Commerce City Jurisdiction
- Brighton Jurisdiction
- Thornton Jurisdiction
- School

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0 0.5 1 2 Miles



Figure 1
Denver International Airport
2008 IGA Noise Release Study
2007 DNL Contours

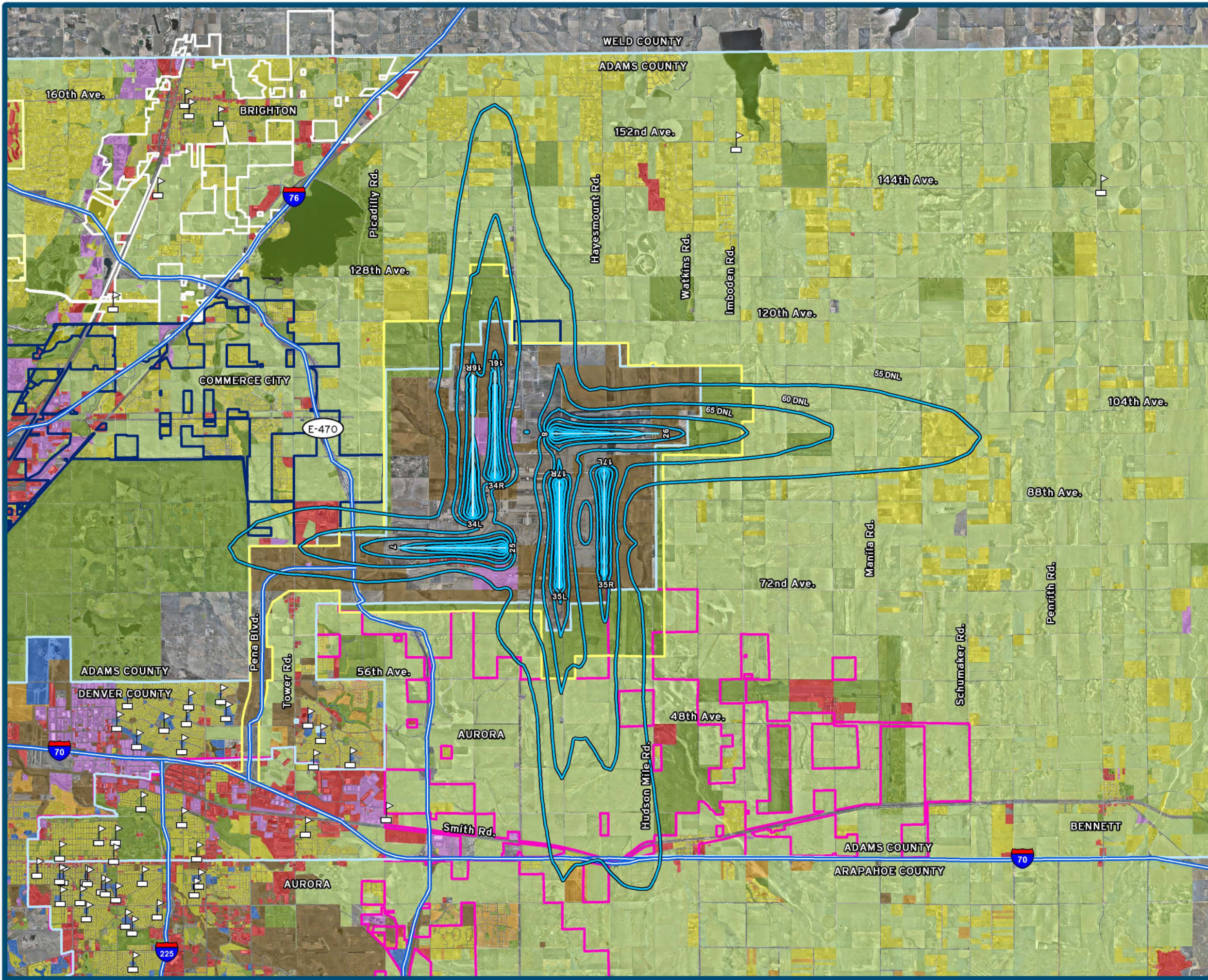
Sources:
 Aerial photography from DIA, May 2006.
 Existing land use data provided by
 Adams County, Arapahoe County, and
 the City and County of Denver.




Figure 2

2012 DNL Contours





Legend

-  2012 DNL Contours
-  Residential
-  Agricultural
-  Exempt / Parks / Open Space
-  Commercial
-  Industrial
-  Public / Institutional
-  Vacant Residential
-  Vacant
-  DIA Property Boundary
-  County Boundary
-  Aurora Jurisdiction
-  Commerce City Jurisdiction
-  Brighton Jurisdiction
-  Thornton Jurisdiction
-  School

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Figure 2
Denver International Airport
2008 IGA Noise Release Study
2012 DNL Contours

Sources:
 Aerial photography from DIA, May 2006.
 Existing land use data provided by
 Adams County, Arapahoe County, and
 the City and County of Denver.