

## RECORD OF APPROVAL

### 14 CFR, PART 150 NOISE COMPATIBILITY PROGRAM CENTENNIAL AIRPORT ENGLEWOOD, COLORADO

#### INTRODUCTION

The Noise Compatibility Program (NCP) for Centennial Airport, Englewood, CO, includes measures to abate aircraft noise, control land development and implement and update the program. The owner/operator of Centennial Airport, the Arapahoe County Public Airport Authority, recommended twelve (12) measures in its NCP to remedy existing noncompatible land uses and prevent future noncompatible land uses.

Title 14 Code of Federal Regulations, Part 150, Airport Noise Compatibility Planning, requires that the Noise Exposure Maps (NEMs) apply to a period of no less than five years into the future, although it may apply to a longer period if the sponsor so desires. The Arapahoe County Public Airport Authority has requested that the program measures be applied to the forecast year 2012 Noise Exposure Map (NEM) (see Figure 5, Future 2012 Noise Exposure Map, Centennial Airport, Noise Contour Map Update, October 2007).

In April 2002, the Executive Director of the Arapahoe County Public Airport Authority asked the FAA to review the NEMs and NCP for Centennial Airport, contained in the "Centennial Airport FAR Part 150 Noise Exposure and Land Use Compatibility Study Program." The FAA requested corrections be made to the NCP and worked with the airport authority to revise the study. The airport authority subsequently submitted to FAA a revised version of the NCP in August 2003. Due to the age of data in the NEMs and the delay in completing the Part 150 study, the FAA required the airport authority to review and update the NEMs to address changes at the airport and in surrounding land uses. In June 2006, the FAA issued a grant to the Arapahoe County Public Airport Authority to update Centennial Airport's noise exposure maps.

This update was completed in October 2007 and submitted to FAA in November 2007. The update, titled *Centennial Airport, Noise Contour Map Update, Noise Contour and Population Analysis*, includes updates to the baseline noise modeling inputs, such as aircraft operations and fleet mix, and revised existing and future NEMs. Based on this update, the Arapahoe County Public Airport Authority has certified that the existing conditions shown in the new 2006 NEM and the future 2012 NEM are representative of the existing and forecast conditions as of the date they were submitted to the FAA.

The objective of the noise compatibility planning process is to improve the compatibility between airport operations and noise-sensitive land uses in the area, while allowing the airport to continue to serve its role in the community, state, and nation. The approval actions listed herein include all those that the airport sponsor recommends be taken by the Federal Aviation

Administration (FAA). It should be noted that the approvals indicate only that the actions would, if implemented, be consistent with the purposes of Part 150. These approvals do not constitute decisions to implement the actions. Subsequent decisions concerning possible implementation of these actions may be subject to applicable environmental procedures, aeronautical study, or other procedures or requirements.

The recommended measures below summarize as closely as possible the airport operator's recommendations and associated benefits in the noise compatibility program and are referenced to the program by page number. The statements contained within the summarized program elements and before the indicated FAA approval, disapproval, or other determination, do not represent the opinions or decisions of the FAA.

## 1- NOISE ABATEMENT ELEMENTS

### 1. Ban Stage 1 Jets (Page G.5)

**Description:** This measure recommends that the Arapahoe County Public Airport Authority prohibit the use of Stage 1 jets at the Centennial Airport. In the NCP, the Airport Sponsor states this can be accomplished without complying with 14 CFR Part 161 regulatory requirements and can be implemented immediately.

**FAA Determination: Disapproved for purposes of Part 150 pending submission of additional information to make an informed analysis.** The NCP states that, while few Stage 1 aircraft use Centennial Airport, the recommendation “will reduce the noise impact to the local community by eliminating operations by the noisiest aircraft to use the airport.” The Arapahoe County Public Airport Authority states the resulting single event noise level reductions by banning Stage 1 aircraft from operating at the airport would benefit residential units north of the airport and provide a noise benefit both in the short term and in the five year planning timeframes. However, this has not been quantified in the NCP.

Besides providing quantified noise benefits data, the analysis of this measure must demonstrate the approval criteria of Part 150 are met. This includes the requirement that the measure not create an undue burden on interstate or foreign commerce, including any unjust discrimination. The FAA will not approve a noise restriction that may violate the airport sponsor’s grant assurances, including the assurance requiring access to the airport on reasonable terms and without unjust discrimination. The Arapahoe County Public Airport Authority may submit this additional information to FAA for further evaluation and reconsideration of this measure, after complying with applicable regulatory requirements.

## 2. Ban Stage 2 Jet Aircraft Under 75,000 lbs. At Night (Pages F.4 and G.6)

**Description:** This measure recommends that the Arapahoe County Public Airport Authority prohibit the use of Stage 2 jets at the Centennial Airport between the hours of 10 pm and 7 am. The NCP states that this proposed ban could be adopted only after the completion of required analysis and FAA approval required per 14 CFR Part 161, Notice and Approval of Airport Noise and Access Restrictions.

**FAA Determination: Disapproved for purposes of Part 150 pending submission of additional information to make an informed analysis and compliance with 14 CFR Part 161.** This measure recommends that a mandatory curfew, as outlined above, be established subject to the requirements of 14 CFR Part 161. The Arapahoe County Public Airport Authority studied the noise benefit of such a ban and describes this benefit in its NCP. While the NCP demonstrates a noise benefit in compliance with Part 150 requirements, a demonstration of the measure's ability to meet other Part 150 approval criteria are lacking. For example, the analysis does not show how the ban would or would not affect commerce to aircraft operators affected by the ban. All Part 150.35 requirements need to be addressed before the FAA can approve the measure.

Before an airport sponsor can impose a restriction on the operation of Stage 2 aircraft, Part 161 requires the airport sponsor to consult with several parties, including potentially affected aircraft operators, the public and FAA. In addition, the airport sponsor must prepare a cost-benefit analysis that meets Part 161 regulatory requirements.

## 3. Implement 010 Degree Departure Heading for Jet Aircraft at Night (Pages F.8 and G.9)

**Description:** This measure recommends aircraft operators implement a 010 degree departure procedure off of Runways 35R and 35L between 10 pm and 6 am when flying routes to north and west destinations. The intent of this measure is to reduce nighttime noise over neighborhoods just north of Centennial Airport. The departure heading would be flown for a designated distance (2 nautical miles as measured by the DME that is co-located with the localizer north of Runway 17/34) before the aircraft operator would resume a destination heading. This procedure would put north and west departures over the Cherry Creek State Park, allowing aircraft to gain addition altitude before overflying residences.

The Arapahoe County Public Airport Authority modeled the noise benefit of this departure procedure for both day and night, resulting in a reduction from 1,591 persons to 167 persons within NEM noise contours greater than 65 DNL. Based on preliminary FAA testing of this departure procedure, the airport authority also determined that the 65 DNL noise contour did not encompass Cherry Creek State Park.

**FAA Determination: Approved as voluntary, subject to weather, operational safety and efficiency.** Testing by FAA indicates this measure can be implemented only between the hours of 10:00 pm and 6:00 am and after completion of environmental studies associated with the air traffic procedural change. Implementation of this procedure at any other time poses an adverse impact to the safety and efficiency of FAA air traffic control operations.

#### **4. Test 24-Hour Flight Tracks Between 350 and 010 Degree Headings (Pages G.14 – G.15)**

**Description:** This measure recommends that FAA Air Traffic test a flight procedure that would “fan” northern departures between 350 and 010 degree headings on a 24-hour basis, weather and traffic permitting. The intent of this measure is to test the feasibility of spreading the north flow flight tracks over a larger area during times when a 010 departure heading is not feasible due to weather or traffic conditions.

**FAA Determination: Disapproved.** This proposed measure could have significant adverse impacts to the safety and efficiency of the FAA’s Air Traffic Control operations in the Denver metro area because of the complexity of aircraft separation, traffic management and facility coordination issues.

FAA initial safety review of this proposed measure revealed that it would result in numerous adverse impacts to the safety and efficiency of FAA’s air traffic control operations. Buckley Air Force Base (BKF) airspace is 3.93 nautical miles from the departure end of Centennial’s Runway 34R. Due to the sensitive nature of BKF operations and their mission of national security, FAA cannot accept the proposal that would require complex coordination in BKF airspace between the control towers at Centennial Airport, Denver International Airport and BKF and FAA’s Denver Terminal Radar Approach Control Facility (TRACON). Denver International Airport departure and arrival traffic flows in many configurations and also would be adversely impacted by this suggested routing. This, in turn, would cause adverse impacts to the safety and efficiency of FAA Air Traffic operations.

## 5. Eliminate Preferential Runway Use Procedure (Page G.17)

**Description:** This measure proposes to eliminate the voluntary use of nighttime preferential runway procedure that sequenced all arriving and departing aircraft to the southern portion of the airport. This procedure was originally implemented in the 1990's to concentrate aircraft operations over the then sparsely populated areas south of the airport. However, areas south of the airport, including Douglass County, are being developed and the procedure now is rarely used. The airport authority believes eliminating this procedure will help reduce the number of residents south of the airport exposed to aircraft noise. The noise benefit of this recommendation is the reduction from 1,591 persons to 1,190 persons within the 65 DNL NEM noise contour and 143 persons to 103 persons in the 70 DNL NEM noise contour.

**FAA Determination: Approved for purposes of Part 150.** Any changes to preferential runway procedures shall be coordinated with FAA Air Traffic Control. Airfield signs, airport publications and other pilot guidance must be updated, accordingly.

## 6. Implement 170 Degree Departure to 4 DME or 8,000 MSL (+/- 20 degrees) (Pages F.9, F.14 and G-17)

**Description:** This measure proposes that FAA Air Traffic Control direct pilots departing to the south to fly the runway heading until reaching 4 DME or 8,000 MSL, with a deviation of plus or minus 20 degree heading. This is intended to help maintain departures over areas with compatible land uses and reduce the deviation of such departures over areas with noncompatible land uses, such as residential development. The airport authority believes this departure procedure will reduce the number of residents south of the airport who are exposed to aircraft over flights.

Presently, aircraft departing from Runways 17L and 17R tend to turn away from the runway centerline heading and assume their departure heading as soon as possible. This often results in overflights of residential developments. This proposed departure procedure would utilize a corridor of open space and compatible development south of the airport that aircraft could overfly, as safety and weather permit, until reaching a certain altitude or a certain distance from the airport. This measure also allows for some leeway in course heading assigned by FAA Air Traffic Control so as to avoid conflicts with aircraft on approach during certain wind conditions.

**FAA Determination: Disapproved.** This proposed measure could have significant impacts to the safety and efficiency of the FAA's Air Traffic Control operations. This flight procedure change does not provide the appropriate minimum separation between those aircraft executing approaches to Runway 35 while aircraft are departing Runway 17. Additionally, the procedure implies Centennial Air Traffic Control Tower would issue radar vectors to aircraft. FAA has not authorized Centennial Tower to conduct such radar operations.

**7. Development/Implementation of Fly Quiet Program (Pages F.6 and G.23)**

**Description:** This measure proposes the development and implementation of a comprehensive program that combines a number of measures to encourage pilots to operate aircraft as quietly as possible when operating at Centennial Airport. This would be a voluntary program that encourages pilots to use certain flight procedures (some of which are included in the NCP) to minimize the noise impact on local communities. Other potential elements of the Fly Quiet Program could include noise abatement flight tracks and late night departure procedures.

To ensure the effectiveness of the Fly Quiet Program, the airport authority proposes to implement a Noise Monitoring Program (see Recommendation #2 under Program Management Elements Section below) to determine compliance and effectiveness of the Fly Quiet Program. Based on noise data collected, the airport authority proposes to refine program measures and believes the program has the potential of reducing single event noise levels and encouraging greater compliance with preferential flight corridors and procedures.

**FAA Determination: Approved as a voluntary measure only.** For Part 150 purposes, the

only measure approved for inclusion in the Fly Quiet Program is the approved 010 degree, nighttime departure procedure (see above Section I - NOISE ABATEMENT ELEMENTS, #3 Implement 010 Degree Departure Heading for Jet Aircraft at Night). However, this does not preclude the airport sponsor from analyzing and including in a revised NCP additional Fly Quiet Program measures for FAA review and approval. The airport sponsor must show that such measures meet the requirements of Part 150, including a noise benefit. Also, the appropriate FAA office must review, prior to publication, any airport publication and other pilot guidance encouraging the use of Fly Quiet Program measures.

**2 – LAND USE PLANNING ELEMENT**

**Amend Community Plans and Zoning Ordinances (Pages F.8 and G.18)**

**Description:** Under this recommendation, the airport authority proposes to work with the local municipalities to amend zoning requirements, comprehensive plans and development regulations to minimize new, noncompatible land uses near the airport and to minimize the impact on airspace surrounding the airport, including 14 CFR Part 77 imaginary surfaces. By proposing this measure, the airport authority hopes to discourage noncompatible land uses near the airport, such as the construction of schools, hospitals and residential development, and to require sound attenuation of new construction in existing development that is impacted by aircraft noise.

Municipalities surrounding Centennial Airport have existing zoning requirements and comprehensive plans but they vary and the airport authority intends through this measure to promote consistent land use planning among these jurisdictions. In particular, the airport authority proposes to encourage neighboring municipalities to adopt in land use plans noise contours and other noise criteria specified in 14 CFR Part 150 and require sound attenuation for

any infill development occurring within the 60 day-night average sound level (DNL) noise contour.

**FAA Determination: Approved in part.** Portions of this recommendation related to noise compatibility planning are approved. Portions related to airspace clearances (14 CFR Part 77) are disapproved for purposes of Part 150. Disapproval for purposes of Part 150 does not prevent the airport sponsor from working with local jurisdictions to implement measures that are not noise-related, in the interest of unified local planning documents.

The Federal government has no authority to control local land use; the local governments have the authority to implement this measure. While the Centennial Airport NCP proposes the DNL 60 dB noise contour as the criterion for preventive land use planning measures, the NCP states the sponsor has adopted the Federal guidelines. As a result, any funding assistance would apply to noise compatibility projects located in areas where aircraft noise exposure is DNL 65 dB or greater. In addition, there is no evidence in the NCP that the local land use jurisdictions have adopted a standard different than the 65 DNL for determining compatible land uses.

### **3 – PROGRAM MANAGEMENT ELEMENTS**

#### **1. Update and Establish Environmental/Noise Abatement Liaison/Office (Pages F.7 and G.20)**

**Description:** This measure recommends the airport authority update its existing noise complaint system, establish new procedures for addressing such complaints and establish a new office within the authority to address all environmental concerns, including aircraft noise.

While the airport authority already has taken steps to establish an environmental/noise abatement office, the intent of this measure is to dedicate more resources to this office to better address noise issues, as well as other environmental issues that are of concern to the local public and airport users. In addition, the airport authority intends to direct this office to be responsible for the implementation, administration and maintenance of the recommended noise monitoring system (see Recommendation #2 below) and be responsible for addressing specific aircraft related noise issues.

**FAA Determination: Approved.**

## 2. Install Noise Monitoring System and Develop Program (Pages F.7 and G.21)

**Description:** This recommendation would result in the installation of a permanent noise monitoring system to monitor noise levels and compliance with noise abatement measures. This system also would be used to determine changes to aircraft noise and overall noise levels due to seasonal conditions. This system is intended to be used to determine the success of recommended noise abatement procedures and build an electronic database to be used for future updates of the NCP. The airport authority also intends to use such a noise monitoring system to identify aircraft operating in a manner inconsistent with other aircraft to gauge compliance with the airport's Fly Quiet Program (see Recommendation #7 under the Noise Abatement Procedures Section above).

**FAA Determination: Approved.** For purposes of aviation safety, this approval does not extend to the use of monitoring equipment for enforcement purposes by in-situ measurement of any pre-set noise thresholds or voluntary noise abatement measures.

The NCP proposes to analyze the effectiveness of a Fly Quiet Program using supplemental metrics to compare benefits of alternative corridors, altitudes, etc. It should be understood that compliance with this program only can occur to the extent that safe, efficient aircraft operation and airspace management is not jeopardized and the pilot-in-command has final authority regarding safe operation of an aircraft.

## 3. Operations Review and Part 150 Updates (Page G.25)

**Description:** This measure recommends that the airport authority annually review aircraft operations to determine if actual operations are consistent with projections contained in the NCP. This annual evaluation also would include a review of NCP recommendations to determine their overall effectiveness.

Further, this measure recommends that the airport authority reevaluate the NCP five years after its adoption to determine the extent to which airport operations has changed from that projected in the NCP and as necessary, new mitigation measures will be evaluated.

**FAA Determination: Approved.** This recommendation is consistent with 14 CFR Part 150.23(e)(9).

4. Establish Follow-up Roundtable/Committee (Page G.27)

**Description:** This measure recommends the establishment of an advisory committee to monitor programs implemented as a result of the adoption of this NCP, including the Fly Quiet Program guidelines and the Noise Monitoring Program. The committee membership will be similar to the members that participated on the advisory committee that assisted in the development on the NCP. At the discretion of the airport authority, the advisory committee would be comprised of airport staff, airport user, representatives of the local communities and interested members of the public.

**FAA Determination: Approved.**

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**APPROVED / DISAPPROVED:**



DATE 8/12/08

Donna P. Taylor

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**CONCUR / NONCONCUR:**

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8/12/08

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