

J J-4 Comments on the Draft EA & FAA Responses

**Public Comments 301 (Manizza) through 400
(Rodriquez) with FAA Responses**

Comments-Responses**Comment# 301 Submitted by: Manizza, Donna**

Comment Received: I object to the current and ZIMMR route. Please route further south over less populated areas near the Foothills which increases sound in this area.

Topics Identified in the Comment

- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #301 Topics

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 302 Submitted by: Mankus, Joanie

Comment Received: Comment and Objection: The conclusions of the EA are seriously flawed. The implementation of Denver Metroplex is highly controversial on both health and environmental grounds. A full Environmental Impact Statement (EIS) should be conducted for public review and comment. It should accurately disclose all data that will have a direct, indirect and cumulative impact on the Denver Region arising from Denver Metroplex, with emphasis on noise sensitive areas that have not experienced significant aviation noise and pollution in the past.

The EA excludes noise generated by expansion of Denver International Airport (DIA) and by aviation at Centennial Airport. Aviation activity at DIA is projected to grow by 70-100% by 2030/35.

Centennial Airport is the second largest general aviation airport in the United States with its own growth projections. The FAA's estimate of flights (whether commercial or general) grossly underestimates the direct, indirect and cumulative impact of noise generated by Metroplex.

The EA excludes the impact of particulate matter generated by aviation emissions on the health and welfare of adults and children notwithstanding significant current studies (some conducted by or for the FAA) documenting the serious adverse impact on people's physical and mental health.

The EA excludes the impact of noise at or below DNL 65 dB (indoors with windows shut) on noise sensitive areas, including residences, historic areas, parks and schools. In the Denver region a majority of residences and schools in the suburbs predate DIA and experience low levels of noise. Studies by health organizations and universities have documented that increases in aviation noise cause and contribute to cardiac disease, depression and anxiety in both adults and children. Additionally it has been shown to cause lower test scores in children along with both cognitive and behavioral problems.

The EA contains assumptions that understate noise and ignore health risks, it is inaccurate and misleading. Metroplex is highly controversial generating litigation across the country. An EIS would accurately provide the detail necessary to evaluate the environmental impact of Denver Metroplex on the Denver Region.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Cumulative Impacts
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #302 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as "criteria

pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children’s health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency’s mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.” (72 Fed. Reg. 6641 (February 12, 2007)). Accordingly, there

would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the

Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport
303-790-4709
<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport
303-342-2380
https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport
970-336-3000
<http://www.gxy.net/>

Northern Colorado Regional Airport
970-962-2850
<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport
303-271-4850
<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as

Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the

Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver

Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or

above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative , when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 303 Submitted by: Mankus, Sophia

Comment Received: Comment and Objection: The conclusions of the EA are seriously flawed. The implementation of Denver Metroplex is highly controversial on both health and environmental grounds. A full Environmental Impact Statement (EIS) should be conducted for public review and comment. It should accurately disclose all data that will have a direct, indirect and cumulative impact on the Denver Region arising from Denver Metroplex, with emphasis on noise sensitive areas that have not experienced significant aviation noise and pollution in the past.

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The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

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As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.” (72 Fed. Reg. 6641 (February 12, 2007)). Accordingly, there

would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the

Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport
303-790-4709
<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport
303-342-2380
https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport
970-336-3000
<http://www.gxy.net/>

Northern Colorado Regional Airport
970-962-2850
<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport
303-271-4850
<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as

Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the

Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver

Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or

above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative , when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 304 Submitted by: Mansour and Family, Constance

Comment Received: Thank you for inviting us to the NextGen/Metroplex public workshop. Since 1989 we have lived in S. Boulder. The maps and charts at the workshop showed us that our current location is being surrounded by growing air traffic. We are flanked by two busy airports (Rocky Mtn Metro and Boulder Muni) about 11 miles away, and also by heavy trucking highways (CO93 and CO36). When the DIA departure paths started their "highway" in the sky a few years ago, the ambient noise--and the reflected noise--off the mountains increased to the point we cannot keep our windows open, especially around 10am and summer evenings/nights. It's kind of ironic, because we are also trying not to waste energy (goal of NextGen) by using natural nightly cooling that the Colorado climate offers, instead of closing windows and using expensive air conditioning. (I was lucky and did find a pair of used noise cancelling headphones on Craigslist that are helping in the meantime, but you cannot sleep with them. Not everyone can afford \$300 new Bose headphones). In S. Boulder there is a saddle in the foothills that is used by many prop planes to and from Rocky Mtn Metro, unfortunately right over our neighborhood. We also get a number of tow planes almost daily for several hours and helicopters, small jets coming from Centennial airport, etc. From my past travels, our busy sound-scape is not typical of a city our size, and the NextGen jet traffic has just added another layer of noise. Jet noise reflection (reverberation) off the foothills was not addressed at the workshop. That is what makes the repeated jet overflight noise so disturbing--the echoing, even when it is not directly overhead. There is a SW jet that passes westward certain early mornings and our windows literally vibrate and we are woken up. We have invested thousands of dollars upgrading our windows and insulating to be better at reducing noise, but still get vibrations through the drywall! It is creating a lot of stress due to lack of sleep and the quiet enjoyment of our home. We therefore strongly encourage the FAA to adopt the Complete Zimmr Noise Solution, which should accomplish the noise goals as future westward flights increase. By shifting the RALFI waypoint (east of Boulder on the ZIMMR flight path) about 0.7 nautical miles south; and shift the IPALE waypoint (on the COORZ flight path south of RALFI) about 0.7 nautical miles south. Can be done by reducing the departure angle between COORZ and CONNR from 17 degrees to 15 degrees. Lastly shift ZIMMR another 1.3 miles south (for a total southward shift of 2 miles for ZIMMR). Can be done by shifting the COORZ, CONNR, and BAYLR flightpaths 1.3 miles south. We want to mention that the current concentrated noise of NextGen flight paths impact the enjoyment of our mountain parks and mountain communities such as Nederland by us and our out of town guests. Please consider that even though jets are getting up into quieter cooler air and a little higher elevation, the sheer volume of activity over these areas is still very noticeable and makes camping in a so-called natural area a joke. The Complete Zimmr could protect most of these areas. Thank you for your time; and a special thank you to Marina Landis at the workshop who is working on ambient noise weighing impact mapping. We would like to be informed on the progress of those studies. The Mansour Family

Topics Identified in the Comment

- COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles
- Existing Aircraft Noise
- General Aviation/Visual Flight Rules
- ZIMMR SID - Move 1.3 Nautical Miles
- ZIMMR SID

FAA Response for Comment #304 Topics

COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles: The commenter requests that the FAA consider modifying the proposed COORZ (RNAV) SID by moving the location of the IPALE waypoint 0.7 nautical miles south from the original location. The FAA reviewed the proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined the proposal would reduce the built-in margin of safety, thus limiting the procedures for air traffic control to efficiency manage air traffic on the proposed COORZ (RNAV) SID and CONNR (RNAV) SID.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport
303-790-4709
<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport
303-342-2380
https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport
970-336-3000
<http://www.gxy.net/>

Northern Colorado Regional Airport
970-962-2850
<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport
303-271-4850
<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot’s discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even

if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

ZIMMR SID - Move 1.3 Nautical Miles: The commenter requests that the FAA consider modifying the proposed ZIMMR Area Navigation (RNAV) Standard Instrument Departure (SID) by moving the flight path 1.3 nautical miles southward from the location that was depicted at the workshops for the Draft Environmental Assessment. The proposal would affect the proposed COORZ (RNAV) SID, CONNR (RNAV) SID, and the BAYLR (RNAV) SID; requiring the same 1.3 nautical miles movement southward in order to maintain aircraft separation standards. The FAA reviewed this proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined that the proposed COORZ (RNAV) SID, CONNR (RNAV) SID and the BAYLR (RNAV) SID procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs. Additionally, moving the proposed BAYLR (RNAV) SID any further south would reduce the margin of safety with the proposed SSKII (RNAV) Standard Terminal Arrival (STAR) procedure and the existing, conventional POWDR STAR procedure. Moreover, the FAA designed the proposed BAYLR (RNAV) SID to avoid overflying the noise sensitive areas in downtown Denver, including the City Park and the Denver Zoo.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 305 Submitted by: Margenau, Dan

Comment Received: This project is horrible and will adversely effect my families health the enjoyment of our home and my property values. It is ridiculous that this project is even being considered.

Topics Identified in the Comment

- Physical and Mental Health
- Property Values

FAA Response for Comment #305 Topics

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Property Values: The proposed Denver Metroplex Project involves air traffic control routing changes for airborne aircraft only; and does not involve land acquisition, physical disturbance, or construction activities. The determination of whether a proposed action may have a significant environmental impact under the National Environmental Policy Act (NEPA) is made by considering the relevant environmental impact categories and comparing impact to the FAA's thresholds of significance as outlined in FAA Order 1050.1F. The assessment of property values is not an environmental impact category as outlined in FAA Order 1050.1F. To the extent applicable, and as there are no significant impacts under noise or compatible land use, the proposed Denver Metroplex Project is compatible with existing and planned land uses, and the applicable regulations and policies of federal, state, and local agencies. A limited number of studies have attempted to measure the impact of aircraft noise on property values. Specific studies of the impact of noise at the Study Airports on real property values have not been conducted and are not required. Studies conducted at other national airports have concluded that airport noise only has a slight impact on property values within the Day Night Average Sound Level 65 decibels or greater noise contour around airports. Additionally, comparison of older studies to more recent studies indicates that the impact was greater in the 1960s, when jet aircraft first entered the fleet. This decrease presumably is the result of stabilization of real estate markets following an initial adjustment to noisier jets, and of noise reduction in more modern Stage 3 or better aircraft.

Comments-Responses

Comment# 306 Submitted by: Markenson, David

Comment Received: While I recognize the need to upgrade air traffic. My neighborhood preceded DIA and when DIA was built there was a promise to communities about departure routes were to be in direction that would not affect the pre-existing communities. There promises need to be kept. Also the combined effects of DIA and Centennial need to be considered. Lastly the public hearings were not well advertised limiting comment.

Topics Identified in the Comment

- Public Outreach/Public Involvement
- Purpose and Need of Project

FAA Response for Comment #306 Topics

Public Outreach/Public Involvement: The views and input of communities are important to the FAA as the Agency takes the next steps to advance the NAS. Since 2016, the FAA has engaged individual communities through holding public workshops in the Denver metropolitan area to explore possible solutions to their concerns while ensuring the safety and efficiency of the National Airspace System. Twelve public workshops across the Denver metropolitan area were held in 2017, and again recently in April and May 2019. The public workshop locations, dates and time were publicized in the Denver Post, posted on the FAA Community Involvement website, and the Denver Metroplex Project website, in addition to being publicized through social media and local press releases. Comments received from the 2017 and 2019 public workshops were considered when designing the proposed flight procedures for the Denver Metroplex Project.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 307 Submitted by: Markevich, Alex

Comment Received: The FAA created the ZIMMR jet flight path over South Boulder in an area that had no prior air traffic lanes. Citizens began heavy protests noise complaints and proposing alternatives in 2017. Using inaccurate noise simulations and flight altitude estimates the FAA justifies retaining a slightly 'nudged' ZIMMR flight path as its final solution. We want the FAA to incorporate Complete ZIMMR Noise Solution as the official map of DIA Departure flight paths adopt as the final choice of flight paths for the Denver NEXTGEN portion of the DIA Metroplex project.

Topics Identified in the Comment

- Existing Aircraft Noise
- Noise Modelling
- ZIMMR SID

FAA Response for Comment #307 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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<http://www.centennialairport.com/index.php/noise/noise-management>

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Rocky Mountain Metropolitan Airport

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Noise Modelling: The commenter raised concerns with the noise modelling methodology. The noise analysis completed for the Final Environmental Assessment (EA) was prepared using the Aviation Environmental Design Tool (AEDT) version 2d, which is the FAA's required noise model. The FAA uses AEDT to model noise for flight track changes over large areas and at altitudes over 3,000 feet AGL to analyze noise associated with the No Action Alternative and the Denver Metroplex Project proposed action. The AEDT 2d model utilizes an extensive aircraft performance and sound level database that includes information on variations in sound attributed to different types of aircraft and aircraft engines, aircraft speed, climb and descent thrust, and the altitude along a route. Detailed terrain data was inputted into the AEDT 2d model, which accounts for the elevation of each grid point or population centroid when calculating the distance between the grid point and the aircraft. The aircraft noise analysis prepared for the proposed Denver Metroplex Project Final EA was conducted in compliance with FAA Order 1050.1F.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 308 Submitted by: Marsella, Chris

Comment Received: Please withhold my personal information. I am vehemently opposed to the proposed Denver Metroplex flight patterns for west bound DIA flights. The current DIA over flights during morning and evening flight banks coupled with the increasing flight operations at Rocky Mountain Metro Airport (RMMA) has already made the Superior/Louisville areas an aviation highway. RMMA flight operations have increased nearly 50% since 2014 and according to the airport director they are expected to double within the next 5 years. Increasing the concentration of DIA flights over Superior/Louisville areas while also allowing RMMA to grow unchecked is not only inequitable, it is extremely irresponsible. It is unfathomable to me why any area on the front range, especially those who already have significant air traffic, should bear the brunt of DIA's noise and air pollution so that the airline industry can save an inconsequential amount in fuel and efficiency costs. The aviation industry would do well to remember that it serves those on the ground, and that it should work with communities to disperse the negative impact it has on those communities. Concentrating that negative impact will ensure a combative relationship between communities and the aviation industry, which will cost dramatically more in lawsuits brought against the industry than any savings you are currently projecting. I recommend you work with all communities to disperse flights equitably across the front range, including those counties (Denver & Adams) who have restricted air traffic. If we all benefit from the airports economic impact, then we should also all equitably share its burden.

Topics Identified in the Comment

- Alternatives to Abate Existing Air Quality/Pollution Issues
- Existing Aircraft Noise
- Commercial Airlines Operations Costs
- General Aviation/Visual Flight Rules
- Suggestions to Change Air Traffic Patterns
- Withhold Personal Identifying Information

FAA Response for Comment #308 Topics

Alternatives to Abate Existing Air Quality/Pollution Issues: The commenter suggested the FAA help ameliorate existing air quality issues through the proposed Denver Metroplex Project. The commenter requested alternative procedures should be designed to route aircraft over unpopulated areas that would abate existing air quality issues. The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA) is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex area. Furthermore, addressing current air quality issues in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Final EA.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise

exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Commercial Airlines Operations Costs: The purpose of the proposed Project is to address the problem of inefficiency of the existing aircraft flight procedures in the Denver Metroplex airspace. While fuel savings and/or a reduction in operating costs for commercial airlines may be secondary benefits of implementing the proposed Denver Metroplex Project, it is not a part of the purpose and need for the Project.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Withhold Personal Identifying Information: Commenters were made aware of the following statement with their comment submission - "Please be aware that your name, address, phone number, email address, or other personal identifying information in your comment may be made publicly available at any time. You may include in your comment a request to withhold your personal identifying information, however we cannot guarantee that we will be able to do so".

Comments-Responses

Comment# 309 Submitted by: Martinez, Eduardo

Comment Received: "Jet noise at night or in the evening is the most disturbing to me. I suggest moving the current trajectories as far as possible south after 8pm. I am on a limited income and cannot afford to lose sleep. My job is very demanding. Relocating right now is not an option for me since my family and work is here. Thanks. I hope you can take care of this very soon. Pls. do not publish my address name is ok. I was at the Broomfield workshop."

Topics Identified in the Comment

- Existing Aircraft Noise
- Suggestions to Change Air Traffic Patterns
- Withhold Personal Identifying Information

FAA Response for Comment #309 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Withhold Personal Identifying Information: Commenters were made aware of the following statement with their comment submission - "Please be aware that your name, address, phone number, email address, or other personal identifying information in your comment may be made publicly available at any time. You may include in your comment a request to withhold your personal identifying information, however we cannot guarantee that we will be able to do so".

Comments-Responses

Comment# 310 Submitted by: Masterson, Terri

Comment Received: I live near the Rocky Mt airport and have for many years. Lately the planes are flying so low over my house I can see the ID number. This is ridiculous and also I feel dangerous. This also happens late at night and the engine noise is so loud it wakes me from a deep sleep. I am no stranger to aircraft and/or airports as I worked for the airlines for 30 years. This noise was never a problem until lately. I feel this new flight path is hazardous to my neighborhood Sunset Ridge and plan to complain to the FAA

Topics Identified in the Comment

- Existing Aircraft Noise
- General Aviation/Visual Flight Rules

FAA Response for Comment #310 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Comments-Responses

Comment# 311 Submitted by: Matherly, Jason

Comment Received: Comment and Objection: The conclusions of the EA are seriously flawed. The implementation of Denver Metroplex is highly controversial on both health and environmental grounds. A full Environmental Impact Statement (EIS) should be conducted for public review and comment. It should accurately disclose all data that will have a direct, indirect and cumulative impact on the Denver Region arising from Denver Metroplex, with emphasis on noise sensitive areas that have not experienced significant aviation noise and pollution in the past.

The EA excludes noise generated by expansion of Denver International Airport (DIA) and by aviation at Centennial Airport. Aviation activity at DIA is projected to grow by 70-100% by 2030/35.

Centennial Airport is the second largest general aviation airport in the United States with its own growth projections. The FAA's estimate of flights (whether commercial or general) grossly underestimates the direct, indirect and cumulative impact of noise generated by Metroplex.

The EA excludes the impact of particulate matter generated by aviation emissions on the health and welfare of adults and children notwithstanding significant current studies (some conducted by or for the FAA) documenting the serious adverse impact on people's physical and mental health.

The EA excludes the impact of noise at or below DNL 65 dB (indoors with windows shut) on noise sensitive areas, including residences, historic areas, parks and schools. In the Denver region a majority of residences and schools in the suburbs predate DIA and experience low levels of noise. Studies by health organizations and universities have documented that increases in aviation noise cause and contribute to cardiac disease, depression and anxiety in both adults and children. Additionally it has been shown to cause lower test scores in children along with both cognitive and behavioral problems.

The EA contains assumptions that understate noise and ignore health risks, it is inaccurate and misleading. Metroplex is highly controversial generating litigation across the country. An EIS would accurately provide the detail necessary to evaluate the environmental impact of Denver Metroplex on the Denver Region

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Cumulative Impacts
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #311 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as "criteria

pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children’s health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency’s mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.” (72 Fed. Reg. 6641 (February 12, 2007)). Accordingly, there

would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the

Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as

Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the

Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver

Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or

above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative , when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 312 Submitted by: Mattesen, Betina

Comment Received: I am disturbed by over flights where I live on Ridge Road outside of Nederland. I learned from trying to sleep outside in summer that they are almost all directly overhead or quite nearby. I am disturbed by the noise of close flights while doing any outdoor activity or trying to enjoy open window time. Worse they have been present and very close and loud in nearby Indian Peaks Wilderness especially at higher elevations. The stress impacts of excessive noise is well known to people and wildlife. Please find a solution to this sad degrading of mountain life.

Topics Identified in the Comment

- Existing Aircraft Noise
- Physical and Mental Health
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #312 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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<http://www.centennialairport.com/index.php/noise/noise-management>

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https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

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<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses**Comment# 313 Submitted by: Mattson, Carl W.****Comment Received:** How much noise (DB) does a Harley Davidson make. Or a crotch rocket when a rider red lines the tack or funs it at a signal light. I am a VFR Pilot our of KAPA.**Topics Identified in the Comment**

- No Concerns Identified

FAA Response for Comment #313 Topics**No Concerns Identified:** Thank you for your comment.

Comments-Responses

Comment# 314 Submitted by: Mayfield, Lyra

Comment Received: As a long time South Boulder resident I have noticed and become very sensitive to the frequent flight pattern over South Boulder. This noise is disruptive and disturbing to my whole family and neighborhood not to mention wildlife corridors. I urge you to move all flights from DIA going westbound to travel over far less populated and sensitive areas. Thank you.

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #314 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 315 Submitted by: McAuliffe, Richard

Comment Received: "I have lived in South Boulder since 1992. I was always amazed at how quiet and peaceful the area was and appreciated this aspect of the my house location. Being near the edge of the city and near the mountains I never expected this to change. For many years I noticed no noise from jetliners taking off from either Stapleton or DIA but noticed planes flew over Rocky Flats many miles south. In 2012 the FAA relocated this flight path to just south of Boulder and I immediately noticed the loud noise from aircraft on the new flight path. As air traffic has increased over the years the time between planes on this flight path has shortened and the noise from aircraft has become untenable and an intrusion into my daily life. The formerly quiet neighborhood has become filled with aircraft noise. This must be changed. Now I understand the FAA has decided to modify the flight path again to support an expected growth in air travel from DIA. I thought this would be an excellent opportunity for the FAA to correct this noise problem for South Boulder residents. The new ZIMMR flight path appears to be just slightly further south but effectively still within earshot of Boulder. This minor change is a joke. It makes no sense to route air traffic over populated regions when unpopulated regions exist just a short distance south. This flight path should be shifted further south over Rocky Flats as it was before 2012. I formally protest this flight path change! While the FAA in meetings with the public has touted this flight path change will reduce noise in South Boulder I'm not convinced. As we all know the number of flights that will use this new flight path will only increase again with time until we are hearing aircraft constantly as we are today. I was just in Seattle staying with friends on Capital Hill where I have stayed many times over the years. This location is centered under the two or three flight paths they have for planes landing at SeaTac. This time was much worse due to the noticeable increase in air traffic on these flight paths since the last time I was there several years ago. A plane appeared every few minutes and each time the noise was so loud outside you could not carry on a conversation due to deafening noise from aircraft overhead. For years I have thanked my lucky stars that I didn't live there. Now I'm concerned that the FAA is creating the same situation for me where I live! I understand that ZIMMR is just one of four proposed flight paths south of us so shifting ZIMMR requires shifting the other three flight paths as well. I formally request that the FAA please shift all four new flight paths south over Rocky Flats--so that the majority of the planes will travel over less populated areas and disturb fewer people. Unless this is done this new FAA flight plan is not an improvement for the residents of South Boulder!"

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Purpose and Need of Project
- Suggestions to Change Air Traffic Patterns
- ZIMMR SID

FAA Response for Comment #315 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019

Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the

Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of

the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 316 Submitted by: McClintock, Diana

Comment Received: Our community is not ok with thos new flight pattern that you are planning on putting into place. I live in the pinery and already the noise level with the amount of plains is ridiculous. I can't imagine what this will be like when they are all running though our peaceful neighborhood. We are so far out of the DIA airport never would I imagine that this could happen to us. We are not ok with this and suggest you find a mother flight pattern over an area that does not have a neighborhood that has been hear since before your airport had been constructed.

Topics Identified in the Comment

- Existing Aircraft Noise
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #316 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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303-271-4850

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Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 317 Submitted by: McCurry, Gordon

Comment Received: I have lived in south Boulder since 2000 but since 2014 have been harassed by excessive airplane noise. This is due to the shifting of flights to the north and concentrating flights over my neighborhood since 2014. The worst noise impacts are for the evening flights; these are in close proximity during the time periods around 7:30pm and 10:30pm. In addition, I am frequently awoken by a flight that goes over the house a few minutes after 6am. These late night and early morning flights over my house are unacceptable. I request that the FAA adopt a complete ZIMMR noise solution. This includes (1) shifting the RALFI waypoint (east of Boulder on the ZIMMR flight path) about 0.7 nautical miles south, (2) shifting the IPALE waypoint (on the COORZ flight path south of RALFI) about 0.7 nautical miles south. These are made possible by reducing the departure angle between COORZ and CONNR from 17 degrees to 15 degrees. And (3) shifting the ZIMMR flight path another 1.3 miles south (for a total southward shift of 2 miles for ZIMMR). This would then involve shifting the COORZ, CONNR, and BAYLR flightpaths each approximately 1.3 miles south. Implementing these changes would place the westbound flight paths on ZIMMR closer to their historic track over Rocky Flats. In addition, I request that the night flights (night ops), and especially those westbound flights departing after about 9pm, use the COORZ route. With fewer evening flights this should be attainable while maintaining safety requirements. Finally, the noise complaint site is very difficult to locate on the DIA website; please make this more accessible to citizens.

Topics Identified in the Comment

- COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles
- Existing Aircraft Noise
- ZIMMR SID - Move 1.3 Nautical Miles
- ZIMMR SID

FAA Response for Comment #317 Topics

COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles: The commenter requests that the FAA consider modifying the proposed COORZ (RNAV) SID by moving the location of the IPALE waypoint 0.7 nautical miles south from the original location. The FAA reviewed the proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined the proposal would reduce the built-in margin of safety, thus limiting the procedures for air traffic control to efficiency manage air traffic on the proposed COORZ (RNAV) SID and CONNR (RNAV) SID.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are

best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

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https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

ZIMMR SID - Move 1.3 Nautical Miles: The commenter requests that the FAA consider modifying the proposed ZIMMR Area Navigation (RNAV) Standard Instrument Departure (SID) by moving the flight path 1.3 nautical miles southward from the location that was depicted at the workshops for the Draft Environmental Assessment. The proposal would affect the proposed COORZ (RNAV) SID, CONNR (RNAV) SID, and the BAYLR (RNAV) SID; requiring the same 1.3 nautical miles movement southward in order to maintain aircraft separation standards. The FAA reviewed this proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined that the proposed COORZ (RNAV) SID, CONNR (RNAV) SID and the BAYLR (RNAV) SID procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs. Additionally, moving the proposed BAYLR (RNAV) SID any further south would reduce the margin of safety with the proposed SSKII (RNAV) Standard Terminal Arrival (STAR) procedure and the existing, conventional POWDR STAR procedure. Moreover, the FAA designed the proposed BAYLR (RNAV) SID to avoid overflying the noise sensitive areas in downtown Denver, including the City Park and the Denver Zoo.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 318 Submitted by: McCurry, Nancy

Comment Received: I have lived in south Boulder since 2000 but since 2014 have been harassed by excessive airplane noise. This is due to the shifting of flights to the north and concentrating flights over my neighborhood since 2014. The worst noise impacts are for the evening flights; these are in close proximity during the time periods around 7:30pm and 10:30pm. In addition, I am frequently awoken by a flight that goes over the house a few minutes after 6am. These late night and early morning flights over my house are unacceptable. I request that the FAA adopt a complete ZIMMR noise solution. This includes (1) shifting the RALFI waypoint (east of Boulder on the ZIMMR flight path) about 0.7 nautical miles south, (2) shifting the IPALE waypoint (on the COORZ flight path south of RALFI) about 0.7 nautical miles south. These are made possible by reducing the departure angle between COORZ and CONNR from 17 degrees to 15 degrees. And (3) shifting the ZIMMR flight path another 1.3 miles south (for a total southward shift of 2 miles for ZIMMR). This would then involve shifting the COORZ, CONNR, and BAYLR flightpaths each approximately 1.3 miles south. Implementing these changes would place the westbound flight paths on ZIMMR closer to their historic track over Rocky Flats. In addition, I request that the night flights (night ops), and especially those westbound flights departing after about 9pm, use the COORZ route. With fewer evening flights this should be attainable while maintaining safety requirements. Finally, the noise complaint site is very difficult to locate on the DIA website; please make this more accessible to citizens.

Topics Identified in the Comment

- COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles
- Existing Aircraft Noise
- ZIMMR SID - Move 1.3 Nautical Miles
- ZIMMR SID

FAA Response for Comment #318 Topics

COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles: The commenter requests that the FAA consider modifying the proposed COORZ (RNAV) SID by moving the location of the IPALE waypoint 0.7 nautical miles south from the original location. The FAA reviewed the proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined the proposal would reduce the built-in margin of safety, thus limiting the procedures for air traffic control to efficiency manage air traffic on the proposed COORZ (RNAV) SID and CONNR (RNAV) SID.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are

best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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ZIMMR SID - Move 1.3 Nautical Miles: The commenter requests that the FAA consider modifying the proposed ZIMMR Area Navigation (RNAV) Standard Instrument Departure (SID) by moving the flight path 1.3 nautical miles southward from the location that was depicted at the workshops for the Draft Environmental Assessment. The proposal would affect the proposed COORZ (RNAV) SID, CONNR (RNAV) SID, and the BAYLR (RNAV) SID; requiring the same 1.3 nautical miles movement southward in order to maintain aircraft separation standards. The FAA reviewed this proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined that the proposed COORZ (RNAV) SID, CONNR (RNAV) SID and the BAYLR (RNAV) SID procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs. Additionally, moving the proposed BAYLR (RNAV) SID any further south would reduce the margin of safety with the proposed SSKII (RNAV) Standard Terminal Arrival (STAR) procedure and the existing, conventional POWDR STAR procedure. Moreover, the FAA designed the proposed BAYLR (RNAV) SID to avoid overflying the noise sensitive areas in downtown Denver, including the City Park and the Denver Zoo.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 319 Submitted by: McDermott, Lori

Comment Received: "To the FAA: Cherry Hills Village has worked hard for more than 70 years to preserve a safe low-density quiet residential oasis. The Village boasts many historic properties and many natural public parks whose quiet and tranquility is shared and cherished by all Denver residents. Additionally federally endangered species choose to call the Cherry Hills Village home including the whooping crane. The FAA's noise modeling promises that adoption of the Preferred Alternative will decrease aircraft noise levels throughout Cherry Hills Village. We therefore welcome the Preferred Alternative implementation so long as the FAA in the final EA represents and expressly commits that if the modeling is wrong and noise levels in Cherry Hills Village increase after the route changes the FAA will re-implement the No Action Alternative and conduct a full Environmental Impact Study evaluating the noise effect on all public properties and historic parks in our community. In the event it is determined that the FAA Environmental Assessment conclusions re: Denver Metroplex are flawed or misleading it is imperative that the FAA complete an updated detailed accurate and realistic Environmental Impact Study relevant to our community followed by open public review and discussion before any implementation of Denver Metroplex NextGen. Thank you for your consideration. Sincerely Lori McDermott"

Topics Identified in the Comment

- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Historical and Cultural Resources
- Level of NEPA Review
- NEPA and FAA Order 1050.1F
- Noise Modelling Analysis
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #319 Topics

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated

with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

NEPA and FAA Order 1050.1F: The National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) §4321 et seq.], requires federal agencies to disclose to decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in decisions that affect the quality of the human environment. As part of the NEPA process, federal agencies are required to consider the environmental effects of a proposed action and reasonable alternatives to a proposed action, including a no action alternative (i.e., analyzing the potential environmental effects of not undertaking the proposed action). The Federal Aviation Administration (FAA) has established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). The Proposed Action for this Environmental Assessment (EA) is the proposed Denver Metroplex Project. The Draft EA was prepared in accordance with FAA Order 1050.1F and meets the required elements of the National Environmental Policy Act.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be

affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflown, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative

would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 320 Submitted by: McNeive, Lynda

Comment Received: Comment and Objection: The conclusions of the EA are seriously flawed. The implementation of Denver Metroplex is highly controversial on both health and environmental grounds. A full Environmental Impact Statement (EIS) should be conducted for public review and comment. It should accurately disclose all data that will have a direct, indirect and cumulative impact on the Denver Region arising from Denver Metroplex, with emphasis on noise sensitive areas that have not experienced significant aviation noise and pollution in the past.

The EA excludes noise generated by expansion of Denver International Airport (DIA) and by aviation at Centennial Airport. Aviation activity at DIA is projected to grow by 70-100% by 2030/35.

Centennial Airport is the second largest general aviation airport in the United States with its own growth projections. The FAA's estimate of flights (whether commercial or general) grossly underestimates the direct, indirect and cumulative impact of noise generated by Metroplex.

The EA excludes the impact of particulate matter generated by aviation emissions on the health and welfare of adults and children notwithstanding significant current studies . (some conducted by or for the FAA) documenting the serious adverse impact on people's physical and mental health.

The EA excludes the impact of noise at or below DNL 65 dB (indoors with windows shut) on noise sensitive areas, including residences, historic areas, parks and schools. In the Denver region a majority of residences and schools in the suburbs predate DIA and experience low levels of noise. Studies by health organizations and universities have documented that increases in aviation noise cause and contribute to cardiac disease, depression and anxiety in both adults and children. Additionally it has been shown to cause lower test scores in children along with both cognitive and behavioral problems.

The EA contains assumptions that understate noise and ignore health risks, it is inaccurate and misleading. Metroplex is highly controversial generating litigation across the country. An EIS would accurately provide the detail necessary to evaluate the environmental impact of Denver Metroplex on the Denver Region.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Cumulative Impacts
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #320 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as "criteria

pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children’s health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency’s mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.” (72 Fed. Reg. 6641 (February 12, 2007)). Accordingly, there

would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the

Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport
303-790-4709
<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport
303-342-2380
https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport
970-336-3000
<http://www.gxy.net/>

Northern Colorado Regional Airport
970-962-2850
<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport
303-271-4850
<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as

Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the

Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver

Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or

above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative , when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 321 Submitted by: McPherson, Bruce

Comment Received: "The current 'adjusted' ZIMMR flight path as modified and approved by the FAA is a daily gross affront to over 100 000 citizens who reside directly in the flight path. It makes no sense to have moved those flight paths from a minimal impact zone (as it existed in 2013) to the current flight path over a heavily populated area. Please take the OBVIOUS off-ramp and adopt the 'Complete ZIMMR Noise Solution' as the official flight paths used for the Denver NEXTGEN portion of the DIA Metroplex project!!! Please withhold my personal information!"

Topics Identified in the Comment

- Purpose and Need of Project
- Withhold Personal Identifying Information
- ZIMMR SID

FAA Response for Comment #321 Topics

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Withhold Personal Identifying Information: Commenters were made aware of the following statement with their comment submission - "Please be aware that your name, address, phone number, email address, or other personal identifying information in your comment may be made publicly available at any time. You may include in your comment a request to withhold your personal identifying information, however we cannot guarantee that we will be able to do so".

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 322 Submitted by: Meehl, Jerry

Comment Received: Subject: Re: final chance to alleviate Boulder/Louisville/Nederland jet noise
This is a rather long and technical email arising from the FAA Metroplex workshop held on April 29, 2019. But please bear with us because we're now to the penultimate juncture in this three year plus process where we have to propose a tangible and actionable recommendation to match the very technical arguments the FAA is making in their efforts to justify not shifting jet noise away from Boulder, Louisville and Nederland. Please forward this message to anyone also concerned about this issue.

The bottom line is that we must work with our elected officials to force the FAA to make changes, and to advocate for changes on the FAA web page:

https://www.faa.gov/nextgen/nextgen_near_you/community_involvement/den/

and click on the blue tab at the right "submit your comments" (deadline for comment is June 6).

The more citizen comments that are submitted, the more the FAA will realize it needs to do something about this issue over and above their inadequate concept for their proposed new ZIMMR flightpath.

Please urge your friends and neighbors to submit comments. At minimum, we are advocating the following (as illustrated in the attached plots):

Our recommendation is a two step process:

1. Shift the RALFI waypoint (east of Boulder on the ZIMMR flight path) about 0.7 nautical miles south; and shift the IPALE waypoint (on the COORZ flight path south of RALFI) about 0.7 nautical miles south. This is made possible by reducing the departure angle between COORZ and CONNR from 17 degrees to 15 degrees.
2. Shift ZIMMR another 1.3 miles south (for a total southward shift of 2 miles for ZIMMR). This would then involve shifting the COORZ, CONNR, and BAYLR flightpaths 1.3 miles south. These are SMALL changes that would make a BIG difference to alleviate jet noise over Boulder, Louisville and Nederland. Both of these steps must be enacted.

Then, if you like, you can add further details from the material below that is highly relevant to the FAA push-back and their justification for not moving the proposed ZIMMR flightpath sufficiently south over Rocky Flats to alleviate the jet noise problem over Boulder, Louisville and Nederland.

Outcomes from the FAA Metroplex workshop, April 29, 2019, held at the Boulder Library Meadows Branch:

The proposed new flightpaths shown at the workshop were identical to the proposed flight paths they showed two years ago at their workshop in April, 2017. They weren't acceptable then, and they still aren't acceptable.

There were three new factors, unknown to us before April 29, 2019, and not told to us at the April 2017 workshop, that factor into the FAA's arguments for not moving the objectionable FOOOT flightpath well south of Boulder, Louisville and Nederland to solve our jet noise problem:

1. Horizontal spacing of 5.3 miles between the origination waypoint MUGBE (on the ZIMMR flightpath), and the origination waypoint FOAMS (on the COORZ waypoint), is fixed due to a deal made between DIA and Adams County; the FAA can't change that, though it could be addressed at the political level
2. Flight paths cannot converge; therefore, if MUGBE-FOAMS spacing is 5.3 miles, that spacing cannot decrease going west; this limits the options for moving ZIMMR south without moving COORZ south
3. The minimum angle between two flightpaths departing DIA is 15 degrees. Therefore, the angle between the COORZ and CONNR flight paths, currently about 17 degrees, can only be reduced to 15 degrees which impacts how far south ZIMMR and COORZ can be shifted

Several other important take-aways from the workshop:

--Several FAA personnel stated that no flight path could be shifted south over people who “have not experienced jet noise before.” This was stated as an FAA objection to moving flight paths south over Rocky Flats. This statement is demonstrably false for two reasons:

1. The FOOOT flight path shifted jet noise directly over Louisville and south Boulder in 2013, areas that had not experienced jet noise before, thus putting the FAA in violation of their latest stated rule

2. Flight paths from 2012 (which we have copies of and can furnish if asked) show the main westbound flight path from DIA was directly over Rocky Flats (from 1995-2013, the “Rockies Two” flight path with “Meeker Transition”), well south of where FOOOT now travels, with a wide dispersion of flight paths over the entire area between Golden and Eldorado Springs. Therefore, before the enactment of the NextGen navigation paths in 2013, the entire Rocky Flats area was under considerable jet noise. Apparently the FAA was defining “never experienced jet noise before” as starting with NextGen in 2014, which is in error since they must consider historical DIA jet noise

--The noise estimates from the FAA are not actual measurements but computer modeling. The FAA admitted that topographical reflection and amplification of noise from the Flatirons would not be accurately modeled by their procedure. Therefore, the FAA jet noise estimates are not credible for south Boulder.

--The FAA repeatedly told workshop attendees that ZIMMR would be “shifted 3 miles south of FOOOT and thus well south of Boulder,” and this number was quoted in the Camera article of April 30, 2019. That statement is demonstrably false. Working with Jerod Duenas of the FAA on the workstation during the workshop, he computed that the actual FOOOT-to-ZIMMR shift south near Boulder was 1.5 miles (leaving the flight path only about 0.5 miles south of the southern city limit of Boulder). The maximum southward shift of FOOOT to ZIMMR of 1.75 miles occurs about half way up Boulder Canyon. When this error in the FAA statement was pointed out to Mark Ostranic from the FAA (who was widely disseminating that wrong number), he apologized. But this was near the end of the workshop and many participants left the workshop thinking we would see a 3 mile southward shift. We won't.

--At least one FAA flight controller stated repeatedly that the horizontal spacing of flightpaths near Boulder had to be 5 miles. However, Boulder is still in the TRACON area that specifies a minimum spacing of 3 miles. The 5 mile spacing is elective to make the transition from TRACON to en route control easier for the FAA. However, the 5 mile spacing is not a strict regulation and can be less (5 mile spacing applies to higher en route altitudes outside the TRACON area).

About the best we could get the FAA to give ground on (and getting them to give ground on anything was a big deal since their position at the workshop was to defend and stick with their proposed flight paths) was to get about a 0.7 nautical mile southward shift of ZIMMR from its present proposed route. But that will not solve the jet noise problem over Boulder, Louisville and Nederland. Thus, we should advocate for a two step process. The first step would be what the FAA could grant us up front (the 0.7 mile southward shift). But we need to ask for a second step that would shift ZIMMR another 1.3 miles south (for a total southward shift of 2 miles from the proposed ZIMMR flightpath), which then would involve shifting the other three westbound flight paths 1.3 miles south.

This then is our recommendation for a two step process (see attached plots):

1. Shift the RALFI waypoint (east of Boulder on the ZIMMR flight path) about 0.7 nautical miles south; and shift the IPALE waypoint (on the COORZ flight path south of RALFI) about 0.7 nautical miles south. This is made possible by reducing the departure angle between COORZ and CONNR from 17 degrees to 15 degrees.

2. Shift ZIMMR another 1.3 miles south (for a total southward shift of 2 miles for ZIMMR). This would then involve shifting the COORZ, CONNR, and BAYLR flightpaths 1.3 miles south.

These are SMALL changes that would make a BIG difference to alleviate jet noise over Boulder, Louisville and Nederland.

Both of these steps must be enacted. It will take pressure at the citizen and political level to enact both, particularly step 2.

Notes: Step 1 would maintain the 5.3 mile spacing between ZIMMR and COORZ, dictated by the 5.3 mile spacing between the MUGBE and FOAMS initiation waypoints, and reduce to the minimum 15 degree departure angle between COORZ and CONNR

Step 2 would shift all four flightpaths an additional 1.3 miles south, a very small change.

Waypoints RALFI on ZIMMR, and IPALE on COORZ, are not on the maps available to the public, but were on the full flightpaths displayed on the FAA workstation at the workshop. They are important waypoints for Boulder and Louisville jet noise, and were not shown on the maps displayed at the workshop to “reduce clutter.”

Thanks for your help and support as we reach this critical juncture for jet noise over Boulder, Louisville and Nederland.

Jerry Meehl and Pamela Barsam Brown

On Mon, Apr 22, 2019 at 7:56 PM Jerry Meehl <gam60222@gmail.com> wrote:

April 22, 2019

To citizens affected by jet noise in Boulder, Louisville, and Nederland and corresponding elected officials,

Action item: please attend the final FAA jet noise workshop, Monday, April 29, 5PM-7:30PM, Boulder Library Meadows Branch Meeting Room, 4800 Baseline Road Boulder, CO 80303 (please try to arrive as close to 6:00PM as possible as we’ll try to make our presentation then)

Background:

As you know, we have been fighting the jet noise problem we started experiencing when the FAA instituted its new NextGen navigation program. It was in 2016 that we really started to be affected by the new flight paths, and we have been working with concerned citizens and elected officials to convince the FAA to make fairly minor changes to the new flight paths that would alleviate the jet noise problem. There was an FAA session two years ago (April 17, 2017) where they proposed very slight changes that didn’t solve the problem. In their latest proposal, the FAA has not made any changes to the proposed flight paths from two years ago in spite of numerous citizen comments posted to the FAA web page, and letters to the FAA from supportive elected officials. They are having a final workshop session on April 29, 5PM-7:30PM at the Boulder Library Meadows Branch Meeting Room, 4800 Baseline Road Boulder (please try to be there as close to 6:00PM as possible).

Therefore, we will again make our case at the April 29 meeting, and we encourage you to attend.

Attached is the material we will present. This will be the final chance to make our voice heard to the FAA before they finalize flight paths that will increasingly affect us for at least a generation to come as flight traffic out of DIA increases.

We encourage you to contact our elected officials to thank them for their support so far, and to encourage them to convince the FAA to make the fairly minor proposed tweak to the flight paths that would have a huge impact in alleviating the jet noise problem:

Representative Neguse: Attention: Kim Redd kim.redd@mail.house.gov

Senator Bennet

Senator Gardner

City of Nederland (Kris Larsen) lead trustee of the Nederland governing board

kristopherl@nederlandco.org

City of Louisville

Bob Louisville Mayor Muckle <BobM@louisvilleco.gov>

Boulder City Council:

council@bouldercolorado.gov

Adam Zarrin - GovOffice <adam.zarrin@state.co.us>,

stephen state senator fenberg <stephen.fenberg.senate@state.co.us>,

Matt Jones <senatormattjones@gmail.com>,

kc becker <repkcbecker@gmail.com>,

edie CO House Member Hooton <edie.hooton.house@state.co.us>,

Mike Foote representativefoote@gmail.com

Please spread the word to your neighbors regarding the April 29 FAA workshop as it would be great to get a large turnout to demonstrate the scope of the problem.

Best regards,

Jerry Meehl and Pamela Barsam Brown

(on behalf of affected citizens in South Boulder, Louisville, and Nederland)

If you need some text for a message to elected officials:

Why proposed ZIMMR flight path won't work to alleviate ongoing unrelenting jet noise from the "FOOOT" westbound flightpath from DIA over Louisville, Boulder, Nederland, and Indian Peaks Wilderness that was newly instituted in 2014 as part of the FAA NextGen navigation program:

The proposed ZIMMR flight path over south Boulder is only shifted about 0.5 miles south of the southern city limit—this does NOT solve the jet noise problem for south Boulder

The proposed ZIMMR flight path is only shifted a bit more than a mile south of Louisville—this does NOT solve the jet noise problem for Louisville

The proposed ZIMMR flight path would directly overfly Nederland and Indian Peaks Wilderness, thus causing even more of a jet noise problem there

Concrete and actionable tweak of ZIMMR (see maps):

1. Shift RAPDS waypoint 3.0 miles south
2. Shift ZIMMR waypoint 3.0 miles south
3. To preserve horizontal spacing of 4 to 5 miles, shift COORZ waypoint 3.0 miles south

What this tweak accomplishes:

1. Alleviates jet noise problem for south Boulder, with the flight path being about 3 miles south of southern city limit
2. Alleviates jet noise problem for Louisville, with the flight path being about 3 miles south of town
3. Alleviates jet noise problem for Nederland and Indian Peaks Wilderness, with the flight path being about 3 miles south

With this tweak, both ZIMMR and COORZ would shift the westbound flightpath back to the south over uninhabited Rocky Flats where it had been for over 20 years thus providing jet noise relief to approximately 73,000 to 140,000 people

This proposal would not shift the problem over different people, since Rocky Flats is mostly uninhabited, and not create a new jet noise problem for a different set of people since the first 20 miles of the proposed westbound departure paths from DIA are very close to the previous flight paths in use since DIA opened

We strongly urge the FAA to do the right thing for 73,000 to 140,000 people and enact this tweak

Topics Identified in the Comment

- COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles
- Existing Aircraft Noise
- Noise Modelling
- Public Outreach/Public Involvement
- Purpose and Need of Project
- ZIMMR SID - Move 1.3 Nautical Miles
- ZIMMR SID

FAA Response for Comment #322 Topics

COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles: The commenter requests that the FAA consider modifying the proposed COORZ (RNAV) SID by moving the location of the IPALE

waypoint 0.7 nautical miles south from the original location. The FAA reviewed the proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined the proposal would reduce the built-in margin of safety, thus limiting the procedures for air traffic control to efficiency manage air traffic on the proposed COORZ (RNAV) SID and CONNR (RNAV) SID.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Noise Modelling: The commenter raised concerns with the noise modelling methodology. The noise analysis completed for the Final Environmental Assessment (EA) was prepared using the Aviation Environmental Design Tool (AEDT) version 2d, which is the FAA’s required noise model. The FAA uses AEDT to model noise for flight track changes over large areas and at altitudes over 3,000 feet AGL to analyze noise associated with the No Action Alternative and the Denver Metroplex Project proposed action. The AEDT 2d model utilizes an extensive aircraft performance and sound level database that includes information on variations in sound attributed to different types of aircraft and aircraft engines, aircraft speed, climb and descent thrust, and the altitude along a route. Detailed terrain data was inputted into the AEDT 2d model, which accounts for the elevation of each grid point or population centroid when calculating the distance between the grid point and the aircraft. The aircraft

noise analysis prepared for the proposed Denver Metroplex Project Final EA was conducted in compliance with FAA Order 1050.1F.

Public Outreach/Public Involvement: The views and input of communities are important to the FAA as the Agency takes the next steps to advance the NAS. Since 2016, the FAA has engaged individual communities through holding public workshops in the Denver metropolitan area to explore possible solutions to their concerns while ensuring the safety and efficiency of the National Airspace System. Twelve public workshops across the Denver metropolitan area were held in 2017, and again recently in April and May 2019. The public workshop locations, dates and time were publicized in the Denver Post, posted on the FAA Community Involvement website, and the Denver Metroplex Project website, in addition to being publicized through social media and local press releases. Comments received from the 2017 and 2019 public workshops were considered when designing the proposed flight procedures for the Denver Metroplex Project.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

ZIMMR SID - Move 1.3 Nautical Miles: The commenter requests that the FAA consider modifying the proposed ZIMMR Area Navigation (RNAV) Standard Instrument Departure (SID) by moving the flight path 1.3 nautical miles southward from the location that was depicted at the workshops for the Draft Environmental Assessment. The proposal would affect the proposed COORZ (RNAV) SID, CONNR (RNAV) SID, and the BAYLR (RNAV) SID; requiring the same 1.3 nautical miles movement southward in order to maintain aircraft separation standards. The FAA reviewed this proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build

in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined that the proposed COORZ (RNAV) SID, CONNR (RNAV) SID and the BAYLR (RNAV) SID procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs. Additionally, moving the proposed BAYLR (RNAV) SID any further south would reduce the margin of safety with the proposed SSKII (RNAV) Standard Terminal Arrival (STAR) procedure and the existing, conventional POWDR STAR procedure. Moreover, the FAA designed the proposed BAYLR (RNAV) SID to avoid overflying the noise sensitive areas in downtown Denver, including the City Park and the Denver Zoo.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 323 Submitted by: Meehl, Jerry

Comment Received:

Kim Redd in Joe Neguse's office suggested I contact you regarding our citizen effort involving Boulder, Louisville, and Nederland with respect to the jet noise we have been experiencing starting in 2014 with the NextGen navigation system. The bottom line is that Kim thought you and I should make contact because she says you are involved with designing the Metroplex flight paths, and may be willing to work with us on a solution. (I'll be on travel until May 28, but will be reading email)

The noise really ramped up for us in 2016, and we made suggested changes to the FAA-proposed ZIMMR route at the April 2017 FAA Metroplex workshop. This recommendation was to move the proposed ZIMMR flightpath south several miles over Rocky Flats where the westbound flightpath was for the first 20 years of DIA's existence ("Rockies Two" flightpath with "Meeker transition") and from Stapleton before that. For something like 40 years the citizens (and property values) of Thornton, Westminster, and Superior adjusted to this flight path. Boulder, Louisville and Nederland didn't experience jet noise during those 40 years. With the establishment of the FOOOT flightpath in 2014, Boulder, Louisville and Nederland (and Indian Peaks Wilderness) began to experience jet noise for the first time. That is, the FAA shifted new jet noise over people who had not experienced jet noise before without notification or input.

Since then, we have been working with our citizens and elected officials to convince the FAA to shift the FOOOT flightpath farther south than the proposed ZIMMR flightpath that was first made public in April, 2017. That's because ZIMMR is only shifted 1.5 miles south of FOOOT near Boulder, and gets it only 0.5 miles south of the southern Boulder city limit--not far enough to address our jet noise problem (and that of Louisville and Nederland as well). Given additional information at the recent April 29, 2019, FAA workshop, we are proposing the two step process below (as illustrated in the attached plots):

Our recommendation is a two step process:

1. Shift the RALFI waypoint (east of Boulder on the ZIMMR flight path) about 0.7 nautical miles south; and shift the IPALE waypoint (on the COORZ flight path south of RALFI) about 0.7 nautical miles south. This is made possible by reducing the departure angle between COORZ and CONNR from 17 degrees to 15 degrees.
2. Shift ZIMMR another 1.3 miles south (for a total southward shift of 2 miles for ZIMMR). This would then involve shifting the COORZ, CONNR, and BAYLR flightpaths 1.3 miles south.

These are SMALL changes that would make a BIG difference to alleviate jet noise over Boulder, Louisville and Nederland.

Both of these steps must be enacted.

There were three new factors, unknown to us before April 29, 2019, and not told to us at the April 2017 workshop, that factor into the FAA's arguments for not moving the objectionable FOOOT flightpath well south of Boulder, Louisville and Nederland to solve our jet noise problem:

1. Horizontal spacing of 5.3 miles between the origination waypoint MUGBE (on the ZIMMR flightpath), and the origination waypoint FOAMS (on the COORZ waypoint), is fixed due to a deal made between DIA and Adams County; the FAA can't change that, though it could be addressed at the political level

2. Flight paths cannot converge; therefore, if MUGBE-FOAMS spacing is 5.3 miles, that spacing cannot decrease going west; this limits the options for moving ZIMMR south without moving COORZ south
3. The minimum angle between two flightpaths departing DIA is 15 degrees. Therefore, the angle between the COORZ and CONNR flight paths, currently about 17 degrees, can only be reduced to 15 degrees which impacts how far south ZIMMR and COORZ can be shifted

Several other important take-aways from the workshop:

--The noise estimates from the FAA are not actual measurements but computer modeling. The FAA admitted that topographical reflection and amplification of noise from the Flatirons would not be accurately modeled by their procedure. Therefore, the FAA jet noise estimates are not credible for south Boulder.

--The FAA repeatedly told workshop attendees that ZIMMR would be “shifted 3 miles south of FOOOT and thus well south of Boulder,” and this number was quoted in the Camera article of April 30, 2019. That statement is demonstrably false. Working with Jerod Duenas of the FAA on the workstation during the workshop, he computed that the actual FOOOT-to-ZIMMR shift south near Boulder was 1.5 miles (leaving the flight path only about 0.5 miles south of the southern city limit of Boulder). The maximum southward shift of FOOOT to ZIMMR of 1.75 miles occurs about half way up Boulder Canyon. When this error in the FAA statement was pointed out to Mark Ostranic from the FAA (who was widely disseminating that wrong number), he apologized. But this was near the end of the workshop and many participants left the workshop thinking we would see a 3 mile southward shift. We won't.

--At least one FAA flight controller stated repeatedly that the horizontal spacing of flightpaths near Boulder had to be 5 miles. However, Boulder is still in the TRACON area that specifies a minimum spacing of 3 miles. The 5 mile spacing is elective to make the transition from TRACON to en route control easier for the FAA. However, the 5 mile spacing is not a strict regulation and can be less (5 mile spacing applies to higher en route altitudes outside the TRACON area).

Notes: Step 1 would maintain the 5.3 mile spacing between ZIMMR and COORZ, dictated by the 5.3 mile spacing between the MUGBE and FOAMS initiation waypoints, and reduce to the minimum 15 degree departure angle between COORZ and CONNR

Step 2 would shift all four flightpaths an additional 1.3 miles south, a very small change.

Thanks for your help and support as we reach this critical juncture for jet noise over Boulder, Louisville and Nederland.

Topics Identified in the Comment

- COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles
- Existing Aircraft Noise
- Noise Modelling
- ZIMMR SID - Move 1.3 Nautical Miles
- ZIMMR SID

FAA Response for Comment #323 Topics

COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles: The commenter requests that the FAA consider modifying the proposed COORZ (RNAV) SID by moving the location of the IPALE waypoint 0.7 nautical miles south from the original location. The FAA reviewed the proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined the proposal would reduce the built-in margin of safety, thus limiting the procedures for air traffic control to efficiency manage air traffic on the proposed COORZ (RNAV) SID and CONNR (RNAV) SID.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport
303-790-4709
<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport
303-342-2380
https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport
970-336-3000
<http://www.gxy.net/>

Northern Colorado Regional Airport
970-962-2850
<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport
303-271-4850
<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Noise Modelling: The commenter raised concerns with the noise modelling methodology. The noise analysis completed for the Final Environmental Assessment (EA) was prepared using the Aviation Environmental Design Tool (AEDT) version 2d, which is the FAA’s required noise model. The FAA uses AEDT to model noise for flight track changes over large areas and at altitudes over 3,000 feet AGL to analyze noise associated with the No Action Alternative and the Denver Metroplex Project proposed action. The AEDT 2d model utilizes an extensive aircraft performance and sound level database that includes information on variations in sound attributed to different types of aircraft and

aircraft engines, aircraft speed, climb and descent thrust, and the altitude along a route. Detailed terrain data was inputted into the AEDT 2d model, which accounts for the elevation of each grid point or population centroid when calculating the distance between the grid point and the aircraft. The aircraft noise analysis prepared for the proposed Denver Metroplex Project Final EA was conducted in compliance with FAA Order 1050.1F.

ZIMMR SID - Move 1.3 Nautical Miles: The commenter requests that the FAA consider modifying the proposed ZIMMR Area Navigation (RNAV) Standard Instrument Departure (SID) by moving the flight path 1.3 nautical miles southward from the location that was depicted at the workshops for the Draft Environmental Assessment. The proposal would affect the proposed COORZ (RNAV) SID, CONNR (RNAV) SID, and the BAYLR (RNAV) SID; requiring the same 1.3 nautical miles movement southward in order to maintain aircraft separation standards. The FAA reviewed this proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined that the proposed COORZ (RNAV) SID, CONNR (RNAV) SID and the BAYLR (RNAV) SID procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs. Additionally, moving the proposed BAYLR (RNAV) SID any further south would reduce the margin of safety with the proposed SSKII (RNAV) Standard Terminal Arrival (STAR) procedure and the existing, conventional POWDR STAR procedure. Moreover, the FAA designed the proposed BAYLR (RNAV) SID to avoid overflying the noise sensitive areas in downtown Denver, including the City Park and the Denver Zoo.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 324 Submitted by: Meehl, Jerry

Comment Received: "This is a supplement to the comment I submitted that was text-only. I attempt to attach a couple of illustrations to support our proposed small southward shift of ZIMMR but this doesn't seem to be possible with this web form. I'll try to figure out to whom I can send the graphics. To summarize the recommendation of a large group of south Boulder residents: Our recommendation is a two-step process: 1. Shift the RALFI waypoint (east of Boulder on the ZIMMR flight path) about 0.7 nautical miles south; and shift the IPALE waypoint (on the COORZ flight path south of RALFI) about 0.7 nautical miles south. This is made possible by reducing the departure angle between COORZ and CONNR from 17 degrees to 15 degrees. 2. Shift RALFI on ZIMMR another 1.3 miles south (for a total southward shift of 2 miles for ZIMMR at the longitude of Boulder). This would then involve shifting the COORZ CONNR and BAYLR flightpaths 1.3 miles south roughly at the longitude of Boulder."

Topics Identified in the Comment

- COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles
- ZIMMR SID
- ZIMMR SID - Move 1.3 Nautical Miles

FAA Response for Comment #324 Topics

COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles: The commenter requests that the FAA consider modifying the proposed COORZ (RNAV) SID by moving the location of the IPALE waypoint 0.7 nautical miles south from the original location. The FAA reviewed the proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined the proposal would reduce the built-in margin of safety, thus limiting the procedures for air traffic control to efficiency manage air traffic on the proposed COORZ (RNAV) SID and CONNR (RNAV) SID.

ZIMMR SID - Move 1.3 Nautical Miles: The commenter requests that the FAA consider modifying the proposed ZIMMR Area Navigation (RNAV) Standard Instrument Departure (SID) by moving the flight path 1.3 nautical miles southward from the location that was depicted at the workshops for the Draft Environmental Assessment. The proposal would affect the proposed COORZ (RNAV) SID, CONNR (RNAV) SID, and the BAYLR (RNAV) SID; requiring the same 1.3 nautical miles movement southward in order to maintain aircraft separation standards. The FAA reviewed this proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined that the proposed COORZ (RNAV) SID, CONNR (RNAV) SID and the BAYLR (RNAV) SID procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs. Additionally, moving the proposed BAYLR (RNAV) SID any further south would reduce the margin of safety with the proposed SSKII (RNAV) Standard Terminal Arrival (STAR) procedure and the existing, conventional POWDR STAR procedure. Moreover, the FAA

designed the proposed BAYLR (RNAV) SID to avoid overflying the noise sensitive areas in downtown Denver, including the City Park and the Denver Zoo.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 325 Submitted by: Meehl, Jerry

Comment Received: My wife Marla and I, representing a large group of citizens in south Boulder, submit this comment with regards to shifting the proposed ZIMMR flightpath somewhat farther south to alleviate jet noise over Louisville, south Boulder, Nederland, and Indian Peaks Wilderness. Using technical FAA rules and criteria gleaned from the FAA workshop in Boulder on April 29, 2019, from Mark Ostranic and Jerod Duenas, we have further refined the Meehl Tweak solution submitted to the FAA two years ago and developed the technical alterations to flight paths presented below as the Complete ZIMMR Noise Solution. Our recommendation is a two-step process: 1. Shift the RALFI waypoint (east of Boulder on the ZIMMR flight path) about 0.7 nautical miles south; and shift the IPALE waypoint (on the COORZ flight path south of RALFI) about 0.7 nautical miles south. This is made possible by reducing the departure angle between COORZ and CONNR from 17 degrees to 15 degrees. 2. Shift RALFI on ZIMMR another 1.3 miles south (for a total southward shift of 2 miles for ZIMMR at the longitude of Boulder). This would then involve shifting the COORZ, CONNR, and BAYLR flightpaths 1.3 miles south roughly at the longitude of Boulder. Both of these steps must be enacted to alleviate the jet noise problem for about 100,000 people; these are SMALL changes that would make a BIG difference to alleviate jet noise over Boulder, Louisville, Nederland, and Indian Peaks Wilderness. Note: Step 1 would maintain the 5.3 mile spacing between ZIMMR and COORZ, dictated by the 5.3 mile spacing between the MUGBE and FOAMS initiation waypoints, and reduce to the minimum 15 degree departure angle between COORZ and CONNR. Several FAA personnel stated that no flight path could be shifted south over people who “have not experienced jet noise before.” This was stated as an FAA objection to moving flight paths south over Rocky Flats. This statement is demonstrably false for two reasons: 1. The FOOOT flight path shifted jet noise directly over Louisville and south Boulder in 2013, areas that had not experienced jet noise before, thus putting the FAA in violation of their latest stated rule 2. Flight paths from 2012 (which we have copies of and can furnish if asked) show the main westbound flight path from DIA was directly over Rocky Flats (from 1995-2013, the “Rockies Two” flight path with “Meeker Transition”), well south of where FOOOT now travels, with a wide dispersion of flight paths over the entire area between Golden and Eldorado Springs. Therefore, before the enactment of the NextGen navigation paths in 2013, the entire Rocky Flats area was under considerable jet noise. Apparently the FAA was defining “never experienced jet noise before” as starting with NextGen in 2014, which is in error since they must consider historical DIA jet noise --The noise estimates from the FAA are not actual measurements but computer modeling. The FAA admitted that topographical reflection and amplification of noise from the Flatirons would not be accurately modeled by their procedure. Therefore, the FAA jet noise estimates are not credible for south Boulder. --The FAA repeatedly told workshop attendees that ZIMMR would be “shifted 3 miles south of FOOOT and thus well south of Boulder,” and this number was quoted in the Camera article of April 30, 2019. That statement is demonstrably false. Working with Jerod Duenas of the FAA on the workstation during the workshop, he computed that the actual FOOOT-to-ZIMMR shift south near Boulder was 1.5 miles (leaving the flight path only about 0.5 miles south of the southern city limit of Boulder). The maximum southward shift of FOOOT to ZIMMR of 1.75 miles occurs about half way up Boulder Canyon. When this error in the FAA statement was pointed out to Mark Ostranic from the FAA, he apologized. But this was near the end of the workshop and many participants left the workshop thinking we would see a 3 mile southward shift. We won’t. I will try to attach a few figures in a separate comment to illustrate the points made in this comment.

Topics Identified in the Comment

- COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles
- Existing Aircraft Noise
- Noise Modelling

- ZIMMR SID - Move 1.3 Nautical Miles
- ZIMMR SID

FAA Response for Comment #325 Topics

COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles: The commenter requests that the FAA consider modifying the proposed COORZ (RNAV) SID by moving the location of the IPALE waypoint 0.7 nautical miles south from the original location. The FAA reviewed the proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined the proposal would reduce the built-in margin of safety, thus limiting the procedures for air traffic control to efficiency manage air traffic on the proposed COORZ (RNAV) SID and CONNR (RNAV) SID.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Noise Modelling: The commenter raised concerns with the noise modelling methodology. The noise analysis completed for the Final Environmental Assessment (EA) was prepared using the Aviation Environmental Design Tool (AEDT) version 2d, which is the FAA's required noise model. The FAA uses AEDT to model noise for flight track changes over large areas and at altitudes over 3,000 feet AGL to analyze noise associated with the No Action Alternative and the Denver Metroplex Project proposed action. The AEDT 2d model utilizes an extensive aircraft performance and sound level database that includes information on variations in sound attributed to different types of aircraft and aircraft engines, aircraft speed, climb and descent thrust, and the altitude along a route. Detailed terrain data was inputted into the AEDT 2d model, which accounts for the elevation of each grid point or population centroid when calculating the distance between the grid point and the aircraft. The aircraft noise analysis prepared for the proposed Denver Metroplex Project Final EA was conducted in compliance with FAA Order 1050.1F.

ZIMMR SID - Move 1.3 Nautical Miles: The commenter requests that the FAA consider modifying the proposed ZIMMR Area Navigation (RNAV) Standard Instrument Departure (SID) by moving the flight path 1.3 nautical miles southward from the location that was depicted at the workshops for the Draft Environmental Assessment. The proposal would affect the proposed COORZ (RNAV) SID, CONNR (RNAV) SID, and the BAYLR (RNAV) SID; requiring the same 1.3 nautical miles movement southward in order to maintain aircraft separation standards. The FAA reviewed this proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined that the proposed COORZ (RNAV) SID, CONNR (RNAV) SID and the BAYLR (RNAV) SID procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs. Additionally, moving the proposed BAYLR (RNAV) SID any further south would reduce the margin of safety with the proposed SSKII (RNAV) Standard Terminal Arrival (STAR) procedure and the existing, conventional POWDR STAR procedure. Moreover, the FAA designed the proposed BAYLR (RNAV) SID to avoid overflying the noise sensitive areas in downtown Denver, including the City Park and the Denver Zoo.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 326 Submitted by: Meehl, Jerry

Comment Received: Hi Dave,

Thanks for the response, and for sending the comments on up the line. I also posted a similar comment to the FAA web page, as have many others in our neighborhood group.

I think Kim Redd's idea (recall Kim is a staffer for Congressman Neguse) was that you could possibly weigh in and/or discuss the feasibility of our two step process to alleviate jet noise over Boulder, Louisville, Nederland, and Indian Peaks Wilderness.

In our discussion with Mark Ostronic and Jarod Duenas at the workshop, they were supportive of our step 1 and thought that was quite doable (i.e. reduce the departure angle between COORZ and CONNR from 17 to 15 degrees, and shift ZIMMR southward accordingly to preserve the 5.3 mile spacing between ZIMMR and COORZ). That would buy us about a 0.7 mile southward shift of ZIMMR at the RALFI waypoint, not that much but going in the right direction. I was wondering if you agreed with that assessment?

Once the departure angle is set to 15 degrees between COORZ and CONNR, then all four westbound flight paths could then be shifted in unison a bit farther south to maintain horizontal spacing as outlined in our step 2. Mark indicated there were other constraints on the southern flight paths, but it appeared that since the shift would be fairly small (only about a 1.3 mile southward shift of RALFI on ZIMMR, and a similar shift of IPALE on COORZ), corresponding small southward shifts of CONNR and BAYLR could be worked out.

We're afraid that our comments will go into a black hole on the FAA web page, and Kim thought that engaging people actually designing the flight paths could be more productive.

Topics Identified in the Comment

- COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles
- ZIMMR SID - Move 1.3 Nautical Miles
- ZIMMR SID

FAA Response for Comment #326 Topics

COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles: The commenter requests that the FAA consider modifying the proposed COORZ (RNAV) SID by moving the location of the IPALE waypoint 0.7 nautical miles south from the original location. The FAA reviewed the proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined the proposal would reduce the built-in margin of safety, thus limiting the procedures for air traffic control to efficiency manage air traffic on the proposed COORZ (RNAV) SID and CONNR (RNAV) SID.

ZIMMR SID - Move 1.3 Nautical Miles: The commenter requests that the FAA consider modifying the proposed ZIMMR Area Navigation (RNAV) Standard Instrument Departure (SID) by moving the flight path 1.3 nautical miles southward from the location that was depicted at the workshops for the Draft Environmental Assessment. The proposal would affect the proposed COORZ (RNAV) SID, CONNR (RNAV) SID, and the BAYLR (RNAV) SID; requiring the same 1.3 nautical miles movement southward in order to maintain aircraft separation standards. The FAA reviewed this

proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined that the proposed COORZ (RNAV) SID, CONNR (RNAV) SID and the BAYLR (RNAV) SID procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs. Additionally, moving the proposed BAYLR (RNAV) SID any further south would reduce the margin of safety with the proposed SSKII (RNAV) Standard Terminal Arrival (STAR) procedure and the existing, conventional POWDR STAR procedure. Moreover, the FAA designed the proposed BAYLR (RNAV) SID to avoid overflying the noise sensitive areas in downtown Denver, including the City Park and the Denver Zoo.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 327 Submitted by: Meehl, Marla

Comment Received: "1. Shift the RALFI waypoint (east of Boulder on the ZIMMR flight path) about 0.7 nautical miles south; and shift the IPALE waypoint (on the COORZ flight path south of RALFI) about 0.7 nautical miles south. This is made possible by reducing the departure angle between COORZ and CONNR from 17 degrees to 15 degrees. 2. Shift ZIMMR another 1.3 miles south (for a total southward shift of 2 miles for ZIMMR). This would then involve shifting the COORZ CONNR and BAYLR flightpaths 1.3 miles south. These are SMALL changes that would make a BIG difference to alleviate jet noise over Boulder Louisville and Nederland. Both of these steps must be enacted."

Topics Identified in the Comment

- COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles
- ZIMMR SID
- ZIMMR SID - Move 1.3 Nautical Miles

FAA Response for Comment #327 Topics

COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles: The commenter requests that the FAA consider modifying the proposed COORZ (RNAV) SID by moving the location of the IPALE waypoint 0.7 nautical miles south from the original location. The FAA reviewed the proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined the proposal would reduce the built-in margin of safety, thus limiting the procedures for air traffic control to efficiency manage air traffic on the proposed COORZ (RNAV) SID and CONNR (RNAV) SID.

ZIMMR SID - Move 1.3 Nautical Miles: The commenter requests that the FAA consider modifying the proposed ZIMMR Area Navigation (RNAV) Standard Instrument Departure (SID) by moving the flight path 1.3 nautical miles southward from the location that was depicted at the workshops for the Draft Environmental Assessment. The proposal would affect the proposed COORZ (RNAV) SID, CONNR (RNAV) SID, and the BAYLR (RNAV) SID; requiring the same 1.3 nautical miles movement southward in order to maintain aircraft separation standards. The FAA reviewed this proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft. The FAA determined that the proposed COORZ (RNAV) SID, CONNR (RNAV) SID and the BAYLR (RNAV) SID procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs. Additionally, moving the proposed BAYLR (RNAV) SID any further south would reduce the margin of safety with the proposed SSKII (RNAV) Standard Terminal Arrival (STAR) procedure and the existing, conventional POWDR STAR procedure. Moreover, the FAA designed the proposed BAYLR (RNAV) SID to avoid overflying the noise sensitive areas in downtown Denver, including the City Park and the Denver Zoo.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft

Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 328 Submitted by: Middaugh, Jeff

Comment Received: I know all the people at the meeting think their air traffic noise issues are due to DIA plane traffic. I disagree vehemently. I think high rollers flying out Rocky Mt. Airport in their private jets are at fault. I often go there to watch all the interesting corporate jets. I talk to the private pilots. THEY GET TIPS TO DEVIATE FROM FLIGHT PLANS FILED ... The rich want to see Boulder (a very scenic place) from above. I went hiking Doudy Draw Trail once, and saw what I thought was a commercial jet flying real close to the ground. Prop plane. Made no sense to me at the time.

Now it does.

Dowdy Draw is adjacent to Eldorado Canyon which is very, very scenic. Mamie Doud Eisenhower was from Broomfield, Colorado. Her husband Dwight Eisenhower would take a train back in the 1950's to the hotel that used be there, because it was so scenic. Planes are the trains of the past.

Topics Identified in the Comment

- Existing Aircraft Noise
- General Aviation/Visual Flight Rules

FAA Response for Comment #328 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Comments-Responses

Comment# 329 Submitted by: Milane, Tamara

Comment Received: "The Next Generation Air Transportation System is a flawed program that has created noise problems for people where there have previously been none. (I live 30 miles from DIA). The concentration of flights following these new flight patterns has increased the frequency of air traffic resulting in relentless air traffic overhead throughout the day. For example on Friday May 31 2019 there were at least 8-10 thunderous flights over my house between approximately 10:00 a.m. to 10:20 a.m. Now that's a lot of noise to bear within 20 minutes! This does not seem acceptable or fair to people living in my area. Let's go back to the drawing board. Let's take a look at the technology again that brought us here. Are there improvements that are being overlooked as we push forward with this program? Flights need to be dispersed so as not to over-burden one geographical area. Please withhold my personal identifying information."

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Suggestions to Change Air Traffic Patterns
- Withold Personal Identifying Information

FAA Response for Comment #329 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Withhold Personal Identifying Information: Commenters were made aware of the following statement with their comment submission - "Please be aware that your name, address, phone number, email address, or other personal identifying information in your comment may be made publicly available at any time. You may include in your comment a request to withhold your personal identifying information, however we cannot guarantee that we will be able to do so".

Comments-Responses

Comment# 330 Submitted by: Milane, Tamara

Comment Received: The Next Generation Air Transportation System is a flawed program that has created noise problems for people where there have previously been none. (I live 30 miles from DIA). The concentration of flights following these new flight patterns has increased the frequency of air traffic, resulting in relentless air traffic overhead throughout the day. For example, on Friday, May 31, 2019 there were at least 8-10 thunderous flights over my house between approximately 10:00 a.m. to 10:20 a.m. Now that's a lot of noise to bear within 20 minutes! This does not seem acceptable or fair to people living in my area.

Let's go back to the drawing board. Let's take a look at the technology again that brought us here. Are there improvements that are being overlooked as we push forward with this program? Flights need to be dispersed so as not to over-burden one geographical area.

Please withhold my personal identifying information.

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Suggestions to Change Air Traffic Patterns
- Withold Personal Identifying Information

FAA Response for Comment #330 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Withhold Personal Identifying Information: Commenters were made aware of the following statement with their comment submission - "Please be aware that your name, address, phone number, email address, or other personal identifying information in your comment may be made publicly available at any time. You may include in your comment a request to withhold your personal identifying information, however we cannot guarantee that we will be able to do so".

Comments-Responses

Comment# 331 Submitted by: Miller, Heidi

Comment Received: Adams County is in receipt of the April 17, 2019 correspondence sent by Shawn Kozica regarding the Denver Metroplex Draft Environmental Assessment. Adams County does not have any specific comments regarding the draft environmental assessment. However, Adams County wishes to express that it intends to protect the interests of its residents by ensuring that all applicable local, state, and federal regulations and agreements are enforced with regard to noise impacts from air travel. Specifically, Adams County will continue to pursue enforcement of the Intergovernmental Agreement on a New Airport entered into between Denver and Adams County on April 21, 1988. A copy of that Agreement is attached hereto. Adams County asks that the FAA consider the noise standards contained in the 1988 Agreement during its evaluation of appropriate flight paths in and out of Denver International Airport. Adams County further asks that the FAA continue to enforce its own regulations regarding noise limitations.
Thank you for your consideration.

Topics Identified in the Comment

- 1988 Intergovernmental Agreement On A New Airport

FAA Response for Comment #331 Topics

1988 Intergovernmental Agreement On A New Airport: The commenter raises concerns to pursue enforcement of the 1988 Intergovernmental Agreement on a New Airport entered into between Denver and Adams County on April 21, 1988 (1988 IGA). The assessment of the 1998 IGA violating any laws or regulations regarding noise or flight operations is not an environmental impact category as outlined in FAA Order 1050.1F. The proposed Denver Metroplex Project offers an opportunity for the FAA to consider potential changes to flight procedures that may reduce impacts in the Noise Exposure Performance Standards (NEPS) areas covered by the 1988 IGA. The NEPS points were established through the 1988 IGA where each NEPS point has unique criteria for aircraft noise levels.

The proposed Denver Metroplex Project flight procedures would involve Standard Terminal Arrival and Standard Instrument Departures that utilized satellite based navigation technology. The proposed flight procedures were designed to take into account the geographic location of the NEPS points. The Denver Metroplex Design & Implementation Team worked with Denver International Airport to support the 1988 IGA to minimize the likelihood of a noise level exceedance at the NEPS points. As part of the proposed procedure design process, Denver International Airport prepared an independent noise modelling analysis of the proposed Denver Metroplex flight procedures. The results of their analysis indicated that the NEPS points would not reach a noise level exceedance. The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing issues associated with an intergovernmental agreement is outside the scope of the purpose and need for the proposed Denver Metroplex Project.

Comments-Responses

Comment# 332 Submitted by: Miller, Sara

Comment Received: For residents who live near and on flight paths of Centennial Airport, there should be a limit on the number of jets/aircraft allowed to land and take off per day as to mitigate the noise pollution of the residents who live in these neighborhoods. It is unfair and wrong to impact the residents with the amount of noise pollution - including children and families. This needs to be thought through & considered - specifically for residents surrounding the airport.

Topics Identified in the Comment

- Existing Aircraft Noise
- General Aviation/Visual Flight Rules

FAA Response for Comment #332 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Comments-Responses

Comment# 333 Submitted by: Millet, Jacqueline

Comment Received: To Whom It May Concern:

The City Council of the City of Lone Tree, Colorado, submits the following comments and objections regarding the draft EA.

Comment and Objection: The conclusions of the EA are seriously flawed. The implementation of Denver Metroplex is highly controversial on both health and environmental grounds. A full Environmental Impact Statement (EIS) should be conducted for public review and comment. It should accurately disclose all data that will have a direct, indirect and cumulative impact on the Denver Region arising from Denver Metroplex, with emphasis on noise sensitive areas that have not experienced significant aviation noise and pollution in the past.

The EA excludes noise generated by expansion of Denver International Airport (DIA) and by aviation at Centennial Airport. Aviation activity at DIA is projected to grow by 70-100% by 2030/35.

Centennial Airport is the second largest general aviation airport in the United States with its own growth projections. The Federal Aviation Administration's (FAA) estimate of flights (whether commercial or general) grossly underestimates the direct, indirect and cumulative impact of noise generated by Metroplex.

The EA excludes the impact of particulate matter generated by aviation emissions on the health and welfare of adults and children notwithstanding significant current studies (some conducted by or for the FAA) documenting the serious adverse impact on people's physical and mental health.

The EA excludes the impact of noise at or below DNL 65 dB (indoors with windows shut) on - noise sensitive areas, including residences, historic areas, parks and schools. In the Denver region a majority of residences and schools in the suburbs predate DIA and experience low levels of noise. Studies by health organizations and universities have documented that increases in aviation noise cause and contribute to cardiac disease, depression and anxiety in both adults and children. Additionally, it has been shown to cause lower test scores in children along with both cognitive and behavioral problems. In closing, the EA contains assumptions that understate noise and ignore health risks, and it is inaccurate and misleading. An EIS would accurately provide the detail necessary to evaluate the environmental impact of Denver Metroplex on the Denver region, including the City of Lone Tree.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Cumulative Impacts
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #333 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the

atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children’s health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency’s mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height

do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.” (72 Fed. Reg. 6641 (February 12, 2007). Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA’s primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival

and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise

energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining

whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative , when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses**Comment# 334 Submitted by: Mineo, David**

Comment Received: Work shop was helpful. Hoping more routes will be over all the open farmland in Northern Colo. Historic Berthoud, Colo. Gets pounded. Advocate for homeowners who are under these routes.

Topics Identified in the Comment

- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #334 Topics

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 335 Submitted by: Mineo, David

Comment Received: I attended the meeting in Longmont, Co. on Monday the 13th. Here are the questions I need answered.

1. What is the name of the arrival pattern west to east over Berthoud, Co. heading to DIA?
2. How many planes use that route every day?
3. How far from the current pattern is the proposed new pattern?

Is there someone I can talk to in the future if I have more questions/concerns?

Thank you,

Topics Identified in the Comment

- Arrivals Over Berthoud

FAA Response for Comment #335 Topics

Arrivals Over Berthoud: The commenter requested that the FAA change the two existing arrival patterns flying over Old Town Berthoud, Berthoud, Colorado. The existing west to east arrival flight path routing would not change with the implementation of the proposed Denver Metroplex Project. The proposed LONGZ Area Navigation (RNAV) Standard Terminal Arrival (STAR) would closely follow the arrival flight path and similar altitudes as the existing KAILE (RNAV) STAR arrival flight procedure. The proposed LONGZ (RNAV) STAR, which would replace the existing KAILE (RNAV) STAR, would be applicable only when Denver International Airport is landing in south configuration.

The northwest to southeast arrival routing would change with the implementation of the proposed Denver Metroplex Project. The proposed FLATI (RNAV) STAR arrival flight procedure would replace the existing MOLTN (RNAV) STAR flight procedure. The proposed FALTI (RNAV) STAR arrival flight path would be approximately 1.6 nautical miles east of the existing MOLTN (RNAV) STAR. Accordingly, the proposed arrival flight path would be approximately 1.6 nautical miles further east of Berthoud, Colorado. This routing would be applicable only when Denver International Airport is landing in a north flow configuration. There is no standard deviation value for RNAV procedures. RNAV procedures have different ranges of containment (area where aircraft will be while on the RNAV procedure). The containment area depends on several factors, including aircraft navigation equipment and alerting, aircraft flight management systems, and pilot training.

Comments-Responses

Comment# 336 Submitted by: Mineo, David

Comment Received: Hey again,

I forgot to mention, the current flight pattern I was shown at the meeting in Longmont on Monday over Berthoud, Co. was incorrect. They fly directly over 965 5th. St. and 962 5th St. etc. on the exact same line continually. How much will that change with the proposed new pattern?

Thanks again,

Topics Identified in the Comment

- Arrivals Over Berthoud

FAA Response for Comment #336 Topics

Arrivals Over Berthoud: The commenter requested that the FAA change the two existing arrival patterns flying over Old Town Berthoud, Berthoud, Colorado. The existing west to east arrival flight path routing would not change with the implementation of the proposed Denver Metroplex Project. The proposed LONGZ Area Navigation (RNAV) Standard Terminal Arrival (STAR) would closely follow the arrival flight path and similar altitudes as the existing KAILE (RNAV) STAR arrival flight procedure. The proposed LONGZ (RNAV) STAR, which would replace the existing KAILE (RNAV) STAR, would be applicable only when Denver International Airport is landing in south configuration.

The northwest to southeast arrival routing would change with the implementation of the proposed Denver Metroplex Project. The proposed FLATI (RNAV) STAR arrival flight procedure would replace the existing MOLTN (RNAV) STAR flight procedure. The proposed FALTI (RNAV) STAR arrival flight path would be approximately 1.6 nautical miles east of the existing MOLTN (RNAV) STAR. Accordingly, the proposed arrival flight path would be approximately 1.6 nautical miles further east of Berthoud, Colorado. This routing would be applicable only when Denver International Airport is landing in a north flow configuration. There is no standard deviation value for RNAV procedures. RNAV procedures have different ranges of containment (area where aircraft will be while on the RNAV procedure). The containment area depends on several factors, including aircraft navigation equipment and alerting, aircraft flight management systems, and pilot training.

Comments-Responses

Comment# 337 Submitted by: Mineo, David

Comment Received: Hi Leslie,

The website given out at the public workshop I attended in Longmont, Co May 13th does not work. For that reason, I am sending this to you hoping you can get it to your “team” by June 6th, 2019 To whom it may concern. I, David Mineo, attended your public workshop in Longmont, Colorado representing the Town of Berthoud, Colorado. I was informed that in 2013 , a new route was started where three arrival patterns to DIA converged at Rocky Mountain National Park and headed East/South East over Berthoud, Co. to DIA. Recently one of the three patterns was diverted North. The two existing patterns will continue flying over Old Town Berthoud, Co. with Metroplex., There is growing concern among residents that this will continue to effect the quality of life in this small historic area, (approx. 10 sq. blocks). We are the last little historic town West of interstate-25 in Northern Colorado. I was told that the new Metroplex would maximize efficiency of air travel with little or no concern about areas affected by noise.

I was told they converge again South/East of Berthoud for there final decent at an altitude of 13,000 ft. Berthoud’s elevation is 5,030 so planes should be Approx. 8,000 ft. above Berthoud. The arrival from NW to SE, which currently fly diagonal over Berthoud ,we estimate approx.. 8,000 ft. W to E arrival pattern we estimate at approx.. 4,000 ft. above old town Berthoud. With miles of open airspace and farm land surrounding the town of Berthoud, different options seem to be available. We are asking that you change the two existing arrival patterns from flying over Historic Berthoud, Co. We hope you understand the importance of preserving this last remaining small Historic Town along the Colorado Rocky Mountain Front Range.

Topics Identified in the Comment

- Arrivals Over Berthoud
- Existing Aircraft Noise
- Historical and Cultural Resources
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #337 Topics

Arrivals Over Berthoud: The commenter requested that the FAA change the two existing arrival patterns flying over Old Town Berthoud, Berthoud, Colorado. The existing west to east arrival flight path routing would not change with the implementation of the proposed Denver Metroplex Project. The proposed LONGZ Area Navigation (RNAV) Standard Terminal Arrival (STAR) would closely follow the arrival flight path and similar altitudes as the existing KAILE (RNAV) STAR arrival flight procedure. The proposed LONGZ (RNAV) STAR, which would replace the existing KAILE (RNAV) STAR, would be applicable only when Denver International Airport is landing in south configuration.

The northwest to southeast arrival routing would change with the implementation of the proposed Denver Metroplex Project. The proposed FLATI (RNAV) STAR arrival flight procedure would replace the existing MOLTN (RNAV) STAR flight procedure. The proposed FALTI (RNAV) STAR arrival flight path would be approximately 1.6 nautical miles east of the existing MOLTN (RNAV) STAR. Accordingly, the proposed arrival flight path would be approximately 1.6 nautical miles further east of

Berthoud, Colorado. This routing would be applicable only when Denver International Airport is landing in a north flow configuration. There is no standard deviation value for RNAV procedures. RNAV procedures have different ranges of containment (area where aircraft will be while on the RNAV procedure). The containment area depends on several factors, including aircraft navigation equipment and alerting, aircraft flight management systems, and pilot training.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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<http://www.centennialairport.com/index.php/noise/noise-management>

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Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA’s primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated

that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as

reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 338 Submitted by: Miskin, Kathrine

Comment Received: Move the flight paths back to where they were 10+ years ago. Any technological solution can be re-calibrated to match year old flight paths. I know. I do analytics & build models. You can do that. I have owned my house since 1993 and the noise from planes routing shakes my house and wakes me up at night, ad it stresses me all day long. When I bought my house, people continually commented on how quiet it is. This nolonger happens. I cannot sit out and enjoy my back yard due to the airplanes. 1. Fix your models - they are not accounting for noise reflection off the mountains. (more on back) 2. Fix your standard. Average dally annual noise is a completely irrelevant measure. Only peak values matter: arrival 10 second noise peak. Would you like it if I designed a road for average annual traffic volume? How does that sound at rush hour? 3. Measue the noise in key area. No need to sample every where. But you do know where key areas are. Use that to re-calibrate models to actual data. And to actual peak noise data. 4. Return the Table Mesa area in Boulder to the flight paths from 10 years ago. Planes did not fly over my house until the last few years. 5. Advertise your public comment much more broadly, this was a stealth meeting.

Topics Identified in the Comment

- Existing Aircraft Noise
- Noise Modelling
- Public Outreach/Public Involvement
- Projected Changes in Aircraft Noise Exposure
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #338 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Noise Modelling: The commenter raised concerns with the noise modelling methodology. The noise analysis completed for the Final Environmental Assessment (EA) was prepared using the Aviation Environmental Design Tool (AEDT) version 2d, which is the FAA's required noise model. The FAA uses AEDT to model noise for flight track changes over large areas and at altitudes over 3,000 feet AGL to analyze noise associated with the No Action Alternative and the Denver Metroplex Project proposed action. The AEDT 2d model utilizes an extensive aircraft performance and sound level database that includes information on variations in sound attributed to different types of aircraft and aircraft engines, aircraft speed, climb and descent thrust, and the altitude along a route. Detailed terrain data was inputted into the AEDT 2d model, which accounts for the elevation of each grid point or population centroid when calculating the distance between the grid point and the aircraft. The aircraft noise analysis prepared for the proposed Denver Metroplex Project Final EA was conducted in compliance with FAA Order 1050.1F.

Public Outreach/Public Involvement: The views and input of communities are important to the FAA as the Agency takes the next steps to advance the NAS. Since 2016, the FAA has engaged individual communities through holding public workshops in the Denver metropolitan area to explore possible solutions to their concerns while ensuring the safety and efficiency of the National Airspace System. Twelve public workshops across the Denver metropolitan area were held in 2017, and again recently in April and May 2019. The public workshop locations, dates and time were publicized in the Denver Post, posted on the FAA Community Involvement website, and the Denver Metroplex Project website, in addition to being publicized through social media and local press releases. Comments received from the 2017 and 2019 public workshops were considered when designing the proposed flight procedures for the Denver Metroplex Project.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise

changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 339 Submitted by: Mundell, Shannon

Comment Received: I would appreciate it if possible if you can withhold my personal identifying information.

Thank you for giving me the opportunity to give feedback on the new air traffic proposals. I would ask that you do not increase air traffic noise over the Arvada and Broomfield area because we have noise coming from the Rocky Mountain Metropolitan Airport already at high levels. Between their flight school and regular flights we hear planes multiple times every hour and it is loud enough that we get woken up. An increase in traffic from DIA would make the noise level almost unbearable with the combination of the smaller airport.

A good alternative to the Arvada/Broomfield area is for flights to go along south Boulder due to their vast open spaces and less impact it would have on the public. The County and City of Boulder has restrictions on development occurring on these open spaces so it will remain less populated and air traffic noise would have less impactful to the public. Whereas Broomfield and Arvada are already heavily populated and continuing to expand and increased air traffic would have a detrimental impact on the public.

I appreciate your time and consideration on keeping air traffic away from Arvada/Broomfield and instead have flight paths go over less populated areas such as south Boulder.

Thank you!

Topics Identified in the Comment

- Existing Aircraft Noise
- General Aviation/Visual Flight Rules
- Suggestions to Change Air Traffic Patterns
- Withold Personal Identifying Information

FAA Response for Comment #339 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Withhold Personal Identifying Information: Commenters were made aware of the following statement with their comment submission - "Please be aware that your name, address, phone number, email address, or other personal identifying information in your comment may be made publicly available at any time. You may include in your comment a request to withhold your personal identifying information, however we cannot guarantee that we will be able to do so".

Comments-Responses

Comment# 340 Submitted by: Naster, Julie

Comment Received: Flights over the mountains west of Boulder have increased in frequency to a point where the mountain environment has been altered in a negative way. A complete solution to this problem must be found that does not impact so many people and the Indian Peaks Wilderness. Please implement the complete Zimmr solution.

Topics Identified in the Comment

- Frequency of Aircraft Overflights
- ZIMMR SID

FAA Response for Comment #340 Topics

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise

modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 341 Submitted by: Neguse, Joe

Comment Received: Dear Acting Administrator Elwell,

My office has been contacted recently by many constituents from Boulder County, Colorado including residents of Boulder, Erie, Superior, Louisville, and Nederland regarding the increase rate of air traffic. Particularly for residents in several South Boulder neighborhoods, residents of Nederland, as well as visitors to the Indian Peaks Wilderness Area, there has also been a reported increase in air traffic noise reverberating off of and in the foothills. Constituents in these areas began reporting increased noise pollution after the NextGen navigation program was implemented.

Since that time, it appears that there have been computer modeling simulations of noise at the ground level along the front range. However, in speaking to the contractor who did the noise modeling, our office learned they did not do actual sampling of noise data in South Boulder at points where residents appear to be most affected by the sound waves. Noise sampling has also not been done in Nederland nor the Indian Peaks Wilderness to our knowledge. In addition, the frequency at which air traffic passes overhead, often spaced just three minutes apart, has dramatically increased noise pollution.

Constituents have indicated that the frequent and loud flights over their homes have significantly affected their quality of life. I am aware that the FAA has the tremendous responsibility of balancing public safety and efficiency of the airspace. However, I request that you consider the effect of noise pollution on communities and in sensitive wilderness areas and perform additional actual sampling of noise data in South Boulder, Nederland, and the Indian Peaks Wilderness. In addition, I support moving the proposed ZIMMR flight path as far south as possible and away from densely inhabited communities near the foothills and sensitive wilderness areas.

I appreciate the efforts of the FAA to engage the community during this process and look forward to hearing from you regarding this request.

Sincerely,

Joe Neguse

Representative

Topics Identified in the Comment

- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Public Outreach/Public Involvement
- ZIMMR SID

FAA Response for Comment #341 Topics

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action

Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Public Outreach/Public Involvement: The views and input of communities are important to the FAA as the Agency takes the next steps to advance the NAS. Since 2016, the FAA has engaged individual communities through holding public workshops in the Denver metropolitan area to explore possible solutions to their concerns while ensuring the safety and efficiency of the National Airspace System. Twelve public workshops across the Denver metropolitan area were held in 2017, and again recently in April and May 2019. The public workshop locations, dates and time were publicized in the Denver Post, posted on the FAA Community Involvement website, and the Denver Metroplex Project website, in addition to being publicized through social media and local press releases. Comments received from the 2017 and 2019 public workshops were considered when designing the proposed flight procedures for the Denver Metroplex Project.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 342 Submitted by: Nelson, Fran

Comment Received: We live in south Boulder and the continuous planes over our neighborhood is so terrible! Noise pollution! Please try to route further south not over neighborhoods!

Topics Identified in the Comment

- Existing Aircraft Noise
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #342 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 343 Submitted by: Nieder, Barbara

Comment Received: The Denver Metroplex Plan is to the detriment of all citizens who will suffer noise pollution at all hours of the day and night. My neighbors and I strongly OPPOSE the plan.

Topics Identified in the Comment

- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project

FAA Response for Comment #343 Topics

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 344 Submitted by: nieder, Glen Decker

Comment Received: The Nextgen Flight Plan is a disaster destructive to the best interests of the citizens. I OPPOSE it strongly

Topics Identified in the Comment

- Purpose and Need of Project

FAA Response for Comment #344 Topics

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 345 Submitted by: Nieder, Robert

Comment Received: I and my neighbors are STRONGLY OPPOSED to the Denver Metroplex project which will increase noise and pollution in our neighborhood. Try for once to abide by the wishes of the people not the big money interests.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project

FAA Response for Comment #345 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de

minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA-AEE-00-01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25-13 and No. 91-53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best

use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 346 Submitted by: Niederhauser, Jennifer

Comment Received: On behalf of the people in my neighborhood and expanded neighborhoods that would be affected, as well as myself and my family, I respectfully request that you do NOT implement your proposed Denver Metroplex plan. The Environmental Assessment Draft is a manipulation of data created to calm public outcry as it reaches a conclusion that concurs with your agenda. The FAA offers false reassurances and promises it cannot keep. It is patently wrong, immoral, and totally unacceptable for you to spin the facts and the truth to people at your workshops in order for you to go ahead with your agenda.

In fact, the FAA has NO control over the number of flights that will fly over homes in and surrounding my area as months and years go on. With DIA expanding the present number of gates by nearly 40 more, air traffic will dramatically increase. The pattern proposed concentrates those planes into a path assuring constant noise and air pollution over our homes. We live in the areas we chose because we wanted to insure a peaceful, quiet environment. There was no reason to believe the atmosphere would change. Our health...physical, mental, and financial will be jeopardized if your plan goes through. We will be inundated by constant noise...as much as every minute of every day all day and night, interrupting conversations and sleep. The negative impact on our lives would be immeasurable. Citizens have long been aware of the deleterious effects of excess noise on the ground, so we have laws to maintain peace and quiet. It is illegal to make too much noise in our homes or on the road. We get ticketed and fined for that. Nonstop airplane noise overhead will be much worse than occasional loud music or malfunctioning car mufflers on the ground.

It is blatantly unethical for you to impose this nightmare upon the people living in the flight paths you are proposing. The lives of citizens need to be the priority over any corporate profits. Would you personally accept the 24/7, thunderous noise and pollution over your homes? Studies have shown the stress caused by this kind of noise causes physical and mental ill health. You are not considering the very real, terrible consequences to our neighborhoods of the proposed change in flight patterns. DO NOT GO FORWARD with the Denver Metroplex NextGen plan. You are opening a Pandora's Box of noise and pollution that will also drastically lower the value of our homes. It should not have to take thousands of objections to stop this unconscionable plan. It should only take common decency and an application of the Golden Rule NOT to foist this onto people.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Frequency of Aircraft Overflights
- NEPA and FAA Order 1050.1F
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure
- Property Values
- Purpose and Need of Project

FAA Response for Comment #346 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria

pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

NEPA and FAA Order 1050.1F: The National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) §4321 et seq.], requires federal agencies to disclose to decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in decisions that affect the quality of the human environment. As part of the NEPA process, federal agencies are required to consider the environmental effects of a proposed action and reasonable alternatives to a proposed action, including a no action alternative (i.e., analyzing the potential environmental effects of not undertaking the proposed action). The Federal Aviation Administration (FAA) has established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). The Proposed Action for this Environmental Assessment (EA) is the proposed Denver Metroplex Project. The Draft EA was prepared in accordance with FAA Order 1050.1F and meets the required elements of the National Environmental Policy Act.

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Property Values: The proposed Denver Metroplex Project involves air traffic control routing changes for airborne aircraft only; and does not involve land acquisition, physical disturbance, or construction activities. The determination of whether a proposed action may have a significant environmental impact under the National Environmental Policy Act (NEPA) is made by considering the relevant environmental impact categories and comparing impact to the FAA's thresholds of significance as outlined in FAA Order 1050.1F. The assessment of property values is not an environmental impact category as outlined in FAA Order 1050.1F. To the extent applicable, and as there are no significant impacts under noise or compatible land use, the proposed Denver Metroplex Project is compatible with existing and planned land uses, and the applicable regulations and policies of federal, state, and local agencies. A limited number of studies have attempted to measure the impact of aircraft noise on property values. Specific studies of the impact of noise at the Study Airports on real property values have not been conducted and are not required. Studies conducted at other national airports have concluded that airport noise only has a slight impact on property values within the Day Night Average Sound Level 65 decibels or greater noise contour around airports. Additionally, comparison of older studies to more recent studies indicates that the impact was greater in the 1960s, when jet aircraft first entered the fleet. This decrease presumably is the result of stabilization of real estate markets following an initial adjustment to noisier jets, and of noise reduction in more modern Stage 3 or better aircraft.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 347 Submitted by: Nielsen, J

Comment Received: Any homeowner in Cherry Hills Village is paying and made the decision to purchase solely based on a rural, quiet environment to change the reason after purchase is deceptive & punishing to the homeowner. DIA was supported by Metro Denver for noise abatement. Now the rules are changing again.

Topics Identified in the Comment

- Purpose and Need of Project

FAA Response for Comment #347 Topics

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 348 Submitted by: None, None

Comment Received: My concerns are focused on any increase in air travel/traffic over the densely populated suburbs west of I-25 and south of Arapahoe Rd. When we purchased our home (in 1985) we carefully checked the flight paths and choose accordingly. Any increase over the densely populated area would impact out quality of life and property values. Flight were accommodated safely with Centennial Airport and old Stapleton. With DIA's location further north and east it seems safety is improved - NOT necessitating traffic increase over the densely populated southern areas west of I-25. We have enjoyed many years of positive life in our area and hope this will continue. We would urge careful consideration of the negative effect an increase of flights over our densely populated community. I have chosen not to release my name & address due to this disclaimer. I appreciate your honesty. But also want to protect my rights as a citizen of Centennial for privacy.

Topics Identified in the Comment

- Property Values

FAA Response for Comment #348 Topics

Property Values: The proposed Denver Metroplex Project involves air traffic control routing changes for airborne aircraft only; and does not involve land acquisition, physical disturbance, or construction activities. The determination of whether a proposed action may have a significant environmental impact under the National Environmental Policy ACT (NEPA) is made by considering the relevant environmental impact categories and comparing impact to the FAA's thresholds of significance as outlined in FAA Order 1050.1F. The assessment of property values is not an environmental impact category as outlined in FAA Order 1050.1F. To the extent applicable, and as there are no significant impacts under noise or compatible land use, the proposed Denver Metroplex Project is compatible with existing and planned land uses, and the applicable regulations and policies of federal, state, and local agencies. A limited number of studies have attempted to measure the impact of aircraft noise on property values. Specific studies of the impact of noise at the Study Airports on real property values have not been conducted and are not required. Studies conducted at other national airports have concluded that airport noise only has a slight impact on property values within the Day Night Average Sound Level 65 decibels or greater noise contour around airports. Additionally, comparison of older studies to more recent studies indicates that the impact was greater in the 1960s, when jet aircraft first entered the fleet. This decrease presumably is the result of stabilization of real estate markets following an initial adjustment to noisier jets, and of noise reduction in more modern Stage 3 or better aircraft.

Comments-Responses

Comment# 349 Submitted by: Nova, Kenneth

Comment Received: I have lived in the Martin Acres neighborhood in south Boulder since 1990. We have several gardens in our front and back yard areas and enjoy being outside. We have noticed the increased jet traffic over our house since the routes were changed. At first it was startling to notice the difference. Now it's an annoyance -- an annoyance that hardly seems necessary. A few miles to the south would miss south Boulder and spare us the noise pollution we are suffering. Please consider and implement a different flight path at your soonest convenience!

Thanks for your consideration
Kenneth Nova

Topics Identified in the Comment

- Existing Aircraft Noise
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #349 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport
303-790-4709
<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport
303-342-2380
https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport
970-336-3000
<http://www.gxy.net/>

Northern Colorado Regional Airport
970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 350 Submitted by: O'Brien, Celia

Comment Received: I am very much against any additional planes flying over my home in The Timber's, there is already heavy plane traffic. I have placed numerous complaints and have been told it is only because of the weather that it is happening. We cannot use our outdoor space in the late afternoon or evening because of the continuous low flying planes. The lighting fixtures in our home on the upper floor shake and rattle when planes fly directly over head. Home values and quality of life will be severely impacted with additional air traffic. We will be looking into any legal actions available to us.

Topics Identified in the Comment

- Existing Aircraft Noise
- Property Values

FAA Response for Comment #350 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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303-790-4709

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Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport
303-271-4850
<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Property Values: The proposed Denver Metroplex Project involves air traffic control routing changes for airborne aircraft only; and does not involve land acquisition, physical disturbance, or construction activities. The determination of whether a proposed action may have a significant environmental impact under the National Environmental Policy ACT (NEPA) is made by considering the relevant environmental impact categories and comparing impact to the FAA's thresholds of significance as outlined in FAA Order 1050.1F. The assessment of property values is not an environmental impact category as outlined in FAA Order 1050.1F. To the extent applicable, and as there are no significant impacts under noise or compatible land use, the proposed Denver Metroplex Project is compatible with existing and planned land uses, and the applicable regulations and policies of federal, state, and local agencies. A limited number of studies have attempted to measure the impact of aircraft noise on property values. Specific studies of the impact of noise at the Study Airports on real property values have not been conducted and are not required. Studies conducted at other national airports have concluded that airport noise only has a slight impact on property values within the Day Night Average Sound Level 65 decibels or greater noise contour around airports. Additionally, comparison of older studies to more recent studies indicates that the impact was greater in the 1960s, when jet aircraft first entered the fleet. This decrease presumably is the result of stabilization of real estate markets following an initial adjustment to noisier jets, and of noise reduction in more modern Stage 3 or better aircraft.

Comments-Responses

Comment# 351 Submitted by: O'brien, Laurel

Comment Received: The conclusions of your Environmental Assessment report (EA) are seriously flawed. The implementation of Denver Metroplex is highly controversial on both health and environmental grounds. A full Environmental Impact Statement (EIS) should be conducted for public review and comment. It should accurately disclose all data that will have a direct, indirect and cumulative impact on the Denver Region arising from Denver Metroplex, with emphasis on noise sensitive areas that have not experienced significant aviation noise and pollution in the past. The EA excludes noise generated by expansion of Denver International Airport (DIA) and by aviation at Centennial Airport. Aviation activity at DIA is projected to grow by 70-100% by 2030/35. Centennial Airport is the second largest general aviation airport in the United States with its own growth projections. The FAA's estimate of flights from DIA grossly underestimates the direct, indirect and cumulative impact of noise generated by Metroplex and completely fails to take into account air traffic from Centennial Airport.

The EA excludes the impact of particulate matter generated by aviation emissions on the health and welfare of adults and children notwithstanding significant current studies (some conducted by or for the FAA) documenting the serious adverse impact on people's physical and mental health.

The EA excludes the impact of noise at or below DNL 65 dB on noise sensitive areas, including residences, historic areas, parks and schools. In the Denver region the majority of residences and schools in the suburbs predate DIA and currently experience low levels of noise. Studies by health organizations and universities have documented that increases in aviation noise cause and contribute to cardiac disease, depression and anxiety in both adults and children. Additionally, it has been shown to cause lower test scores in children along with increasing cognitive and behavioral problems.

The EA contains assumptions that understate noise and ignore health risks. It is an inaccurate and misleading report.

Metroplex is highly controversial in the communities it has been implemented in, generating litigation across the country.

An EIS would accurately provide the detail necessary to evaluate the environmental and health impact of Denver Metroplex on the Denver Region.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Cumulative Impacts
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #351 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the

atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA-AEE-00-01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25-13 and No. 91- 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children’s health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency’s mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height

do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.” (72 Fed. Reg. 6641 (February 12, 2007)). Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA’s primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival

and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise

energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining

whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative , when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 352 Submitted by: Ogard, Karen

Comment Received: "The conclusions of your Environmental Assessment report (EA) are seriously flawed. The implementation of Denver Metroplex is highly controversial on both health and environmental grounds. A full Environmental Impact Statement (EIS) should be conducted for public review and comment. It should accurately disclose all data that will have a direct indirect and cumulative impact on the Denver Region arising from Denver Metroplex with emphasis on noise sensitive areas that have not experienced significant aviation noise and pollution in the past. The EA excludes noise generated by expansion of Denver International Airport (DIA) and by aviation at Centennial Airport. Aviation activity at DIA is projected to grow by 70-100% by 2030/35. Centennial Airport is the second largest general aviation airport in the United States with its own growth projections. The FAA's estimate of flights from DIA grossly underestimates the direct indirect and cumulative impact of noise generated by Metroplex and completely fails to take into account air traffic from Centennial Airport. The EA excludes the impact of particulate matter generated by aviation emissions on the health and welfare of adults and children notwithstanding significant current studies (some conducted by or for the FAA) documenting the serious adverse impact on people's physical and mental health. The EA excludes the impact of noise at or below DNL 65 dB on noise sensitive areas including residences historic areas parks and schools. In the Denver region the majority of residences and schools in the suburbs predate DIA and currently experience low levels of noise. Studies by health organizations and universities have documented that increases in aviation noise cause and contribute to cardiac disease depression and anxiety in both adults and children. Additionally it has been shown to cause lower test scores in children along with increasing cognitive and behavioral problems. The EA contains assumptions that understate noise and ignore health risks. It is an inaccurate and misleading report. Metroplex is highly controversial in the communities it has been implemented in generating litigation across the country. An EIS would accurately provide the detail necessary to evaluate the environmental and health impact of Denver Metroplex on the Denver Region."

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Cumulative Impacts
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #352 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as "criteria

pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children’s health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency’s mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.” (72 Fed. Reg. 6641 (February 12, 2007)). Accordingly, there

would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the

Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport
303-790-4709
<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport
303-342-2380
https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport
970-336-3000
<http://www.gxy.net/>

Northern Colorado Regional Airport
970-962-2850
<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport
303-271-4850
<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as

Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the

Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver

Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or

above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative , when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses**Comment# 353 Submitted by: Olislagers, Robert**

Comment Received: Please refer to my letter dated June 5 2019 regarding the Denver Metroplex Draft Environmental Assessment which will be sent via USPS Certified Mail. Your current format does not allow PDF attachments.

Topics Identified in the Comment**FAA Response for Comment #353 Topics**

Please see comment number 354 for the written response to the referenced letter of dated June 5, 2019.

Comments-Responses

Comment# 354 Submitted by: Olislagers, Robert

Comment Received: To Whom It May Concern;

Thank you very much for the opportunity to comment on the Denver Metroplex Draft Environmental Assessment, which was made available to the public on April 22, 2019.

Federal Aviation Administration staff, who put in countless hours designing new routes in and out of the Denver metropolitan area, one of the fastest growing regions in the nation including its airspace, had the difficult task in redesigning the airspace while maintaining first and foremost the safest air traffic control system in the world. The Denver airspace is complex and diverse; from the sixth busiest commercial service airport in the country, to Spaceport Colorado, to Buckley Air Force Base with its myriad national security missions, as well as four satellite airports including the second busiest general aviation airport in the U.S., the task of establishing safe arrival and departure procedures, was no doubt challenging. This task was and is made considerably more difficult due to the numerous environmental considerations that must be analyzed as part of any significant changes to the environment and the health and welfare of citizens living within and underneath the proposed Metroplex. These residents will share in both the benefits and burdens of the implemented redesign in terms of efficiencies to the system as well as corresponding increases in overflight in the Denver metro area.

Centennial Airport is owned and operated by the Arapahoe County Public Airport Authority, a political subdivision of the State of Colorado. The airport was established in May of 1968. With more than 340,000 annual take-offs and landings, Centennial Airport is the 22nd busiest of all U.S. Airports, including all commercial service airports such as Los Angeles International Airport, O'Hare-Chicago International Airport and the New York airports. Despite not serving commercial airlines, Centennial Airport, which is an international airport with 24/7 U.S. Customs services, nevertheless is the second busiest general aviation and business airport in the U.S. With more than 7,000 full and part-time employees, the airport averages \$1.3 Billion in direct and indirect economic impact annually. It is an economic engine for the S.E. Metro Denver area responsible for 27 percent of the State's GDP. The airport is home to private and corporate aircraft, flight schools, defense contractors, medical flight operators, charter and fractional operators, federal; state and local law enforcement and aviation R&D, including electric and supersonic aircraft developers. It boasts four award-winning full-service providers, and a fully staffed 24/7 Federal Aviation Administration Air Traffic Control Tower.

The Draft Environmental Assessment ("D/EA") primary focus is first on Denver International Airport and second, on proposed flight routes. Centennial Airport; however, contends that the Federal Aviation Administration ("FAA") did not adequately address the required elements of an Environmental Assessment pursuant to the National Environmental Policy Act of 1969 as amended (Pub. L. 91-190, 42 U.S.C. 4321.-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, § 4(b), Sept. 13, 1982); and, its own FAA Order 1050.1F.

The FAA contemplates implementing the Denver Metroplex without completing Congressionally mandated studies first pursuant to the FAA Reauthorization Act of 2018. In doing so, the FAA contravenes Congressional intent and lawful directives related to or substantially related to the Denver Metroplex. While the outcomes of the studies are unknown at this time, they are likely to have significant impact on the implementation of the proposed Metroplex specifically, and the environment in generally based on existing and anecdotal evidence. For example, the FAA's funded Partnership for Air Transportation Noise and Emissions Reduction ("PARTNER") program demonstrates significant health related environmental impacts of particulate matter emissions that were not considered in the D/EA.

Centennial Airport, on behalf of its tenants and users who seek long-term viability of this great economic asset, as well as the hundreds of thousands of residents who wish to peacefully co-exist with the airport long into the future, asks that the FAA;

(a) completes the studies mandated by Congress pursuant to the FAA Reauthorization Act of 2018 before it issues a determination regarding the Denver Metroplex D/EA;

(b) conducts and include the findings of said studies in an Environmental Impact Study ("EIS"), including cumulative impacts per NEPA before it issues a Record of Decision regarding the implementation of the Denver Metroplex; and,

(c) eliminates the BRNKO and PUFFR arrival procedures on the grounds of safety, increased noise exposure and increased fuel burn and corresponding increases in air quality degradation in a federally designated nonattainment area that were not analyzed in the D/EA.

It is our well-founded belief that the FAA has not adequately demonstrated the cumulative impacts of the proposed Metroplex in this rapidly growing area despite knowing and having documented the annual increases in flight operations in and out of the Denver metropolitan area. This applies especially to Denver International Airport, which is expected to grow by one percent per year, or approximately 9,000 additional flights each year.

Related, the FAA has not adequately considered the health effects of noise on residents within the proposed Metroplex, including that of children, ostensibly because it lacks a standard for the latter. Finally, the FAA relies heavily on FAA Order 1050.IF, which is an internal FAA guidance document that does not supersede the National Environmental Policy Act of 1969 ("NEPA"). For this reason, the balance of the commentary below will focus on NEPA rather than the FAA Order.

Pursuant to the D/EA, the Federal Aviation Administration ("FAA") is likely to issue a Finding Of No Significant Impact ("FONSI") for the Denver Metroplex, finding no significant environmental impacts on the community, cultural and natural resources; nor causing impacts on the quality of the human environment, including adverse health effects that are likely to be highly controversial on environmental grounds. The FAA also determined that there are no Extraordinary Circumstances pursuant to National Environmental Policy Act of 1969, as amended. We beg to differ.

The Denver Metroplex aims to redesign the use of the airspace to, from, near and above the Denver metropolitan area to make it more efficient, predictable and increase capacity. A Metroplex is but one element of NextGen, the FAA's ambitious program to modernize how it operates including but not limited to migrating from analog to digital technologies, and from ground-based to satellite-based navigation. Stated goals for modernization are to make it more efficient, improve airport access, increase capacity and reduce carbon emissions among other benefits.

The FAA currently has 11 active or completed Metroplex sites around the country and finding no significant impact. Yet, in virtually every community, implementation of Metroplex was followed by significant public outcry over the adverse impacts of overflight on the quality of life of residents living underneath the revised flight routes.⁶ Legal action was initiated against the FAA regarding Metroplex implementations in Phoenix, Los Angeles (Southern California) and Baltimore-Washington DC, and more communities are considering the same. Metroplex implementation was followed by very significant increases in noise complaints in communities in Northern California, South Florida (Miami), Southern California (Los Angeles), Washington DC/Baltimore and Phoenix.

Pursuant to 40 CFR § 6.204, when determining a Categorical Exclusion, the FAA is required to include a statement explaining why no extraordinary circumstances exist. Centennial Airport contends that the FAA has ignored multiple provisions of 40 CFR § 6.204, specifically;

40 CFR § 6.204(a)(1) A statement explaining why no extraordinary circumstances exist; The FAA failed to include such a statement despite the outcry and increases in noise complaints in other communities where Metroplex has been implemented.

40 CFR § 6.204(b)(1) The proposed action is known or expected to have potential significant impacts on the human environment either individually (incrementally) or cumulatively over time; The DEN Metroplex is designed to increase capacity, which means more aircraft will be using the redesigned airspace. The FAA 2018-2038 Aerospace Forecast shows that traffic at Denver International Airport is expected to increase by at least one percent per year. Denver International Airport was given approval in 2017 to add 39 new gates to accommodate its growth in passengers.⁸ Total aircraft operations are expected to increase from 594,522 operations to 773,855 in 2038.⁹ That represents an increase of 179,333 flights over 20 years, or 8,966 flights per year or 24.5 flights per day on average. Using reference forecasting, the above numbers also correspond to Denver's historic operational growth,

which has grown by one percent per year since it commenced operations in 1996. It is simply inconceivable that the FAA can reliably state that air quality for example will not substantially increase over this 20-year time period. NEPA, pursuant to 40 CFR § 1508.7 defines cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions". It is a demonstrated fact that the growth of aviation in the Denver Metroplex has grown by at least one percent per annum and one can assume it will continue to grow by that rate in the foreseeable future based on FAA's own studies. It is therefore incumbent on the FAA to show not only the growth over the five-year horizon as shown in the D/EA but expand the studies to 20 years as a result of the increases in anticipated traffic.

- For this reason, Centennial Airport contends that the FAA's fuel and emissions analyses are lacking, as it looks solely at the incremental increases over 5 years but not the overall cumulative impacts over 20 years as might reasonably be expected based on the FAA's own 2018-2038 Aerospace Forecast¹⁰.
- Similarly, all noise exposure analyses should include 20-year cumulative effects, including noise exposure below 3,000 feet AGL.

Environmental Justice. The D/EA shows an increase in noise over economically disadvantaged communities; the only communities adversely impacted by Metroplex using the FAA's limited analyses. Worse, FAA uses a 5db DNL delta as its threshold over areas with the quietest ambient noise levels and still manages to increase the number of affected citizens! The FAA uses a 10db DNL standard for nighttime operations because the ambient noise levels at night are lower and therefore more noticeable. The FAA should therefore apply a similar or more stringent standard for areas with a lower ambient noise level as any increase in noise will have a far greater impact. The FAA and the EPA have recognized this for national parks and nighttime occurrences and should do the same for daytime noise events over rural and quieter areas. To place an additional burden on disadvantaged communities is particularly disturbing.

40 CFR § 6.204(b)(6) The proposed action is known or expected to cause significant adverse air quality effects; As stated above, the fuel consumption and carbon emissions reductions presented as part of the DEN Metroplex study simply lack the cumulative impact that is reasonably foreseeable. More aircraft will consume more fuel and produce more carbon emissions, regardless of the efficiencies gained from Optimized Profile Descent.

The Denver metropolitan air quality has steadily declined over the course of the last two decades due to myriad incremental increases in vehicle, aircraft and other emissions as the demographic area continues to grow faster than most regions of the country. The Denver metropolitan area is now on the EPA list of cities and counties for air quality nonattainment (see map below). A five-year analysis may be considered de minimis in terms of additional air quality degradation but studied in the context of 20 years and the estimated 180,000 additional flights in and out of Denver cannot possibly be considered de minimis per NEPA.

40 CFR § 6.204(b)(8) The proposed action is known to cause significant public controversy about a potential environmental impact of the proposed action; Metroplexes around the country have experienced significant increases in noise complaints as a result of implementation (see Appendix A). While noise complaints by themselves are not objective measurements of noise, they are indicators of potential noise issues as a nuisance. The accepted federal threshold is 65dB DNL, which corresponds to 12.3% of the population being highly annoyed (meaning sleep deprivation, loss of concentration, inability to continue a conversation). While it remains the federal standard and is applied in this D/EA, its validity has come under increased criticism as being inadequate. There have been steady calls for the FAA to reevaluate whether the 65dB DNL is still an acceptable threshold when so many people are severely and adversely affected by aircraft noise. In fact, the FAA began a study to address this threshold several years ago but has failed to complete the study. Congress has now mandated in the FAA Reauthorization Act of 2018 that the FAA complete this study within one year of the enactment of the Act and submit the same to Congress.¹² To this end, the FAA should place a moratorium on the Denver Metroplex study until the outcome of this and other studies are completed and published. Any

change in the 65dB DNL threshold will have a significant impact on how the FAA measures environmental impact. It should be noted that Naples, FL successfully challenged the FAA on the 65 DNL threshold and was able to apply the more stringent threshold of 60dB DNL.

As previously referenced, the implementation of Metroplexes and subsequent uproar by affected communities around the country has led to unprecedented action by Congress in 2018. The One Hundred Fifteenth Congress of the United States at the Second Session passed, and the President signed into law the FAA Reauthorization Act of 2018. In Subtitle D, Airport Noise and Environmental Streamlining, Congress specifically mandated numerous noise-related legislative actions, many directly and indirectly related to Metroplex implementation as follows;

SECTION 176. COMMUNITY INVOLVEMENT IN FAA NEXTGEN PROJECTS LOCATED IN METROPLEXES. (a) Community Involvement Policy.-Not later than 180 days after the date of enactment of this Act, the Administrator of the Federal Aviation Administration shall complete a review of the Federal Aviation Administration's community involvement practices for Next Generation Air Transportation System (NextGen) projects located in metroplexes identified by the Administration. Congress has recognized that it is quite obvious that the FAA has not sufficiently addressed, or at a minimum underestimated, the need for broad citizen participation when so many communities have expressed their frustration after Metroplex implementation about the lack of community involvement, with many complainants being clearly surprised by the sudden and unanticipated changes in flight patterns over or near their residences (See Appendix "A").

The Denver Metroplex is no exception; the following are but a few examples. The EA was released on April 22, 2019 but the interactive GIS-based maps where residents could determine how overflights might affect their respective neighborhoods did not become available to the public until April 30th and only at the workshops, ostensibly because the sole computer operator capable of uploading the information was sick! The maps were finally uploaded on the May 2, 2019! Citizens were then given till June 6, 2019 to provide responses to the FAA, a mere 45 days after the documents (approx. 700+ pages) were released while the FAA took two years to prepare said documents. The SoCal Metroplex was given nearly four months. In another situation several Metroplex team members were overheard stating that "Metroplex will not change anything", including one of the co-leads! In yet another instance, the FAA Public Affairs Officer cancelled a meeting for elected officials just a few hours before it was to begin because a member of the media was invited. Finally, airport staff attended numerous "stakeholder" meetings with the FAA Metroplex design team, but any input provided to the team was summarily dismissed even though Centennial Airport had demonstrated extensive cooperation with the FAA regarding RNAV implementation. These are not simple gripes but a few examples how the Denver Metroplex team has gone about the process; it has not only been arbitrary and capricious, but the design team has been indifferent to the needs of the stakeholder community-and, related;

SECTION 187. AIRCRAFT NOISE EXPOSURE. (a) REVIEW.-The Administrator of the Federal Aviation Administration shall conclude the Administrator's ongoing review of the relationship between aircraft noise exposure and its effects on communities around airports. (b) REPORT.-**(10) IN GENERAL**-Not later than two years after the date of enactment of this Act, the Administrator shall submit to Congress a report containing the results of the review;-and, related;

SECTION 189. STUDY ON POTENTIAL HEALTH AND ECONOMIC IMPACTS OF OVERFLIGHT

NOISE. (a) **IN GENERAL**-Not later than 180 days after the date of enactment of this Act, the Administrator of the Federal Aviation Administration shall enter into an agreement with an eligible institution of higher education to conduct a study on the health impacts of noise from aircraft flights on residents exposed to a range of noise levels from such flights. (b) **SCOPE OF STUDY**.-The study conducted under subsection (a) shall- (1) include an examination of the incremental health impacts attributable to noise exposure that result from aircraft flights, including sleep disturbance and elevated blood pressure; (2) be focused on residents in the metropolitan area of- (A) Boston; (B) Chicago; (C) the District of Columbia; (D) New York;(E) the Northern California Metroplex; (F) Phoenix; (G) the

Southern California Metroplex; (H) Seattle; or (I) such other area as may be identified by the Administrator; (3) consider, in particular, the incremental health impacts on residents living partly or wholly underneath flight paths most frequently used by aircraft flying at an altitude lower than 10,000 feet, including during takeoff or landing; (4) include an assessment of the relationship between a perceived increase in aircraft noise, including as a result of a change in flight paths that increases the visibility of aircraft from a certain location, and an actual increase in aircraft noise, particularly in areas with high or variable levels of non-aircraft-related ambient noise; and (5) consider the economic harm or benefits to businesses located partly or wholly underneath flight paths most frequently used by aircraft flying at an altitude lower than 10,000 feet, including during takeoff or landing. (c)

ELIGIBILITY.-An institution of higher education is eligible to conduct the study if the institution- (1) has- (A) a school of public health that has participated in the Center of Excellence for Aircraft Noise and Aviation Emissions Mitigation of the Federal Aviation Administration; or H.R.302-52 (B) a center for environmental health that receives funding from the National Institute of Environmental Health Sciences; (2) is located in one of the areas identified in subsection (b); (3) applies to the Administrator in a timely fashion; (4) demonstrates to the satisfaction of the Administrator that the institution is qualified to conduct the study; (5) agrees to submit to the Administrator, not later than 3 years after entering into an agreement under subsection (a), the results of the study, including any source materials used; and (6) meets such other requirements as the Administrator determines necessary. (d)

SUBMISSION OF STUDY.-Not later than 90 days after the Administrator receives the results of the study, the Administrator shall submit to the appropriate committees of Congress the study and a summary of the results.

Congress has long recognized that there is a direct relationship between aircraft noise and communities near airports, including establishing the Part 150 Airport Noise Compatibility Program, which, despite having been in place since 1989 has not always produced expected results and both studies are requested in order to get a better understanding of the effects and what more can be done. These studies invariably will be weighed against the cost-benefit burdens to society as well as laws concerning interstate commerce-and, related;

SECTION 188. STUDY REGARDING THE DAY-NIGHT AVERAGE SOUND LEVELS. (a)

STUDY.-The Administrator of the Federal Aviation Administration shall evaluate alternative metrics to the current average day-night level standard, such as the use of actual noise sampling and other methods, to address community airplane noise concerns. (b) **REPORT.**-Not later than one year after the date of enactment of this Act, the Administrator shall submit to the appropriate committees of Congress a report of the study under subsection (a)-and related;

SECTION 173. ALTERNATIVE AIRPLANE NOISE METRIC EVALUATION STUDY. Not later than one year after enactment of this Act, the Administrator of the Federal Aviation Administration shall complete the ongoing evaluation of alternative metrics to the current Day Night Level (DNL) 65 Standard.

Sec. 173 and 188 are focused on the same question, which is whether or not the 65 DNL remains an acceptable federal noise standard when 12.3 percent of the populations are highly annoyed by noise, including but not limited to sleep deprivation, loss of concentration, inability to continue a conversation, as well as health-related concerns such as hypertension and heart disease. Also, see Sec. 187 and 189.

SAFETY, NOISE AND OVERFLIGHT CONCERNS. The FAA proposes to eliminate a "little-used" (FAA's term) arrival procedure called PUFRR and replace it with the so-called BRNKO arrival procedure. The PUFFR arrival procedure currently takes aircraft coming in from the north and east over and above Denver International Airport. The proposed BRNKO arrival procedure takes airplanes destined for Centennial Airport some 50 miles further north towards Ft. Collins-Loveland, before aircraft are vectored eastward along the foothills of the Rocky Mountains where downdrafts, wind shear and volatile wind conditions make it both uncomfortable due to turbulence, as well as dangerous due to unpredictable downdrafts coming from the mountains. When weather or winds are not a factor, the corridor is popular with small aircraft flying in both directions creating safety concerns as aircraft

with vastly different speeds will operate in the same airspace at nearly identical altitudes. While safety is typically the purview of the FAA, numerous pilots, who are the ultimate arbiters on safety, have to fly this route including PINRR (for aircraft arriving from the west) and have advised the FAA that the proposed BRNKO and PINRR arrival procedures are potentially dangerous in addition to the discomfort for their passengers.¹⁵ Numerous pilots have indicated that they will simply not use the BRNKO/PINRR and look to use the DUNNN arrival procedure instead. Therefore, from the book of unintended consequences, the FAA should consider alternative arrival procedures or take no action on PUFFR. The FAA also claims that only very few aircraft use the PUFFR, which begs the question, why change?

While the FAA has touted the reductions in fuel burn and emissions as part of Metroplex, it did not include an analysis in the D/EA pertaining to the increases in fuel burn and emissions generated by aircraft using the BRNKO rather than PUFFR procedure. The FAA should be required to provide this data, including associated costs.

Equally important, aircraft flying the BRNKO and PINRR arrival procedures will be turning east towards Centennial Airport and overflying communities like Littleton, Columbine Valley, Highlands Ranch, Cherry Hills, Lone Tree, Castle Pines, Castle Pines North, Castle Rock, Greenwood Village, Centennial and unincorporated counties of Douglas, Arapahoe and City and County of Denver that have previously only seen occasional aircraft overflight. Although the overflights may not reach the 65d8 DNL legal threshold at this time, and therefore may not meet the nuisance or extraordinary circumstance standards under current law, that could change with the Congressional mandates pursuant to the FAA Reauthorization Act of 2018, Title D. For this reason, Centennial Airport requests that the FAA place a moratorium on implementation of the Denver Metroplex until the studies requested by Congress are completed and submitted to Congress for consideration.

The proposed BRNKO procedure presents two additional problems not considered in the D/EA. First, what happens when TRACON hands over aircraft to local ATC, and second, there is great uncertainty regarding the altitudes of the overflights above the referenced communities once that happens? The FAA does not consider impacts below 3,000 feet AGL, and therefore the final phase of flight is "undetermined". A typical flight profile would see an aircraft depart or land at an airport, which is managed by local air traffic control. In between, near the airports, Terminal Radar Approach Control "talks" to the aircraft and provides direction, while on longer flights, the Centers or "en route" controllers provide direction to the aircraft. This is best illustrated in the diagram below. There cannot be a disconnect between the three air traffic control functions, yet the FAA leaves the final phase of flight to the local air traffic control tower and excludes that phase of flight from further analysis. The FAA simply ignores that transition from TRACON to local ATC, leaving the most important concerns, noise and overflight at the lowest altitudes over those communities unanswered. While the FAA considers the BRNKO procedure de minimis, Centennial Airport will continue to grow, and more flights will be vectored over these communities without-a say in the matter if BRNKO can stand. Even if the current volume of eight to ten aircraft a day were true, it is eight to ten aircraft a day too many for citizens who never bought into, expected or agreed to this proposition.

Finally, Centennial Airport is the only airport within the proposed Denver Metroplex with an FAA approved Part 150 Noise Compatibility Program ("NCP"). The FAA never once consulted with Centennial Airport regarding the NCP. Since the NCP was approved by the FAA on August 12, 2007, the airport has worked with the Centennial Airport Community Noise Roundtable to address and mitigate noise concerns. The Part 150 Study, the work by the Community and Technical Advisory Committees, the approved NCP and the subsequent work by the Roundtable to mitigate aircraft noise, now comprising 20-plus years of work, will be forever jeopardized by the FAA with this proposed Denver Metroplex. The latter also includes the Noise Exposure Maps (NEMs), which airports, local communities and planning departments and sponsors rely on to determine compatible development as required by the FAA pursuant to the Federal Grant Assurances!

In closing, we urge the FAA to complete the studies mandated by Congress; address any changes in an Environmental Impact Study including cumulative impacts over 20 years; and, eliminate the BRNKO and PINNR procedures in favor of more acceptable alternatives including taking no action on PUFFR. Again, thank you very much for this opportunity to comment.

APPENDIX “A” Summary of Data 04/10/2019 San Diego International Airport – Lindbergh Field (SAN) Noise Office Shon Annette Noise Complaints: 2014 158 (Before Metroplex implementation) 2015 4,000+ (Initial announcement of Metroplex—expected spike due to awareness) 2016 31,716 (Implementation of Metroplex – Phase 1/3) 2017 72,000+ (Locally developed button App to complain directly to the noise hotline)* 2018 125,000+ * *Button Apps makes it easy to complain – Centennial Airport requires actual calls with data requests such as type of flight (departure/arrival) etc. in order to avoid massive complaints at the touch of a button without knowing if someone just notices airplane noise or is genuinely bothered by noise.

04/09/2019 Phoenix International Airport Noise Office 2014 3,005 (Before Metroplex implementation) 2015 24,243 (During Metroplex implementation) 2016 84,264 (After Metroplex implementation) 2017 -- (Court-ordered stop of Metroplex) 04/09/2019 Baltimore-Washington International-Thurgood Marshall Airport Noise Office 2015 2,409 (Before Metroplex implementation) 2016 3,312 (During Metroplex implementation) 2017 17,223 (After Metroplex implementation) 2018 153,337 (Extensive use of button App to file complaints)*

04/09/2019 Los Angeles International Airport (LAX) Noise Office Rene Spencer 2014 8,062 (Before Metroplex implementation) 2015 8,862 (Before Metroplex implementation) 2016 45,076 (During Phase I of Metroplex implementation) 2017 107,451 (During Phase II & III of Metroplex Implementation) 2018 274,172 (After Metroplex implementation— more procedures to come)

Topics Identified in the Comment

- Air Quality/Air Pollution
- Airport Capacity
- BRNKO STAR
- Children's Environmental Health and Safety
- Cumulative Impacts
- Environmental Justice
- Existing Aircraft Noise
- FAA Reauthorization Act of 2018
- Forecast/Future Operations
- Commercial Airlines Operations Costs
- Level of NEPA Review
- NEPA and FAA Order 1050.1F
- Noise Modelling
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Potential Increase In Fuel Burn and Emissions
- Public Outreach/Public Involvement
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project
- Sleep Disturbance/Speech Interference
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #354 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria

pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Airport Capacity: Airport capacity is defined as the number of aircraft arrivals and departures that an airport’s runways are able to sustain during periods of high demand. The structure of the air traffic operations is a component of airport capacity. The structure of air traffic is characterized by the flight distribution (peak times, traffic density), by type of aircraft (dependent on the weight and geometrical dimensions) and by the distribution between arrivals and departures. These parameters generate significant traffic flow constraints. The air traffic management methods for feeding an airport’s runway system takes into account aircraft navigation equipage, wake turbulence, in-flight and ground spacing constraints; have a direct impact on the capacity. The airport capacity would remain unaffected by the proposed Denver Metroplex Project.

BRNKO STAR: The workload for managing air traffic on the existing PUFFR (RNAV) STAR flight procedure is intensive for air traffic controllers as it requires them to maintain separation between aircraft arrivals at Centennial Airport and aircraft arrivals and departures at Denver International Airport. The workload intensity has been identified as a potential safety risk, notably during periods of heavy air traffic operations in the Denver area airspace. The FAA is proposing to replace the existing

PUFFR (RNAV) STAR with the proposed BRNKO (RNAV) STAR to enhance safety and efficiency for air traffic flow from the north arriving to Centennial Airport. The BRNKO (RNAV) STAR was developed in collaboration with the user groups including National Business Aviation Association and the Colorado Aviation Business Association to meet all safety and efficiency requirements. Additionally, the proposed PINNR (RNAV) STAR was developed to accommodate arrivals from the north.

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children's health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency's mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations." (72 Fed. Reg. 6641 (February 12, 2007)). Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

Environmental Justice: An environmental justice analysis considers the potential for impact on minority and low-income populations of the proposed Denver Metroplex Project as compared to the No Action Alternative. In weighing whether the proposed Denver Metroplex Project raises environmental justice concerns, the FAA considers whether a proposed action may have disproportionately high and

adverse human health or environmental effects on minority and low-income populations. This analysis draws on the findings of the other impact analyses, particularly noise, land use, and air quality. If these factors exist, there is not necessarily a significant impact; rather, the FAA must evaluate these factors in light of context and intensity to determine if there are significant impacts.

Implementation of the proposed Denver Metroplex Project would not adversely affect air quality or land use within the General Study Area. Additionally, the results of the noise modelling analysis alternative indicate that changes in aircraft noise exposure would be below the threshold of significance when comparing the proposed Denver Metroplex Project and the No Action Alternative. As a result, there are no disproportionate impacts on minority, or low-income populations of the proposed Denver Metroplex Project as compared to the No Action Alternative.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport
303-790-4709
<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport
303-342-2380
https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport
970-336-3000
<http://www.gxy.net/>

Northern Colorado Regional Airport
970-962-2850
<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport
303-271-4850
<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

NEPA and FAA Order 1050.1F: The National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) §4321 et seq.], requires federal agencies to disclose to decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in decisions that affect the quality of the human environment. As part of the NEPA process, federal agencies are

required to consider the environmental effects of a proposed action and reasonable alternatives to a proposed action, including a no action alternative (i.e., analyzing the potential environmental effects of not undertaking the proposed action). The Federal Aviation Administration (FAA) has established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). The Proposed Action for this Environmental Assessment (EA) is the proposed Denver Metroplex Project. The Draft EA was prepared in accordance with FAA Order 1050.1F and meets the required elements of the National Environmental Policy Act.

FAA Reauthorization Act of 2018: The FAA Reauthorization Act of 2018 specifies congressionally mandated directives for which the FAA is responsible for completing at varied timelines. In accordance with the congressionally mandated directives, the FAA will comply and adhere to the timelines. While the requested directives are being completed, the U.S. Congress did not place a moratorium on implementation of the proposed Denver Metroplex Project, or any Metroplex project.

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

Commercial Airlines Operations Costs: The purpose of the proposed Project is to address the problem of inefficiency of the existing aircraft flight procedures in the Denver Metroplex airspace. While fuel savings and/or a reduction in operating costs for commercial airlines may be secondary

benefits of implementing the proposed Denver Metroplex Project, it is not a part of the purpose and need for the Project.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling: The commenter raised concerns with the noise modelling methodology. The noise analysis completed for the Final Environmental Assessment (EA) was prepared using the Aviation Environmental Design Tool (AEDT) version 2d, which is the FAA's required noise model. The FAA uses AEDT to model noise for flight track changes over large areas and at altitudes over 3,000 feet AGL to analyze noise associated with the No Action Alternative and the Denver Metroplex Project proposed action. The AEDT 2d model utilizes an extensive aircraft performance and sound level database that includes information on variations in sound attributed to different types of aircraft and aircraft engines, aircraft speed, climb and descent thrust, and the altitude along a route. Detailed terrain data was inputted into the AEDT 2d model, which accounts for the elevation of each grid point or population centroid when calculating the distance between the grid point and the aircraft. The aircraft noise analysis prepared for the proposed Denver Metroplex Project Final EA was conducted in compliance with FAA Order 1050.1F.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was

forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed

Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Potential Increase In Fuel Burn and Emissions: The commenter also asked how the proposed Denver Metroplex Project could be presumed to conform to the SIP if it would result in an increase in fuel burn or emissions. As described in Section 5.2.3 of the Final Environmental Assessment under the proposed Denver Metroplex Project there would be a slight increase in fuel burn (1.83 percent in 2019 and 1.85 percent in 2024) when compared to the No Action Alternative. While increased fuel burn corresponds with an increase in emissions, operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or above and would not result in an increase in ground concentrations. Any operational changes that could result in an increase in fuel burn would occur at or above 3,000 feet AGL. As discussed above, procedures above 3,000 feet AGL are considered a de minimis action, would have little if any effect on emissions and ground concentrations of criteria pollutants, and are presumed to conform to all applicable SIPs. (72 Fed. Reg. 6641 (February 12, 2007)).

Public Outreach/Public Involvement: The views and input of communities are important to the FAA as the Agency takes the next steps to advance the NAS. Since 2016, the FAA has engaged individual communities through holding public workshops in the Denver metropolitan area to explore possible solutions to their concerns while ensuring the safety and efficiency of the National Airspace System. Twelve public workshops across the Denver metropolitan area were held in 2017, and again recently in April and May 2019. The public workshop locations, dates and time were publicized in the Denver Post, posted on the FAA Community Involvement website, and the Denver Metroplex Project website, in addition to being publicized through social media and local press releases. Comments received from the 2017 and 2019 public workshops were considered when designing the proposed flight procedures for the Denver Metroplex Project.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further

investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Sleep Disturbance/Speech Interference: The commenter recommended calculating different types of supplemental noise metrics to explain sleep disturbance and/or speech interference. A benefit of supplemental noise metrics is to help the public reach a better understanding of potential noise impacts. If the noise modelling analysis indicates a potential significant impact, FAA Order 1050.1F recommends additional information related to the human response to noise that is appropriate for the specific proposal. Additional information may include supplemental metrics applicable to sleep disturbance and/or speech interference. Such supplemental noise analysis is not, by itself, a measure of adverse aircraft noise or significant aircraft noise impact. As discussed in Chapter 5 of the EA, the noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. Therefore, the use of optional supplemental noise metrics are not warranted because they not would help explain the potential for cumulative noise exposure.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 355 Submitted by: Olislagers, Robert

Comment Received: Reference: Denver Metroplex Draft Environmental Assessment To Whom It May Concern; Thank you very much for the opportunity to comment on the Denver Metroplex Draft Environmental Assessment, which was made available to the public on April 22, 2019. Federal Aviation Administration staff, who put in countless hours designing new routes in and out of the Denver metropolitan area, one of the fastest growing regions in the nation including its airspace, had the difficult task in redesigning the airspace while maintaining first and foremost the safest air traffic control system in the world. The Denver airspace is complex and diverse; from the sixth busiest commercial service airport in the country, to Spaceport Colorado, to Buckley Air Force Base with its myriad national security missions, as well as four satellite airports including the second busiest general aviation airport in the U.S., the task of establishing safe arrival and departure procedures, was no doubt challenging. This task was and is made considerably more difficult due to the numerous environmental considerations that must be analyzed as part of any significant changes to the environment and the health and welfare of citizens living within and underneath the proposed Metroplex. These residents will share in both the benefits and burdens of the implemented redesign in terms of efficiencies to the system as well as corresponding increases in overflight in the Denver metro area. Centennial Airport is owned and operated by the Arapahoe County Public Airport Authority, a political subdivision of the State of Colorado. The airport was established in May of 1968. With more than 340,000 annual take-offs and landings, Centennial Airport is the 22nd busiest of all U.S. Airports, including all commercial service airports such as Los Angeles International Airport, O'Hare-Chicago International Airport and the New York airports. Despite not serving commercial airlines, Centennial Airport, which is an international airport with 24/7 U.S. Customs services, nevertheless is the second busiest general aviation and business airport in the U.S. With more than 7,000 full and part-time employees, the airport averages \$1.3 Billion in direct and indirect economic impact annually. It is an economic engine for the S.E. Metro Denver area responsible for 27 percent of the State's GDP. The airport is home to private and corporate aircraft, flight schools, defense contractors, medical flight operators, charter and fractional operators, federal, state and local law enforcement and aviation R&D, including electric and supersonic aircraft developers. It boasts four award-winning full-service providers, and a fully staffed 24/7 Federal Aviation Administration Air Traffic Control Tower. The Draft Environmental Assessment ("D/EA") primary focus is first on Denver International Airport and second, on proposed flight routes. Centennial Airport; however, contends that the Federal Aviation Administration ("FAA") did not adequately address the required elements of an Environmental Assessment pursuant to the National Environmental Policy Act of 1969 as amended (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, § 4(b), Sept. 13, 1982); and, its own FAA Order 1050.1F. The FAA contemplates implementing the Denver Metroplex without completing Congressionally mandated studies first pursuant to the FAA Reauthorization Act of 2018. In doing so, the FAA contravenes Congressional intent and lawful directives related to or substantially related to the Denver Metroplex. While the outcomes of the studies are unknown at this time, they are likely to have significant impact on the implementation of the proposed Metroplex specifically, and the environment in generally based on existing and anecdotal evidence. For example, the FAA's funded Partnership for Air Transportation Noise and Emissions Reduction ("PARTNER") program demonstrates significant health related environmental impacts of particulate matter emissions that were not considered in the D/EA. Centennial Airport, on behalf of its tenants and users who seek long-term viability of this great economic asset, as well as the hundreds of thousands of residents who wish to peacefully co-exist with the airport long into the future, asks that the FAA; (a) completes the studies mandated by Congress pursuant to the FAA Reauthorization Act of 2018 before it issues a determination regarding the Denver Metroplex D/EA; (b) conducts and include the findings of said studies in an Environmental Impact Study ("EIS"), including cumulative impacts per NEPA before it issues a Record of Decision regarding the implementation of the Denver

Metroplex; and, (c) eliminates the BRNKO and PUFFR arrival procedures on the grounds of safety, increased noise exposure and increased fuel burn and corresponding increases in air quality degradation in a federally designated nonattainment area that were not analyzed in the D/EA. It is our well-founded belief that the FAA has not adequately demonstrated the cumulative impacts of the proposed Metroplex in this rapidly growing area despite knowing and having documented the annual increases in flight operations in and out of the Denver metropolitan area. This applies especially to Denver International Airport, which is expected to grow by one percent per year, or approximately 9,000 additional flights each year. Related, the FAA has not adequately considered the health effects of noise on residents within the proposed Metroplex, including that of children, ostensibly because it lacks a standard for the latter. Finally, the FAA relies heavily on FAA Order 1050.1F, which is an internal FAA guidance document that does not supersede the National Environmental Policy Act of 1969 (“NEPA”). For this reason, the balance of the commentary below will focus on NEPA rather than the FAA Order. Pursuant to the D/EA, the Federal Aviation Administration (“FAA”) is likely to issue a Finding Of No Significant Impact (“FONSI”) for the Denver Metroplex, finding no significant environmental impacts on the community, cultural and natural resources; nor causing impacts on the quality of the human environment, including adverse health effects that are likely to be highly controversial on environmental grounds. The FAA also determined that there are no Extraordinary Circumstances pursuant to National Environmental Policy Act of 1969, as amended. We beg to differ. The Denver Metroplex aims to redesign the use of the airspace to, from, near and above the Denver metropolitan area to make it more efficient, predictable and increase capacity. A Metroplex is but one element of NextGen, the FAA’s ambitious program to modernize how it operates including but not limited to migrating from analog to digital technologies, and from ground-based to satellite-based navigation. Stated goals for modernization are to make it more efficient, improve airport access, increase capacity and reduce carbon emissions among other benefits. (1)

The FAA currently has 11 active or completed Metroplex sites around the country and finding no significant impact. Yet, in virtually every community, implementation of Metroplex was followed by significant public outcry over the adverse impacts of overflight on the quality of life of residents living underneath the revised flight routes. Legal action was initiated against the FAA regarding Metroplex implementations in Phoenix, Los Angeles (Southern California) and Baltimore-Washington DC, and more communities are considering the same. Metroplex implementation was followed by very significant increases in noise complaints in communities in Northern California, South Florida (Miami), Southern California (Los Angeles), Washington DC/Baltimore and Phoenix. Pursuant to 40 CFR § 6.204, when determining a Categorical Exclusion, the FAA is required to include a statement explaining why no extraordinary circumstances exist. Centennial Airport contends that the FAA has ignored multiple provisions of 40 CFR § 6.204, specifically; - 40 CFR § 6.204(a)(1) A statement explaining why no extraordinary circumstances exist; o The FAA failed to include such a statement despite the outcry and increases in noise complaints in other communities where Metroplex has been implemented. - 40 CFR § 6.204(b)(1) The proposed action is known or expected to have potential significant impacts on the human environment either individually (incrementally) or cumulatively over time; o The DEN Metroplex is designed to increase capacity, which means more aircraft will be using the redesigned airspace. The FAA 2018-2038 Aerospace Forecast shows that traffic at Denver International Airport is expected to increase by at least one percent per year. Denver International Airport was given approval in 2017 to add 39 new gates to accommodate its growth in passengers. Total aircraft operations are expected to increase from 594,522 operations to 773,855 in 2038. That represents an increase of 179,333 flights over 20 years, or 8,966 flights per year or 24.5 flights per day on average. Using reference forecasting, the above numbers also correspond to Denver’s historic operational growth, which has grown by one percent per year since it commenced operations in 1996. It is simply inconceivable that the FAA can reliably state that air quality for example will not substantially increase over this 20-year time period. NEPA, pursuant to 40 CFR § 1508.7 defines cumulative effects as “the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what

agency (federal or non-federal) or person undertakes such other actions". It is a demonstrated fact that the growth of aviation in the Denver Metroplex has grown by at least one percent per annum and one can assume it will continue to grow by that rate in the foreseeable future based on FAA's own studies. It is therefore incumbent on the FAA to show not only the growth over the five-year horizon as shown in the D/EA but expand the studies to 20 years as a result of the increases in anticipated traffic. □ For this reason, Centennial Airport contends that the FAA's fuel and emissions analyses are lacking, as it looks solely at the incremental increases over 5 years but not the overall cumulative impacts over 20 years as might reasonably be expected based on the FAA's own 2018-2038 Aerospace Forecast . □ Similarly, all noise exposure analyses should include 20-year cumulative effects, including noise exposures below 3,000 feet AGL. o Environmental Justice. The D/EA shows an increase in noise over economically disadvantaged communities; the only communities adversely impacted by Metroplex using the FAA's limited analyses. Worse, FAA uses a 5db DNL delta as its threshold over areas with the quietest ambient noise levels and still manages to increase the number of affected citizens! The FAA uses a 10db DNL standard for nighttime operations because the ambient noise levels at night are lower and therefore more noticeable. The FAA should therefore apply a similar or more stringent standard for areas with a lower ambient noise level as any increase in noise will have a far greater impact. The FAA and the EPA have recognized this for national parks and nighttime occurrences and should do the same for daytime noise events over rural and quieter areas. To place an additional burden on disadvantaged communities is particularly disturbing. - 40 CFR § 6.204(b)(6) The proposed action is known or expected to cause significant adverse air quality effects; o As stated above, the fuel consumption and carbon emissions reductions presented as part of the DEN Metroplex study simply lack the cumulative impact that is reasonably foreseeable. More aircraft will consume more fuel and produce more carbon emissions, regardless of the efficiencies gained from Optimized Profile Descent. o The Denver metropolitan air quality has steadily declined over the course of the last two decades due to myriad incremental increases in vehicle, aircraft and other emissions as the demographic area continues to grow faster than most regions of the country. The Denver metropolitan area is now on the EPA list of cities and counties for air quality nonattainment (see map below). A five-year analysis may be considered de minimis in terms of additional air quality degradation but studied in the context of 20 years and the estimated 180,000 additional flights in and out of Denver cannot possibly be considered de minimis per NEPA. - 40 CFR § 6.204(b)(8) The proposed action is known to cause significant public controversy about a potential environmental impact of the proposed action; o Metroplexes around the country have experienced significant increases in noise complaints as a result of implementation (see Appendix A). While noise complaints by themselves are not objective measurements of noise, they are indicators of potential noise issues as a nuisance. The accepted federal threshold is 65dB DNL, which corresponds to 12.3% of the population being highly annoyed (meaning sleep deprivation, loss of concentration, inability to continue a conversation). While it remains the federal standard and is applied in this D/EA, its validity has come under increased criticism as being inadequate. There have been steady calls for the FAA to reevaluate whether the 65dB DNL is still an acceptable threshold when so many people are severely and adversely affected by aircraft noise. In fact, the FAA began a study to address this threshold several years ago but has failed to complete the study. Congress has now mandated in the FAA Reauthorization Act of 2018 that the FAA complete this study within one year of the enactment of the Act and submit the same to Congress. To this end, the FAA should place a moratorium on the Denver Metroplex study until the outcome of this and other studies are completed and published. Any change in the 65dB DNL threshold will have a significant impact on how the FAA measures environmental impact. It should be noted that Naples, FL successfully challenged the FAA on the 65 DNL threshold and was able to apply the more stringent threshold of 60dB DNL. (2)

As previously referenced, the implementation of Metroplexes and subsequent uproar by affected communities around the country has led to unprecedented action by Congress in 2018. The One Hundred Fifteenth Congress of the United States at the Second Session passed, and the President signed into law the FAA Reauthorization Act of 2018. In Subtitle D, Airport Noise and Environmental

Streamlining, Congress specifically mandated numerous noise-related legislative actions, many directly and indirectly related to Metroplex implementation as follows; SECTION 176. COMMUNITY INVOLVEMENT IN FAA NEXTGEN PROJECTS LOCATED IN METROPLEXES. (a) Community Involvement Policy.—Not later than 180 days after the date of enactment of this Act, the Administrator of the Federal Aviation Administration shall complete a review of the Federal Aviation Administration’s community involvement practices for Next Generation Air Transportation System (NextGen) projects located in metroplexes identified by the Administration. Congress has recognized that it is quite obvious that the FAA has not sufficiently addressed, or at a minimum underestimated, the need for broad citizen participation when so many communities have expressed their frustration after Metroplex implementation about the lack of community involvement, with many complainants being clearly surprised by the sudden and unanticipated changes in flight patterns over or near their residences (See Appendix “A”). The Denver Metroplex is no exception; the following are but a few examples. The EA was released on April 22, 2019 but the interactive GIS-based maps where residents could determine how overflights might affect their respective neighborhoods did not become available to the public until April 30th and only at the workshops, ostensibly because the sole computer operator capable of uploading the information was sick! The maps were finally uploaded on the May 2, 2019! Citizens were then given till June 6, 2019 to provide responses to the FAA, a mere 45 days after the documents (approx. 700+ pages) were released while the FAA took two years to prepare said documents. The SoCal Metroplex was given nearly four months. In another situation several Metroplex team members were overheard stating that “Metroplex will not change anything”, including one of the co-leads! In yet another instance, the FAA Public Affairs Officer cancelled a meeting for elected officials just a few hours before it was to begin because a member of the media was invited. Finally, airport staff attended numerous “stakeholder” meetings with the FAA Metroplex design team, but any input provided to the team was summarily dismissed even though Centennial Airport had demonstrated extensive cooperation with the FAA regarding RNAV implementation. These are not simple gripes but a few examples how the Denver Metroplex team has gone about the process; it has not only been arbitrary and capricious, but the design team has been indifferent to the needs of the stakeholder community—and, related; SECTION 187. AIRCRAFT NOISE EXPOSURE. (a) REVIEW.—The Administrator of the Federal Aviation Administration shall conclude the Administrator’s ongoing review of the relationship between aircraft noise exposure and its effects on communities around airports. (b) REPORT.—(10) IN GENERAL.—Not later than two years after the date of enactment of this Act, the Administrator shall submit to Congress a report containing the results of the review;—and, related; SECTION 189. STUDY ON POTENTIAL HEALTH AND ECONOMIC IMPACTS OF OVERFLIGHT NOISE. (a) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Administrator of the Federal Aviation Administration shall enter into an agreement with an eligible institution of higher education to conduct a study on the health impacts of noise from aircraft flights on residents exposed to a range of noise levels from such flights. (b) SCOPE OF STUDY.—The study conducted under subsection (a) shall— (1) include an examination of the incremental health impacts attributable to noise exposure that result from aircraft flights, including sleep disturbance and elevated blood pressure; (2) be focused on residents in the metropolitan area of— (A) Boston; (B) Chicago; (C) the District of Columbia; (D) New York; (E) the Northern California Metroplex; (F) Phoenix; (G) the Southern California Metroplex; (H) Seattle; or (I) such other area as may be identified by the Administrator; (3) consider, in particular, the incremental health impacts on residents living partly or wholly underneath flight paths most frequently used by aircraft flying at an altitude lower than 10,000 feet, including during takeoff or landing; (4) include an assessment of the relationship between a perceived increase in aircraft noise, including as a result of a change in flight paths that increases the visibility of aircraft from a certain location, and an actual increase in aircraft noise, particularly in areas with high or variable levels of non-aircraft-related ambient noise; and (5) consider the economic harm or benefits to businesses located partly or wholly underneath flight paths most frequently used by aircraft flying at an altitude lower than 10,000 feet, including during takeoff or landing. (c) ELIGIBILITY.—An institution of higher education is eligible to conduct the study if the

institution— (1) has— (A) a school of public health that has participated in the Center of Excellence for Aircraft Noise and Aviation Emissions Mitigation of the Federal Aviation Administration; or H.R.302—52 (B) a center for environmental health that receives funding from the National Institute of Environmental Health Sciences; (2) is located in one of the areas identified in subsection (b); (3) applies to the Administrator in a timely fashion; (4) demonstrates to the satisfaction of the Administrator that the institution is qualified to conduct the study; (5) agrees to submit to the Administrator, not later than 3 years after entering into an agreement under subsection (a), the results of the study, including any source materials used; and (6) meets such other requirements as the Administrator determines necessary. (d) SUBMISSION OF STUDY.—Not later than 90 days after the Administrator receives the results of the study, the Administrator shall submit to the appropriate committees of Congress the study and a summary of the results. Congress has long recognized that there is a direct relationship between aircraft noise and communities near airports, including establishing the Part 150 Airport Noise Compatibility Program, which, despite having been in place since 1989 has not always produced expected results and both studies are requested in order to get a better understanding of the effects and what more can be done. These studies invariably will be weighed against the cost-benefit burdens to society as well as laws concerning interstate commerce—and, related; SECTION 188. STUDY REGARDING THE DAY-NIGHT AVERAGE SOUND LEVELS. (a) STUDY.—The Administrator of the Federal Aviation Administration shall evaluate alternative metrics to the current average day-night level standard, such as the use of actual noise sampling and other methods, to address community airplane noise concerns. (b) REPORT.—Not later than one year after the date of enactment of this Act, the Administrator shall submit to the appropriate committees of Congress a report of the study under subsection (a)—and related; (3)

Cc: Arapahoe County Public Airport Authority Board of Commissioners Kimberly Bruetsch, Attorney at Law, Robinson, Waters, et al. Centennial Airport Community Noise Roundtable Sen. Cory Gardner, U.S. Senate Sen. Michael Bennett, U.S. Senate Rep. Jason Crow, U.S. House of Representatives APPENDIX “A” Summary of Data 04/10/2019 San Diego International Airport – Lindbergh Field (SAN) Noise Office Shon Annette Noise Complaints: 2014 158 (Before Metroplex implementation) 2015 4,000+ (Initial announcement of Metroplex—expected spike due to awareness) 2016 31,716 (Implementation of Metroplex – Phase 1/3) 2017 72,000+ (Locally developed button App to complain directly to the noise hotline)* 2018 125,000+ * *Button Apps makes it easy to complain – Centennial Airport requires actual calls with data requests such as type of flight (departure/arrival) etc. in order to avoid massive complaints at the touch of a button without knowing if someone just notices airplane noise or is genuinely bothered by noise.

__ 04/09/2019 Phoenix International Airport Noise Office 2014 3,005 (Before Metroplex implementation) 2015 24,243 (During Metroplex implementation) 2016 84,264 (After Metroplex implementation) 2017 -- (Court-ordered stop of Metroplex) 04/09/2019 Baltimore-Washington International-Thurgood Marshall Airport Noise Office 2015 2,409 (Before Metroplex implementation) 2016 3,312 (During Metroplex implementation) 2017 17,223 (After Metroplex implementation) 2018 153,337 (Extensive use of button App to file complaints)*

__ 04/09/2019 Los Angeles International Airport (LAX) Noise Office Rene Spencer 2014 8,062 (Before Metroplex implementation) 2015 8,862 (Before Metroplex implementation) 2016 45,076 (During Phase I of Metroplex implementation) 2017 107,451 (During Phase II & III of Metroplex Implementation) 2018 274,172 (After Metroplex implementation— more procedures to come)

SECTION 188. STUDY REGARDING THE DAY-NIGHT AVERAGE SOUND LEVELS. (a) STUDY.—The Administrator of the Federal Aviation Administration shall evaluate alternative metrics to the current average day-night level standard, such as the use of actual noise sampling and other methods, to address community airplane noise concerns. (b) REPORT.—Not later than one year after the date of enactment of this Act, the Administrator shall submit to the appropriate committees of Congress a report of the study under subsection (a)—and related; SECTION 173. ALTERNATIVE

AIRPLANE NOISE METRIC EVALUATION STUDY. Not later than one year after enactment of this Act, the Administrator of the Federal Aviation Administration shall complete the ongoing evaluation of alternative metrics to the current Day Night Level (DNL) 65 Standard. Sec. 173 and 188 are focused on the same question, which is whether or not the 65 DNL remains an acceptable federal noise standard when 12.3 percent of the populations are highly annoyed by noise, including but not limited to sleep deprivation, loss of concentration, inability to continue a conversation, as well as health-related concerns such as hypertension and heart disease. Also, see Sec. 187 and 189. **SAFETY, NOISE AND OVERFLIGHT CONCERNS.** The FAA proposes to eliminate a “little-used” (FAA’s term) arrival procedure called PUFFR and replace it with the so-called BRNKO arrival procedure. The PUFFR arrival procedure currently takes aircraft coming in from the north and east over and above Denver International Airport. Source: Cities near Denver area’s Centennial Airport are fighting possible changes to flight path, Denver Post, January 22, 2019. <https://denverpost.com/2019/01/23/faa-centennial-airport-flight-paths-littleton/> The proposed BRNKO arrival procedure takes airplanes destined for Centennial Airport some 50 miles further north towards Ft. Collins-Loveland, before aircraft are vectored eastward along the foothills of the Rocky Mountains where downdrafts, wind shear and volatile wind conditions make it both uncomfortable due to turbulence, as well as dangerous due to unpredictable downdrafts coming from the mountains. When weather or winds are not a factor, the corridor is popular with small aircraft flying in both directions creating safety concerns as aircraft with vastly different speeds will operate in the same airspace at nearly identical altitudes. While safety is typically the purview of the FAA, numerous pilots, who are the ultimate arbiters on safety, have to fly this route including PINRR (for aircraft arriving from the west) and have advised the FAA that the proposed BRNKO and PINRR arrival procedures are potentially dangerous in addition to the discomfort for their passengers. Numerous pilots have indicated that they will simply not use the BRNKO/PINRR and look to use the DUNNN arrival procedure instead. Therefore, from the book of unintended consequences, the FAA should consider alternative arrival procedures or take no action on PUFFR. The FAA also claims that only very few aircraft use the PUFFR, which begs the question, why change? While the FAA has touted the reductions in fuel burn and emissions as part of Metroplex, it did not include an analysis in the D/EA pertaining to the increases in fuel burn and emissions generated by aircraft using the BRNKO rather than PUFFR procedure. The FAA should be required to provide this data, including associated costs. Equally important, aircraft flying the BRNKO and PINRR arrival procedures will be turning east towards Centennial Airport and overflying communities like Littleton, Columbine Valley, Highlands Ranch, Cherry Hills, Lone Tree, Castle Pines, Castle Pines North, Castle Rock, Greenwood Village, Centennial and unincorporated counties of Douglas, Arapahoe and City and County of Denver that have previously only seen occasional aircraft overflight. Although the overflights may not reach the 65dB DNL legal threshold at this time, and therefore may not meet the nuisance or extraordinary circumstance standards under current law, that could change with the Congressional mandates pursuant to the FAA Reauthorization Act of 2018, Title D. For this reason, Centennial Airport requests that the FAA place a moratorium on implementation of the Denver Metroplex until the studies requested by Congress are completed and submitted to Congress for consideration. The proposed BRNKO procedure presents two additional problems not considered in the D/EA. First, what happens when TRACON hands over aircraft to local ATC, and second, there is great uncertainty regarding the altitudes of the overflights above the referenced communities once that happens? The FAA does not consider impacts below 3,000 feet AGL, and therefore the final phase of flight is “undetermined”. A typical flight profile would see an aircraft depart or land at an airport, which is managed by local air traffic control. In between, near the airports, Terminal Radar Approach Control “talks” to the aircraft and provides direction, while on longer flights, the Centers or “en route” controllers provide direction to the aircraft. This is best illustrated in the diagram below. There cannot be a disconnect between the three air traffic control functions, yet the FAA leaves the final phase of flight to the local air traffic control tower and excludes that phase of flight from further analysis. The FAA simply ignores that transition from TRACON to local ATC, leaving the most important concerns, noise and overflight at the lowest altitudes over those communities unanswered. While the FAA

considers the BRNKO procedure de minimis, Centennial Airport will continue to grow, and more flights will be vectored over these communities without a say in the matter if BRNKO can stand. Even if the current volume of eight to ten aircraft a day were true, it is eight to ten aircraft a day too many for citizens who never bought into, expected or agreed to this proposition. Finally, Centennial Airport is the only airport within the proposed Denver Metroplex with an FAA approved Part 150 Noise Compatibility Program (“NCP”). The FAA never once consulted with Centennial Airport regarding the NCP. Since the NCP was approved by the FAA on August 12, 2007, the airport has worked with the Centennial Airport Community Noise Roundtable to address and mitigate noise concerns. The Part 150 Study, the work by the Community and Technical Advisory Committees, the approved NCP and the subsequent work by the Roundtable to mitigate aircraft noise, now comprising 20-plus years of work, will be forever jeopardized by the FAA with this proposed Denver Metroplex. The latter also includes the Noise Exposure Maps (NEMs), which airports, local communities and planning departments and sponsors rely on to determine compatible development as required by the FAA pursuant to the Federal Grant Assurances! In closing, we urge the FAA to complete the studies mandated by Congress; address any changes in an Environmental Impact Study including cumulative impacts over 20 years; and, eliminate the BRNKO and PINNR procedures in favor of more acceptable alternatives including taking no action on PUFFR. Again, thank you very much for this opportunity to comment. Sincerely, Robert P. Olislagers CEO (4)

Topics Identified in the Comment

- Air Quality/Air Pollution
- Airport Capacity
- BRNKO STAR
- Children's Environmental Health and Safety
- Cumulative Impacts
- Environmental Justice
- Existing Aircraft Noise
- FAA Reauthorization Act of 2018
- Forecast/Future Operations
- Commercial Airlines Operations Costs
- Level of NEPA Review
- NEPA and FAA Order 1050.1F
- Noise Modelling
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Potential Increase In Fuel Burn and Emissions
- Public Outreach/Public Involvement
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project
- Sleep Disturbance/Speech Interference
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #355 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment.

The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA's de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA-AEE-00-01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25-13 and No. 91-53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Airport Capacity: Airport capacity is defined as the number of aircraft arrivals and departures that an airport's runways are able to sustain during periods of high demand. The structure of the air traffic operations is a component of airport capacity. The structure of air traffic is characterized by the flight distribution (peak times, traffic density), by type of aircraft (dependent on the weight and geometrical dimensions) and by the distribution between arrivals and departures. These parameters generate significant traffic flow constraints. The air traffic management methods for feeding an airport's runway system takes into account aircraft navigation equipage, wake turbulence, in-flight and ground spacing constraints; have a direct impact on the capacity. The airport capacity would remain unaffected by the proposed Denver Metroplex Project.

BRNKO STAR: The workload for managing air traffic on the existing PUFFR (RNAV) STAR flight procedure is intensive for air traffic controllers as it requires them to maintain separation between aircraft arrivals at Centennial Airport and aircraft arrivals and departures at Denver International Airport. The workload intensity has been identified as a potential safety risk, notably during periods of heavy air traffic operations in the Denver area airspace. The FAA is proposing to replace the existing PUFFR (RNAV) STAR with the proposed BRNKO (RNAV) STAR to enhance safety and efficiency for air traffic flow from the north arriving to Centennial Airport. The BRNKO (RNAV) STAR was developed in collaboration with the user groups including National Business Aviation Association and the Colorado Aviation Business Association to meet all safety and efficiency requirements.

Additionally, the proposed PINNR (RNAV) STAR was developed to accommodate arrivals from the north.

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children's health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency's mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations." (72 Fed. Reg. 6641 (February 12, 2007). Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

Environmental Justice: An environmental justice analysis considers the potential for impact on minority and low-income populations of the proposed Denver Metroplex Project as compared to the No Action Alternative. In weighing whether the proposed Denver Metroplex Project raises environmental justice concerns, the FAA considers whether a proposed action may have disproportionately high and adverse human health or environmental effects on minority and low-income populations. This analysis draws on the findings of the other impact analyses, particularly noise, land use, and air quality. If these factors exist, there is not necessarily a significant impact; rather, the FAA must evaluate these factors in light of context and intensity to determine if there are significant impacts.

Implementation of the proposed Denver Metroplex Project would not adversely affect air quality or land use within the General Study Area. Additionally, the results of the noise modelling analysis alternative indicate that changes in aircraft noise exposure would be below the threshold of significance when comparing the proposed Denver Metroplex Project and the No Action Alternative. As a result, there are no disproportionate impacts on minority, or low-income populations of the proposed Denver Metroplex Project as compared to the No Action Alternative.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

NEPA and FAA Order 1050.1F: The National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) §4321 et seq.], requires federal agencies to disclose to decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in decisions that affect the quality of the human environment. As part of the NEPA process, federal agencies are required to consider the environmental effects of a proposed action and reasonable alternatives to a proposed action, including a no action alternative (i.e., analyzing the potential environmental effects of not undertaking the proposed action). The Federal Aviation Administration (FAA) has established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F,

Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). The Proposed Action for this Environmental Assessment (EA) is the proposed Denver Metroplex Project. The Draft EA was prepared in accordance with FAA Order 1050.1F and meets the required elements of the National Environmental Policy Act.

FAA Reauthorization Act of 2018: The FAA Reauthorization Act of 2018 specifies congressionally mandated directives for which the FAA is responsible for completing at varied timelines. In accordance with the congressionally mandated directives, the FAA will comply and adhere to the timelines. While the requested directives are being completed, the U.S. Congress did not place a moratorium on implementation of the proposed Denver Metroplex Project, or any Metroplex project.

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

Commercial Airlines Operations Costs: The purpose of the proposed Project is to address the problem of inefficiency of the existing aircraft flight procedures in the Denver Metroplex airspace. While fuel savings and/or a reduction in operating costs for commercial airlines may be secondary benefits of implementing the proposed Denver Metroplex Project, it is not a part of the purpose and need for the Project.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling: The commenter raised concerns with the noise modelling methodology. The noise analysis completed for the Final Environmental Assessment (EA) was prepared using the Aviation Environmental Design Tool (AEDT) version 2d, which is the FAA's required noise model. The FAA uses AEDT to model noise for flight track changes over large areas and at altitudes over 3,000 feet AGL to analyze noise associated with the No Action Alternative and the Denver Metroplex Project proposed action. The AEDT 2d model utilizes an extensive aircraft performance and sound level database that includes information on variations in sound attributed to different types of aircraft and aircraft engines, aircraft speed, climb and descent thrust, and the altitude along a route. Detailed terrain data was inputted into the AEDT 2d model, which accounts for the elevation of each grid point or population centroid when calculating the distance between the grid point and the aircraft. The aircraft noise analysis prepared for the proposed Denver Metroplex Project Final EA was conducted in compliance with FAA Order 1050.1F.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Potential Increase In Fuel Burn and Emissions: The commenter also asked how the proposed Denver Metroplex Project could be presumed to conform to the SIP if it would result in an increase in fuel burn or emissions. As described in Section 5.2.3 of the Final Environmental Assessment under the proposed Denver Metroplex Project there would be a slight increase in fuel burn (1.83 percent in 2019 and 1.85 percent in 2024) when compared to the No Action Alternative. While increased fuel burn corresponds with an increase in emissions, operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or above and would not result in an increase in ground concentrations. Any operational changes that could result in an increase in fuel burn would occur at or above 3,000 feet AGL. As discussed above, procedures above 3,000 feet AGL are considered a de minimis action, would have little if any effect on emissions and ground concentrations of criteria pollutants, and are presumed to conform to all applicable SIPs. (72 Fed. Reg. 6641 (February 12, 2007)).

Public Outreach/Public Involvement: The views and input of communities are important to the FAA as the Agency takes the next steps to advance the NAS. Since 2016, the FAA has engaged individual communities through holding public workshops in the Denver metropolitan area to explore possible solutions to their concerns while ensuring the safety and efficiency of the National Airspace System. Twelve public workshops across the Denver metropolitan area were held in 2017, and again recently in April and May 2019. The public workshop locations, dates and time were publicized in the Denver Post, posted on the FAA Community Involvement website, and the Denver Metroplex Project website, in addition to being publicized through social media and local press releases. Comments received from the 2017 and 2019 public workshops were considered when designing the proposed flight procedures for the Denver Metroplex Project.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Sleep Disturbance/Speech Interference: The commenter recommended calculating different types of supplemental noise metrics to explain sleep disturbance and/or speech interference. A benefit of supplemental noise metrics is to help the public reach a better understanding of potential noise impacts. If the noise modelling analysis indicates a potential significant impact, FAA Order 1050.1F recommends additional information related to the human response to noise that is appropriate for the specific proposal. Additional information may include supplemental metrics applicable to sleep disturbance and/or speech interference. Such supplemental noise analysis is not, by itself, a measure of adverse aircraft noise or significant aircraft noise impact. As discussed in Chapter 5 of the EA, the noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. Therefore, the use of optional supplemental noise metrics are not warranted because they not would help explain the potential for cumulative noise exposure.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 356 Submitted by: Omalley, Suzanne

Comment Received: "The new program is not a benefit for those that live under the flight path. I live under your 20 mile final. When you vector three planes in at the same time it is very disturbing because of the consent noise. I am one of many from this area (south)that find this a problem. This was not a issue for 20 years we had IFR traffic only. I believe this is already a done deal and any comment is really a waste of ones time. i'm sorry to say. This is a hard adjustment which may cause some families to move. There have been three or more landings in the last couple of minutes. It is 9:50 P.m. time for silence. Suzanne O'malley"

Topics Identified in the Comment

- Existing Aircraft Noise
- General Aviation/Visual Flight Rules

FAA Response for Comment #356 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport
303-271-4850
<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Comments-Responses

Comment# 357 Submitted by: Pape, Cindy

Comment Received: Please disturb the peace and quite in the Pinery. There should be some other solution of just leave the flight patterns alone

Topics Identified in the Comment

- Purpose and Need of Project
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #357 Topics

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 358 Submitted by: Papp, Scott

Comment Received: My parents who live at 27800 View Circle Kiowa CO 80117 appear to be substantially affected by this Environmental Assessment.

Of the millions of people that live in the study area only about 100 are expected to be affected. Please try to re-design such that the last 100 are more minimally affected.

It is also disappointing that the closest public meeting to the people most affected is >31 miles. There really should be more outreach to those expected to receive increased noise impacts from this project.

Topics Identified in the Comment

- Public Outreach/Public Involvement
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project

FAA Response for Comment #358 Topics

Public Outreach/Public Involvement: The views and input of communities are important to the FAA as the Agency takes the next steps to advance the NAS. Since 2016, the FAA has engaged individual communities through holding public workshops in the Denver metropolitan area to explore possible solutions to their concerns while ensuring the safety and efficiency of the National Airspace System. Twelve public workshops across the Denver metropolitan area were held in 2017, and again recently in April and May 2019. The public workshop locations, dates and time were publicized in the Denver Post, posted on the FAA Community Involvement website, and the Denver Metroplex Project website, in addition to being publicized through social media and local press releases. Comments received from the 2017 and 2019 public workshops were considered when designing the proposed flight procedures for the Denver Metroplex Project.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise

changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 359 Submitted by: Parker, Scott

Comment Received: Airplane noise around Eldorado Canyon and South of Table Mesa has always been a problem. The steep canyons provide a resonator and reflector of the sound of aircraft making a steep ascent to get over the Flatirons. I am very surprised this fact is ignored. There is a Fed Ex prop plane that flies from DIA to Steamboat Springs that makes an extremely loud noise early in the morning in Eldorado Springs. Nobody does anything. The FAA does nothing. Everyone else says "It is the FAA not our issue." Then the commercial jets going over Table Mesa one after another. The pristine experience of the Boulder Mountain Parks are decimated by this stream of jets climbing over the Flatirons. On windy days the noise of the jet aircraft is masked. But on still days it is bothersome not only to park visitors but to wildlife.

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights

FAA Response for Comment #359 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport
303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Comments-Responses

Comment# 360 Submitted by: Patsch, Aaron and Amy

Comment Received: The conclusions of your Environmental Assessment report (EA) are seriously flawed. The implementation of Denver Metroplex is highly controversial on both health and environmental grounds. A full Environmental Impact Statement (EIS) should be conducted for public review and comment. It should accurately disclose all data that will have a direct, indirect and cumulative impact on the Denver Region arising from Denver Metroplex, with emphasis on noise sensitive areas that have not experienced significant aviation noise and pollution in the past.

The EA excludes noise generated by expansion of Denver International Airport (DIA) and by aviation at Centennial Airport. Aviation activity at DIA is projected to grow by 70-100% by 2030/35.

Centennial Airport is the second largest general aviation airport in the United States with its own growth projections. The FAA's estimate of flights from DIA grossly underestimates the direct, indirect and cumulative impact of noise generated by Metroplex and completely fails to take into account air traffic from Centennial Airport.

The EA excludes the impact of particulate matter generated by aviation emissions on the health and welfare of adults and children notwithstanding significant current studies (some conducted by or for the FAA) documenting the serious adverse impact on people's physical and mental health.

The EA excludes the impact of noise at or below DNL 65 dB on noise sensitive areas, including residences, historic areas, parks and schools. In the Denver region the majority of residences and schools in the suburbs predate DIA and currently experience low levels of noise. Studies by health organizations and universities have documented that increases in aviation noise cause and contribute to cardiac disease, depression and anxiety in both adults and children. Additionally, it has been shown to cause lower test scores in children along with increasing cognitive and behavioral problems.

The EA contains assumptions that understate noise and ignore health risks. It is an inaccurate and misleading report.

Metroplex is highly controversial in the communities it has been implemented in, generating litigation across the country.

An EIS would accurately provide the detail necessary to evaluate the environmental and health impact of Denver Metroplex on the Denver Region.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Cumulative Impacts
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #360 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA),

the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children’s health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency’s mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.” (72 Fed. Reg. 6641 (February 12, 2007)). Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA’s primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the

Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This

guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical

Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport,

approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative , when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further

investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 361 Submitted by: Patton, Kate

Comment Received: On behalf of the people in my neighborhood and expanded neighborhoods that would be affected as well as myself and my family I respectfully request that you do NOT implement your proposed Denver Metroplex plan. The Environmental Assessment Draft is a manipulation of data created to calm public outcry as it reaches a conclusion that concurs with your agenda. The FAA offers false reassurances and promises it cannot keep. It is patently wrong immoral and totally unacceptable for you to spin the facts and the truth to people at your workshops in order for you to go ahead with your agenda.

In fact the FAA has NO control over the number of flights that will fly over homes in and surrounding my area as months and years go on. With DIA expanding the present number of gates by nearly 40 more air traffic will dramatically increase. The pattern proposed concentrates those planes into a path assuring constant noise and air pollution over our homes.

We live in the areas we chose because we wanted to insure a peaceful quiet environment. There was no reason to believe the atmosphere would change. Our health...physical mental and financial will be jeopardized if your plan goes through. We will be inundated by constant noise...as much as every minute of every day all day and night interrupting conversations and sleep. The negative impact on our lives would be immeasurable.

Citizens have long been aware of the deleterious effects of excess noise on the ground so we have laws to maintain peace and quiet. It is illegal to make too much noise in our homes or on the road. We get ticketed and fined for that. Nonstop airplane noise overhead will be much worse than occasional loud music or malfunctioning car mufflers on the ground. It is blatantly unethical for you to impose this nightmare upon the people living in the flight paths you are proposing. The lives of citizens need to be the priority over any corporate profits.

Would you personally accept the 24/7 thunderous noise and pollution over your homes? Studies have shown the stress caused by this kind of noise causes physical and mental ill health. You are not considering the very real terrible consequences to our neighborhoods of the proposed change in flight patterns.

DO NOT GO FORWARD with the Denver Metroplex NextGen plan. You are opening a Pandora's Box of noise and pollution that will also drastically lower the value of our homes. It should not have to take thousands of objections to stop this unconscionable plan. It should only take common decency and an application of the Golden Rule NOT to foist this onto people.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Frequency of Aircraft Overflights
- NEPA and FAA Order 1050.1F
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure
- Property Values
- Purpose and Need of Project

FAA Response for Comment #361 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

NEPA and FAA Order 1050.1F: The National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) §4321 et seq.], requires federal agencies to disclose to decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in decisions that affect the quality of the human environment. As part of the NEPA process, federal agencies are required to consider the environmental effects of a proposed action and reasonable alternatives to a proposed action, including a no action alternative (i.e., analyzing the potential environmental effects of

not undertaking the proposed action). The Federal Aviation Administration (FAA) has established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). The Proposed Action for this Environmental Assessment (EA) is the proposed Denver Metroplex Project. The Draft EA was prepared in accordance with FAA Order 1050.1F and meets the required elements of the National Environmental Policy Act.

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact

categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Property Values: The proposed Denver Metroplex Project involves air traffic control routing changes for airborne aircraft only; and does not involve land acquisition, physical disturbance, or construction activities. The determination of whether a proposed action may have a significant environmental impact under the National Environmental Policy Act (NEPA) is made by considering the relevant environmental impact categories and comparing impact to the FAA's thresholds of significance as outlined in FAA Order 1050.1F. The assessment of property values is not an environmental impact category as outlined in FAA Order 1050.1F. To the extent applicable, and as there are no significant impacts under noise or compatible land use, the proposed Denver Metroplex Project is compatible with existing and planned land uses, and the applicable regulations and policies of federal, state, and local agencies. A limited number of studies have attempted to measure the impact of aircraft noise on property values. Specific studies of the impact of noise at the Study Airports on real property values have not been conducted and are not required. Studies conducted at other national airports have concluded that airport noise only has a slight impact on property values within the Day Night Average Sound Level 65 decibels or greater noise contour around airports. Additionally, comparison of older studies to more recent studies indicates that the impact was greater in the 1960s, when jet aircraft first entered the fleet. This decrease presumably is the result of stabilization of real estate markets following an initial adjustment to noisier jets, and of noise reduction in more modern Stage 3 or better aircraft.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 362 Submitted by: Patton, Michael

Comment Received: I am opposed to the Denver MetroPlex project. The data seems fraud for Colorado including flight height about sea level and impact to the second busiest regional airport in centennial.

Topics Identified in the Comment

- Altitude/Mean Sea Level
- General Aviation/Visual Flight Rules
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #362 Topics

Altitude/Mean Sea Level: Airspace classes are defined by regulations in 14 CFR part 71. Class A airspace covers the highest altitudes of above 18,000 feet Mean Sea Level. Unless specially authorized, all aircraft in Class A airspace must operate under Instrument Flight Rules. Class B airspace generally includes airspace from the surface to 10,000 feet Mean Sea Level around the busiest airports and is individually tailored to contain all published instrument flight procedures for that airport. Class B airspace typically consists of a surface area around the airport and two or more layers that increase in size. Airspace altitudes are expressed in Mean Sea Level because it is a consistent measurement for aircraft flight operations, while Above Ground Level varies with the local terrain.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 363 Submitted by: Petrich, Gary

Comment Received: "Unfortunately I was not able to attend any of the community meetings in regards to Air traffic issues so I discovered this form to express my concerns and views. I have been in touch with the DIA noise office several times over the last few years as a result of Increased noise levels from departing aircraft over what I have heard referred to as the Western Portal over North Evergreen Colorado. A commercial Pilot who is a neighbor told me that a few years ago the climb rate out of DIA going West was reduced and as a result flights over our area are at a lower altitude than in the past. I don't know whether this is true but in the past few years there is a very noticeable difference in the noise level and frequency of flights at certain times of the day. The noise issue is exacerbated by the topography of a valley and Bergan Peak. They act like the Red Rocks amphitheater and the echoes of one plane have not receded before the next plane enters the air space and at certain times of the day it seems that there is no break to the noise overhead. We are 50 miles from the airport and there is no reason we should be awakened at 4:00 AM almost daily with a flight overhead that can be heard inside a well-built closed home. I know you are seeking input and I would suggest either a much higher climb rate going West or looking into a portal that goes down the North I70 corridor over Blackhawk or South over Aspen Park area . Either of these routes might avoid the resonance that is created by Bergan Peak. I thank you in advance for considering public input and I hope that you will investigate alternatives to the current routes and altitudes. Please feel free to contact me and I invite you to sit on my deck if Spring ever arrives and experience first-hand the noise pollution from aircraft in an otherwise very peaceful and quite place. Thanks Gary Petrich 303-330-4989 2858 Country Club Lane Evergreen CO 80439"

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #363 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport
 303-790-4709
<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport
303-342-2380
https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport
970-336-3000
<http://www.gxy.net/>

Northern Colorado Regional Airport
970-962-2850
<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport
303-271-4850
<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight

path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 364 Submitted by: Pettigrew, Mary

Comment Received: Please incorporate Complete ZIMMR Noise Solution as the official map of DIA Departure flight paths adopt as the final choice of flight paths for the Denver NEXTGEN portion of the DIA Metroplex project.

Topics Identified in the Comment

- ZIMMR SID

FAA Response for Comment #364 Topics

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 365 Submitted by: Philpott, Jerome C.

Comment Received: Comments and Objections to EA From: Board of Directors Cherry Hills Country Club On behalf of the Board of Directors of the Cherry Hills Country Club (“Cherry Hills” or “the Club”), we write to object to and comment on the Environmental Assessment report (“EA”) on the NextGen Denver Metroplex Plan (“NextGen Denver”), issued April 22, 2019. We believe the conclusions of the EA are seriously flawed, and that a full Environmental Impact Statement (“EIS”) should be prepared for public review and comment. Cherry Hills, founded in 1922, is a private golf and country club located in Cherry Hills Village, Colorado, south of Denver. The Club is one of the most prestigious country clubs in the Denver Metro area, and indeed, in the country. Cherry Hills has a long and storied golf tradition, having hosted seven United States Golf Association championships (3 U.S. Opens, 2 U.S. Amateurs, 1 U.S. Senior Open, and 1 U.S. Women’s Open), as well as two PGA Championships and the 2014 BMW Championship. In 2023, the Club will host the U.S. Amateur Championship for the third time. The Club’s members – including children and elderly members – have long enjoyed the peaceful and tranquil use of the Club’s two golf courses, tennis courts, pool, and indoor and outdoor dining facilities. This enjoyment is threatened by NextGen Denver, which proposes to re-route air traffic in and out of Denver International Airport over Cherry Hills at low altitudes. The EA fails to fully take into account the impact on the Denver Region, including in particular, the Cherry Hills Village area, noise sensitive areas that have not experienced significant aviation noise and pollution in the past. The EA underestimates, or ignores altogether, the impact of noise generated by NextGen Denver, including increased air travel at DIA and the very busy general aviation at Centennial Airport; it excludes the impact of aviation emissions on the health and welfare of adults and children in the area; and the impact of noise at or below DNL 65db on noise sensitive areas. We believe that a full EIS is required to provide the detail necessary to properly evaluate the environmental and health impact of the NextGen Denver Metroplex Plan on the Club, Cherry Hills Village, and the entire Denver Region. Sincerely, s/ Jerome C. Philpott Jerome C. Philpott President Cherry Hills Country Club

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- DOT Section 4(f) Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Physical and Mental Health
- Purpose and Need of Project

FAA Response for Comment #365 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment.

The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA's de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA-AEE-00-01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25-13 and No. 91-53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children's health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency's mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations." (72 Fed. Reg. 6641 (February 12, 2007)). Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical

Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding

thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 366 Submitted by: Pilling, Anna

Comment Received: The conclusions of your Environmental Assessment report (EA) are seriously flawed. The implementation of Denver Metroplex is highly controversial on both health and environmental grounds. A full Environmental Impact Statement (EIS) should be conducted for public review and comment. It should accurately disclose all data that will have a direct, indirect and cumulative impact on the Denver Region arising from Denver Metroplex, with emphasis on noise sensitive areas that have not experienced significant aviation noise and pollution in the past. The EA excludes noise generated by expansion of Denver International Airport (DIA) and by aviation at Centennial Airport. Aviation activity at DIA is projected to grow by 70-100% by 2030/35. Centennial Airport is the second largest general aviation airport in the United States with its own growth projections. The FMs estimate of flights from DIA grossly underestimates the direct, indirect and cumulative impact of noise generated by Metroplex and completely fails to take into account air traffic from Centennial Airport.

The EA excludes the impact of particulate matter generated by aviation emissions on the health and welfare of adults and children notwithstanding significant current studies (some conducted by or for the FAA) documenting the serious adverse impact on people's physical and mental health.

The EA excludes the impact of noise at or below DNL 65 dB on noise sensitive areas, including residences, historic areas, parks and schools. In the Denver region the majority of residences and schools in the suburbs predate DIA and currently experience low levels of noise. Studies by health organizations and universities have documented that increases in aviation noise cause and contribute to cardiac disease, depression and anxiety in both adults and children. Additionally, it has been shown to cause lower test scores in children along with increasing cognitive and behavioral problems.

The EA contains assumptions that understate noise and ignore health risks. It is an inaccurate and misleading report.

Metroplex is highly controversial in the communities it has been implemented in, generating litigation across the country.

An EIS would accurately provide the detail necessary to evaluate the environmental and health impact of Denver Metroplex on the Denver Region.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Cumulative Impacts
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #366 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the

atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children’s health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency’s mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height

do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.” (72 Fed. Reg. 6641 (February 12, 2007). Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA’s primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival

and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise

energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining

whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative , when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 367 Submitted by: Pilling, Derek

Comment Received: The conclusions of your Environmental Assessment report (EA) are seriously flawed. The implementation of Denver Metroplex is highly controversial on both health and environmental grounds. A full Environmental Impact Statement (EIS) should be conducted for public review and comment. It should accurately disclose all data that will have a direct, indirect and cumulative impact on the Denver Region arising from Denver Metroplex, with emphasis on noise sensitive areas that have not experienced significant aviation noise and pollution in the past. The EA excludes noise generated by expansion of Denver International Airport (DIA) and by aviation at Centennial Airport. Aviation activity at DIA is projected to grow by 70-100% by 2030/35. Centennial Airport is the second largest general aviation airport in the United States with its own growth projections. The FANs estimate of flights from DIA grossly underestimates the direct, indirect and cumulative impact of noise generated by Metroplex and completely fails to take into account air traffic from Centennial Airport.

The EA excludes the impact of particulate matter generated by aviation emissions on the health and welfare of adults and children notwithstanding significant current studies (some conducted by or for the FAA) documenting the serious adverse impact on people's physical and mental health.

The EA excludes the impact of noise at or below DNL 65 dB on noise sensitive areas, including residences, historic areas, parks and schools. In the Denver region the majority of residences and schools in the suburbs predate DIA and currently experience low levels of noise. Studies by health organizations and universities have documented that increases in aviation noise cause and contribute to cardiac disease, depression and anxiety in both adults and children. Additionally, it has been shown to cause lower test scores in children along with increasing cognitive and behavioral problems.

The EA contains assumptions that understate noise and ignore health risks. It is an inaccurate and misleading report.

Metroplex is highly controversial in the communities it has been implemented in, generating litigation across the country.

An EIS would accurately provide the detail necessary to evaluate the environmental and health impact of Denver Metroplex on the Denver Region.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Cumulative Impacts
- DOT Section 4(f) Resources
- Existing Aircraft Noise
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- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #367 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the

atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children’s health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency’s mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height

do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.” (72 Fed. Reg. 6641 (February 12, 2007). Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA’s primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival

and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise

energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining

whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative , when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 368 Submitted by: Pilling, Gwendolyn

Comment Received: The conclusions of your Environmental Assessment report (EA) are seriously flawed. The implementation-of -Denver Metroplex is highly controversial on both health and environmental grounds. A full Environmental Impact Statement (EIS) should be conducted for public review and comment. It should accurately disclose all data that will have a direct, indirect and cumulative impact on the Denver Region arising from Denver Metroplex, with emphasis on noise sensitive areas that have not experienced significant aviation noise and pollution in the past. The EA excludes noise generated by expansion of Denver International Airport (DIA) and by aviation at Centennial Airport. Aviation activity at DIA is projected to grow by 70-100% by 2030/35. Centennial Airport is the second largest general aviation airport in the United States with its own growth projections. The FANs estimate of flights from DIA grossly underestimates the direct, indirect and cumulative impact of noise generated by Metroplex and completely fails to take into account air traffic from Centennial Airport.

The EA excludes the impact of particulate matter generated by aviation emissions on the health and welfare of adults and children notwithstanding significant current studies (some conducted by or for the FAA) documenting the serious adverse impact on people's physical and mental health.

The EA excludes the impact of noise at or below DNL 65 dB on noise sensitive areas, including residences, historic areas, parks and schools. In the Denver region the majority of residences and schools in the suburbs predate OIA and currently experience tow levels of noise. Studies by health organizations and universities have documented that increases in aviation noise cause and-c-contribute to cardiac disease-e, depression and-anxiety-in-both-adults-and children. Additionally, it has been shown to cause lower test scores in children along with increasing cognitive and been □ behavioral problems.

The EA contains assumptions that understate noise and ignore health risks. It is an inaccurate and misleading report.

Metroplex is highly controversial in the communities it has been implemented in, generating litigation across the country.

An EIS would accurately pro □ de the detail necessary to evaluate the environmental and health impact of Denver Metroplex on the Denver Region.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Cumulative Impacts
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #368 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA),

the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children’s health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency’s mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.” (72 Fed. Reg. 6641 (February 12, 2007)). Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA’s primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the

Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This

guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical

Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport,

approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative , when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further

investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 369 Submitted by: Pilling, Reid

Comment Received: The conclusions of your Environmental Assessment report (EA) are seriously flawed. The implementation of Denver Metroplex is highly controversial on both health and environmental grounds. A full Environmental Impact Statement (EIS) should be conducted for public review and comment. It should accurately disclose all data that will have a direct, indirect and cumulative impact on the Denver Region arising from Denver Metroplex, with emphasis on noise sensitive areas that have not experienced significant aviation noise and pollution in the past. The EA excludes noise generated by expansion of Denver International Airport (DIA) and by aviation at Centennial Airport. Aviation activity at DIA is projected to grow by 70-100% by 2030/35. Centennial Airport is the second largest general aviation airport in the United States with its own growth projections. The FMs estimate of flights from DIA grossly underestimates the direct, indirect and cumulative impact of noise generated by Metroplex and completely fails to take into account air traffic from Centennial Airport.

The EA excludes the impact of particulate matter generated by aviation emissions on the health conducted and by welfare of adults and children notwithstanding significant current studies (come conducted by or for the FAA) documenting serious adverse significant impact on current people's studies physical and mental health.

The EA excludes the impact of noise at or below DNL 65 dB on noise sensitive areas, including residences, historic areas, parks and schools. In the Denver region the majority of residences and schools in the suburbs predate DIA and currently experience low levels of noise. Studies by health organizations and universities have documented that increases in aviation noise cause and contribute to cardiac disease, depression and anxiety in both adults and children. Additionally, it has been shown to cause lower test scores in children along with increasing cognitive and behavioral problems.

The EA contains assumptions that understate noise and ignore health risks. It is an inaccurate and misleading report.

Metroplex is highly controversial in the communities it has been implemented in generating litigation across the country.

An EIS would accurately provide the detail necessary to evaluate the environmental and health impact of Denver Metroplex on the Denver Region.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Cumulative Impacts
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #369 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA),

the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children’s health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency’s mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.” (72 Fed. Reg. 6641 (February 12, 2007)). Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA’s primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the

Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This

guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical

Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport,

approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative , when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further

investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 370 Submitted by: Pilling, Sophia

Comment Received: The conclusions of your Environmental Assessment report (EA) are seriously flawed. The implementation of Denver Metroplex is highly controversial on both health and environmental grounds. A full Environmental Impact Statement (EIS) should be conducted for public review and comment. It should accurately disclose all data that will have a direct, indirect and cumulative impact on the Denver Region arising from Denver Metroplex, with emphasis on noise sensitive areas that have not experienced significant aviation noise and pollution in the past. The EA excludes noise generated by expansion of Denver International Airport (DIA) and by aviation at Centennial Airport. Aviation activity at DIA is projected to grow by 70-100% by 2030/35. Centennial Airport is the second largest general aviation airport in the United States with its own growth projections. The FAA's estimate of flights from DIA grossly underestimates the direct, indirect and cumulative impact of noise generated by Metroplex and completely fails to take into account air traffic from Centennial Airport.

The EA-excludes the impact of particulate matter generated by aviation emissions on the health and welfare of adults and children notwithstanding significant current studies (some conducted by or for the FAA) documenting the serious adverse impact on people's physical and mental health.

The EA excludes the impact of noise at or below DNL 65 dB on noise sensitive areas, including residences, historic areas, parks and schools. In the Denver region the majority of residences and schools in the suburbs predate DIA and currently experience low levels of noise. Studies by health organizations and universities have documented that increases in aviation noise cause and contribute to cardiac disease, depression and anxiety in both adults and children. Additionally, it has been shown to cause lower test scores in children along with increasing cognitive and behavioral problems.

The EA contains assumptions that understate noise and ignore health risks. It is an inaccurate and misleading report.

Metroplex is highly controversial in the communities it has been implemented in, generating litigation across the country.

An EIS would accurately provide the -detail necessary to evaluate the environmental and health impact of Denver Metroplex on the Denver Region.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Cumulative Impacts
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #370 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the

atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children’s health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency’s mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height

do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.” (72 Fed. Reg. 6641 (February 12, 2007). Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA’s primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f), noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival

and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise

energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining

whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative , when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 371 Submitted by: Pinery, HOA

Comment Received: The Pinery Homeowners' Association, Inc., represents 1800 homes in northeastern Douglas County, Colorado. The Board of Directors only very recently became aware of the proposed flight path changes, which are part of the FAA NextGen implementation. There was no official referral notice from the FAA as we have come to expect from large scale changes potentially affecting our residents. Instead, our residents notified us of the planned changes. We regret that had we been aware, members of our Board and our residents could have attended your scheduled informational meetings. At this late date, that is no longer possible. Therefore, we are unclear what the impact to our homeowners will be. Our main concern is maintenance of the quality of life in the Pinery. We cannot support any changes which would result an overall increase in noise from air traffic. We appreciate your consideration and attention.

Topics Identified in the Comment

- Public Outreach/Public Involvement
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project

FAA Response for Comment #371 Topics

Public Outreach/Public Involvement: The views and input of communities are important to the FAA as the Agency takes the next steps to advance the NAS. Since 2016, the FAA has engaged individual communities through holding public workshops in the Denver metropolitan area to explore possible solutions to their concerns while ensuring the safety and efficiency of the National Airspace System. Twelve public workshops across the Denver metropolitan area were held in 2017, and again recently in April and May 2019. The public workshop locations, dates and time were publicized in the Denver Post, posted on the FAA Community Involvement website, and the Denver Metroplex Project website, in addition to being publicized through social media and local press releases. Comments received from the 2017 and 2019 public workshops were considered when designing the proposed flight procedures for the Denver Metroplex Project.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise

exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 372 Submitted by: Polumbus, Ann

Comment Received: I am very concerned about the accuracy of your Environmental Assessment report. The effect of noise and pollution on us greatly bothers me. We have lived in Cherry Hills Village for 45 years and we certainly did to anticipate this when we bought our house. Please reconsider your plans.

Topics Identified in the Comment

- Air Quality/Air Pollution
- NEPA and FAA Order 1050.1F
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #372 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de

minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA-AEE-00-01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25-13 and No. 91-53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

NEPA and FAA Order 1050.1F: The National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) §4321 et seq.], requires federal agencies to disclose to decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in decisions that affect the quality of the human environment. As part of the NEPA process, federal agencies are required to consider the environmental effects of a proposed action and reasonable alternatives to a proposed action, including a no action alternative (i.e., analyzing the potential environmental effects of not undertaking the proposed action). The Federal Aviation Administration (FAA) has established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). The Proposed Action for this Environmental Assessment (EA) is the proposed Denver Metroplex Project. The Draft EA was prepared in accordance with FAA Order 1050.1F and meets the required elements of the National Environmental Policy Act.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 373 Submitted by: Polumbus, Gary

Comment Received: I have been a resident of the Denver metropolitan area since 1947. We originally lived about a mile due west of Stapleton airport. We lived through flight pattern changes which had the new jet aircrafts flying directly over our house. These flight patterns literally destroyed our neighborhood and I can tell you similar patterns from Centennial Airport would destroy our lovely Cherry Hills Village from a noise pollution standpoint. Accordingly I am opposed to the possibility of any flight patterns over our village.

Topics Identified in the Comment

- General Aviation/Visual Flight Rules
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #373 Topics

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard

may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 374 Submitted by: Ponicsan, David

Comment Received: Dont want the constant noise of planes over the Pinery. It's already bad at times.

Topics Identified in the Comment

- Existing Aircraft Noise

FAA Response for Comment #374 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Comments-Responses

Comment# 375 Submitted by: Pontillo, Rose

Comment Received: Please take into consideration when moving air pattern paths that the folks south of Boulder are just as concerned with outdoor noise.

And please think twice before deciding that the best place to _increase_ noise is over a National Wildlife Preserve and some of the most untouched tall grass prairie remaining in Colorado.

Prefer my name to be simply initials in any public forum thank you.

Topics Identified in the Comment

- DOT Section 4(f) Resources
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project
- Withold Personal Identifying Information

FAA Response for Comment #375 Topics

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f),

noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best

use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Withhold Personal Identifying Information: Commenters were made aware of the following statement with their comment submission - "Please be aware that your name, address, phone number, email address, or other personal identifying information in your comment may be made publicly available at any time. You may include in your comment a request to withhold your personal identifying information, however we cannot guarantee that we will be able to do so".

Comments-Responses

Comment# 376 Submitted by: Porter, Carmen

Comment Received: It is 11:00 at night and I am having difficulty sleeping due to flight noise. I have lived here for 20 years and this continual noise was not an issue originally but developed over the last few years. The number of loud flights seemingly directly over our house has increased alarmingly. It seems that one flight follows another continually. The noise is particularly worse on overcast days. I don't think that it is fair to our community located so far from the airports to have this amount of concentration of flights right over us. There goes another one in the time that it took me to write this comment.

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights

FAA Response for Comment #376 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport
303-271-4850
<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Comments-Responses

Comment# 377 Submitted by: Porter, kathleen

Comment Received: "Based on recent air craft noise and frequency it is unacceptable to create a fly zone directly above the Pinery. The altitude of these noisy planes appears much lower than in past years. Please do not create a glide path to DIA over our tranquil neighborhood. Typically these flights have gone farther east and were definitely at higher altitudes. There are well over 1 000 residences in the Pinery 2 elementary schools a middle school and a high school. Airline safety is a concern for all but don't forget the people on the ground who are at risk and having their enjoyment of livability severely interrupted. Please contact me if you would consider further input or help in solving this issue. Thank you for your serious considerations when evaluating the study."

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #377 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport
303-790-4709
<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport
303-342-2380
https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport
970-336-3000
<http://www.gxy.net/>

Northern Colorado Regional Airport
970-962-2850
<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport
303-271-4850
<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Comments-Responses

Comment# 378 Submitted by: Prang, Chris

Comment Received: "On many mornings starting around 5:30am I am awakened to the sounds of roaring jet engines. All day long they echo through my house. When my family and I eat our dinner we frequently have to speak up over the roar above. When I play catch with my son at dusk the planes stop us from hearing each other. And when I go to bed they rattle through the house until 11pm. As I sit here now one is passing over head every 90 seconds. Think about that... 90 seconds. We live next to a 3000' mountain face that reflects the sound so intensely that it's hard to pinpoint the planes. The noise is omnipresent. It has turned a beautiful peaceful place into a superhighway of noise. I used to live in the LGA landing path and honestly that was peace and quiet compared to this noise. Please recognize that this is where we raise our children and live our lives. Please shift the path a bit to the south where it is nearly unpopulated."

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #378 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Greeley-Weld County Airport
970-336-3000
<http://www.gxy.net/>

Northern Colorado Regional Airport

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Rocky Mountain Metropolitan Airport

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<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 379 Submitted by: Pride, Charles and Kataryn

Comment Received: Adamently against the new route, as it will be directly over our house @ 8-10 K feet. Bad!

Topics Identified in the Comment

- Purpose and Need of Project

FAA Response for Comment #379 Topics

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 380 Submitted by: Pride, Kataryn

Comment Received: OMG! I am so concerned that the new proposed incoming flight plan for big carriers coming into DIA are now going to be flying right over my house. We have so much noise already from I-25 and Hampden. I am adamantly opposed to this new change. How many planes a day? Night more noise! Please, please reconsider. Don't make this change. Please consider moving the flight patten further west - more round open areas. Thank you!

Topics Identified in the Comment

- Existing Aircraft Noise
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #380 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Greeley-Weld County Airport

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970-962-2850

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Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 381 Submitted by: Prowse, Simon

Comment Received: Following is a copy of the body of a letter written by a fellow homeowner in my Cherry Hills North neighborhood. I totally concur with its sentiment. I could not have said it better. "On behalf of the people in my neighborhood and expanded neighborhoods that would be affected, as well as myself and my family, I respectfully request that you do NOT implement your proposed Denver Metroplex plan. The Environmental Assessment Draft is a manipulation of data created to calm public outcry as it reaches a conclusion that concurs with your agenda. The FAA offers false reassurances and promises it cannot keep. It is patently wrong, immoral, and totally unacceptable for you to spin the facts and the truth to people at your workshops in order for you to go ahead with your agenda.

In fact, the FAA has NO control over the number of flights that will fly over homes in and surrounding my area as months and years go on. With DIA expanding the present number of gates by nearly 40 more, air traffic will dramatically increase. The pattern proposed concentrates those planes into a path assuring constant noise and air pollution over our homes.

We live in the area we chose because we wanted to insure a peaceful, quiet environment. There was no reason to believe the atmosphere would change. Our health ... physical, mental. and financial will be jeopardized if your plan goes through. We will be inundated by constant noise ... as much as every minute of every day all day and night, interrupting conversations and sleep. The negative impact on our lives would be immeasurable.

Citizens have long been aware of the deleterious effects of excess noise on the ground, so we have laws to maintain peace and quiet. It is illegal to make too much noise in our homes or on the road. We get ticketed and fined for that. Nonstop airplane noise overhead will be much worse than occasional loud music or malfunctioning car mufflers on the ground. It is blatantly unethical for you to impose this nightmare upon the people living in the flight paths you are proposing. The lives of citizens need to be the priority over any corporate profits.

Would you personally accept the 24/7, thunderous noise and pollution over your homes? Studies have shown the stress caused by this kind of noise causes physical and mental ill health. You are not considering the very real, terrible consequences to our neighborhoods of the proposed change in flight patterns.

DO NOT GO FORWARD with the Denver Metroplex NextGen plan. You are opening a Pandora's Box of noise and pollution that will also drastically lower the value of our homes. It should not have to take thousands of objections to stop this unconscionable plan. It should only take common decency and an application of the Golden Rule NOT to foist this onto people. "

PLEASE DO NOT GO FORWARD!

Topics Identified in the Comment

- Air Quality/Air Pollution
- Frequency of Aircraft Overflights
- NEPA and FAA Order 1050.1F
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure
- Property Values
- Purpose and Need of Project

FAA Response for Comment #381 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

NEPA and FAA Order 1050.1F: The National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) §4321 et seq.], requires federal agencies to disclose to decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in decisions that affect the quality of the human environment. As part of the NEPA process, federal agencies are required to consider the environmental effects of a proposed action and reasonable alternatives to a proposed action, including a no action alternative (i.e., analyzing the potential environmental effects of not undertaking the proposed action). The Federal Aviation Administration (FAA) has established a

process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). The Proposed Action for this Environmental Assessment (EA) is the proposed Denver Metroplex Project. The Draft EA was prepared in accordance with FAA Order 1050.1F and meets the required elements of the National Environmental Policy Act.

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental

health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Property Values: The proposed Denver Metroplex Project involves air traffic control routing changes for airborne aircraft only; and does not involve land acquisition, physical disturbance, or construction activities. The determination of whether a proposed action may have a significant environmental impact under the National Environmental Policy Act (NEPA) is made by considering the relevant environmental impact categories and comparing impact to the FAA's thresholds of significance as outlined in FAA Order 1050.1F. The assessment of property values is not an environmental impact category as outlined in FAA Order 1050.1F. To the extent applicable, and as there are no significant impacts under noise or compatible land use, the proposed Denver Metroplex Project is compatible with existing and planned land uses, and the applicable regulations and policies of federal, state, and local agencies. A limited number of studies have attempted to measure the impact of aircraft noise on property values. Specific studies of the impact of noise at the Study Airports on real property values have not been conducted and are not required. Studies conducted at other national airports have concluded that airport noise only has a slight impact on property values within the Day Night Average Sound Level 65 decibels or greater noise contour around airports. Additionally, comparison of older studies to more recent studies indicates that the impact was greater in the 1960s, when jet aircraft first entered the fleet. This decrease presumably is the result of stabilization of real estate markets following an initial adjustment to noisier jets, and of noise reduction in more modern Stage 3 or better aircraft.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 382 Submitted by: Prowse, Sylvia

Comment Received: Following is a copy of the body of a letter written by a fellow homeowner in my Cherry Hills North neighborhood. I totally concur with its sentiment. I could not have said it better. "On behalf of the people in my neighborhood and expanded neighborhoods that would be affected, as well as myself and my family, I respectfully request that you do NOT implement your proposed Denver Metroplex plan. The Environmental Assessment Draft is a manipulation of data created to calm public outcry as it reaches a conclusion that concurs with your agenda. The FAA offers false reassurances and promises it cannot keep. It is patently wrong, immoral, and totally unacceptable for you to spin the facts and the truth to people at your workshops in order for you to go ahead with your agenda.

In fact, the FAA has NO control over the number of flights that will fly over homes in and surrounding my area as months and years go on. With DIA expanding the present number of gates by nearly 40 more, air traffic will dramatically increase. The pattern proposed concentrates those planes into a path assuring constant noise and air pollution over our homes.

We live in the area we chose because we wanted to insure a peaceful, quiet environment. There was no reason to believe the atmosphere would change. Our health ... physical, mental. and financial will be jeopardized if your plan goes through. We will be inundated by constant noise ... as much as every minute of every day all day and night, interrupting conversations and sleep. The negative impact on our lives would be immeasurable.

Citizens have long been aware of the deleterious effects of excess noise on the ground, so we have laws to maintain peace and quiet. It is illegal to make too much noise in our homes or on the road. We get ticketed and fined for that. Nonstop airplane noise overhead will be much worse than occasional loud music or malfunctioning car mufflers on the ground. It is blatantly unethical for you to impose this nightmare upon the people living in the flight paths you are proposing. The lives of citizens need to be the priority over any corporate profits.

Would you personally accept the 24/7, thunderous noise and pollution over your homes? Studies have shown the stress caused by this kind of noise causes physical and mental ill health. You are not considering the very real, terrible consequences to our neighborhoods of the proposed change in flight patterns.

DO NOT GO FORWARD with the Denver Metroplex NextGen plan. You are opening a Pandora's Box of noise and pollution that will also drastically lower the value of our homes. It should not have to take thousands of objections to stop this unconscionable plan. It should only take common decency and an application of the Golden Rule NOT to foist this onto people. "

PLEASE DO NOT GO FORWARD!

Topics Identified in the Comment

- Air Quality/Air Pollution
- Frequency of Aircraft Overflights
- NEPA and FAA Order 1050.1F
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure
- Property Values
- Purpose and Need of Project

FAA Response for Comment #382 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA–AEE–00–01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25–13 and No. 91– 53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

NEPA and FAA Order 1050.1F: The National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) §4321 et seq.], requires federal agencies to disclose to decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in decisions that affect the quality of the human environment. As part of the NEPA process, federal agencies are required to consider the environmental effects of a proposed action and reasonable alternatives to a proposed action, including a no action alternative (i.e., analyzing the potential environmental effects of not undertaking the proposed action). The Federal Aviation Administration (FAA) has established a

process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). The Proposed Action for this Environmental Assessment (EA) is the proposed Denver Metroplex Project. The Draft EA was prepared in accordance with FAA Order 1050.1F and meets the required elements of the National Environmental Policy Act.

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental

health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Property Values: The proposed Denver Metroplex Project involves air traffic control routing changes for airborne aircraft only; and does not involve land acquisition, physical disturbance, or construction activities. The determination of whether a proposed action may have a significant environmental impact under the National Environmental Policy Act (NEPA) is made by considering the relevant environmental impact categories and comparing impact to the FAA's thresholds of significance as outlined in FAA Order 1050.1F. The assessment of property values is not an environmental impact category as outlined in FAA Order 1050.1F. To the extent applicable, and as there are no significant impacts under noise or compatible land use, the proposed Denver Metroplex Project is compatible with existing and planned land uses, and the applicable regulations and policies of federal, state, and local agencies. A limited number of studies have attempted to measure the impact of aircraft noise on property values. Specific studies of the impact of noise at the Study Airports on real property values have not been conducted and are not required. Studies conducted at other national airports have concluded that airport noise only has a slight impact on property values within the Day Night Average Sound Level 65 decibels or greater noise contour around airports. Additionally, comparison of older studies to more recent studies indicates that the impact was greater in the 1960s, when jet aircraft first entered the fleet. This decrease presumably is the result of stabilization of real estate markets following an initial adjustment to noisier jets, and of noise reduction in more modern Stage 3 or better aircraft.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 383 Submitted by: Puccio, Brenda

Comment Received: Please reroute air traffic such that the loud noise no longer impacts my ability to sleep at night in my home in South Boulder Colorado. For the last year or so I have noticed a dramatic increase in overhead noise at my home. I have trouble falling asleep when every several minutes another loud airplane noise awakens me. Please incorporate Complete ZIMMR Noise Solution as the official map of DIA Departure flight paths and adopt as the final choice of flight paths for the Denver NEXTGEN portion of the DIA Metroplex project so my home and peace in south Boulder is no longer disturbed by this significant noise pollution.

Topics Identified in the Comment

- Existing Aircraft Noise
- ZIMMR SID

FAA Response for Comment #383 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 384 Submitted by: Rakowsky, Mayor Ron

Comment Received: Reference: Denver Metroplex Draft Environmental Assessment To Whom It May Concern: Thank you for the opportunity to comment on the Denver Metroplex Draft Environmental Assessment. The National Environmental Policy Act of 1969 (NEPA) requires federal agencies to disclose to decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. (42 United States Code §4321 et seq. emphasis added.) The Federal Aviation Administration (FAA) has in fact established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). Unfortunately, the FAA has not followed its own adopted policies and procedures with regard to the Draft EA on the proposed Denver Metroplex. The City of Greenwood Village firmly believes that the Draft EA is incomplete and appears to have been deliberately finished before considering the findings in Congressionally mandated studies required pursuant to the FAA Reauthorization Act of 2018, Subtitle D (Pub. L. No. 115-524, §§ 173, 176, 187, 188, and 189.) Disregarding these studies defies Congressional intent and lawful directives related to or substantially related specifically to Metroplexes. Congress unambiguously mandated in the Reauthorization Act that the FAA complete these studies and submit to Congress findings including:

- Potential Health and Economic Impacts of Overflight Noise. Section 189 of the Reauthorization Act requires the FAA to conduct a study on the health impacts of noise from aircraft flights on residents exposed to a range of noise levels from such flights. This study is underway but not yet completed.
- Day-Night Average Sound Levels. Section 188 of the Reauthorization Act requires the FAA to evaluate alternative metrics to the current average day-night level standard, such as the use of actual noise sampling and other methods, to address community airplane noise concerns.
- Alternative Noise Metric Evaluation, Section 173 of the Reauthorization Act requires the FAA to complete a re-evaluation of the current Day Night Level (DNL) of 65 decibels to determine whether the 65 DNL should remain the acceptable federal noise standards considering that 12.3 percent of the populations near study areas are highly annoyed by noise and suffer from sleep deprivation, loss of concentration, inability to continue a conversation and related health concerns such as hypertension and heart disease. This study is to be completed by October of this year. Children's environmental health and safety risks is a category of environmental impact relevant to FAA actions by FAA Order 1050.1F, Paragraph 4-3.3. Environmental impact includes noise, the health impacts of which are currently being studied by the FAA as mandated by Congress in the Reauthorization Act. Nevertheless, the FAA ignores the health impacts of noise on children completely in the Draft EA, stating simply that, "The Preferred Alternative would not affect products or substances that a child would be likely to come into contact with, ingest, use, or be exposed to, and would not result in environmental health and safety risks that could disproportionately affect children." (Page 4-5). Until the studies mandated by Congress under the Reauthorization Order are complete, the FAA should place a moratorium on all Metroplex EAs, including Denver's, so that it can follow its own Order 1050.1F and adequately consider potential environmental health and safety impacts. Clearly, any change in the 65 DNL threshold will change the outcome of the Draft EA. Likewise, findings from studies regarding the health impacts of noise from aircraft flights on residents will allow the FAA to genuinely address children's environmental health and safety risks instead of ignoring the effect of flight noise on children completely. Finally, the FAA has not adequately addressed the cumulative impacts of the proposed Metroplex in this rapidly growing area. The DEN Metroplex is designed to increase capacity, which means more aircraft will be using the redesigned airspace. What little consideration the FAA gave to noise impact to adults in the Draft EA is insufficient because it is based upon artificially low flight numbers. The Draft EA fails to account for the planned growth at Denver International Airport in analyzing the effect of noise resulting from the proposed flight plan changes. It is, therefore, incomplete. In conclusion, the Draft EA does not adequately address the required elements of an Environmental Assessment pursuant to the National Environmental Policy Act of 1969 as amended (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970,

as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, §4(b), Sept. 13, 1982); nor does it comply with FAA Order 1050.1F; and it is pre-mature given the current studies being performed under the 2018 Reauthorization Act. Thank you again for your consideration of these comments. Mayor Ron Rakowsky City of Greenwood Village

Topics Identified in the Comment

- Airport Capacity
- Children's Environmental Health and Safety
- Cumulative Impacts
- FAA Reauthorization Act of 2018
- Forecast/Future Operations
- NEPA and FAA Order 1050.1F
- Noise Modelling Analysis
- Physical and Mental Health
- Purpose and Need of Project
- Sleep Disturbance/Speech Interference

FAA Response for Comment #384 Topics

Airport Capacity: Airport capacity is defined as the number of aircraft arrivals and departures that an airport's runways are able to sustain during periods of high demand. The structure of the air traffic operations is a component of airport capacity. The structure of air traffic is characterized by the flight distribution (peak times, traffic density), by type of aircraft (dependent on the weight and geometrical dimensions) and by the distribution between arrivals and departures. These parameters generate significant traffic flow constraints. The air traffic management methods for feeding an airport's runway system takes into account aircraft navigation equipage, wake turbulence, in-flight and ground spacing constraints; have a direct impact on the capacity. The airport capacity would remain unaffected by the proposed Denver Metroplex Project.

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children's health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency's mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations." (72 Fed. Reg. 6641 (February 12, 2007). Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the

action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

NEPA and FAA Order 1050.1F: The National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) §4321 et seq.], requires federal agencies to disclose to decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in decisions that affect the quality of the human environment. As part of the NEPA process, federal agencies are required to consider the environmental effects of a proposed action and reasonable alternatives to a proposed action, including a no action alternative (i.e., analyzing the potential environmental effects of not undertaking the proposed action). The Federal Aviation Administration (FAA) has established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). The Proposed Action for this Environmental Assessment (EA) is the proposed Denver Metroplex Project. The Draft EA was prepared in accordance with FAA Order 1050.1F and meets the required elements of the National Environmental Policy Act.

FAA Reauthorization Act of 2018: The FAA Reauthorization Act of 2018 specifies congressionally mandated directives for which the FAA is responsible for completing at varied timelines. In accordance with the congressionally mandated directives, the FAA will comply and adhere to the timelines. While the requested directives are being completed, the U.S. Congress did not place a moratorium on implementation of the proposed Denver Metroplex Project, or any Metroplex project.

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60

dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Sleep Disturbance/Speech Interference: The commenter recommended calculating different types of supplemental noise metrics to explain sleep disturbance and/or speech interference. A benefit of supplemental noise metrics is to help the public reach a better understanding of potential noise impacts. If the noise modelling analysis indicates a potential significant impact, FAA Order 1050.1F recommends additional information related to the human response to noise that is appropriate for the specific proposal. Additional information may include supplemental metrics applicable to sleep

disturbance and/or speech interference. Such supplemental noise analysis is not, by itself, a measure of adverse aircraft noise or significant aircraft noise impact. As discussed in Chapter 5 of the EA, the noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. Therefore, the use of optional supplemental noise metrics are not warranted because they not would help explain the potential for cumulative noise exposure.

Comments-Responses

Comment# 385 Submitted by: Rakowsky, Mayor Ron

Comment Received: Reference: Denver Metroplex Draft Environmental Assessment

To Whom It May Concern:

Thank you for the opportunity to comment on the Denver Metroplex Draft Environmental Assessment. The National Environmental Policy Act of 1969 (NEPA) requires federal agencies to disclose to decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. (42 United States Code §4321 et seq. emphasis added.) The Federal Aviation Administration (FAA) has in fact established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1 F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1 F).

Unfortunately, the FAA has not followed its own adopted policies and procedures with regard to the Draft EA on the proposed Denver Metroplex. The City of Greenwood Village firmly believes that the Draft EA is incomplete and appears to have been deliberately finished before considering the findings in Congressionally mandated studies required pursuant to the FAA Reauthorization Act of 2018, Subtitle D (Pub. L. No. 115-524, §§ 173,176,187, 188, and 189.) Disregarding these studies defies Congressional intent and lawful directives related to or substantially related specifically to Metroplexes.

Congress unambiguously mandated in the Reauthorization Act that the FAA complete these studies and submit to Congress findings including:

Potential Health and Economic Impacts of Overflight Noise. Section 189 of the Reauthorization Act requires the FAA to conduct a study on the health impacts of noise from aircraft flights on residents exposed to a range of noise levels from such flights. This study is underway but not yet completed.

- Day-Night Average Sound Levels. Section 188 of the Reauthorization Act requires the FAA to evaluate alternative metrics to the current average day-night level standard, such as the use of actual noise sampling and other methods, to address community airplane noise concerns.

- Alternative Noise Metric Evaluation. Section 173 of the Reauthorization Act requires the FAA to complete a re-evaluation of the current Day Night Level

(DNL) of 65 decibels to determine whether the 65 DNL should remain the acceptable federal noise standards considering that 12.3 percent of the populations near study areas are highly annoyed by noise and suffer from sleep deprivation, loss of concentration, inability to continue a conversation an related health concerns such as hypertension and heart disease. This study is to be completed by October of this year.

Children's environmental health and safety risks is a category of environmental impact relevant to FAA actions by FAA Order 1050.1 F, Paragraph 4-3.3. Environmental impact includes noise, the health impacts of which are currently being studied by the FAA as mandated by Congress in the Reauthorization Act. Nevertheless, the FAA ignores the health impacts of noise on children completely in the Draft EA, stating simply that, "The Preferred Alternative would not affect products or substances that a child would be likely to come into contact with, ingest, use, or be exposed to, and would not result in environmental health and safety risks that could disproportionately affect children."

(Page 4-5).

Until the studies mandated by Congress under the Reauthorization Order are complete, the FAA should place a moratorium on all Metroplex EAs, including Denver's, so that it can follow its own Order 1050.1 F and adequately consider potential environmental health and safety impacts. Clearly, any change in the 65 DNL threshold will change the outcome of the Draft EA. Likewise, findings from studies regarding the health impacts of noise from aircraft flights on residents will allow the FAA to genuinely address children's environmental health and safety risks instead of ignoring the effect of flight noise on children completely.

Finally, the FAA has not adequately addressed the cumulative impacts of the proposed Metroplex in this rapidly growing area. The DEN Metroplex is designed to increase capacity, which means more

aircraft will be using the redesigned airspace. What little consideration the FAA gave to noise impact to adults in the Draft EA is insufficient because it is based upon artificially low flight numbers. The Draft EA fails to account for the planned growth at Denver International Airport in analyzing the effect of noise resulting from the proposed flight plan changes. It is, therefore, incomplete.

In conclusion, the Draft EA does not adequately address the required elements of an Environmental Assessment pursuant to the National Environmental Policy Act of 1969 as amended (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, §4(b by Sept. 13, 1982); nor does it comply with FAA Order 1050.1 F; and it is pre-mature given), the current studies being performed under the 2018 Reauthorization Act. Thank you again for your consideration of these comments.

Topics Identified in the Comment

- Airport Capacity
- Children's Environmental Health and Safety
- Cumulative Impacts
- FAA Reauthorization Act of 2018
- Forecast/Future Operations
- NEPA and FAA Order 1050.1F
- Noise Modelling Analysis
- Physical and Mental Health
- Purpose and Need of Project
- Sleep Disturbance/Speech Interference

FAA Response for Comment #385 Topics

Airport Capacity: Airport capacity is defined as the number of aircraft arrivals and departures that an airport's runways are able to sustain during periods of high demand. The structure of the air traffic operations is a component of airport capacity. The structure of air traffic is characterized by the flight distribution (peak times, traffic density), by type of aircraft (dependent on the weight and geometrical dimensions) and by the distribution between arrivals and departures. These parameters generate significant traffic flow constraints. The air traffic management methods for feeding an airport's runway system takes into account aircraft navigation equipage, wake turbulence, in-flight and ground spacing constraints; have a direct impact on the capacity. The airport capacity would remain unaffected by the proposed Denver Metroplex Project.

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children's health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency's mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations." (72 Fed. Reg. 6641 (February 12, 2007). Accordingly, there

would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

NEPA and FAA Order 1050.1F: The National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) §4321 et seq.], requires federal agencies to disclose to decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in decisions that affect the quality of the human environment. As part of the NEPA process, federal agencies are required to consider the environmental effects of a proposed action and reasonable alternatives to a proposed action, including a no action alternative (i.e., analyzing the potential environmental effects of not undertaking the proposed action). The Federal Aviation Administration (FAA) has established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). The Proposed Action for this Environmental Assessment (EA) is the proposed Denver Metroplex Project. The Draft EA was prepared in accordance with FAA Order 1050.1F and meets the required elements of the National Environmental Policy Act.

FAA Reauthorization Act of 2018: The FAA Reauthorization Act of 2018 specifies congressionally mandated directives for which the FAA is responsible for completing at varied timelines. In accordance with the congressionally mandated directives, the FAA will comply and adhere to the timelines. While the requested directives are being completed, the U.S. Congress did not place a moratorium on implementation of the proposed Denver Metroplex Project, or any Metroplex project.

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional

scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at

cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Sleep Disturbance/Speech Interference: The commenter recommended calculating different types of supplemental noise metrics to explain sleep disturbance and/or speech interference. A benefit of supplemental noise metrics is to help the public reach a better understanding of potential noise impacts. If the noise modelling analysis indicates a potential significant impact, FAA Order 1050.1F recommends additional information related to the human response to noise that is appropriate for the specific proposal. Additional information may include supplemental metrics applicable to sleep disturbance and/or speech interference. Such supplemental noise analysis is not, by itself, a measure of adverse aircraft noise or significant aircraft noise impact. As discussed in Chapter 5 of the EA, the noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. Therefore, the use of optional supplemental noise metrics are not warranted because they not would help explain the potential for cumulative noise exposure.

Comments-Responses

Comment# 386 Submitted by: Rasmussen, Kirk

Comment Received: If there is any consideration being given to changing the flight paths for Centennial airport please stop.
The impact to people and property is in no way justified.

Topics Identified in the Comment

- General Aviation/Visual Flight Rules
- Purpose and Need of Project

FAA Response for Comment #386 Topics

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Purpose and Need of Project: The purpose for the metroplex initiative is to optimize air traffic control (ATC) procedures and airspace on a regional scale. This is accomplished by developing ATC procedures that take advantage of technological advances in navigation, such as Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures, while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

The proposed Denver Metroplex Project addresses the problem of inefficiency of the existing aircraft flight ATC procedures in the Denver Metroplex airspace. This problem is due to the use of older RNAV ATC procedure techniques and strategies applied in the 2012 project, FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport (2012 RNAV). The 2012 RNAV procedures were implemented to improve the safety and efficiency of the Denver airspace and respond to the growing need for efficiency as the airport operations in the Denver airspace increased. Following implementation and operation of ATC procedures designed under this effort, the FAA found that a number of features were hindering the best use and application of RNAV RNP procedures in the Denver airspace such as unnecessary procedure complexity, the establishment of more procedures than needed, and that the DEN and surrounding satellite airport ATC procedures were not segregated, resulting in a diverse mixture of air carrier and

general aviation air traffic. These issues formed the underlying basis for the application of evolving and newer air traffic management strategies and methods.

Refined procedures, strategies, and techniques associated with air traffic management have adjusted and improved to better take advantage of RNAV capabilities and to reduce complexity. The proposed Denver Metroplex Project would optimize procedures serving the Study Airports by taking advantage of the benefits of performance based navigation (PBN). This would be achieved through implementation of RNAV procedures that will help improve the efficiency of the airspace in the Denver Metroplex, while maintaining or enhancing safety, in accordance with FAA's mandate under federal law.

Comments-Responses

Comment# 387 Submitted by: Rasor, Steve

Comment Received: We have experienced an alarming increase in both commercial and general aviation flights over our home on Davidson Mesa in eastern Boulder County. Many of these flights are jets with extremely loud engines. Others are helicopters and smaller planes that fly low and loud. Our quality of life has been seriously impacted. We would like to move but cannot imagine anyone would buy when air traffic is directly over our property so often during the day and night. The only times we can enjoy being outside without loud air traffic noise is when the weather is inclement. Please change flight paths fly higher and/or reduce the amount of aircraft allowed to operate in our skies especially out of RMMA. Move flight schools to different locations or drastically limit training flights. We have frequently complained to RMMA and the FAA to no avail. We have yet to write our state and federal representatives but plan to begin this effort very soon.

Topics Identified in the Comment

- Existing Aircraft Noise
- General Aviation/Visual Flight Rules
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #387 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport
303-790-4709
<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport
303-342-2380
https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport
970-336-3000
<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 388 Submitted by: Ratliff, Robert

Comment Received: "We have lived in the south Boulder area for over thirty years but have only in the past 5 years had to comment daily on the seemingly non-stop noise from commercial jet traffic. The FAA needs to adopt and incorporate the entire Complete ZIMMR Noise Solution into the final nextgen flight paths document for the Denver DIA Metroplex project. Thank you Robert Ratliff PhD & Patricia Brezovar"

Topics Identified in the Comment

- Existing Aircraft Noise
- ZIMMR SID

FAA Response for Comment #388 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 389 Submitted by: Reed, Julie

Comment Received: "First I want to thank FAA personnel that made it possible for public input and for holding the many local sessions that you did. It was very informative and the staff very helpful. After attending the Parker CO public session I much better understand the current scope of the project and it does seem that our area will not be impacted much by the phase you're implementing. My concern is the damage that has already been done the last 2 years or so to the Parker area due to changes in flight paths and the process by which planes are taking off and landing. Living in Parker has become unbearable due to the plane noise. We have counted 200+ planes a day going over our home. When we've timed them they can be every two minutes. Besides this ruining our quality of life here we're sure it will have negative impact on the value of our home. When we moved to Parker 26 years ago it was country side no DIA even built. We could hear the cows and horses out in pastures. When DIA was built it didn't have much impact. DIA officials said building the airport they would stay clear of flying over towns like Parker. Obviously that promise been broken. At the Parker meeting no one remembered any change that impacted flight paths but certainly there has been. The skies are proof that our area has been ruined. I can only hope that somewhere else nearby they have gotten relief from the plane noise. My take-aways from your public session: The damage on flight path changes has already been done to Parker. No new changes are planned or any relief planned. There are more flights for DIA and Centennial which is contributing to some of this Planes are taking off and landing differently such that they are closer to our home air space then they have been in the past thus making it much louder. (just had a plane go over and cast a shadow in my office as I type this) Centennial flights use ground visual and our neighborhood Rowley Downs is an easy target the way we are laid out in a circle. Easy to spot from the sky. I do believe the decision makers on flight path changes take off and approach procedures need to put more consideration on what impact to quality of life and how many people they are going to impact before making a final decision. Decisions made a couple of years ago have ruined it for us in Parker CO."

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- General Aviation/Visual Flight Rules
- Property Values

FAA Response for Comment #389 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information

on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

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<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air

Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Property Values: The proposed Denver Metroplex Project involves air traffic control routing changes for airborne aircraft only; and does not involve land acquisition, physical disturbance, or construction activities. The determination of whether a proposed action may have a significant environmental impact under the National Environmental Policy Act (NEPA) is made by considering the relevant environmental impact categories and comparing impact to the FAA's thresholds of significance as outlined in FAA Order 1050.1F. The assessment of property values is not an environmental impact category as outlined in FAA Order 1050.1F. To the extent applicable, and as there are no significant impacts under noise or compatible land use, the proposed Denver Metroplex Project is compatible with existing and planned land uses, and the applicable regulations and policies of federal, state, and local agencies. A limited number of studies have attempted to measure the impact of aircraft noise on property values. Specific studies of the impact of noise at the Study Airports on real property values have not been conducted and are not required. Studies conducted at other national airports have concluded that airport noise only has a slight impact on property values within the Day Night Average Sound Level 65 decibels or greater noise contour around airports. Additionally, comparison of older studies to more recent studies indicates that the impact was greater in the 1960s, when jet aircraft first entered the fleet. This decrease presumably is the result of stabilization of real estate markets following an initial adjustment to noisier jets, and of noise reduction in more modern Stage 3 or better aircraft.

Comments-Responses

Comment# 390 Submitted by: Reeder, Diane

Comment Received: "The Environmental Assessment report produced by the FAA is seriously flawed. It fails to include the impact of plane emission particulate matter on the health and welfare of communities below the proposed concentrated flight paths. It also excludes the impact of noise at or below DNL 65 dB on sensitive areas including residences historic areas parks hospitals and schools. The FAA's estimates of the number of flights (whether commercial or general aviation) grossly underestimates the direct indirect and cumulative impact of noise that would be generated by NextGen Denver Metroplex. There are currently 1600 flights daily into and out of DIA. The FAA has recognized that DIA flights will increase 70-100% by 2030-2035. (2720- 3200) Centennial Airport is currently the second busiest general aviation airport in the US with more than 900 flights in and out daily. Centennial Airport anticipates that those flights will continue to increase over the coming years. Although the FAA has not specified changes to flight patterns from Centennial Airport senior staff at that airport have confirmed that the implementation of Metroplex will cause diversion of even more Centennial flights over our homes. The noise from general aviation flights from Centennial can be much worse than from DIA flights. The FAA did not consider noise and pollution impact from general aviation when compiling the Environmental Assessment. The FAA should absolutely hold off on the implementation of Metroplex until they have completed a full Environmental Impact Study. The implementation of Metroplex will decrease property values in our communities and would negatively impact the health and welfare of people under the concentrated flight paths. The FAA needs to do and Environmental Impact Statement using real non-algorithmic numbers and among other things study the impacts of aviation noise on health."

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Cumulative Impacts
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Forecast/Future Operations
- Frequency of Aircraft Overflights
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure
- Property Values

FAA Response for Comment #390 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as "criteria pollutants"). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for

protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA's de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA-AEE-00-01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25-13 and No. 91-53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Children's Environmental Health and Safety: The commenter expressed concerns over the long-term negative health impacts associated with inhalation of various pollutants, including fine particulate matter and its impact on children's health and cognitive skills such as reading, memory and standardized test scores. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed, as appropriate and consistent with the agency's mission, to identify and assess environmental health and safety risks that may disproportionately affect children. Environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest or other products they might use or be exposed to.

As discussed in Section 5.2.1, changes associated with the proposed Denver Metroplex Project would occur at or above 3,000 feet Above Ground Level (AGL). Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations." (72 Fed. Reg. 6641 (February 12, 2007)). Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

Cumulative Impacts: Consideration of cumulative impacts applies to the impacts resulting from the implementation of the proposed Denver Metroplex Project combined with other actions. A cumulative impact is defined as an impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Analyzing cumulative effects is considered within geographic (spatial) and time (temporal) boundaries. Reasonably foreseeable future actions refers to projects that would likely be completed before 2024 and do not include those actions that are highly speculative or indefinite. The type of projects considered under the cumulative impact analysis were primarily limited to airfield projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways. These type of projects may effect aircraft flight operations. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports yielded no substantive runway endpoint or elevation changes within the timeline horizons of the Final Environmental Assessment. The Preferred Alternative, when considered with other past, present, and reasonably foreseeable projects would not exceed the thresholds of significance for the resource categories analyzed in the Final Environmental Assessment. Therefore, no cumulative impacts would be anticipated. The No Action Alternative does not involve a proposed project that could contribute to the effects of past, present, or reasonably foreseeable projects. Therefore, no cumulative impacts would be anticipated under the No Action Alternative.

DOT Section 4(f) Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. This is the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to certain publically owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.5 of the Final EA, the noise modelling analysis for the Preferred Alternative indicated one reportable noise grid point associated with the proposed SSKII Area Navigation (RNAV) Standard Terminal Arrival (STAR) flight procedure. The reportable noise grid point is within the Lost Creek Wilderness Area as depicted in Exhibit 5-2. This location is along the flight path of the primary southwest airspace arrival gate for the Denver International Airport and all airports in the Denver metropolitan area using arrival flight procedures through this southwest airspace arrival gate.

The FAA initiated Section 4(f) consultation in April 2017 with the National Park Service (Intermountain Region) to determine if features or attributes associated with the one location within the Lost Creek Wilderness would be substantially impaired by this increase. In consultation with the National Park Service, it was brought to the FAA's attention that resources identified for assessment include a resource managed by the U.S. Forest Service, Rocky Mountain Region. Under Section 4(f),

noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes. Aircraft flying the proposed SSKII (RNAV) STAR arrival flight procedure would continue using this primary southwest airspace arrival gate closely following the historic flight tracks. Consultation did not identify any constructive use of any resources protected under Section 4(f) of the Department of Transportation Act for which aircraft noise and/or aircraft overflights would have an effect on the resource. Therefore, the Preferred Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Consequently, the FAA has determined that the Preferred Alternative would not result in potential impacts to Section 4(f) properties.

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Forecast/Future Operations: The purpose of the proposed Denver Metroplex Project, as described in Chapter 2 of the Final Environmental Assessment (EA), is to improve the efficiency of aircraft arrival and departure procedures and airspace utilization in the Denver Metroplex airspace. The FAA designed the metroplex initiative to optimize air traffic control (ATC) procedures and airspace on a regional scale. Optimized ATC procedures takes advantage of technological advances in navigation, such as Area Navigation (RNAV), while ensuring that aircraft not equipped to use RNAV flight procedures continue to have access to the National Airspace System. This approach addresses airspace congestion

and other factors that reduce airspace efficiency in busy metroplex areas. The overall intent is to use limited airspace as efficiently as possible for congested metroplex areas.

Aircraft flight schedules for the forecasted change in the number of aircraft operations at the Study Airports were prepared to support the aircraft noise analysis for the proposed Denver Metroplex Project Final EA. Three flight schedules were developed to represent the average annual day (AAD) flight activity at the Study Airports, corresponding to the years assessed for aircraft noise conditions and used to model future aircraft noise exposure. The AAD does not reflect a particular day, but is meant to represent a typical day over a period of a year. The forecast was based on the FAA's 2018 Terminal Area Forecast (TAF), modified for 2019 and 2024 with additional details using previously identified arrival/departure times, aircraft types, and origin/destination information. The TAF is the official forecast of aviation activity at FAA facilities and is updated annually. The AAD flight schedules only include operations conducted by aircraft operating under Instrument Flight Rules (IFR) because the proposed Denver Metroplex Project involves the design of standard instrument arrival and departure procedures, which are only used by aircraft operating under IFR.

Based on the data in the TAF, there is an anticipated increase in average annual day air carrier traffic to Denver International Airport between the years 2019 and 2024. The proposed Denver Metroplex Project used the forecast data to model noise for 2019 and 2024 conditions. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024. More detail related to the development of the forecasts is provided in Appendix H: Denver Metroplex Flight Schedules Technical Report available on the Project website at http://www.metroplexenvironmental.com/denver_metroplex/denver_docs.html.

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Historical and Cultural Resources: The commenter mentioned the Environmental Assessment (EA) excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including historic and cultural properties. To comply with NEPA requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric; the FAA's primary metric used to establish a yearly day/night average of cumulative noise energy exposure of individuals to noise resulting from aviation activities. The noise modelling analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR) for the No Action Alternative and the Preferred Alternative for the forecasted years 2019 and 2024. The noise modeling analysis indicated that the proposed Denver Metroplex project would not result in changes to noise exposure that exceed the significant noise threshold for the forecasted years of 2019 and 2024.

However, the FAA recognizes that this standard may not be relevant to historical and cultural resources. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. In Section 5.6 of the Final EA, the noise modelling analysis for the proposed Denver Metroplex Project indicated two areas of reportable noise grid points, which were investigated for the presence of historic and cultural properties. The FAA focused its efforts on identifying historic properties in the two areas of potential effect that could receive noise increases and considered the potential for overflight to introduce visual effects that could cause an alteration in the character of the historic property that qualify it for the National Register of Historic Places (National Register). As depicted in Exhibit 5-2, the two areas are associated with the proposed aircraft flight procedures for Denver International Airport: the COORZ

Area Navigation (RNAV) Standard Instrument Departure (SID) for westbound departures, the SLEEK (RNAV) SID for southbound departures.

Under Section 106 of the National Historic Preservation Act, the FAA completed consultation with State and Local governments having jurisdiction or special expertise over historic and cultural resources. Additionally, the FAA entered into government-to-government consultation with forty-eight Native American Tribes having a legacy of occupation in the State of Colorado. Consultation with all of these parties did not identify any historic properties within the areas of potential effect for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at the lower level of reportable noise exposure. The FAA also considered the potential for the introduction of visual elements that could diminish the integrity of the property's historic features. We compared the proposed procedures with current flight tracks within the areas of potential effect, and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual elements. The proposed procedures would not introduce flight tracks over sensitive areas changing any existing impacts on those historic properties and cultural resources. Consultation did not identify any traditional and cultural properties within the APE for which aircraft noise and/or aircraft overflights would have an effect on a historic property's characteristics qualifying that property for the National Register. Therefore, the proposed Denver Metroplex Project would not have an adverse effect on historic properties.

Level of NEPA Review: The FAA's primary mission is to provide the safest, most efficient aerospace system in the world. National Environmental Policy Act (NEPA) compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions. Under NEPA, the Federal Agencies are required to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts that could arise from proposed Federal actions. The FAA decision-making process must consider and disclose the potential impacts of a proposed action and its alternatives on the quality of the human environment.

In meeting its NEPA obligations, the FAA should seek to achieve the policy objectives of 40 CFR § 1500.2 to the fullest extent possible. Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment. Specifically, the Final EA for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories.

The FAA evaluated the Preferred Alternative and the No Action Alternative, as required under NEPA. The results of the analysis indicate that the Preferred Alternative would not exceed the thresholds of significance for any of the resource impact categories analyzed. The Final EA presents sufficient evidence and analysis in determining that preparation of a FONSI is appropriate and that no EIS is required in accordance with NEPA.

Noise Modelling Analysis: To comply with the National Environmental Policy Act (NEPA) requirements, the FAA has issued guidance on assessing aircraft noise in FAA Order 1050.1F. This guidance requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. DNL is the FAA's primary metric used to establish a yearly day/night average of cumulative

noise energy exposure of individuals to noise resulting from aviation activities. The noise analysis evaluated noise exposure to noise sensitive areas within the General Study Area from aircraft forecasted to be operating under Instrument Flight Rules (IFR). IFR-filed aircraft activity was forecasted for the years 2019 and 2024 and used to model conditions under both the No Action Alternative and the Preferred Alternative.

The FAA's noise guidelines for compliance with NEPA define a significant impact as an increase of DNL 1.5 dB in areas exposed to aircraft noise of DNL 65 and higher. Using these criteria, the noise analysis results indicate that the Preferred Alternative when compared to the No Action Alternative would not result in a DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher.

The compatibility of noise sensitive land use is evaluated through comparison with the compatibility guidelines provided in 14 CFR Part 150, Appendix A, table 1. The guidelines focus on areas exposed to noise levels of DNL 65 dB and greater. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases. The FAA prepared the noise modelling analysis of the proposed flight procedures to account the reportable noise criteria. Experience has indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

The FAA identified three areas with lower levels of aircraft noise exposure, specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Although this would result in a reportable aircraft noise exposure DNL 5 dB increase in areas exposed to DNL between 45 dB and 60 dB, the project does not introduce noise that would affect the features, or attributes associated with the three areas that would adversely affect it.

Particulate Matter: The proposed Denver Metroplex Project would not result in accumulation of particulate matter or any other pollutant at ground level. The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore, is presumed to conform as emissions from this type of action is below the applicable de minimis levels.

As discussed in Section 5.2.1 of the Final Environmental Assessment changes associated with proposed Denver Metroplex Project would occur at or above 3,000 feet above ground level (AGL). Any operational changes that could result in an increase in fuel burn would occur at 3,000 feet AGL or above and would not result in an increase in emissions and ground concentrations. The 3,000 feet AGL mixing height, identified in both the Environmental Protection Agency's (EPA) General Conformity Regulations and in the FAA's published list of presumed to conform actions, represents an annual national average. Aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level. In addition, changes in air traffic procedures above 1,500 feet AGL and below the mixing height "would have little if any effect on emissions and ground concentrations" (72 Fed. Reg. 6641 (February 12, 2007)).

Physical and Mental Health: The FAA implements NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1). The Final Environmental Assessment (EA) for the proposed Denver Metroplex Project considered the potential effects on the environmental resource categories identified in FAA Order 1050.1F. The FAA uses the corresponding thresholds that serve as specific indicators of significant impact for some environmental impact categories. . The FAA has not established a significance threshold for general physical and mental

health concerns. However, regulations pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks require the FAA to assess environmental health risks and safety risks that may disproportionately affect children. As discussed in Chapter 5, the proposed Denver Metroplex Project would not exceed the thresholds of significance for the resource categories analyzed in the Final EA. Accordingly, there would be no increase in environmental health and safety risks that would disproportionately affect children.

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Property Values: The proposed Denver Metroplex Project involves air traffic control routing changes for airborne aircraft only; and does not involve land acquisition, physical disturbance, or construction activities. The determination of whether a proposed action may have a significant environmental impact under the National Environmental Policy Act (NEPA) is made by considering the relevant environmental impact categories and comparing impact to the FAA's thresholds of significance as outlined in FAA Order 1050.1F. The assessment of property values is not an environmental impact category as outlined in FAA Order 1050.1F. To the extent applicable, and as there are no significant impacts under noise or compatible land use, the proposed Denver Metroplex Project is compatible with existing and planned land uses, and the applicable regulations and policies of federal, state, and local agencies. A limited number of studies have attempted to measure the impact of aircraft noise on property values. Specific studies of the impact of noise at the Study Airports on real property values have not been conducted and are not required. Studies conducted at other national airports have concluded that airport noise only has a slight impact on property values within the Day Night Average Sound Level 65 decibels or greater noise contour around airports. Additionally, comparison of older studies to more recent studies indicates that the impact was greater in the 1960s, when jet aircraft first entered the fleet. This decrease presumably is the result of stabilization of real estate markets following an initial adjustment to noisier jets, and of noise reduction in more modern Stage 3 or better aircraft.

Comments-Responses

Comment# 391 Submitted by: Reeve, Christopher

Comment Received: Please implement the Complete ZIMMR Noise Solution . I am experience a lot more noise to the changed flight path over the last few years due to the movement north over boulder the volume of the new jet freeway and the reverberation off the flat iron rock faces which the FAA simulation does not take into account.

Topics Identified in the Comment

- Existing Aircraft Noise
- Noise Modelling
- ZIMMR SID

FAA Response for Comment #391 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Noise Modelling: The commenter raised concerns with the noise modelling methodology. The noise analysis completed for the Final Environmental Assessment (EA) was prepared using the Aviation Environmental Design Tool (AEDT) version 2d, which is the FAA's required noise model. The FAA uses AEDT to model noise for flight track changes over large areas and at altitudes over 3,000 feet AGL to analyze noise associated with the No Action Alternative and the Denver Metroplex Project proposed action. The AEDT 2d model utilizes an extensive aircraft performance and sound level database that includes information on variations in sound attributed to different types of aircraft and aircraft engines, aircraft speed, climb and descent thrust, and the altitude along a route. Detailed terrain data was inputted into the AEDT 2d model, which accounts for the elevation of each grid point or population centroid when calculating the distance between the grid point and the aircraft. The aircraft noise analysis prepared for the proposed Denver Metroplex Project Final EA was conducted in compliance with FAA Order 1050.1F.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 392 Submitted by: Reeve, Melissa

Comment Received: "After suffering from jet noise every 5-7 minutes throughout the day at my address - and the inability to keep windows open in the summer - I attended the FAA community hearing to find out more. There I heard two troubling facts. The first fact was that the FAA and team have used computer modeling - not real data - to calculate the noise impact on South Boulder. These models do not take into account the parabolic effect of the Flatirons which amplify and concentrate the noise. I ask that the FAA take actual data from actual neighborhoods and houses who are reporting issues. The second troubling fact was that the FAA's ""fix"" to the constant roar of jets was to move the flight path slightly south. According to the representatives at the forum this would result in a one decibel reduction in noise. In other words not a solution. Based on this information I would ask the FAA and team working on this project to adopt the Complete ZIMMR Noise Solution - a solution that alleviates noise for approximately 100 000 people giving true relief to those of us who are noise fatigued by the constant roar of jets."

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Noise Modelling
- ZIMMR SID

FAA Response for Comment #392 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Noise Modelling: The commenter raised concerns with the noise modelling methodology. The noise analysis completed for the Final Environmental Assessment (EA) was prepared using the Aviation Environmental Design Tool (AEDT) version 2d, which is the FAA's required noise model. The FAA

uses AEDT to model noise for flight track changes over large areas and at altitudes over 3,000 feet AGL to analyze noise associated with the No Action Alternative and the Denver Metroplex Project proposed action. The AEDT 2d model utilizes an extensive aircraft performance and sound level database that includes information on variations in sound attributed to different types of aircraft and aircraft engines, aircraft speed, climb and descent thrust, and the altitude along a route. Detailed terrain data was inputted into the AEDT 2d model, which accounts for the elevation of each grid point or population centroid when calculating the distance between the grid point and the aircraft. The aircraft noise analysis prepared for the proposed Denver Metroplex Project Final EA was conducted in compliance with FAA Order 1050.1F.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 393 Submitted by: Resident, Longtime

Comment Received: "Complete the ZIMMR noise solution to alleviate jet noise caused by illegally moving westbound path from uninhabited Rocky Flats to directly over my home. The noise is destroying the wilderness experience we get from our 165 000 acres of open space for residents guests and wildlife. Boulder is buttressed on the west by a wall of rock 3500' tall that acts as a parabolic dish for jet noise. Your sound modelling results are not scientifically valid because the software does not take geography into account."

Topics Identified in the Comment

- Existing Aircraft Noise
- Noise Modelling
- ZIMMR SID

FAA Response for Comment #393 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Noise Modelling: The commenter raised concerns with the noise modelling methodology. The noise analysis completed for the Final Environmental Assessment (EA) was prepared using the Aviation Environmental Design Tool (AEDT) version 2d, which is the FAA's required noise model. The FAA uses AEDT to model noise for flight track changes over large areas and at altitudes over 3,000 feet AGL to analyze noise associated with the No Action Alternative and the Denver Metroplex Project proposed action. The AEDT 2d model utilizes an extensive aircraft performance and sound level database that includes information on variations in sound attributed to different types of aircraft and aircraft engines, aircraft speed, climb and descent thrust, and the altitude along a route. Detailed terrain data was inputted into the AEDT 2d model, which accounts for the elevation of each grid point or population centroid when calculating the distance between the grid point and the aircraft. The aircraft noise analysis prepared for the proposed Denver Metroplex Project Final EA was conducted in compliance with FAA Order 1050.1F.

ZIMMR SID: The commenter requests that the FAA consider moving the flight path of the proposed ZIMMR (RNAV) SID southward from the location that was depicted at the workshops for the Draft Environmental Assessment. Based on the comments, the FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR (RNAV) SID. The FAA modified the proposed ZIMMR (RNAV) SID by moving the location of the RALFI waypoint an additional 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR (RNAV) SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT (RNAV) SID procedure.

Comments-Responses

Comment# 394 Submitted by: Reynolds, Suzanne

Comment Received: Now that the weather is warmer I have been outdoors on my back patio several days so far this month. One thing I have noticed is the increase in air traffic noise compared to previous years. I have noticed more high flying aircraft not the recreational aircraft from local airports. I live north of Boulder and southwest of Longmont.

Topics Identified in the Comment

- Existing Aircraft Noise

FAA Response for Comment #394 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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Comments-Responses

Comment# 395 Submitted by: Ridgley, Derek

Comment Received: GPS-enabled routing protocols in place since 2013 have had a demonstrably negative impact on the environment of certain communities within the CO Front range. The desire to standardize aircraft flight paths results in excessive noise for the communities directly below each favored route and the Nederland community in particular has been negatively impacted by a decision to route high volumes of westbound aircraft directly overhead. The routing protocol combined with excessive clustering of flights within certain time windows produces 'conga lines' of aircraft traffic at regular intervals. The noise and light beacon impacts from the traffic negatively affect our wildlife domestic life and the tourism appeal of this area. One of the greatest virtues of air travel is its inherent lack of physical route limitations. It is a tragedy that FAA ignored this virtue when implementing GPS routing protocols. The attempt to standardize and cluster all routing has turned the skies into a de facto aerial interstate highway. A rational environmental impact study would obviously decline to disrupt a scenic community like Nederland and its surrounding wilderness by ramming a freeway through them. The FAA Nextgen review should likewise decline to perpetuate the aerial equivalent of a freeway over this unique and beloved geography. Please consider alternative options for aircraft routing flight time dispersal and route dispersal in an effort to spare our community from the already negative environmental impact of aircraft routing passing directly over Nederland and flight time clustering that makes a mockery of the natural experience so many residents and tourists expect to experience in this region.

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- NEPA and FAA Order 1050.1F
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #395 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to "Appendix E: Basic of Noise" (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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NEPA and FAA Order 1050.1F: The National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) §4321 et seq.], requires federal agencies to disclose to decision makers a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in decisions that affect the quality of the human environment. As part of the NEPA process, federal agencies are required to consider the environmental effects of a proposed action and reasonable alternatives to a proposed action, including a no action alternative (i.e., analyzing the potential environmental effects of not undertaking the proposed action). The Federal Aviation Administration (FAA) has established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). The Proposed Action for this Environmental Assessment (EA) is the proposed Denver Metroplex Project. The Draft EA was prepared in accordance with FAA Order 1050.1F and meets the required elements of the National Environmental Policy Act.

Frequency of Aircraft Overflights: In its effort to modernize the National Airspace System (NAS), the FAA is developing instrument flight procedures that use advanced PBN technologies. A primary component of PBN is Area Navigation or RNAV. RNAV uses the Global Positioning System satellite-based navigation to allow an RNAV-equipped aircraft to fly a more predictable and efficient route; utilizing limited airspace as efficiently as possible for a congested metroplex airspace area. More than 90 percent of U.S. scheduled air carriers are equipped to use some level of RNAV.

Section 1.2. in the Final Environmental Assessment (EA) describes the difference between RNAV and conventional routes. With PBN, the overall number of aircraft flying in close proximity to a defined path is greatly improved for both approach and departure tracks. This will mean aircraft noise exposure levels are concentrated on a smaller area, thereby exposing fewer people to aircraft noise than occurs with equivalent conventional procedures that may have more dispersed flight tracks. In some areas, flight concentration already exists because many RNAV procedures have already been published and have been used for several years. There are also many conventional procedures with defined routes between two points, which also create a concentration of flight tracks. Table 3-1 in Chapter 3, Alternatives, contains a listing of already-published RNAV and conventional flight procedures. Accordingly, aircraft concentration along many routes already occurs within the General Study Area for the proposed Denver Metroplex Project.

For noise modeling purposes, approximately 90 percent of aircraft to/from major airports on an RNAV procedure were forecasted to be located within a half mile of the published route centerline. However, all aircraft on an RNAV will be within one mile of the published route centerline. Not all aircraft are equipped to operate on an RNAV procedure; therefore, conventional procedures will still be used in the Denver Metroplex airspace. Please see Table 3-2 in Chapter 3, Alternatives, for a listing of the conventional procedures that are maintained as part of the proposed Denver Metroplex Project.

To help maintain safety in the NAS, FAA Air Traffic Control (ATC) will continue to employ air traffic management methods and coordination techniques as described in Section 1.2.2 of the Final EA, Air Traffic Control within the NAS. Therefore, the FAA expects that some dispersion of flight tracks will continue even for some aircraft operating on RNAV procedures. To account for this, the noise model includes flight tracks that follow a proposed RNAV flight path but are turned off the flight path at designated areas where the FAA has forecasted the likelihood of vectoring or rerouting. The noise modelling analysis accounts for both concentration and expected continuation of some dispersion. As described in Chapter 5 of the Final EA, changes in noise exposure levels may occur as a result of flight path concentration. However, the results of the noise modelling analysis indicate that the Preferred Alternative for the Denver Metroplex Project would not exceed the thresholds of significance for changes in aircraft noise exposure when compared to the No Action Alternative.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 396 Submitted by: Rigney, Loren

Comment Received: Please halt this disastrous plan to revise the flight path to fly directly over our peaceful neighborhood. The noise and air pollution will be unrelenting. Please consider another solution.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Projected Changes in Aircraft Noise Exposure
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #396 Topics

Air Quality/Air Pollution: In the United States, air quality is generally monitored and managed at the county or regional level. As discussed in Section 4.3.1 of the Final Environmental Assessment (EA), the Clean Air Act (CAA), 42 U.S.C. §7401 et seq. (1970), regulates emissions of pollutants into the atmosphere from both mobile (e.g., automobiles) and stationary (e.g., factories) sources. To help accomplish this task, the CAA requires the Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) common air pollutants (referred to as “criteria pollutants”). The criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM)(up to both 2.5 micrometers [PM_{2.5}] and 10 micrometers [PM₁₀]), and Sulfur Dioxide (SO₂). The NAAQS establishes two standards: primary standards for protection of human health and secondary standards for protection of property and the environment. The CAA also requires the states to submit to the EPA a list of geographical areas that do or do not conform to the NAAQS. Table 4-2 in Section 4.3.1 of the Final EA identifies those counties and regions within the General Study Area that are in nonattainment or maintenance of the NAAQS. There are areas within the General Study Area that are in nonattainment for Ozone (O₃) and Carbon Monoxide (CO). Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the de minimis levels established in regulations issued by EPA.

The proposed Denver Metroplex Project is presumed to conform with the SIP. The EPA regulations identify certain actions that would not exceed these thresholds, including air traffic control (ATC) activities and adoption of approach, departure, and en route ATC procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet above ground level (AGL) in places without an established mixing height). FAA Order 1050.1F provides that further analysis for NEPA purposes is normally not required where emissions do not exceed the EPA’s de minimis thresholds.

The proposed Denver Metroplex Project is a type of action that promotes the safe, orderly, and expeditious flow of aircraft traffic including airport, approach, departure and en route air traffic control, and therefore is presumed to conform as emissions from this type of action is below the applicable de

minimis levels (40 CFR 93.153(c)(2) (xxii)). In addition, the results of FAA research on mixing heights indicate that changes in air traffic procedures above 1,500 ft. AGL and below the mixing height would have little if any effect on emissions and ground concentrations (FAA-AEE-00-01, September 2000, p. 5). Such actions in the vicinity of the airport are tightly constrained by runway alignment, safety, aircraft performance, weather conditions, terrain, and vertical obstructions (FAA Advisory Circulars No. 25-13 and No. 91-53A). Accordingly, air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions. (72 Fed. Reg. 6641 (February 12, 2007)).

Projected Changes in Aircraft Noise Exposure: The commenter raises concerns pertaining to projected changes in aircraft noise exposure. Aircraft noise is often the most noticeable environmental effect associated with any aviation project. The commenter raised concerns about the effects of the Preferred Alternative on noise related to aircraft operations. The commenter mentioned the noise modelling analysis excludes the impact of noise at or below the Day Night Average Sound Level (DNL) of 65 decibels (dB) on noise sensitive areas, including residences, historic areas, parks and schools.

The noise modelling analysis for the forecasted years 2019 and 2024 evaluated noise exposure to provide updated estimates of where noise increases may occur. Potential impacts were evaluated under 2019 and 2024 conditions for both the Preferred Alternative and the No Action Alternative using the same methodology and criteria. The noise modelling analysis results indicate that the Preferred Alternative, when compared to the No Action Alternative, would not result in changes to aircraft noise exposure that exceed the significant noise threshold of DNL 1.5 dB or higher increase in sensitive areas exposed to DNL 65 dB or higher for 2019 and 2024. However, the FAA recognizes that this standard may not be relevant to certain noise sensitive areas (i.e., historic sites, parks). The FAA refers to noise changes meeting the criteria of an increase of DNL +3 dB or more within areas exposed to the DNL 60 - 65 dB, or an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB as reportable. The results of the noise modelling analysis indicate that no population would be exposed to reportable noise increase of DNL +3dB or more within areas between DNL 60 dB and 65 dB. However, the FAA identified areas with lower levels of aircraft noise exposure which would experience a noticeable increase in noise – specifically, an increase of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. Areas with noise changes meeting this criteria were further investigated for the presence of historic and cultural properties and/or properties protected under Section 4(f) of the Department of Transportation Act.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses

Comment# 397 Submitted by: Rikke, Brad

Comment Received: DIA flights over south Boulder are too loud.

Topics Identified in the Comment

- Existing Aircraft Noise

FAA Response for Comment #397 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

Centennial Airport

303-790-4709

<http://www.centennialairport.com/index.php/noise/noise-management>

Denver International Airport

303-342-2380

https://www.flydenver.com/about/administration/noise_management

Greeley-Weld County Airport

970-336-3000

<http://www.gxy.net/>

Northern Colorado Regional Airport

970-962-2850

<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

Comments-Responses

Comment# 398 Submitted by: Rinker, Evelyn

Comment Received: Please consider height restrictions; not only the conveniences needed for ATC. We have seen a huge growth in low-flying smaller planes in last 3 years; and they fly low in valleys and then come out of those very close to homes on hills. All for their entertainment; while grossly affecting daily life for people in the country. Consider requiring noise-reduction equipment- mufflers! But also deny the ability to fly so low. We see planes within 30-50 feet over homes regularly which is harassing and dangerous. These seem primarily from APA.

Topics Identified in the Comment

- Existing Aircraft Noise
- General Aviation/Visual Flight Rules
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #398 Topics

Existing Aircraft Noise: The purpose of the proposed Denver Metroplex Project is to improve efficiency in the Denver Metroplex airspace. Addressing current noise issues associated with air traffic in the General Study Area is beyond the scope of the proposed Denver Metroplex Project Draft and Final Environmental Assessment (EA). However, the potential for environmental impacts, including noise associated with the proposed Denver Metroplex Project is assessed in the Draft and Final EA. Please refer to “Appendix E: Basic of Noise” (Pages E-1 through E-11) attached to the April 22, 2019 Draft EA which has been duplicated, and attached to this Final EA. Analysis indicates that the Preferred Alternative when compared to the No Action Alternative would not result in changes to noise exposure that exceed the significant noise threshold. Noise complaints related to local air traffic are best addressed by the local airport. Please contact the local airport noise office for further information on existing noise concerns and complaints. Contact information for registering noise complaints at the five study airports can be found below.

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<https://www.flynoco.com/>

Rocky Mountain Metropolitan Airport

303-271-4850

<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

General Aviation/Visual Flight Rules: The commenter raises concerns that the impacts to general aviation and aircraft operating under Visual Flight Rules (VFR) were not considered in the Final Environmental Assessment. When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's discretion and are often not required to file flight plans, the FAA has very limited information about these operations. Consequently, there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. However, even if complete information were available for VFR operations, the proposed Denver Metroplex Project would not require any changes to routing or altitudes to accommodate these operations. If they could be modeled, they would use the same flight routes and altitudes under the No Action Alternative and the Preferred Action for the Denver Metroplex Project. Their operations would not be affected by the forecast conditions in 2019 (the proposed first year of implementation) and 2024 (five years after implementation) for either the No Action Alternative or the Preferred Action for the Denver Metroplex Project. Therefore, VFR aircraft were not included in the analysis.

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses**Comment# 399 Submitted by: Rodriquez, Marissa****Comment Received:** We reside in South Boulder - zipcode 80305. There has been significant increases in air traffic over our neighborhood in the past 2 years. Please re-route it.**Topics Identified in the Comment**

- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #399 Topics**Suggestions to Change Air Traffic Patterns:** FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.

Comments-Responses**Comment# 400 Submitted by: Rodriquez, Rick**

Comment Received: We reside in South Boulder - zipcode 80305. There has been significant increases in air traffic over our neighborhood in the past 2 years. Please re-route it.

Topics Identified in the Comment

- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #400 Topics

Suggestions to Change Air Traffic Patterns: FAA determined that the proposed procedures as designed provide greater compatibility with other proposed air traffic routes and airspace sector designs.