

J J-1 Comments on the Draft EA & FAA Responses

**Public Comments 001 (Abel) through 100 (Curd)
with FAA Responses**

Comments-Responses

Comment# 1 Submitted by: Abel, Julie

Comment Received: PLEASE consider the Complete ZIMMR Noise Solution for Boulder CO. The plan noise in South Boulder is unreal. I used to take business calls in my backyard in the summer and now I have to remain inside b/c my colleagues hear the noise on the other end of the call. Please help to maintain the beauty and calm of Boulder.

Topics Identified in the Comment

- Existing Aircraft Noise
- ZIMMR SID

FAA Response for Comment #1 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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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# 2 Submitted by: Ager, Deborah

Comment Received: "I live in the Pinery subdivision east of Parker. It would appear changes have already been made based on the volume and noise levels. Planes are noisy and flying too close to the ground. There were 6 planes in 10 minutes. Conversation is difficult when outside. Prior to purchasing my home I investigated the noise levels and air traffic patterns. I recognize weather and other variables may require short term changes but PLEASE do not make this level of traffic permanent. I could have chosen to spend less money on my house and move into a neighborhood where it was posted that there was airplane noise. I intentionally spent more money for a quiet environment. I do not want my property value to drop. Even more I enjoy being outside in my yard. The noise level from DIA is taking this option away."

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Projected Changes in Aircraft Noise Exposure
- Property Values

FAA Response for Comment #2 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.

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# 3 Submitted by: Albe, Edward

Comment Received: Increasing air traffic over South Boulder from planes leaving and arriving into DIA has dramatically increased the ambient noise for those of us who reside below the flight patterns. The increasing noise has seriously impacted, and disturbed our quality of life due to increased noise pollution. Please redirect these flight patterns so that we many return to a reasonable sense of peace & quiet.

Topics Identified in the Comment

- Existing Aircraft Noise

FAA Response for Comment #3 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# 4 Submitted by: Ames, Andy

Comment Received: My name is Rachel Ames and my husband, Andy, and I split our time between homes in Boulder and Estes Park. Our home in Estes Park is located just northeast of the Beaver Meadows Entrance station of Rocky Mountain National Park at 8,000 ft on the south side of Deer Mountain. The address is 490 larkspur Rd, Estes Park, CO 80517. We are writing today because we understand the FAA is considering making changes to the flight paths of aircraft flying to and from DIA. When we moved to the mountains, we thought we would be moving to a quieter location, but little did we know that we would be living underneath a flight path\ Below is a snapshot of the planes that flew over our house on Saturday June 1, 2019. As you can see, the planes fly very frequently. They are also quite loud and sound like we are at an airport. In reality, we are less than half a mile from Rocky Mountain National Park. Every plane that we hear at our house can also be heard from the Park. It is so sad that visitors can't enjoy nature as it should be - filled with the sounds of birds and not airplanes. While we skimmed the proposed changes, we weren't able to fully understand how they would impact the current noise level. We just ask you to please consider the current noise level to be too much for the humans and animals that live underneath the current flight path. Thank you for your consideration. Rachel F Ames and Andy Ames

June 1, 2019: Recorded commercial jets from 8:50-9:19am. 8:50am, 8:52, 8:55, 8:57, 9:04 (small plane), 9:10, 9:15, 9:17, 9:19am. (9 airplanes in 29 minutes or an average of 1 every 3 minutes).

June 1, 2019: Recorded commercial jets from 3:25-4:58pm. 3:25pm, 3:26, 3:28, 3:29, 3:37, 3:39, 3:46, 4:12, 4:13, 4:16, 4:17, 4:19,4:20,,4:24, 4:26., 4:30, 4:31, 4:33, 4:36, 4:42, 4:48, 4:58. (22 planes in 93 minutes or an average of 1 every 4 minutes).

cc: Representative Joe Neguse

Topics Identified in the Comment

- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #4 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.

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Comments-Responses

Comment# 5 Submitted by: Ames, Rachel

Comment Received: My name is Rachel Ames and my husband, Andy, and I split our time between homes in Boulder and Estes Park. Our home in Estes Park is located just northeast of the Beaver Meadows Entrance station of Rocky Mountain National Park at 8,000 ft on the south side of Deer Mountain. The address is 490 larkspur Rd, Estes Park, CO 80517. We are writing today because we understand the FAA is considering making changes to the flight paths of aircraft flying to and from DIA. When we moved to the mountains, we thought we would be moving to a quieter location, but little did we know that we would be living underneath a flight path\ Below is a snapshot of the planes that flew over our house on Saturday June 1, 2019. As you can see, the planes fly very frequently. They are also quite loud and sound like we are at an airport. In reality, we are less than half a mile from Rocky Mountain National Park. Every plane that we hear at our house can also be heard from the Park. It is so sad that visitors can't enjoy nature as it should be - filled with the sounds of birds and not airplanes. While we skimmed the proposed changes, we weren't able to fully understand how they would impact the current noise level. We just ask you to please consider the current noise level to be too much for the humans and animals that live underneath the current flight path. Thank you for your consideration. Rachel F Ames and Andy Ames

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Topics Identified in the Comment

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- Existing Aircraft Noise
- Frequency of Aircraft Overflights
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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# 6 Submitted by: Andersen, R.

Comment Received: This is an outrage. I request with all due respect that you DO NOT implement the proposed Denver Metroplex plan. Our communities are growing and prospering and this plan will only work to diminish the environment of these communities. I believe that the flight data and information is false and renders an inaccurate assessment of the projected impact given the growth of DIA and air traffic in general. As citizens we deserve the right to quiet enjoyment of our environment. The Next Gen Denver Metroplex is only serving to increase local taxing authorities with additional revenue and disregarding the well-being of the residence. In addition no consideration was given to the already burdensome air traffic from Centennial Airport which will increase as more flights are diverted due to DIA air traffic.

Topics Identified in the Comment

- Existing Aircraft Noise
- Forecast/Future Operations
- Purpose and Need of Project

FAA Response for Comment #6 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>

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.

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# 7 Submitted by: Anderson, Duncan

Comment Received: As an expectant parent with a home in the proposed flight path I am very concerned and would like to voice strong opposition to the proposed change. Hygge Evans & Bullinger 2002 found significant impacts to school performance due to the background noise pollution of overhead flights. This rerouting of flights over residential neighborhoods poses an immediate threat to the development of children in these neighborhoods and I urge you to reconsider.

Topics Identified in the Comment

- Children's Environmental Health and Safety
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #7 Topics

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.

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# 8 Submitted by: Anderson, Harold

Comment Received: I chaired the Noise Roundtable at Centennial Airport for several years. As you know our job was to work with the airport and listen to concerned citizens etc. Thru a lot of education our neighbors could better understand why there was noise above their home. Except for a few exceptions we received fewer complaints.

Changing approach and departure routes will open a can of worms. Why bring in new areas with noise problems and make things worse? The traffic to Centennial and to DIA are already separated well. The system works with few accidents.

I would ask the FAA to show some common sense and not change routes in the Denver area.

Topics Identified in the Comment

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

FAA Response for Comment #8 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# 9 Submitted by: Anderson, Mike

Comment Received: How will implementation of the Preferred Action Alternate reduce air pollution in the Denver Metro area? Please quantify the reduction in Ozone levels and particulates at ground level as a result of changing flight arrival and departure procedures in the Preferred Action alternative in the EA.

How will implementation of the Preferred Action alternative impact airport noise levels in Douglas County south of Centennial Airport ?

Topics Identified in the Comment

- Air Quality/Air Pollution
- Particulate Matter
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #9 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)).

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)).

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# 10 Submitted by: Anne, Amelia

Comment Received: Live. In south boulder 45 years. No problem with air traffic. Why do people want to pass their problems onto another area. Hard to understand this lack of sensitivity. Leave the airplane traffic alone.

Topics Identified in the Comment

- Purpose and Need of Project

FAA Response for Comment #10 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# 11 Submitted by: Apt, Alan

Comment Received: "The Indian Peaks Wilderness Area is one of the most popular wilderness areas in Colorado because of the spectacular scenery and proximity to the Denver metro area. It is visited by tens of thousands of people every year. The peace and serenity of the wilderness has been severely impacted by your recent air traffic decisions. You did not consider the severe impact on this wilderness in your EA. Your own data in the Environmental Assessment shows little or no savings of carbon or fuel. The new relatively low flight paths have made the Indian Peaks Wilderness and Nederland seem like industrial zones at times subject to dozens of low flying jet aircraft. The low flying planes have also impacted Nederland because we are at 8 400 feet and the planes are only at 10 000 feet. The noise pollution is especially unacceptable when 10 to 15 planes in a row go over. This decision is not the best alternative; by definition wilderness is supposed to stay untrammelled by man. The previous more dispersed approach was more fair and if planes are routed directly north from DIA for the NW destinations and over Wyoming they will be much higher over the ground more quickly reducing noise impact over a sparsely populated state. The new GPS technology should make the rerouting easy. In the preferred alternative low flying passenger jets will still take a route which will take them directly over Nederland and across the Indian Peaks Wilderness. This must be reconsidered. Thank You."

Topics Identified in the Comment

- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Purpose and Need of Project

FAA Response for Comment #11 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.

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.

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# 12 Submitted by: Asarch, Richard

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 #12 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# 13 Submitted by: Ayer, Kelsey

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 our health and welfare. 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 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."

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Forecast/Future Operations
- Frequency of Aircraft Overflights
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Particulate Matter
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project

FAA Response for Comment #13 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.

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.

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.

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)).

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# 14 Submitted by: Ayer, Kelsey

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 #14 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# 15 Submitted by: Ayer, Mitchell

Comment Received: he 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 details 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 #15 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# 16 Submitted by: Ayer, Mitchell

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 #16 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# 17 Submitted by: Ayer, Traci

Comment Received: I strongly object to the implementation of Next Gen Denver, and I respectfully request that you do NOT implement this ill-conceived plan. There are several factors driving my strong objection: • Flights over my community will substantially increase now and over the years increase as will the noise levels and pollution. This will negatively impact my families health and well-being. • The FAA did not consider the impact from general aviation, such as that from Centennial Airport when compiling the draft Environmental Assessment. The draft is a manipulation of data created to calm public outcry. • Centennial Airport is currently the second busiest general aviation airport in the US with more than 900 flights in and out daily. They anticipate that those flights will continue to increase over the coming years. • The recent FAA ‘workshops’ were poorly advertised and poorly run. Town hall meetings would have allowed the FAA to relay information more efficiently and more effectively. A town hall format would also have allowed for comments and questions from members of the communities to be impacted by NextGen Denver. • At one of the workshops, an FAA representative confirmed that 10,000 foot flight elevation is measured from sea level; i.e. the FAA considers a flight flying over Denver at 4,720 feet to be flying at 10,000 feet. • The implementation of NextGen Denver will decrease property values throughout our communities. DO NOT GO FORWARD with the Denver Metroplex NextGen plan.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Altitude/Mean Sea Level
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Public Outreach/Public Involvement
- Projected Changes in Aircraft Noise Exposure
- Property Values
- Purpose and Need of Project

FAA Response for Comment #17 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)).

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.

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.

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.

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# 18 Submitted by: Ayer, Traci

Comment Received: he 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 #18 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# 19 Submitted by: Bahr, David

Comment Received: To FAA officials, I have lived in the mountains between Boulder and Nederland for over 20 years, and in the last two, jet noise has become unbearably loud. It is impossible to sleep with the windows open while flights go over our house, and all conversation on our deck must cease when jets pass over. Your current flight path is disruptive and a radical departure from the previous 20+ years of living in a quiet mountain community. You have not accurately measured or modeled the actual impacts of noise on our local environment. If you had, you would understand that the current jet noise is orders of magnitude louder than the ambient noise levels in my community. Your models might indicate jet noise levels that are appropriate for a major city, but certainly not my mountain community. Please note that I did not move into a home near an airport—I am over 40 miles away as the crow flies from DIA. Instead your noise has crashed into my mountain community. Please stop this disruptive flight path. Use accurate, real-world measurements of noise that consider departures from ambient noise levels. Move your flight path over Rocky Flats which cannot and will not be developed. Move your flight paths away from the Indian Peaks Wilderness area where your noise does not belong. Perhaps move your flights over I-70, an highway that the United States Forest Service has already acknowledged as a noise and development sacrifice corridor. Sincerely, David Bahr, Phd

Topics Identified in the Comment

- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Noise Modelling Analysis
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #19 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.

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 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.

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# 20 Submitted by: bailey, georgia

Comment Received: Please move the flight paths further south of Rocky Flats where they once were. This solution will move the flights to a less densely populated region of CO. 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

- Purpose and Need of Project
- Suggestions to Change Air Traffic Patterns
- ZIMMR SID

FAA Response for Comment #20 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.

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# 21 Submitted by: Bailey, Jeff

Comment Received: The jet noise over South Boulder is affecting my nervous system. When I purchased my home there was no jet noise. Now I am bombarded with jets spacing 2 minutes apart and sometime 10 flights one after the other. This equates to twenty minutes of non-stop jet noise. Often I can still hear one jet exiting as the other approaches. Please adopt the Complete ZIMMR Noise Solution and return to the old flight paths that were over Rocky Flats. Accurate noise testing was never performed. Please understand the amplification effect that comes from jet noise amplified from the rock walls west of Boulder and surrounding Nederland.

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Noise Modelling Analysis
- Purpose and Need of Project
- ZIMMR SID

FAA Response for Comment #21 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.

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.

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: 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# 22 Submitted by: Baker, Brian

Comment Received: "I have lived in The Pinery for 11 years and airplane noise was never an issue until last year. There were many days where I was unable to enjoy time outside because of the non-stop air traffic. There was only a brief pause of about 1-2 minutes from one plane's noise dissipating before you could hear the next. I am unable to have a conversation with my neighbor without having to stop every couple minutes to wait for a plane to pass. As I start to spend more time outside I am noticing the noise becoming a real nuisance. I moved here to enjoy a more quiet life than what I experienced living in Aurora. I understand the need for safe airport operations however I do not feel everyone under this new flight paths should have to pay the price in the form of noise pollution and a possible reduction in home values. Very concerned and unhappy about these new changes. I do not wish my address to be part of the public record. Name is fine. Thanks for the opportunity to voice my concerns."

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Property Values
- Withold Personal Identifying Information

FAA Response for Comment #22 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.

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.

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# 23 Submitted by: Baker, Jeff

Comment Received: Thank you for the opportunity to comment on the DEN Metroplex Draft Environmental Assessment. As the elected body for one of Colorado's fastest growing counties, we uniquely understand the challenges facing the Federal Aviation Administration (FAA) in redesigning complex airspace in one of the nation's fastest growing regions. Completing this task requires significant changes to the health and welfare of residents living within the DEN Metroplex who will share in both the benefits and burdens of such a redesign.

The Arapahoe County Board of Commissioners believes the DEN Metroplex Draft Environmental Assessment does not adequately address required elements of the National Environmental Policy Act of 1969 (NEPA) as amended and its own FAA Order 1050.IF. Furthermore, the FAA proposes to implement the DEN Metroplex without first completing congressionally mandated studies 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, metroplexes.

The Board of County Commissioners asks the FAA to consider the following:

1. Complete congressionally mandated noise studies pursuant to the FAA Reauthorization Act of 2018 before it issues a determination regarding the DEN Metroplex Draft Environmental Assessment.
2. Conduct and include the findings of said studies in an Environmental impact Study, including cumulative impacts per NEPA, before it implements the Denver Metroplex.
3. Eliminate the BRNKO and PUFFR arrival procedures on the grounds of safety, increased noise exposure, increased fuel burn, and corresponding increases in air quality degradation in a federally designated non-attainment area.
4. Place a moratorium on implementation of the DEN Metroplex until requested studies pursuant to the FAA Reauthorization Act of 2018 are completed and submitted to Congress for consideration.

The Board firmly believes the FAA has not adequately demonstrated the cumulative impacts of the proposed Metroplex in our rapidly growing area, despite knowing and having documented the annual increases in flight operations in and out of metropolitan Denver. Corresponding increases of fuel usage and emissions within an existing air quality non-attainment area have not been appropriately evaluated, nor has the disproportionate impacts environmental justice communities. Additionally, the FAA has not adequately considered the health effects of noise on residents within the proposed Metroplex. Finally, the FAA's analysis relies heavily on FAA Order 1050.IF, an internal FAA guidance document that does not supersede NEPA.

The Board also has specific concerns with proposed arrival procedure changes that will have a negative impact on Centennial Airport - the second busiest general aviation airport in the nation - as well as the 13 cities and towns within Arapahoe County. Until additional studies are completed to address these concerns, the Board believes implementation of DEN Metroplex will cause significant environmental impacts on the community, cultural and natural resources, and negatively impact the quality of the human environment.

Arapahoe County understands the FAA's desire to modernize operations and maintain one of the safest air traffic control systems in the world. Given the complexity and diversity of Denver airspace, the Board of County Commissioners strongly urges the FAA to consider all intended and unintended consequences of its actions.

We respectfully request the FAA conduct a more thorough Environmental impact Study of DEN Metroplex after it has completed all the mandates pursuant to the FAA Reauthorization Act of 2018. Adopting a thoughtful and thorough approach will balance the needs of the FAA and its affected communities, achieving our shared goals of safety, efficiency, and maintaining a high quality of life. Thank you for the opportunity to comment and your consideration.

Topics Identified in the Comment

- Air Quality/Air Pollution
- BRNKO STAR
- Cumulative Impacts
- DOT Section 4(f) Resources
- Environmental Justice
- Existing Aircraft Noise
- FAA Reauthorization Act of 2018
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- NEPA and FAA Order 1050.1F
- Physical and Mental Health
- Potential Increase In Fuel Burn and Emissions
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project

FAA Response for Comment #23 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)).

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.

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.

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.

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.

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)).

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# 24 Submitted by: Baker, Jeff

Comment Received: To Whom It May Concern: Thank you for the opportunity to comment on the DEN Metroplex Draft Environmental Assessment. As the elected body for one of Colorado's fastest growing counties, we uniquely understand the challenges facing the Federal Aviation Administration (FAA) in redesigning complex airspace in one of the nation's fastest growing regions. Completing this task requires significant changes to the health and welfare of residents living within the DEN Metroplex who will share in both the benefits and burdens of such a redesign. The Arapahoe County Board of Commissioners believe the DEN Metroplex Draft Environmental Assessment does not adequately address required elements of the National Environmental Policy Act of 1969 (NEPA) as amended and its own FAA Order 1050.1F. Furthermore, the FAA proposes to implement the DEN Metroplex without first completing congressionally mandated studies 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, metroplexes. The Board of County Commissioners asks the FAA to consider the following: 1. Complete congressionally mandated noise studies pursuant to the FAA Reauthorization Act of 2018 before it issues a determination regarding the DEN Metroplex Draft Environmental Assessment. 2. Conduct and include the findings of said studies in an Environmental Impact Study, including cumulative impacts per NEPA, before it implements the Denver Metroplex. 3. Eliminate the BRNKO and PUFFR arrival procedures on the grounds of safety, increased noise exposure, increased fuel burn, and corresponding increases in air quality degradation in a federally designated non-attainment area. 4. Place a moratorium on implementation of the DEN Metroplex until requested studies pursuant to the FAA Reauthorization Act of 2018 are completed and submitted to Congress for consideration. The Board firmly believes the FAA has not adequately demonstrated the cumulative impacts of the proposed Metroplex in our rapidly growing area, despite knowing and having documented the annual increases in flight operations in and out of metropolitan Denver. Corresponding increases of fuel usage and emissions within an existing air quality non-attainment area have not been appropriately evaluated, nor has the disproportionate impacts environmental justice communities. Additionally, the FAA has not adequately considered the health effects of noise on residents within the proposed Metroplex. Finally, the FAA's analysis relies heavily on FAA Order 1050.1F, an internal FAA guidance document that does not supersede NEPA. The Board also has specific concerns with proposed arrival procedure changes that will have a negative impact on Centennial Airport – the second busiest general aviation airport in the nation – as well as the 13 cities and towns within Arapahoe County. Until additional studies are completed to address these concerns, the Board believes implementation of DEN Metroplex will cause significant environmental impacts on the community, cultural and natural resources, and negatively impact the quality of the human environment. Arapahoe County understands the FAA's desire to modernize operations and maintain one of the safest air traffic control systems in the world. Given the complexity and diversity of Denver airspace, the Board of County Commissioners strongly urges the FAA to consider all intended and unintended consequences of its actions. We respectfully request the FAA conduct a more thorough Environmental Impact Study of DEN Metroplex after it has completed all the mandates pursuant to the FAA Reauthorization Act of 2018. Adopting a thoughtful and thorough approach will balance the needs of the FAA and its affected communities, achieving our shared goals of safety, efficiency, and maintaining a high quality of life. Thank you for the opportunity to comment and your consideration. Sincerely, ARAPAHOE COUNTY BOARD OF COMMISSIONERS Commissioner Jeff Baker Chair of the Board

Topics Identified in the Comment

- Air Quality/Air Pollution
- BRNKO STAR

- Cumulative Impacts
- DOT Section 4(f) Resources
- Environmental Justice
- Existing Aircraft Noise
- FAA Reauthorization Act of 2018
- Forecast/Future Operations
- General Aviation/Visual Flight Rules
- Historical and Cultural Resources
- Level of NEPA Review
- NEPA and FAA Order 1050.1F
- Physical and Mental Health
- Potential Increase In Fuel Burn and Emissions
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project

FAA Response for Comment #24 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)).

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.

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.

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.

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.

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)).

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# 25 Submitted by: Ball, Earl

Comment Received: "Boco jet noise complaint to faa To Whom it May Concern My name is Earl Ball and I live in Boulder County Colorado under a flight path. I am also an Iraq War Veteran who moved to Colorado with my Wife and family in 2013 to attempt and find as much peace and quiet as possible. We live in a tiny cabin in a small mountain town outside most the noises of the cities. In 2015 we bought our home and have noticed more and more flight traffic overhead. Due to my life experiences in the military I am particularly sensitive to noises overheard activities and misc other things. The flight path issue is of great personal concern to me as changing the path in an effort to reduce overhead traffic would alleviate a frequent stressor for me. 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. For my own sake and that of my fellow citizens 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. Thank you very much for your time Earl Ball"

Topics Identified in the Comment

- Existing Aircraft Noise
- Noise Modelling Analysis
- Projected Changes in Aircraft Noise Exposure
- ZIMMR SID

FAA Response for Comment #25 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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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 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.

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# 26 Submitted by: Ball, Phylleri

Comment Received: Disperse the flight path over Nederland and Boulder to reduce the decibels of jet noise.

Topics Identified in the Comment

- Existing Aircraft Noise
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #26 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>

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# 27 Submitted by: Ball, Veda

Comment Received: I am writing to request moving the Denver airport flight patterns further away from the conurbations of Boulder Louisville Lafayette. Until we invent noiseless airplanes it just makes sense to rout flights from DIA in a direction that negatively impacts the minimum number of people rather than the maximum number. Currently it seems clear that the no doubt good reasons for the present flight patterns especially outbound from DIA do not take adequately into consideration the enormous aggravation and distress that these flight patterns inflict on the most densely populated areas. The distress is entirely caused by noise. Because of the volume of flights the noise is almost continuous - as the noise from one plane fades away to the West the next one has begun to the East. This is something that is negatively affecting over 100 000 people all day every day. Please do your best to come up with a solution that simply affects less people. Many thanks for your consideration.

Topics Identified in the Comment

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

FAA Response for Comment #27 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.

Comments-Responses

Comment# 28 Submitted by: Barrett, Brian

Comment Received: I am a long time Boulder resident and I'm appealing to you to shift the ZIMMR flight path to the south of Boulder. I live in the University Hill/Chautauqua area and while the planes tend to fly directly over Table Mesa to the south the ENE angle of the Flatirons reflects very loud jet noise directly into our densely populated neighborhood. The Flatirons rise as a near vertical 2000 - 3000 foot reflective wall and apparently the decision to shift the flight path over us did not take that into account. We ask that the pattern be shifted to avoid the reflective wall and our major population area. There are plenty of spaces that would fit that description between Golden and Boulder. I hope you'll take our suggestions seriously as it is a serious problem because of the sound reflection off of the Flatirons. I encourage you to come join me for a site visit in my back yard with FlightRadar24 active so you can fully understand our problem.

Topics Identified in the Comment

- Existing Aircraft Noise
- ZIMMR SID

FAA Response for Comment #28 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

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<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# 29 Submitted by: Barsugli, Joseph

Comment Received: I am writing in support of my neighbors here in the Table Mesa neighborhood of Boulder who are concerned about the increase in jet noise in the past few years. The concentration of flight paths over a populated area when there is a viable alternative just to the south makes no sense and needs to be reversed. A technical solution has been proposed -- referred to as the Complete ZIMMR Noise solution -- that moves the flight paths back over Rocky Flats. More importantly it moves the paths south of the Indian Peaks Wilderness Area which will help preserve the quiet of that area. I am in support of this alternative.

Topics Identified in the Comment

- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Suggestions to Change Air Traffic Patterns
- ZIMMR SID

FAA Response for Comment #29 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

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<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.

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# 30 Submitted by: Beaver, Kim

Comment Received: The conclusions of the Environmental Assessment report are highly questionable and a full Environmental Impact Statement(EIS) on the implementation of Denver Metroplex should be conducted for public review and comment. It should accurately disclose ALL data that will have have a direct and cumulative effect in areas in Denver metro, especially in those regions previously that have not previously had significant noise and pollution in the past. The EA does not include the noise and pollution that will be created by the huge expansion project at DIA and by aviation at Centennial airport. The FAA's estimate of flights from DIA grossly underestimates the adverse impact created by Denver Metroplex and completely ignores the impact from the traffic from Centennial Airport. The noise from Centennial airport over our village is not trivial, and with the anticipated increase in traffic, the impacts of noise and pollution will be quite significant. Those planes fly very low above our homes, sometimes waking me up in the middle of the night because they are so loud. I don't even want to imagine what it might be like with double and triple the amount of air traffic from what we have now. The Environmental Assessment excludes the impact of particulate matter generated from aviation emissions on the health and welfare of adults and children which can be severe. The EA also excludes the impact of noise at or below DNL 65 dB(which is very loud) on noise sensitive areas, including residences, historic areas, parks and schools. Majority of the population currently residing in the Denver area experience low levels of noise(that's why we chose to live in the village, far from any airports). Studies have shown that increases in aviation noise cause and contribute to cardiac disease, depression and anxiety in 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 understates noise and ignore health risks. The models at the FAA workshops I attended showing lower noise levels after implementation of Metroplex were based on hypothetical models based on data reported by the aviation industry - there were no real measurements by any instruments on the ground. I find it difficult to believe that noise levels would actually decrease in my neighborhood. So much as what is presented as facts are really just conjectures, and not based on real life data. When questioned about the flight paths that planes will take once they are dumped at the end of their vectors, no one could tell us what paths those planes would actually take. We could see a huge increase in number of planes going to Centennial airport over our neighborhood as it would be the most direct path. We weren't given any real answers as the FAA reps at the workshop did not know, did not have the real data, as it was based on assumptions. If Metroplex is so wonderful, then why are so many communities in which this system was implemented so unhappy? It really makes the residents who will under the increased flight paths very leery of the conclusions of the Envionmental Assessment report. A full Environmental Impact Statement would accurately provide the detail necessary to evaluate the environmentla and health impact of Denver Metroplex on the Denver Region. I would urge the FAA to do a more complete study before implementing Denver Metroplex.

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

FAA Response for Comment #30 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.

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 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.

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# 31 Submitted by: Becker, Eric

Comment Received: I strongly object to the proposed ZIMMR flight path. I have lived at my current residence near magnolia road since 2005. The flight noise generated by this new path is unbearable. My home is at 8320 feet in elevation. I must wear earplugs during the summer nights to sleep due to the noise when my windows are open. I have had jets fly simple over my home while outside on my deck that I thought they were in trouble and going to crash. As I have been reading and writing this letter 4 jets have flown overhead. I have lived here long enough to remember when the area was quiet and peace could be found. This FAA created ZIMMR jet fight path over South Boulder and Nederland is simply unacceptable. The area had no prior air traffic lanes and that's how it should be. Animals and humans are suffering the negative impacts. I 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. If any one from the FAA doing the noise models would like to get out of their desk chairs and come spend some time on my deck watching the plane it may be helpful to your understanding of the issue since obviously you're too lazy to do real field research I won't expect any calls or visits. The summary here is that either you work with the citizens and fix this or we take matters into our own hands and come visit all of you at your office if you won't talk to us and hold the proper public meeting. Fuck you and fuck your jets! I'm sick of wearing ear plugs at night and listening to jets every four minutes. You have no right to trample the citizens of this area with your noise and jet exhaust pollution.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Noise Modelling Analysis
- Projected Changes in Aircraft Noise Exposure
- ZIMMR SID

FAA Response for Comment #31 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)).

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

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<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.

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.

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# 32 Submitted by: Bengé, Debra

Comment Received: "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. The quiet found in Cherry Hills is why we purchased a home in this community and a change in the air traffic after the fact would be very disruptive to our family. This change will likely hurt our property values and decrease the charm and appeal of the village. 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. Regards Debra Bengé"

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
- Property Values

FAA Response for Comment #32 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.

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.

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 DNL1.5 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.

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# 33 Submitted by: Benge, Kathleen

Comment Received: "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. The quiet found in Cherry Hills is why we purchased a home in this community and a change in the air traffic after the fact would be very disruptive to our family. This change will likely hurt our property values and decrease the charm and appeal of the village. 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 Kathleen Benge"

Topics Identified in the Comment

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

FAA Response for Comment #33 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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<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>

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.

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# 34 Submitted by: Bengel, Michael

Comment Received: "Dear Sir 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. The quiet found in Cherry Hills is why we purchased a home in this community and a change in the air traffic after the fact would be very disruptive to our family. This change will likely hurt our property values and decrease the charm and appeal of the village. 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 Mike Bengel"

Topics Identified in the Comment

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

FAA Response for Comment #34 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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<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

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>

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.

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# 35 Submitted by: Bennett, Walter

Comment Received: Are you already operating approaches using the new “routes”? It seems like we are seeing/hearing more and more low flying commercial airplanes overhead at all times of the day...as late as this afternoon. If this is any indication of what is to come, you are about to make our lives very unpleasant. As a frequent flyer for both business and personal, I can see the huge increases in passenger volume at DEN. However, it seems as though you are planning to put a very large number of people directly under the flight path of a huge number of airplanes. We sure weren't expecting that when we built our house almost 10 years ago! I would hope that there is another alternative but I'm certain that our neighborhood's quality of life will definitely come in second to the plans you have developed. And that's too bad for us, I'm sure. Collateral damage.

Topics Identified in the Comment

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

FAA Response for Comment #35 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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970-962-2850

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

Rocky Mountain Metropolitan Airport

303-271-4850

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

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# 36 Submitted by: Berg, Gavin

Comment Received: "While the A-weighted Day-Night Average Noise Level (DNL) is the accepted noise metric to establish and assess noise levels from aircraft operations at airfields this metric does not adequately address sleep disturbance that one would experience from an aircraft flyover. The EA does not provide the necessary metrics (i.e. Sound Exposure Levels [SEL]) for areas underneath new departure routes and does not adequately address sleep disturbance beneath these routes. Specifically overflights that are below 10 000 feet above ground level (AGL) that occur over parts of Southern Boulder residential areas. In 2018 I was awakened from sleep at my residence in South Boulder from commercial flight flyovers originating from DIA. The following flights were below 10 000 feet AGL according to a flight radar application (FlightRadar24): 8/12 10:41 PM SW 5234 and 10:44 UA 2412 8/14 10:38 PM SW 199 and 10:45 SKW 5833 8/15 10:33 PM UA 980 10:35 UA 505 10:36 SW 1233 10:42 UA 5833 10:44 SW 852 10:45 UA 2207 8/30 10:46 PM UA 980 10:49 UA 505 The 1050.1F also states in section 11.4 -Supplemental Noise Analysis□: The Federal Interagency Committee on Noise (FICON) report - Federal Agency Review of Selected Airport Noise Analysis Issue - dated August 1992 concluded that the DNL is the recommended metric and should continue to be used as the primary metric for aircraft noise exposure. However DNL analysis may optionally be supplemented on a case-by-case basis to characterize specific noise impacts. Because of the diversity of situations the variety of supplemental metrics available and the limitations of individual supplemental metrics the FICON report concluded that the use of supplemental metrics to analyze noise should remain at the discretion of individual agencies. Since 1992 the Federal Interagency Committee on Aviation Noise (FICAN) has reaffirmed this recommendation. However the FICON report also identified sleep disturbance and speech interference as two areas where it is appropriate to consider supplemental metrics. FICON's 1992 review of airport noise issues (FICON 1992) included an overview of relevant research conducted through the 1970s. Literature reviews and analyses were conducted from 1978 through 1989 using existing data (Griefahn 1978; Lukas 1978; Pearsons et. al. 1989). Because of the large variability in the data FICON did not endorse the reliability of those results. FICON did however recommend an interim dose-response curve awaiting future research. That curve predicted the percent of the population expected to be awakened as a function of the exposure to SEL. This curve was based on research conducted for the US Air Force (Finegold 1994). The data included most of the research performed up to that point and predicted a 10 percent probability of awakening when exposed to an interior SEL of 58 dB. The data used to derive this curve were primarily from controlled laboratory studies. In December 2008 FICAN recommended the use of the ANSI (2008) for evaluating sleep disturbance from aircraft noise (FICAN 2008). According to the ANSI (2008) standard the probability of awakening from a single aircraft event at 90 dB SEL is between 1 and 2 percent for people habituated to the noise sleeping in bedrooms with windows closed and 2 to 3 percent with windows open. The FAA has failed to address sleep disturbance in a way that is in accordance with FICAN recommendations where the FAA is a contributing agency. Without providing an assessment of sleep disturbance and the noise metric necessary to evaluate environmental consequences and impact significance has not adequately been determined; thus the EA fails to comply with National Environmental Policy Act."

Topics Identified in the Comment

- Existing Aircraft Noise
- Noise Modelling Analysis
- Projected Changes in Aircraft Noise Exposure
- Sleep Disturbance/Speech Interference

FAA Response for Comment #36 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

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

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.

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# 37 Submitted by: Berry, Gregory

Comment Received: "Aircraft noise over south Boulder and the Walker Ranch area is intrusive excessive and seems to be worsening. This is impacting our quality of life and damaging the natural environment. Westbound aircraft leaving DIA and Rocky Mountain Metro seem to be under full power as they climb over Boulder and the foothills. Busy departure times (such as 7:30 to 9:00 AM) are particularly bad. Air traffic should be required to fly at much higher altitude and/or under much less power until they are well west of the Continental Divide. Otherwise they should be routed much farther to the south or north. Please withhold my personal information from public disclosure."

Topics Identified in the Comment

- Existing Aircraft Noise
- Purpose and Need of Project
- Suggestions to Change Air Traffic Patterns
- Withold Personal Identifying Information

FAA Response for Comment #37 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>

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.

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# 38 Submitted by: Bierman, Keith

Comment Received: "I am writing to oppose the NexGen flight path changes for the greater Denver area. Reducing costs to the airlines by increasing costs to the population being flown over is unjust. From past experience I know that sound proofing a (much smaller) house is in the several tens of thousands of dollars. And since such mitigation is only effective when the house is completely closed up there is substantially higher heating and cooling costs. When we selected our home we spent considerably more (at least 10%) to avoid being in the flight path of any existing airport. By moving the flight path over the Village you will have not only taken that 10% but will devalue our property by a similar amount. NexGen represents a substantial taking from all of the citizens of Cherry Hills Village (among many other neighborhoods). I estimate this to be on the order of 20% of our assessed value and 30% of our utilities in perpetuity."

Topics Identified in the Comment

- Existing Aircraft Noise
- Commercial Airlines Operations Costs
- Property Values

FAA Response for Comment #38 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>

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.

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# 39 Submitted by: Biggs, Alison

Comment Received: To The FAA: Thank you for the opportunity to comment on the Denver Metroplex Draft Environmental Assessment. My comments will be of a general nature, rather than citing specific areas of the Draft Environmental Assessment which was made available to the public at the end of April. A review of that draft presented a daunting task for the average citizen, and the rather limited time for such a review did not make the task any more user-friendly. The majority of the report was so highly technical and complex that it did not lend itself to clear understanding by those of us with less than technical aeronautical knowledge. That alone appears to belie the intent of Congress and the FAA's own Community Involvement Plan for the consideration of ventures such as the Denver Metroplex Project. When the FAA Reauthorization Act of 2018 was signed into law, it mandated various studies, with time frames attached. One of those included a study of how the FAA would engage and improve airport and community involvement in NextGen projects. Another related to a study of the relationship between aircraft noise exposure and its effects on communities around airports. A third was to address day-night average sound levels, and a fourth was to address the health impacts of noise from aircraft flights on residents. Try as I might, I could find nowhere in the draft which indicated any of these studies have been conducted. Maybe I missed something in all those hundreds of pages of technical jargon. Rather, it seemed efforts were taken to work around anything involving such topics, to declare some unrelated or unable to be addressed because the FAA lacked a standard for comparative purposes or they were just declared to have no significant impact without clearly documenting the basis for that conclusion. The end result seemed to be the draft reached the conclusions which the FAA wished to have reached, but with no study data to support them. Given the problems which arose with the implementation of Metroplex in other areas of the country and which one could assume led at least in part to the inclusion of the call for those studies in the FAA Reauthorization Act of 2018, it seems rather a slap in the face of Congress to push through another Metroplex project without their completion. Without further belaboring my concerns, I can only say I had anticipated seeing a plan which truly addressed the safety, noise, and environmental impacts of the Denver Metroplex Project. Instead, I find the draft sorely lacking in all of those areas, with the emphasis now seeming to be on lessening the workload of the air traffic controllers at Denver International Airport. And while those individuals have a yeoman's job and deserve all of the attention and assistance they can receive, the other impacts resulting from this project must not be ignored. Accordingly, I would strongly suggest that, before the Denver Metroplex Project is allowed to proceed any further, the FAA must complete the studies mandated by Congress in the FAA Reauthorization Act of 2018, share the results of those studies with the public, and utilize the results in plans for any future projects, including the Denver Metroplex Project. This could be a shining example of the FAA leading the way to responsible airway management in the fullest sense, not just for the benefit of the air industry or to meet its own goals. Congress, the environment, and those of us on the ground living with airport noise should not be ignored. Thank you for the opportunity to comment. Sincerely, Alison Biggs
Cc: Sen. Cory Gardner, U.S. Senate Sen. Michael Bennett, U.S. Senate Congressman Jason Crow, U.S. House of Representatives Congressman Ken Buck, U.S. House of Representatives

Topics Identified in the Comment

- FAA Reauthorization Act of 2018
- NEPA and FAA Order 1050.1F
- Purpose and Need of Project

FAA Response for Comment #39 Topics

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.

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# 40 Submitted by: Bloom, David/ Shana

Comment Received: We are concerned about the projected noise levels over our neighborhood. Over the weekend of May 11 to 12th, several commercial jets flew north over the I25 corridor into DIA. The noise was significantly louder than any previous arrival patterns into DIA that we were aware of. Is there a chance to move that approach pattern to the west of I25, as over Sante Fe Blvd, a more industrial area!

Topics Identified in the Comment

- Existing Aircraft Noise
- Projected Changes in Aircraft Noise Exposure
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #40 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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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>

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# 41 Submitted by: Blue, JB

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.

BlueJB@Gmail.com

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 #41 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# 42 Submitted by: Blue, Sara

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 #42 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# 43 Submitted by: Blum, Alfred

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 #43 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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303-790-4709
<http://www.centennialairport.com/index.php/noise/noise-management>

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Greeley-Weld County Airport
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Northern Colorado Regional Airport
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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# 44 Submitted by: Blum, Estie

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. I’m asking the FAA to incorporate the Complete ZIMMR Noise Solution as the official map of DIA Departure flight paths. The noise level from the air traffic paths over my home and the South Boulder area is currently unacceptable.

Topics Identified in the Comment

- Existing Aircraft Noise
- Noise Modelling Analysis
- ZIMMR SID

FAA Response for Comment #44 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>

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.

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# 45 Submitted by: Bolin, Loyce

Comment Received: As a resident of The Pinery southeast of Denver We are extremely concerned about the proposed new flight paths. The Pinery is an older community that has offered a quiet lifestyle for over 30 years. The proposed flight path over The Pinery will significantly alter this life style. Currently on occasion we have experienced a large number of flights coming over our area and the noise is very disruptive. On a recent morning I personally counted at least 5 planes in a 15 minute period. This only happens occasionally (possibly weather related). I personally cannot imagine life with this kind of flight pattern on a regular bases. Please reconsider and take into account how this will effect the lives of 1800 households in The Pinery.

Topics Identified in the Comment

- Existing Aircraft Noise
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #45 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
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<https://www.jeffco.us/1697/Noise-Complaint-Online-Form>

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# 46 Submitted by: Boulder Native,

Comment Received: Complete ZIMMR solution to alleviate noise caused by illegally moving westbound departure path from uninhabited Rocky Flats to over my home in Louisville. More info at jetnoiseboco.org

Topics Identified in the Comment

- Existing Aircraft Noise
- ZIMMR SID

FAA Response for Comment #46 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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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# 47 Submitted by: Bowen, Cristina

Comment Received: The ZIMMR jet flight path over South Boulder means that I now feel like I live at the airport. I live right near Shanahan Ridge Trails and the sound of the planes is amplified because of the open space. One day, I started jotting down all of the airplanes as I went about my day... multiple flights would happen within 10 minutes. In the early morning, throughout the day, into the early evening, even very late at night - planes! PLANES. NEVER. STOP. FLYING OVERHEAD. There can be up to 40 flights from DIA cross over my home AS WELL AS flights from Boulder Airport AND Rocky Mountain Metro Airport. I can hear planes in my home even with all the doors and windows closed. If not changed, eventually, this will affect property value as even I have thought about whether I want to live here if this continues. I own my home. South Boulder (same area) had helicopters flying overhead for 8 months for work needed in the area - we sucked up the constant noise because there was a purpose beyond just greed. This situation is different and needs attention immediately. I 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. I would also like more oversight of local airports - they are seriously being left unchecked. If you call either local airport you will get routed to other numbers or given voicemail - so basically the runaround. I can't believe the situation has been allowed to get this egregious. I will be contacting Boulder City officials as well to let them know my concerns and what clearly needs to be done.

Topics Identified in the Comment

- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Property Values
- ZIMMR SID

FAA Response for Comment #47 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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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.

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.

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# 48 Submitted by: Brady, Joseph

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 #48 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# 49 Submitted by: Breeze, Carol

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 #49 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# 50 Submitted by: Breeze M.D., Robert E

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 #50 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# 51 Submitted by: Brock, Carol

Comment Received: Please change the flight path from planes departing DIA to farther south over the uninhabited Rocky Flats area. The sound level of jets constantly overhead directly above our house is intolerable and they fly over every minute or so. Also their path takes them over the James Peak Wilderness Area which is illegal. Why can't they move the route about five miles south of South Boulder? That area has no homes and there would be no disturbances of neighborhoods there. That used to be the flight path; why did it change? It's SO loud and totally unnecessary to fly planes directly over the South Boulder neighborhood when there is an alternative route that would not affect any neighborhoods!

Topics Identified in the Comment

- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #51 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.

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# 52 Submitted by: Brock, Thomas

Comment Received: "TO: FAA FROM: Thomas W. Brock RE: Complete ZIMMR Noise Solution for South Boulder CO DATE: May 28 2019 To whom it may concern; My wife and I have lived in south Boulder on Vassar Drive since 1998. We are both seniors. It is a quiet peaceful and safe neighborhood at least it was until a few years ago when the flight path heading west from DIA was changed to go **DIRECTLY OVER OUR HOUSE**. We used to be able to hear birds chirping hummingbirds warbling kids playing all those special sounds that bring joy to the soul. NOW all we hear in the evening is the loud ugly disgusting noise of JET engines as they accelerate above the foothills to head west right over our heads! The noise is deafening. We had company on the patio on Sunday May 26 and the noise of the jets stopped all conversation. They are often flying directly above us at intervals of LESS than 3 minutes! **SOMETHING HAS TO BE DONE** to remedy this situation. AND there is a very simple solution!!! Move the flight path five miles south!!!! It certainly won't suck up more fuel it will move the excruciating noise SOUTH over a wildlife preserve and restore the mental health to THOUSANDS of people who once enjoyed their lives in this beautiful part of America. I invite YOU to come to our patio to hear first-hand the dreadful roar that has become our existence and then think about how YOU would feel if that happened to be a daily occurrence over YOUR home. Thank you. Thomas Brock 2490 Vassar Drive Boulder CO 80305"

Topics Identified in the Comment

- Existing Aircraft Noise
- ZIMMR SID

FAA Response for Comment #52 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# 53 Submitted by: Brown, Katy

Comment Received: As an elected official in Cherry Hills Village, and having served on the Centennial Airport Community Noise Roundtable for six years, I have been actively monitoring the Denver Metroplex project for years. The community involvement in this process has been superficial at best. The project has dragged on for many years with a revolving door of FAA staffing on the project. As a result, feedback provided early in the process was ignored and we were consistently unable to communicate our concerns to the FAA or engage in a collaborative process that addresses both the needs of airspace modernization and the communities on the ground. In fact, at the most recent workshops after the EA was released, FAA staff members were completely unaware that similar workshops had been conducted in prior years and could not identify a single instance where feedback had been incorporated into the proposal. As community and industry representatives, we have attended many meetings and spent hours drafting thoughtful, constructive input only to have it completely ignored. The FAA has repeatedly scheduled meetings and cancelled at the last minute, has actively withheld contact information, has denied requests for meetings, and has excluded the press from meetings. The FAA's actions have created a distinct impression among communities and other stakeholders that the "public input process" is clearly intended only to satisfy a requirement and that the FAA has never had any intention of actually collaborating with us. Beyond my complaints about the process, I was extremely disappointed in the Environmental Assessment (EA) and the conclusions it presents because they are seriously flawed. In particular, I was extremely disappointed (though not surprised) that the FAA would issue a finding of no significant impact (FONSI) even though in every other Metroplex project where a similar determination has been made, the impact has been very significant and has even led to several lawsuits. The FAA's prior experience with Metroplex projects in other areas should, at a minimum, indicate that the EA modelling the FAA is using is insufficient for assessing the real impact. If the FAA is actually concerned with community impact, the failure of the EA process in so many other communities should be enough to convince the FAA to conduct a full Environmental Impact Statement (EIS). The FAA failed to comply with NEPA by failing to consider cumulative impacts. The EA arbitrarily chose a 5-year time frame rather than a comprehensive time frame which excludes noise generated by expansion of Denver International Airport (DIA) and by aviation at Centennial Airport. The FAA's own estimates project that DIA will 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 claimed that general aviation data was not available for inclusion in the modelling but that is untrue; Centennial Airport has large amounts of data and offered on multiple occasions to provide that information but was ignored. 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. 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. Sincerely, Katy Brown

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
- Health Impacts Associated with Inhalation of Pollutants
- Historical and Cultural Resources
- Level of NEPA Review
- Noise Modelling Analysis
- Particulate Matter
- Public Outreach/Public Involvement
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #53 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.

Health Impacts Associated with Inhalation of Pollutants: 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). 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, the proposed Denver Metroplex Project would not impact human health due to increases in pollutant emissions at ground level.

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)).

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.

Comments-Responses

Comment# 54 Submitted by: Bruner, Dave

Comment Received: We have lived at 6227 Greely Ct 80134 for 14 years. There is hardly any noise pollution in our neighborhood. You can hear people conversing 500' away. When airplanes fly over the noise level increases dramatically. Please consider adding the 55 dB noise to areas with background noise levels (sirens, traffic, city noise) and decrease flight paths over bedroom communities. Or at least increase departure and arrival approaches to greater than 3° as it was perhaps 10 years ago.

Topics Identified in the Comment

- Existing Aircraft Noise
- Noise Modelling Analysis
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #54 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>

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.

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# 55 Submitted by: Bruner, David

Comment Received: It is my understanding the FAA is moving from radio communication to satellite or GPS communication for flight control. And because of this GPS control one constant approach path to DIA will be used. Unfortunately for me it is right over my home here in what is normally a very quiet typically 0 decible and peaceful bedroom community of more than 3500 homes in the affluent Douglas County. People move here to get away from the city noise. We are 40 miles away from DIA. It is my understanding technology is available to continue to move or vary the approach path even and especially with GPS so there is no reason to pick one constant flight path for entry and or for departure. Or if your design people cannot use GPS to make variations in the approach and take off paths of planes please fly over less inhabited Elbert County. Elbert County would be safer by placing less homes and fewer people at risk of incidents and accidents with airplanes. Please use technolgy to move the flight path further east into Elbert County. Do not fly over Douglas County consistently converging on the Pinery. In compromise I do not mind sharing my portion of the load but I do not want my neighborhood to carry the full burden of noise and other safety concerns over this most often 0 decible background neighborhood. Please spread the wealth around. You should still vary the flight path so one area is not consistently affected. I am quite sure technology will support this. Perhaps make 5 approach and 5 departure patterns that everyone can share 20% of the burdon. I realize it requires coordination with the other airports including commercial private and military but I feel certain it can be done effectively with minimal costs to FAA and others. I spoke with an FAA design representative at the Parker Library May 6th and he assured me this could be accomplished.

Topics Identified in the Comment

- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #55 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.

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# 56 Submitted by: Bruner, Debra

Comment Received: I bought a house in the Pinery in 2004 because it wasn't in a flight path for DIA. It is so quiet & peaceful, no city noise, no traffic, no industry. Now you have jets lining up and going over our house and destroying our life style and home values. Why not go out East where you used fly. You need to take folks lifestyle into the picture. What you are doing is horrible for our neighborhood. Move those paths to the East.

Topics Identified in the Comment

- Existing Aircraft Noise
- Property Values
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #56 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>

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.

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# 57 Submitted by: Bufton, Corbett

Comment Received: My house is located directly under the current fix TELLR. ILS 35L/R TELLR transition requires a mandatory 11000'/210 KT restriction. If TELLR is 25 NM from the threshold of 35L, a 3° glideslope would require TELLR at 12,7000 MSL. I recommend raising the TELLR restriction (proposed SSKII RNAV Arrival) at/above 13,000 MSL and delaying the 210 KT slow down later. This would result in a lower noise signature due to the higher altitude and requiring aircraft to manage power at IDLE. This will also alleviate conflicts with RJ traffic departing off the SOLAR from Rwy 26. I discussed this with Kieth, the ATC traffic manager, and we thought this might work.

Topics Identified in the Comment

- Purpose and Need of Project
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #57 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# 58 Submitted by: Burkholder, Nicol

Comment Received: "Aircraft noise is one if not the most detrimental environmental effect of aviation. It can cause community annoyance disrupt sleep adversely affect academic performance of children and could increase the risk for cardiovascular disease....There is sufficient evidence for a negative effect of aircraft noise exposure on children's cognitive skills such as reading and memory as well as on standardized academic test scores. Undisturbed sleep is a prerequisite for high daytime performance well-being and health. Aircraft noise can disturb sleep and impair sleep recuperation" This study was funded by the FAA The FAA's plan to revise its flight paths will have deleterious effects on the residents and children in CHV neighborhoods parks and schools."

Topics Identified in the Comment

- Children's Environmental Health and Safety
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project

FAA Response for Comment #58 Topics

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.

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# 59 Submitted by: Burkholder, Thomas

Comment Received: "On behalf of the people in my neighborhood and expanded neighborhoods that would be affected as well as my family I respectfully request that you do NOT implement your proposed Denver Metroplex plan. 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 paid the fair market value to live in the areas we chose because we wanted to insure a peaceful quiet environment. Our physical mental and financial health will be jeopardized if your plan goes through. We will be inundated by constant noise. PLEASE DO NOT GO FORWARD with the Denver Metroplex NextGen plan. The noise and pollution that will also drastically lower the value of our homes could create an environment in which litigation is the next logical alternative."

Topics Identified in the Comment

- Air Quality/Air Pollution
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure
- Property Values

FAA Response for Comment #59 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)).

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# 60 Submitted by: Bush, Julie

Comment Received: I would like your consideration in NOT rerouting flights to a new corridor including Littleton. I understand the importance of safe air travel and would like you to consider an alternate plan that does not involve flight patterns over Littleton CO. I worry about the impact on our community environment wildlife pollution and noise. Thank you.

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 #60 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# 61 Submitted by: Campagnoli, John

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. I 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. I recommend the FAA adopt and incorporate the entire Complete ZIMMR Noise Solution into the final nextgen flight paths document for Denver. 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 small changes result in big relief from jet noise. What this ZIMMR Noise Solution accomplishes: It alleviates the jet noise problem for south Boulder, with the flight path being about 3 miles south of southern city limit. It alleviates the jet noise problem for Louisville, with the flight path being about 3 miles south of town. It alleviates the jet noise problem for Nederland and Indian Peaks Wilderness, with the flight path being about 3 miles south. With the ZIMMR Noise Solution, 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 over 100,000 people. This proposal would not shift the problem over different people, since Rocky Flats is mostly uninhabited, and would 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. I strongly urge the FAA incorporate the ZIMMR Noise Solution as a whole package, integrating it into the flight path segments of the nextgen Denver final document. Adoption of this change in flight paths would remove the ascending jet noise echoing off the rock faces and mountains and redirect the flight paths slightly further south, as they were historically. The noise experienced over the mostly vacant Rocky Flats area would be less intense, due to the lack of rock wall barriers to the west. It is the right and fair solution for at least 100,000 people seriously adversely affected by prior FAA decisions.

Topics Identified in the Comment

- COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles
- Existing Aircraft Noise
- Projected Changes in Aircraft Noise Exposure
- ZIMMR SID - Move 1.3 Nautical Miles
- ZIMMR SID

FAA Response for Comment #61 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>

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.

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# 62 Submitted by: Cantor, Evan

Comment Received: It would be nice if the flights could go just a little bit farther south that way we wouldn't hear them over the neighborhood. Thanks.

Topics Identified in the Comment

- Existing Aircraft Noise
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #62 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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Greeley-Weld County Airport

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<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# 63 Submitted by: Cardone, Joan

Comment Received: The ZIMMR flight path change you made in 2017 has greatly impacted the south boulder community with a tremendous increase in jet plane noise. It is constant and very disturbing to quality of life. The minor adjustment you are proposing will not reduce the impact to south boulder. Please move the flight path further south so it is over unpopulated areas more near the former rocky flats and now refuge. If there is ever an airplane crash given the current path many more lives will be lost. Please incorporate the Complete ZIMMR Noise Solution as the official map of the DIA flight departure path as the final choice of flight path for the Denver Nextgen portion of the DIA Metroplex project. Thank you in advance as someone who lives directly in the current flight path.

Topics Identified in the Comment

- Existing Aircraft Noise
- Projected Changes in Aircraft Noise Exposure
- Suggestions to Change Air Traffic Patterns
- ZIMMR SID

FAA Response for Comment #63 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>

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.

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# 64 Submitted by: Carllon, Tom**

Comment Received: Thank you for the May 14 2019 presentation at the Noel School in the Montbello neighborhood of Denver.

The most helpful part for me was to plug my address into the noise modeling analysis tool and determine that there is almost no change in DB levels between the old and the new systems even a slight decrease with the new system.

A special shout out to Marina who was very helpful and informative to explain the EA process.

Topics Identified in the Comment

- No Concerns Identified

FAA Response for Comment #64 Topics

No Concerns Identified: Thank you for your comment.

Comments-Responses

Comment# 65 Submitted by: Carmichael, Belen

Comment Received: The noise from aircrafts flying over Boulder, especially South Boulder is too loud already and is disruptive to the residents. Plain and simple the excessive noise is NOISE POLLUTION! Our community is targeted by aircrafts flying overhead from the Boulder, Longmont, Rocky Mountain Airport and DIA. The noise from the jets from DIA is disruptive to the peace and quiet of residents. Today, a Wednesday, there were planes flying over Boulder about every 10 minutes from 9:00 AM - 11:00 AM. There are tow planes, jets, small planes, and even a helicopter flying over today. This is a densely populated area and the planes, in my opinion, fly too low and have an increased noise level due to the Flatirons. I read a letter from another Boulder resident telling more about the increased noise levels due to the Flatirons. I believe that moving the flight patterns farther South over Rocky Flats and a less dense area and not close to the Flatirons is a better solution. Overall, our society has become more about business than about caring for the health and well being of the people and the environment. The excessive aircraft noise is SOUND POLLUTION and needs to be taken into consideration when developing the Denver Metroplex Project. I chose to live in Boulder to be close to the mountains and to enjoy the beauty and quiet of nature, NOT the increased noise from the aircraft that want to fly over the Flatirons! There are tens of thousands of people that come to Boulder and the thousands that live here that deserve a greater consideration to excessive aircraft traffic resulting in increased noise levels. Please STOP flying over Boulder. I agree with the comment below from a fellow Boulder resident that it is worth repeating: Please see his recommendations at the end.

Belen Carmichael COMMENTS from another Boulder Resident: While I do not have quantitative measurements or particular expertise, aircraft passages over South Boulder are particularly noisy, including “ripping” noises, during calm stable nights when ducting is most likely. Impact on heavily publicly used higher terrain in/near South Boulder: The Flatirons trails, the Mesa Trail, the trails up and around Green, Bear, and Boulder Mountains are among the most heavily used trails in the Boulder area. These trails, particularly the lower ones, are used all year, by many thousands of people. Due to the higher altitude of these trails, they are much closer to the departure paths. Roughly speaking, and there is variability, the aircraft are at FL120 when crossing South Boulder. That is less than 4,000 feet from the mountain peaks. With noise levels increasing with the square of inverse distance ($1/(R^2)$), this results in much higher noise levels on these higher altitude natural areas. These effects are exacerbated further in the natural canyons, where the noise is focused and reverberates. (The FAA noise model does not adequately simulate the focusing effect of these canyons.) I have personally noticed how birds stop calling and change behavior, a (e.g. Bear Creek Canyon, Skunk Canyon) and the cessation of coyote calling. Not every aircraft passes over South Boulder at the same altitude. Actual variations in flight levels cause significant differences in noise levels. A 1000 foot difference results in a major fractional difference in separation between the terrain and aircraft and a major increase in noise. Aircraft passages over these heavily-used trails and natural areas are particularly disruptive to the quality of life that many in this area hope for. Minor Proposed shift to the south inadequate: The FAA noise model suggests that the proposed shift will result in an only 0-2 dB reduction in noise over the Table Mesa area of South Boulder. The northern portion of this area may benefit, slightly, from a 2 dB or less reduction, but the southern area will suffer from nearly identical noise levels and continued disruption. This is too-small of a bandage on too-large of a wound.

Recommendations: a. Shift departure route to pass over Rocky Flats, then Coal Creek Canyon. This route has lower population density and has State Highway 72 already raising the background noise level. Any departure route will pass over somewhere, and impact someone. But, a shift to Coal Creek Canyon significantly reduces societal impact compared to the current or proposed routes, with only a moderate additional southward deviation in route. b. Require a steeper climb-out so that aircraft are at FL160 before crossing the longitude of State Highway 93. This approximately doubles the minimum separation with the ground in the western suburbs. Thank you for consideration of these comments and

recommendations. ----- Thank you. Belen Carmichael

Topics Identified in the Comment

- Existing Aircraft Noise
- Noise Modelling Analysis
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #65 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>

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.

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# 66 Submitted by: Carney, Carly Letzt

Comment Received: The Denver Metroplex NextGen plan must not redirect airplanes over Southeast Denver neighborhoods. Data in the FAA Environmental Assessment draft that is alleged to show minimum impact to these areas is seriously flawed. These neighborhoods have always been tranquil and quiet. That is why people have chosen to live in them. Most predate DIA. We will not tolerate the noise and air pollution that overhead planes will impose. Countless studies have shown the deleterious effects of constant airplane noise overhead on physical and mental health. Children exposed to it show cognitive problems lower test scores inability to concentrate and depression. Even animals suffer from unending noise. Particulates from overhead craft fall into the air and onto the ground below causing ill health to residents.

The FAA must complete an accurate detailed careful transparent and honest Environmental Impact Statement followed by review discussion and approval by the people who will be affected by the noise of concentrated flight paths overhead. DIA plans to increase its gates by 40 additional.. The FAA has no control over the number of flights that would be in the flight path. Studies show there will be a 70-100% increase in flights by 2030 with more than one flight every minute 24/7 interrupting lives conversation sleep and performance at work and in schools. Flights to and from Centennial airport the second largest airport of its kind in the US would also be required to take this path creating more noise yet..

Please FAA use honest factual relevant data that takes residents of southeast Denver into consideration in an Environmental Impact Study and allow those who will be affected by the noise to decide if it is all right to be assaulted by it constantly..

Please do not implement this plan as it is proposed and due to begin in September.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- General Aviation/Visual Flight Rules
- Level of NEPA Review
- Particulate Matter
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure

FAA Response for Comment #66 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.

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.

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.

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# 67 Submitted by: Carney, Linda

Comment Received: I am vehemently opposed to the implementation of the Denver Metroplex project for several reasons. There will be disruptive constant noise from overhead planes that will alter the neighborhoods in proposed flight patterns. This will result in stress to resident humans and animals - and even to the natural environment. We chose to live in a calm, peaceful, quiet environment. Property values will plummet, but more important so will our lives quality. There are not safety issues with present flight patterns for those controlling planes & traffic. Increased flights overhead will increase safety of neighborhoods below and will increase our air pollution. Leave the flight patterns as they are! Consider, FAA workers if you would be in favor on changes that would be disruptive of your own homes, family & life. Do not boil us slowly like frogs in ever increasingly higher temperatures until we die from the heat/noise!

Topics Identified in the Comment

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

FAA Response for Comment #67 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.

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# 68 Submitted by: Carney, Linda

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 substantially 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 people in 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 consideration 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 #68 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# 69 Submitted by: Carney, Linda

Comment Received: "The conclusions of the Environmental Assessment 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 does not address 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 does not address 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 does not address 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 #69 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# 70 Submitted by: Carney, Mark

Comment Received: "The conclusions of the Environmental Assessment 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 does not address 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 does not address 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 does not address 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. I request that my personal identifying information be withheld from public availability."

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
- Withhold Personal Identifying Information

FAA Response for Comment #70 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.

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# 71 Submitted by: Carr, Alfred

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 are essential.

Please withhold personal identifying info.

Topics Identified in the Comment

- COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles
- Existing Aircraft Noise
- Withold Personal Identifying Information
- ZIMMR SID - Move 1.3 Nautical Miles
- ZIMMR SID

FAA Response for Comment #71 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>

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 - 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# 72 Submitted by: Carter, Karin

Comment Received: I;m a GA Pilot who uses KAPA as my home base. I've spent a fair amount of time in the practice areas east of Franktown and southwest of KAPA near Sedalia and Loviers. I've noticed many commercial airliners flying what seems to be a very low altitude over the area near Franktown. Will the new procedures help maintain more consistent separation between the commercial DIA arrivals in the Bravo airspace and the GA VFR flights below the Bravo shelf?

Topics Identified in the Comment

- General Aviation/Visual Flight Rules
- Purpose and Need of Project
- Separation of Aircraft

FAA Response for Comment #72 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.

Separation of Aircraft: The commenter requested information whether the proposed procedures would help maintain separation between the commercial carrier arrivals at Denver International Airport and the aircraft operating under Visual Flight Rules below the Class B controlled airspace (Class B airspace). Controlled airspace is a generic term that covers the different classifications of airspace and defined dimensions within which air traffic control service is provided to flights in accordance with the airspace classification. Class B airspace is established solely to define the airspace in which all aircraft are subject to operating rules and pilot and equipment requirements specified in 14 CFR Section 91.131. An air traffic control clearance is required for all aircraft to operate in Class B airspace, and all aircraft so cleared receive separation services from other aircraft operating within the airspace and known traffic operating outside the Class B Airspace. The proposed Denver Metroplex Project Standard Terminal Arrival flight procedures that would serve Denver International Airport are designed to stay within the Class B airspace after entering. Additionally, there is no required minimum separation standard from published flight procedures and non-Class B airspace. The proposed Denver Metroplex Project does not include proposed changes to the Class B airspace associated with Denver International Airport.

Comments-Responses

Comment# 73 Submitted by: Castaldy, Tim

Comment Received: Please keep the flight pattern away from Centennial communities along Arapahoe Road. We are a quiet community with children in schools during the day and people asleep early at night. This is something we will all fight back on.

Topics Identified in the Comment

- General Aviation/Visual Flight Rules
- Suggestions to Change Air Traffic Patterns

FAA Response for Comment #73 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.

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# 74 Submitted by: Cech, Carol

Comment Received: I strongly support South Boulder community recommendations to 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 and 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.

We live 41 miles by road from Denver Intl Airport under a departing flight path initiated in 2013. We purchased our house in 1986 when the flight paths were over Rocky Flats. We did not experience jet noise until after 2013. Now aircraft over our neighborhood are often spaced only 2-3 minutes apart for 1-2 hours at a time. Aircraft noise is undoubtedly exacerbated by reverberation off our mountain backdrop and the 2 mesas that form a horseshoe around our neighborhood. But the biggest issue is the fact the noise can be CONTINUOUS and unabated impacting our ability to converse in our own backyard much less enjoy other outdoor activities at and near our home. Comparing it to nearby A/C units aircraft sound level at places in our neighborhood must be considerably more than the FAA's claim (via modeling not measurement) of 45 decibels. At a workshop in 2017 we were told the flight path would be moved 2 miles south. Now the plan is to move it at most 0.5 miles south meaning planes will still fly over the same reverberation corridor that is causing current distress. Predicted reduction in noise is only 1.4 decibels of little consequence. Behind our home is Boulder Mountain Park open space that has more visitors than Rocky Mountain NP. Visitors come from everywhere to enjoy the QUIET wilderness-like National Park-quality nature experience. Yet bird watchers can no longer hear the birds and hikers no long enjoy peace and quiet. There is more wildlife here by far than at Rocky Flats. Please move the flight path south to Rocky Flats where it used to be and where there are essentially no homes close to the mountains.

Please withhold all identifying information if possible.

Topics Identified in the Comment

- COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Frequency of Aircraft Overflights
- Noise Modelling Analysis
- Projected Changes in Aircraft Noise Exposure
- ZIMMR SID - Move 1.3 Nautical Miles
- ZIMMR SID

FAA Response for Comment #74 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.

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>

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 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.

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# 75 Submitted by: Chaffin, Michelle

Comment Received: I live along the Arapahoe Road corridor. I have friends who live under the current flight path for Centennial airport and they had to move due to the noise and vibrations. I am very against rerouting the flight path to along Arapahoe Road. The majority of properties along this corridor from Broadway to the airport are residential communities. We have lived here since 2001 and would hate to have to leave (and see our home values drop in the process) because of new flight paths. Please reconsider what you are planning with the Metroplex project in Denver. This will affect all our homes and our way of living. I worry about safety issues. I also worry about the wildlife that will be affected by these changes specifically at the Carson Nature Center. I believe our residents will fight these changes; it would be great if you made the right decision before it gets to that. Thank you for taking our comments.

Topics Identified in the Comment

- Existing Aircraft Noise
- General Aviation/Visual Flight Rules
- Projected Changes in Aircraft Noise Exposure
- Property Values
- Purpose and Need of Project

FAA Response for Comment #75 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.

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# 76 Submitted by: Champion, Richard

Comment Received: The Town of Columbine Valley, as a community that could be severely impacted by the FAA proposed Denver Metroplex NextGEN Project, is acutely interested in the proposed Project and its plans to redesign various flight paths for commercial and general aviation in the Denver Metro area, especially as the changes may lead to additional noise in our quiet community. As an active member of the Denver Metro community of municipalities, we were surprised and dismayed to discover that, whether by oversight or by design, we were not notified of the FAA's public meetings for the Preliminary Design Comment Phase for public comment concerning the Denver Metroplex Project. The Town of Columbine Valley, as part of the Preliminary Design Comment Phase for Denver Metroplex-NextGEN, requests this letter to be entered into the public comment record for the Project. Additionally, we request that any notices made to the public be forwarded to our offices at the following address:

Town of Columbine Valley

Attn: Trustee Kathy Boyle

2 Middlefield Road

Columbine Valley, CO 80123

The Town of Columbine Valley provides the following comments as part of the Preliminary Design Comment Phase for Denver Metroplex-NextGEN Project.

The information made available on the FAA website concerning the Denver Metroplex Project was somewhat informative however the procedures and routings shown on the website are very general and only minimally demonstrate the potential impacts to the Town of Columbine Valley ("Town"). In fact, we could only make an educated guess where the Town was located because of the general nature of the maps. The materials presented little to no information on low altitude routes or the cumulative effect of concentrated air traffic on any local communities. As a result of the redesign, matters of specific interest to the Town require significant extrapolation to project what impacts may occur. This lack of detail and transparency is not in keeping with the spirit of full disclosure required by your own rules.

2) As the FAA refines the preliminary Metroplex design, the Town encourages the FAA to coordinate with local communities on the development of the draft environmental assessment ("EA"), including the noise modeling that will be contained in the EA, the standards for determining significant impacts, the manner in which changes to low-altitude routes will be addressed in the study and any specific findings

from the EA that may affect the Town. This is particularly important in consideration of the experiences of other communities that have completed a Metroplex redesign and the many reports of elevated noise complaints and lawsuits following the implementation of a redesign in other metropolitan areas; such as Seattle, Northern California, Phoenix, Los Angeles, Chicago, Baltimore and Washington DC.

3) The Town reserves the right to forward additional comments concerning the Denver Metroplex Project once it receives supplementary information from the FAA.

The Town appreciates the opportunity to participate in the community outreach for the Denver Metroplex Project and encourages contact and outreach from the FAA as part of its EA process.

Topics Identified in the Comment

- Existing Aircraft Noise
- General Aviation/Visual Flight Rules
- NEPA and FAA Order 1050.1F
- Public Outreach/Public Involvement
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project

FAA Response for Comment #76 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>

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.

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.

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.

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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.

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Comments-Responses

Comment# 77 Submitted by: Champion, Richard

Comment Received: Dear Mr. Suomi,

Thank you for your letter of May 14, 2019 concerning the FAA Denver Metroplex workshop. I appreciate your follow through and including my letter of July 15, 2017 in the public comment record. The workshop I went to at the Arapahoe Community College was most helpful to gain an understanding of what the FAA is proposing for the Denver Metroplex project.

Change is difficult but we appreciate the efforts of you and your staff to be as transparent as possible. You are blessed with a competent, articulate staff and the Controllers were the best communicators at the workshop. According to them, the most air traffic Columbine Valley will see is maybe 8 more planes per day (which I consider as almost nothing) and the planes that we will notice are arrivals, not departures --which should much quieter than any departing aircraft. Additionally I learned that the vectored – gradual decent rather than the stair-stepped decent will be much better for us as it is quieter and apparently safer.

From my understanding, it appears that the Bronco (I can't remember the actually acronym) flight pathway that was originally directed over our Town appears to have moved north several miles away which is excellent. One of my takeaways from the Controllers was this: because of the weather patterns that the mountains create (thunder storms), nature will actually be our friend. As the day warms up the buildup of severe weather to the west of us will push most of the air traffic east and by 2:00 pm on most days, almost nothing will be flying over us (unless it is coming from directly west) and if it is, it will be very high just to stay out of the thunderstorm path. That is exactly what happens now. Because of this weather pattern and the safety issues they create, it is my opinion and the opinion of all the controllers that I spoke with that there is no reason to believe that will change with the Metroplex proposed project.

If my understandings are correct and implemented as I understand them to be, then I can feel comfortable supporting the Metroplex project. If however my layman's analysis is incorrect or if my understandings are in error, please advise as soon as possible as I will withhold my endorsement until I receive confirmation from you that I am correct in my assessment of the Metroplex project as it relates to the Town of Columbine Valley. Thank you for your time and efforts.

Yours truly,
Richard A. Champion,
Mayor

Town of Columbine Valley

PS: In part of the email string that I received, Ms. Landis indicated that the US Postal Service indicated that the Town of Columbine Valley was a part of Littleton, Colorado and basically contained within the city of Littleton. Unfortunately, the information the Post Office gave her was incorrect. I understand the US Post Office's confusion as to who/what/where the Town of Columbine Valley is because they refuse to give our little town its own zip code. I can assure you that our Town was incorporated in 1959 and the Postal Service has confirmed Columbine Valley as a last line of address for all correspondence. We have fought this battle with the Post Office for years and even though we are small, we have an "energetic" electorate and our citizens are committed to our little Town of Columbine Valley. Thank you for your understanding.

Topics Identified in the Comment

- BRNKO STAR
- Purpose and Need of Project
- No Concerns Identified

FAA Response for Comment #77 Topics

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.

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.

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No Concerns Identified: Thank you for your comment.

Comments-Responses

Comment# 78 Submitted by: Charrier, Michael

Comment Received: "1. We don't understand WHY the FAA moved the flight path from uninhabited Rocky Flats to directly over 3 heavily populated towns. Flight paths from 2012 show the main westbound flight path from DIA was directly over Rocky Flats (from 1995-2013 the Rockies Two flight path with Meeker Transition) with a wide dispersion of flight paths between Golden and Eldorado Springs. Before the NextGen navigation paths in 2013 all of Rocky Flats was under considerable jet noise and we had none in southwest Boulder. The FAA cannot reasonably claim the 2013 path is the new normal. 2. In response to our complaints in 2016 you moved the path south BEFORE the public comment period ended and have made no other changes despite letters asking for noise relief from mayors the former governor and other elected officials. Describing this change you said ZIMMR was 3 miles south of FOOOT when in reality it is ONLY half a mile south of the southern city limit. This is NOT far enough to mitigate jet noise because the flatirons Bear Peak and South Boulder Peak (our parabolic dish which amplifies sound) does not disappear until south of Eldorado Canyon. 3. Your noise consultant admitted that the noise modelling software does NOT take geography into consideration. Given that Boulder's southwest wall of rock towers 3000-3500' above our homes any projections for a reduction in noise using this model are scientifically invalid. I urge you to be skeptical of data from this software as justification for keeping the current ZIMMR path. In all likelihood the model also does not adjust for sound propagation differentials at sea level versus 5600' above sea level. 4. We believe you can move ZIMMR south far enough to mitigate the noise by making a couple of very small changes (while maintaining the Adams county flight path separation requirement). These SMALL changes will significantly alleviate jet noise over the heavily impacted towns of Boulder Louisville and Nederland. 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. 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. 5. FAA guidelines seek to minimize jet noise over national parks and wilderness areas. Boulder County owns/manages 165 000 + acres of mountain parks and open space. While not strictly national parks or wilderness these acres function identical to wilderness--- structures roads cars motors and camping are prohibited. By comparison Rocky Flats is 5237 acres and has no residents (prairie dogs that glow in the dark?). It is essential that you consider the REAL history of westbound DIA flight paths not only those since the illegal path change in 2013. Please please restore the peace and serenity we have treasured for 40 years."

Topics Identified in the Comment

- COORZ SID - Move IPALE Waypoint 0.7 Nautical Miles
- DOT Section 4(f) Resources
- Existing Aircraft Noise
- Noise Modelling
- Public Outreach/Public Involvement
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project
- Suggestions to Change Air Traffic Patterns
- ZIMMR SID - Move 1.3 Nautical Miles
- ZIMMR SID

FAA Response for Comment #78 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.

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>

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.

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 - 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# 79 Submitted by: Christensen, Lynn

Comment Received: I came early before 5:00 to attend the Littleton workshop and appreciate the patience and knowledge of the representatives there. I tried to talk to the gal (maybe Monica?) about Environmental Impact and waited a long time patiently until I had to leave for my son's graduation practice but unfortunately didn't have an opportunity to ask my questions because one woman in particular was monopolizing the time. Here are my concerns:

- 1) It appears from the draft document that the FAA did the environmental testing. Why wasn't an outside impartial firm used?
- 2) The document says there will be an increase in greenhouse gases and increase of fuel usage but when I talked to representatives they said fuel use would decrease because of the direct landing routes rather than step down that is currently used in particular. I would like further explanation of this since it seems to contradict. My concern is that Denver already has the notorious brown cloud with poor quality air days that affect some of my family members with asthma.

Thank you.

Topics Identified in the Comment

- Air Quality/Air Pollution
- NEPA and FAA Order 1050.1F
- Potential Increase In Fuel Burn and Emissions

FAA Response for Comment #79 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.

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)).

Comments-Responses

Comment# 80 Submitted by: Christman, Aaron

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 #80 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# 81 Submitted by: Christman, Laura

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 #81 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# 82 Submitted by: Christman, Liliana

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 #82 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# 83 Submitted by: Christman, Lilly

Comment Received: I can not express enough my absolute opposition to the implementation of NexGen Denver. For the health and well being of my children family and neighbors this proposed new flight path CAN NOT HAPPEN.

"Aircraft noise is one if not the most detrimental environmental effect of aviation. It can cause community annoyance disrupt sleep adversely affect academic performance of children and could increase the risk for cardiovascular disease....There is sufficient evidence for a negative effect of aircraft noise exposure on children's cognitive skills such as reading and memory as well as on standardized academic test scores. Undisturbed sleep is a prerequisite for high daytime performance well-being and health. Aircraft noise can disturb sleep and impair sleep recuperation" This study was funded by the FAA

The FAA's plan to revise its flight paths will have deleterious effects on the residents and children in CHV neighborhoods parks and schools.

The FAA has no control over the number of flights that will fly over homes in and surrounding our neighborhoods as months and years go on. DIA is adding nearly 40 more gates which means that air traffic will hugely increase. The pattern proposed by the FAA concentrates those planes into a path over our homes assuring constant noise and air pollution . Our health...physical mental and financial will be jeopardized. We will be inundated by constant noise...as much as every minute of every day all day and night interrupting conversations and sleep.

It is illegal for us to make excessive noise in our homes or on the road. We get ticketed and fined for that. Nonstop airplane noise overhead will be much worse. It is blatantly immoral for the FAA to impose this nightmare upon the people living in the proposed flight paths. The FAA offers false reassurances and promises it cannot keep. FAA: DO NOT GO FORWARD with the Denver Metroplex NextGen plan.

It should not have to take thousands of objections to stop this unconscionable plan. It should only take an application of the Golden Rule NOT to foist this onto people.

It is imperative for our well-being and health the environment (pollution and noise) and our property values that NextGen Denver is never implemented.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Children's Environmental Health and Safety
- Forecast/Future Operations
- Frequency of Aircraft Overflights
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure
- Property Values
- Purpose and Need of Project
- Sleep Disturbance/Speech Interference

FAA Response for Comment #83 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.

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.

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.

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# 84 Submitted by: Clack, Christopher

Comment Received: I'm writing in response to the increasing air traffic over South Boulder. Over the past few years there have been times when the sound of airplanes is inescapable. As soon as one passes there is another one overhead. The frequency and proximity of the aircraft are very disruptive to the peace and quiet of our home and natural environment. There's really nowhere we can escape the sound and vibration. Please consider changing the flight path to a less populated area. Sincerely Christopher and Leah Clack

Topics Identified in the Comment

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

FAA Response for Comment #84 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# 85 Submitted by: Clark, Abigail

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. 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 Abby Clark"

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 #85 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.

Centennial Airport

303-790-4709

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

Denver International Airport

303-342-2380

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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>

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 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.

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# 86 Submitted by: Clyne, John

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
- Existing Aircraft Noise
- ZIMMR SID - Move 1.3 Nautical Miles
- ZIMMR SID

FAA Response for Comment #86 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>

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# 87 Submitted by: Collier, Brandon

Comment Received: "Comment and Objection: The conclusions of the Environmental Assessment 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 does not take into account 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 does not take into account 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 does not take into account 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 and shed light on the huge negative environmental impact of Denver Metroplex on the Denver Region. Sincerely Brandon Collier"

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 #87 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# 88 Submitted by: Collier, Nicole

Comment Received: "Comment and Objection: The conclusions of the Environmental Assessment 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 does not take into account 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 does not take into account 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 does not take into account 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 and shed light on the huge negative environmental impact of Denver Metroplex on the Denver Region. Sincerely Nicole Collier"

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 #88 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# 89 Submitted by: Cook, Kimberly

Comment Received: Please do not move the aircraft tracks further south. We already hear crafts on a regular basis. From what I can see the census data is several years old on number of population impacted and there are neighborhoods that have 2000+ homes that have been constructed in the area since then with more planned.

Topics Identified in the Comment

- Existing Aircraft Noise
- Purpose and Need of Project

FAA Response for Comment #89 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>

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# 90 Submitted by: Cooper, David

Comment Received: At certain times of the day the flight path is directly over our home. From the second story of my home I can watch planes leave DIA heading north and turn and come directly at me. While I'm fine with air traffic overhead it can be excessive. For example at time 5 or 10 planes one after the other just follow each other directly overhead. The noise makes it impossible to be outside and it even wakes us at night. I would be fine with more dispersed flight patterns where planes occasionally fly directly overhead or if you must have a river of planes then please move the river farther south into the open spaces of Rocky Flats. Looking at the Google Earth files DEN ZIMMR1 south dev is the worst flight paths for us. N dep RNAV with vectoring is better. Again please either move the main flight path to the west farther south by 2-3 miles or disperse the flight paths so we're not bearing a burden of constant noise that goes on and on.

Topics Identified in the Comment

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

FAA Response for Comment #90 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# 91 Submitted by: Cordova, Annie

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 #91 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.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# 92 Submitted by: Couch, Ted

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 our health and welfare.

Topics Identified in the Comment

- Air Quality/Air Pollution
- Particulate Matter

FAA Response for Comment #92 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)).

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)).

Comments-Responses

Comment# 93 Submitted by: Cowern, Bill

Comment Received: These comments are being forwarded on behalf of the Boulder City Council and the Boulder County Commissioners. A letter providing these comments is being mailed today as well. June 6, 2019 RE: City and County of Boulder, Colorado – Comments concerning Denver Metroplex proposals and request to modify ZIMMR Route Dear Ms. Zibrowski and Mr. Ostronic, On behalf of the Boulder City Council and Boulder County residents, we are writing to reaffirm our request that the Federal Aviation Administration further consider the impact of commercial aviation over southern Boulder County and the City of Boulder. We remain deeply concerned that aircraft routing in this vicinity will continue to cause serious noise impacts to our residents, and specifically request that the proposed departure route discussed below be shifted southward to mitigate these impacts. This letter follows two previous letters sent in 2017 by the City of Boulder regarding the proposals by your Denver Metroplex team. These letters expressed our concern that the 2-mile southward shift of the FOOOT departure (to be renamed the ZIMMR route) would provide only a negligible improvement in terms of air traffic noise for the residents of Southern Boulder County and the surrounding area and asked that your team consider consolidating the westbound departure routes from four to three. Both City and County leadership have heard numerous concerns from our residents regarding the existing noise impacts from air traffic over Southern Boulder County and the City of Boulder. Our communities want to know that their concerns about disruptive noise impacts from aircraft are being given serious consideration and will influence the routing of aircraft farther to the south. While we understand the FAA's draft Environmental Assessment indicates there would be no significant noise impacts for the proposed ZIMMR route, we strongly disagree with this conclusion. We do not believe the assessment adequately evaluated the amplification of air traffic noise caused by the Flatirons. The Flatirons are unique, steep rock formations that are situated along the east slope of Green Mountain and directly border southwestern Boulder. As such, many homes in Southern Boulder County are located in close proximity to the Flatirons and will suffer from noise amplification if the flight path is not modified. We again urge the FAA to move the proposed ZIMMR route farther south to fly over unpopulated areas, which would produce a noticeable improvement not only due to the added distance between the route and Boulder County neighborhoods, but also because the foothills south of Boulder have a flatter profile and increased vegetation that do not amplify the noise to the same degree as the Flatirons. We urge the Denver Metroplex team to consider this change to protect the health and quality of life of City of Boulder and Boulder County residents while still enabling efficient westbound departures from Denver International Airport. We respectfully request that the FAA respond to this letter with their recommendations. Thank you for your consideration. Sincerely, _____

_____ Suzanne Jones Elise Jones
 Deb Gardner Matt Jones Mayor of Boulder Chair, County Commission County Commissioner County
 Commissioner CC: Senator Michael Bennet Senator Cory Gardner Congressman Joe Neguse
 Congressman Ken Buck

Topics Identified in the Comment

- Existing Aircraft Noise
- Noise Modelling
- Physical and Mental Health
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project
- Suggestions to Change Air Traffic Patterns
- ZIMMR SID

FAA Response for Comment #93 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>

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.

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.

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# 94 Submitted by: Cox, Martha

Comment Received: Thank you for the opportunity to comment. I live in a subdivision in east Parker CO called "Rowley Downs." I have been told by a Castle Rock town official that from the air the layout of this subdivision with short streets intersecting a main circular roadway appears to look like "Sputnik" from the air particularly at night thus attracting small aircraft from Centennial airport that use it as a visual landmark. This local low-flying air traffic seems to increase continually. Also since the beginning of 2019 we have seen a marked increase in commercial aircraft arriving/departing DIA reminding me of movies depicting the "London Blitz." My request is that the small aircraft be guided away from flying over this area (or prohibited from flying in this airspace altogether) so that we may find relief from this added nuisance and constant noise from Centennial air traffic. Thank you.

Topics Identified in the Comment

- Existing Aircraft Noise
- General Aviation/Visual Flight Rules
- Purpose and Need of Project

FAA Response for Comment #94 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.

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# 95 Submitted by: Crist-Fulk, Marie

Comment Received: DIA was originally approved and built east of Metro Denver with the understanding that the majority of arriving and departing flights would be directed over the less populated areas north east and south of the airport. The original proposal was to reduce noise pollution and increase safety by reducing air traffic over the highly populated metro area. The DEN Metroplex EA plan increases air traffic both arrivals and departures to the west of the airport which is highly populated and in conflict with the original DIA proposal. We are strongly against the DEN Metroplex EA plan due to the concentration of flights over the highly populated area west of the airport which will increase noise and pollution. A third consideration is the increased air traffic at Centennial Airport which is in direct proximity of the proposed southwest arrival and departure flight plan. The communication and format of the meeting was very poorly executed.

Topics Identified in the Comment

- Air Quality/Air Pollution
- General Aviation/Visual Flight Rules
- Projected Changes in Aircraft Noise Exposure
- Purpose and Need of Project

FAA Response for Comment #95 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)).

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.

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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# 96 Submitted by: Crump, Marcia

Comment Received: The noise level of the flight pattern flying over our house in The Pinery is very high and most disruptive to our peaceful life out here. This flight pattern occurred many years ago over this area and was finally addressed so the aircraft would fly over the Eastern plains away from the residential areas. Now the noise level is back and must be stopped. DIA was initially built to be away from the city and residential areas. The outcry from the public is enough for you to take action immediately. Please take note and alleviate this problem as soon as possible. Our wildlife also is being affected.

Topics Identified in the Comment

- Existing Aircraft Noise
- Purpose and Need of Project

FAA Response for Comment #96 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

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Topics Identified in the Comment

- Existing Aircraft Noise
- Purpose and Need of Project

FAA Response for Comment #97 Topics

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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>

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# 98 Submitted by: Cummings, Ryan

Comment Received: Recently within the past two years there has been a major increase in the amount of jet planes nearly directly above my house. For hours at a time one after another to the point where it is not enjoyable to be outside. There is no peace and quiet there's just space between the jets. I am at almost 9 000' and fee like I can practically touch the airplanes. Using the i70 corridor would restore peace and tranquility to this area and I doubt it would disturb the already obnoxiously loud i70 communities. Even justbthis morning I was woken up by an extremely loud passenger jet. I hate it.

Topics Identified in the Comment

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

FAA Response for Comment #98 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# 99 Submitted by: Curd, Brian

Comment Received: Comment and Objection: The conclusions of the Environmental Assessment 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 does not take into account 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 does not take into account 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 does not take into account 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 and shed light on the huge negative 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 #99 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# 100 Submitted by: Curd, Diane

Comment Received: Comment and Objection: The conclusions of the Environmental Assessment 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 does not take into account 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 does not take into account 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 does not take into account 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 and shed light on the huge negative 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 #100 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.