



Federal Aviation Administration

Finding of No Significant Impact

And

Record of Decision

For the Denver Metroplex Project

January 2020

I. INTRODUCTION

This document serves as the Federal Aviation Administration's (FAA) Finding of No Significant Impact and Record of Decision (FONSI/ROD) for the Final Environmental Assessment (Final EA) and Errata for the Denver Metroplex (DEN) Project, November 2019, attached hereto, and incorporated by reference. The FONSI/ROD has been prepared in compliance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code (U.S.C.) Section 4321 et seq.); implementing regulations issued by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations (CFR), parts 1500-1508); and FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). This FONSI/ROD includes the determinations and approvals necessary for the FAA's compliance with several procedural and substantive requirements of aeronautical, environmental, and programmatic statutes and regulations, including Section 106 of the National Historic Preservation Act. This FONSI/ROD is based on the information and analysis contained in the Final EA and Errata, and the comments received on the Final EA and Errata as well as the FAA's response to such comments. Those comments and responses are attached to this FONSI/ROD as Appendix A.

In approving the DEN Metroplex Project, the FAA has considered 49 U.S.C. § 40101(d)(4), which gives the FAA various responsibilities and holds it accountable for controlling the use of navigable airspace and regulating civil and military operations in that airspace in the interest of safety and efficiency. Additionally, consideration has been given to 49 U.S.C. § 40103(b)(2), which authorizes and directs the FAA Administrator to prescribe air traffic rules and regulations governing the flight of aircraft, for the navigation, protection, and identification of aircraft, and the protection of persons and property on the ground, and for the efficient utilization of the navigable airspace, including rules as to safe altitudes of flight and rules for the prevention of collisions between aircraft, between aircraft and land or water vehicles, and between aircraft and airborne objects.

Furthermore, the FAA has given careful consideration to the aviation safety and operational objectives of the DEN Metroplex Project in light of the various aeronautical factors and judgments presented; the need to enhance efficiency of the National Airspace System; and the potential environmental impacts of the DEN Metroplex Project.

II. BACKGROUND

The FAA is in the process of implementing the Next Generation Air Transportation System (NextGen), the FAA's plan to modernize the National Airspace System through 2025. NextGen is a complex program intended to develop and implement new technologies, while integrating existing technologies and adapting the air traffic management system to a new way of operating.

NextGen represents an evolution from an air traffic control system that is a primarily ground-based system to a system that is satellite-based thus enabling greater efficiency. To achieve NextGen goals, the FAA is implementing new Area Navigation (RNAV) and Required Navigation Performance (RNP) air traffic routes and instrument flight procedures around the country that use emerging technologies and aircraft navigation capabilities (i.e., RNAV Standard Instrument Departures (SIDs), Standard Terminal Arrivals (STARs), and Standard Instrument Approach Procedures (SIAPs)). The implementation of RNAV and RNP flight procedures enables the use of other Performance Based Navigation (PBN) technology in the National Airspace System, and facilitates more efficient flight procedures such as an Optimized Profile Descent (OPD).

The Metroplex Initiative is considered a mid-term implementation step in the overall process of transitioning to the NextGen system. A “Metroplex” is a geographic area that includes several commercial and general aviation airports in close proximity serving a large metropolitan area. The FAA intends to design and implement RNAV flight procedures that will take advantage of the technology readily available in the majority of aircraft as part of the Metroplex initiative. The Metroplex initiative specifically addresses airspace congestion, airports in close geographical proximity, and other limiting factors that reduce efficiency in busy Metroplex airspace. Efficiency is improved by expanding the implementation of RNAV-based standard instrument flight procedures and connecting the routes defined by the standard instrument flight procedures to established low and high altitude RNAV routes. Efficiency would also be increased by taking advantage of RNAV to maximize the use of the constrained airspace in congested Metroplex environment.

The DEN Metroplex Project is intended to address specific issues related to the efficient flow of traffic in and out of the DEN Metroplex.

III. PROPOSED ACTION

The Proposed Action evaluated in the Draft EA would implement optimized RNAV SID and STAR Air Traffic Control (ATC) flight procedures and RNP approaches, where feasible, in the Denver Metroplex. This would improve the predictability and segregation of routes, as well as increase flexibility in providing air traffic services.

The Proposed Action is a combined package of interrelated proposed final designs ATC flight procedures. This group of proposed final designs ATC procedures were considered and evaluated in combination with one another to determine whether the Proposed Action ATC procedures would meet the project’s Purpose and Need. The FAA considered multiple versions of each preliminary ATC procedure prior to adopting a proposed final design. Several versions of preliminary ATC procedures were eliminated from further consideration because they failed to meet the project’s Purpose and Need.

Implementation of the Proposed Action would not increase the number of aircraft operations at the Study Airports. Furthermore, the Proposed Action does not involve physical construction of any facilities such as additional runways or taxiways, and does not require permitting or other approvals or actions on a state or local level. Therefore, the implementation of the proposed changes to ATC procedures in the Denver Metroplex would not require any physical alterations to environmental resources identified in FAA Order 1050.1F.

IV. PURPOSE AND NEED

The DEN Metroplex Project consisted of a Study Team phase, which analyzed the DEN Metroplex operational challenges and explored opportunities to optimize air traffic flight procedures therein. Although RNAV based SIDs and STARs have been in effect in the DEN Metroplex since 2012, the Study Team concluded that these flight procedures can be improved to increase efficient use of the airspace. The Study Team issued its final report dated November 2014 on December 5, 2014, and the Study Team materials reflect three key factors as causes of inefficiencies in the DEN Metroplex:

- Lack of flexibility in the efficient transfer of traffic between the en route and terminal area airspace;
- Complex converging and dependent route and flight procedure interactions; and
- Lack of predictability in the efficient transfer of traffic between en route and terminal area airspace.

These three factors demonstrate the need for the Proposed Action.

The purpose of the Proposed Action is to take advantage of the benefits of PBN by optimizing RNAV flight procedures that will help improve the efficiency of the airspace in the DEN Metroplex. The Proposed Action would address the three key factors causing the inefficiencies in the airspace and improve the efficiency of air traffic operations through improved flexibility in transitioning aircraft, enhanced segregation between aircraft, and improving the predictability of air traffic flow. Optimizing RNAV flight procedures will also comply with direction issued by Congress in the Modernization and Reform Act of 2012.

V. FAA AGENCY ACTIONS AND APPROVALS

The FAA actions, determinations and approvals necessary for this project to proceed requires the FAA to

- undertake air traffic controller training
- publish new or revised STAR flight procedures

- publish new or revised SID flight procedures
- publish new or revised transitions

VI. ALTERNATIVES

The following provides a summary of the alternatives development process and alternatives considered. Further details are available in Chapter 3 of the Final EA and Errata.

Identification and Evaluation of Potential Alternatives Prior to the NEPA Analysis

In August 2014, the DEN Metroplex Study Team began work to define operational problems in the DEN Metroplex and to identify potential solutions. The Study Team included experts on the Air Traffic Control system for the DEN Metroplex. The work completed was intended to provide a guide for later design efforts by the Design and Implementation (D&I) Team. The Study Team held several meetings with local facilities (e.g., air traffic control), airspace users (e.g., pilots), and aviation industry representatives to learn more about the challenges of operating in the DEN Metroplex. These meetings helped identify operational challenges associated with existing procedures and potential solutions that would increase efficiency in the DEN Metroplex airspace. Initially, the Study Team identified more than 90 potential issues related to existing flight procedures in the DEN Metroplex. As the Study Team identified additional issues, the issues were grouped together in generalized causal factor categories based on similarity. Ultimately, 38 issues were worked by the Study Team and 15 issues were deferred to the Design Phase. Twenty-three (23) of the 90 identified issues were not addressed by the Study Team because no performance-based navigation (PBN) or airspace solution could be identified or because the identified solutions fell outside the scope of the Metroplex process. For the remaining issues, the Study Team identified several PBN solutions that resulted in increased efficiency in the DEN Metroplex. The solutions proposed were conceptual or notional in nature and did not include a detailed technical assessment, which was reserved for the D&I Team to conduct.

Following completion of the Study Team's Final Report, the D&I Team began work on the flight procedure designs in April 2015. First, the Study Team proposals were prioritized based on complexity, interdependencies with other flight procedures, and degree of potential benefit to the Metroplex. Second, the D&I Team divided into workgroups to further develop and refine the Study Team proposals into preliminary designs. Finally, the preliminary designs were brought to the whole D&I Team for review and modification, if necessary. In developing the proposed flight procedures, the D&I Team was responsible for following regulatory and technical guidance as well as meeting criteria and standards in three general categories: RNAV design criteria and Air Traffic Control regulatory requirements, operational criteria, and safety factors.

Alternatives Analyzed in the Draft EA

To ensure that flight procedures included in the Proposed Action were viable, the D&I team undertook validation exercises that further refined the flight procedures. The D&I Team relied on stakeholder input, community engagement, design solution tools (e.g., design and testing software), and the criteria described above to meet several final design milestones. Many flight procedures included in the Proposed Action underwent several iterations as they were refined to meet safety and efficiency requirements and thus represented the final version of the flight procedures considered. For example, the Draft EA proposed implementation of ZIMMR SID, which would have replaced the current FOOOT SID. This proposal went through multiple iterations due to extensive community input and engagement, stakeholder evaluation, environmental analysis, and consideration of the effects on related and dependent flight procedures. The final versions of the flight procedures were considered the Draft EA Preferred Alternative. Consequently, the Preferred Alternative in the Draft EA contains 45 flight procedures which were:

- 12 new RNAV STARs
- 20 new RNAV SIDs
- 8 existing/no action conventional STARs
- 5 existing/no action conventional SIDs

Under the No Action Alternative in the Draft EA, the FAA would have maintained 48 existing arrival and departure flight procedures for the DEN Metroplex. The SIDs and STARs in the DEN Metroplex serving the DEN Metroplex Study Airports that comprise the No Action Alternative were:

- 20 RNAV STARs
- 15 RNAV SIDs
- 8 conventional (i.e., non-RNAV) STARs
- 5 conventional (i.e., non-RNAV) SIDs

The existing conventional and RNAV arrival and departure flight procedures would have remained as is, subject to minor, periodic reviews and revisions in response to changes in the operational environment (i.e., magnetic variation changes; obstruction surveys, and changes in FAA Air Traffic Control regulations). The No Action Alternative would not have implemented the specific flight procedures designed as part of the Preferred Alternative of the Draft EA for the DEN Metroplex Project.

Of the two Alternatives (No Action Alternative and Preferred Alternative) carried forward for analysis in the Draft EA, the Preferred Alternative would have best met the Purpose and Need for

the DEN Metroplex Project. The No Action Alternative would not have met the purpose and need for the Project. It would not have improved the efficiency of the airspace nor addressed any of the three key causal factors for airspace inefficiency. Furthermore, the No Action Alternative would not have met the congressional mandate to implement additional RNAV flight procedures. Although it would not have met the Purpose and Need, the No Action Alternative was carried forward, as required by CEQ regulations, to establish a benchmark against which decision makers can measure the environmental effects of undertaking the Preferred Alternative in the Draft EA.

Alternatives Analyzed in the Final EA and Errata

The Preferred Alternative in the Draft EA was changed for the issuance of the Final EA. The west flow SIDs (ZIMMR, COORZ, CONNR, BAYLR) flight procedure designs were revised due to changes in the FAA flight procedure design criteria, and changes in FAA air traffic control operating procedures. These changes necessitated a redesign from a Vector SID flight procedure type to a RNAV SID flight procedure type. These changes mean the proposed ZIMMR, COORZ, CONNR, and BAYLR flight procedures will change to an RNAV SID procedure, where a departing aircraft flight crew utilize the on-board flight management system to follow specific flight procedure requirements along the specific flight path. Previous flight procedure criteria for a departing aircraft included direction by an air traffic controller to join a flight path at a location based on the air traffic controller's discretion in managing the air traffic operations.

Recognizing the important role community engagement plays for the successful implementation of the DEN Metroplex Project, public comments on the Draft EA were reviewed and considered for potential changes to the proposed procedures. The FAA analyzed whether flight procedure design modifications to the proposed ZIMMR SID would address community concerns while still meeting the purpose and need of the DEN Metroplex Project. The proposed ZIMMR SID flight procedure had additional changes beyond those noted above. The results of the review indicated that certain changes to the proposed ZIMMR SID flight procedure are possible while meeting the purpose and need of the DEN Metroplex Project. Some community concerns focused on routing current Denver International Airport (DEN) departures over the cities of Boulder and Nederland.

One of the design objectives of the new ZIMMR SID was to comply with the DEN operator's existing noise initiatives. The existing FOOOT SID provides a specific departure route to the northwest that maintains required aircraft to aircraft lateral separation from the DEN COORZ SID and flies directly over the south/central portion of the City of Boulder. The Final EA Preferred Alternative ZIMMR SID moved the procedure flightpath to the south when compared to the existing FOOOT SID. The FAA re-evaluated the proposed ZIMMR SID flight procedure design and modified the ZIMMR SID flight path 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 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 existing published FOOOT SID procedure over the south/central City of Boulder. The ZIMMR RNAV SID flight procedure

will overfly north of the Gilpin County boundary. However, rapidly changing atmospheric conditions and convective activity over the Front Range may require air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft which may affect aircraft on the ZIMMR RNAV SID flight procedure.

Not all of the changes requested by the public could be incorporated due to the potential reduction in air traffic control safety requirements. For example, moving the proposed ZIMMR SID further south than the 2.0 nautical miles would require also moving the proposed COORZ, CONNR and BAYLR SID procedures to maintain air traffic control (ATC) separation standards and would conflict with inbound traffic to DEN. In addition to the Preferred Alternative (described above), the Final EA and Errata also analyzed the No Action Alternative. INSERT discussion of what changed in the NO Action for the Final EA

VII. FINAL EA REVISED PREFERRED ALTERNATIVE

After careful consideration of the analysis done in the Draft EA; and review and consideration of the comments received on the Draft EA, as well as issues and concerns discussed in Section VI above, the FAA hereby selects the Final EA revised Preferred Alternative. As stated above, revisions to the Draft EA Preferred Alternative were driven by FAA consideration of public comments, changes to air traffic procedure design requirements, and changes to criteria used to ensure procedures are able to be properly flown. The inclusion of the revisions to the EAST SIDs (EEONS, EMMYS, EXTAN) were removed from the Draft EA Preferred Alternative. The FAA attempted to re-design the proposed procedures. However, in order for the re-designed procedures to meet the new design criteria, they did not meet the Purpose and Need for the proposed DEN Metroplex Project. Therefore, the revised Preferred Alternative carries forward those eastbound Area Navigation (RNAV) SID flight procedures that are noted in the No Action Alternative. These SID flight procedures will remain in use. The No Action EPKEE SID will be modified in the en route structure above 18,000 feet above mean sea level (MSL) with a transition that ensures separation from the COUGAR military operations area special use airspace for safety.

The Preferred Alternative consists of development of RNAV standard air traffic flight procedures to enhance efficient handling and movement of air traffic, while maintaining safety, into and out of the DEN Metroplex airspace. The Preferred Alternative contains 44 air traffic control procedures:

- 12 new RNAV STARs
- 17 new RNAV SIDs
- 3 existing/no action RNAV SIDs
- 7 existing/no action conventional STARs
- 5 existing/no action conventional SIDs

Implementation of the Preferred Alternative would not require any ground disturbance or development of facilities, nor would it require local or state action. The Preferred Alternative consists only of procedural changes intended to improve operational efficiency, increase flight path predictability, and reduce required controller-pilot voice communication. Therefore, implementation of the Preferred Alternative would not increase the number of aircraft operations in the DEN Metroplex airspace when compared to the No Action Alternative. The target date for starting implementation of the DEN Metroplex procedures is on or after March 26, 2020.

VIII. AFFECTED ENVIRONMENT

The General Study Area for the Proposed Action included the geographic area in which natural resources and the human environment are potentially affected by the Preferred Alternative and the No Action Alternative. Paragraph B-1.3 of Appendix B to FAA Order 1050.1F, states "...the Study Area may extend vertically from the ground to 10,000 feet above ground level (AGL), or up to 18,000 feet AGL if the proposed action or alternative(s) are over a national park or wildlife refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute." Furthermore, policy guidance issued by the FAA Program Director for Air Traffic Airspace Management states that for air traffic project environmental analyses noise impacts should be evaluated for proposed changes in arrival procedures between 3,000 and 7,000 feet AGL and departure procedures between 3,000 and 10,000 feet AGL for large civil jet aircraft weighing over 75,000 pounds.

In developing the General Study Area, the FAA collected radar data from flight paths in the DEN Metroplex. The General Study Area was designed to capture all flight paths identified in the radar data collected for the preparation of the Draft and Final EA and Errata as well as the designed Preferred Alternative routes out to the point at which 95 percent of aircraft are at or above 10,000 feet AGL for departures and at or above 7,000 feet AGL for arrivals, accounting for the terrain in and around the DEN Metroplex. The lateral extent of the General Study Area was concisely defined to focus on areas of traffic flow.

The resulting General Study Area is depicted on Exhibit 4-1 in the Final EA and Errata and includes all or portions of 31 counties in the state of Colorado only. Detailed information regarding the affected environment with respect to each relevant impact category is presented in Chapter 4 of the Final EA and Errata.

The DEN Metroplex General Study Area encompasses one major airport:

- Denver International Airport (DEN)

The DEN Metroplex General Study Area also includes the following satellite airports:

- Centennial Airport (APA)
- Northern Colorado Regional Airport (FNL)
- Greeley-Weld County Airport (GXY)
- Rocky Mountain Metropolitan Airport (BJC)

The Final EA and Errata refers to the one major and four satellite airports collectively as the Study Airports.

IX. ENVIRONMENTAL CONSEQUENCES

The FAA analyzed the potential environmental impacts that could result from implementation of the Preferred Alternative as well as the impacts associated with the No Action Alternative on all relevant environmental impact categories specified in FAA Order 1050.1F. The FAA evaluated both alternatives for conditions in 2019, the first year of implementation of the optimized air traffic procedures under the Preferred Alternative in 2019, and 2024, five years after expected implementation of the Preferred Alternative.

The Preferred Alternative would not involve land acquisition, physical disturbance, or construction activities and, therefore, would not affect certain environmental impact categories. The following environmental resource categories would remain unaffected because either the resource does not exist within the General Study Area or it would not be affected by the activities associated with the Preferred Alternative. The unaffected resource categories or sub-categories include:

- Biological Resources (including fish and plants only)
- Coastal Resources
- Farmlands
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Historical, Architectural, Archeological, and Cultural Resources – Archeological and Architectural sub-category only
- Land Use
- Natural Resources and Energy Supply – Natural Resources sub-category only
- Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks
- Visual Effects (Light Emissions Only)
- Water Resources (including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)

The Preferred Alternative would not cause changes in patterns of population movement or growth, public service demands, or business and economic activity. In addition, the Preferred Alternative

does not involve construction or other ground disturbing activities that would involve the relocation of people or businesses. Furthermore, the Preferred Alternative does not include the construction of airport facilities that would result in or induce an increase in operational capacity. Thus, the Preferred Alternative would not result in Secondary or Induced impacts.

As found in Chapter 5 of the Final EA and Errata, those environmental impact categories that could potentially be affected by the Preferred Alternative are discussed further below.

Noise and Noise Compatible Land Use

As required by FAA Order 1050.1F, the Aviation Environmental Design Tool (AEDT) version 2d was used to model the noise impacts for the DEN Metroplex Project because the Project involves a study area larger than the immediate vicinity of an airport, incorporates more than one airport, and includes actions above 3,000 feet above ground level (AGL). While this is the policy delineating under what circumstances the AEDT model is to be used, this policy does not delineate the methodology applied in modelling noise. All noise modelling for this analysis was conducted from the ground elevation up to 18,000 feet AGL. All noise results are reported at the ground level elevation of that point based on the terrain model in AEDT. FAA also applied its criteria of significance, an increase of 1.5 dB DNL¹ or more on any noise sensitive area within areas exposed to 65 dB DNL or higher, to determine whether the Project would result in a significant noise impact. Noise was analyzed for both the Preferred Alternative and the No Action Alternative during the year in which implementation of the Preferred Alternative would be initiated (2019) and a five-year future condition (2024).

The AEDT model computed DNL exposure values at three sets of data points throughout the General Study Area:

1. United States Census Bureau population census block centroids (center point of a census block)
2. Unique points representing certain specific cultural resources and areas potentially protected under Section 4(f) of the Department of Transportation Act (DOT Act) (49 U.S.C. § 303(c)), and historic properties protected under Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. § 470 *et seq.*);

¹ DNL is the Day Night Average Sound Level. It is a single value representing the aircraft sound level over a 24-hour period. To represent the greater annoyance caused by a noise at night, the DNL metric includes a 10-decibel penalty weighting for noise occurring between 10:00 pm and 6:59 am.

3. A uniform grid covering the General Study Area (using 0.5 nautical mile spacing) to document aircraft DNL exposure levels at potential noise sensitive locations that were not otherwise identified.

The results identified the differences in DNL noise exposure between the two alternatives (Preferred Alternative compared to No Action Alternative) to determine if implementing the Preferred Alternative would result in significant noise impacts. The analysis also identified any DNL increase of 3 dB or higher in areas exposed to noise between DNL 60 dB and 65 dB and any DNL increase of 5 dB or higher in areas exposed to noise between DNL 45 dB and 60 dB. While the Final EA and Errata refers to such increases as a “reportable noise increase,” they are not significant. The results of the AEDT modeling indicated that:

1. The Preferred Alternative would not result in a DNL 1.5 dB or higher increase in noise-sensitive areas exposed to aircraft noise at or above DNL 65 dB
2. The Preferred Alternative would not result in DNL increases of 3 dB or higher in areas exposed to noise between DNL 60 dB and 65 dB
3. The Preferred Alternative would result in a DNL increase of 5 dB or higher in areas exposed to noise between DNL 45 dB and 60 dB.

Under the modelled year 2019, 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 noise in sensitive areas exposed to DNL 65 dB or higher. Accordingly, no mitigation is required per FAA Order 1050.1F, Appendix B, Paragraph B-1.13. Furthermore, no population would experience a reportable noise increase in areas exposed to DNL between 60 dB and 65 dB. However, a total of 71 people associated with two population centroids west and south of DEN would experience a DNL 5 dB reportable noise increase in areas exposed to DNL between 45 dB and 60 dB. One population centroid is located approximately 27 nautical miles west of DEN, in unincorporated Jefferson County; and one centroid is located approximately 38 nautical miles south of DEN, in unincorporated Elbert County.

The 2024 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. In addition, no population would be exposed to reportable noise increases between DNL 60 dB and 65 dB. However, a total of 123 people associated with four population centroids would experience a DNL 5 dB reportable noise increase in areas exposed to DNL between 45 dB and 60 dB. These population centroids are located in two general regions: two centroids are located approximately 27 nautical miles west of DEN, in unincorporated Jefferson County, Colorado; and two centroids are located approximately 38 nautical miles south of DEN, in unincorporated Elbert County.

Air Quality

Under the Preferred Alternative there would be a slight increase in fuel burn (1.61 percent in 2019 and 1.63 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 emissions and ground concentrations.. Flight procedures above 3,000 feet AGL are considered a de minimis action, and would have little if any effect on emissions and ground concentrations, and are presumed to conform to all State Implementation Plans (72 Fed. Reg. 6641 (February 12, 2007) for criteria pollutants. Furthermore, air traffic actions below the mixing height are also presumed to conform when modifications to flight paths and air traffic control procedures are designed to enhance operational efficiency (i.e., to reduce delay). Therefore, no further air quality analysis is necessary, a conformity determination is not required, and the Preferred Alternative would not result in a significant impact to air quality. The No Action Alternative would not result in a change in the number of aircraft operations or air traffic routes; therefore, no impacts to air quality would be anticipated.

Biological Resources – Wildlife (Avian and Bat Species) and Migratory Birds Sub-Categories Only

The greatest potential for impacts to wildlife species related to air traffic flight procedure changes would result from wildlife strikes on avian and bat species at altitudes below 3,000 feet AGL. The FAA's Wildlife Strike Database provides strike information that is reportable by airport, including species struck, height of strike, and type and extent of aircraft damage. Since 1990, the FAA has compiled pilot and airport reports of wildlife strikes with aircraft. Between the most recent comprehensive reporting period of 1990 and 2017, 197,833 wildlife strikes were reported nationally. Of the records that identify the type of animal involved in the strike incident, birds represent 95.0 percent of all strikes. Of those records, for commercial and GA aircraft, 71 and 73 percent of the bird strikes, respectively, occurred at or below 500 feet AGL and declined by 34 percent for every 1,000-foot gain in height for commercial aircraft and 44 percent for general aviation aircraft. The Wildlife Strike Database reports that of identified species, waterfowl, gulls, and raptors are the species groups of birds with the most damaging strikes.

Table 5-5 in the Final EA and Errata provides a summary of wildlife strikes reported for the Study Airports between January 1, 1990 and April 14, 2019. In total, 7,011 reported strikes (97.78 percent of all strike records) occurred at altitudes below 3,000 feet AGL. A total of 4,676 strikes reported below 3,000 feet AGL at the Study Airports included species identification.

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. §§ 703–712) protects all the bird species identified in these reports. Furthermore, federal and state laws protect listed endangered and threatened species. In Chapter 4 of the Final EA and Errata, Table 4-3 identifies the federally-listed bird species believed to occur or known to occur in counties in the General Study Area. None of the bird strike reports at the Study Airports included the species listed in Table 4-3 in the Final EA and Errata.

The number of aircraft operations under the Preferred Alternative and No Action Alternative would be the same. Therefore, the assessment of the potential impacts focuses on changes to flight paths and the potential for impact due to wildlife strikes. As shown in Table 5-5 in the Final EA and Errata, only 2.22 percent of bird/bat strikes (159 of 7,170 total records) occurred at altitudes above 3,000 feet AGL. The substantial decline in the number of strikes reported above 3,000 feet AGL indicates that there is less likelihood of bird/bat strikes at these altitudes. Under the Preferred Alternative, changes to proposed flight paths would primarily occur at or above 3,000 feet AGL and no significant changes to arrival and departure corridors below 3,000 feet AGL would be expected. Therefore, no significant impacts to avian or bat species would be anticipated.

The No Action Alternative would not involve changes to air traffic flows, land acquisition, construction, or other ground disturbance activities. Therefore, no impacts to avian and bat species would occur.

Climate

Although there are no federal standards for aviation-related greenhouse gas emissions, the CEQ has indicated that climate should be considered in NEPA analyses. In 2019, the Preferred Alternative would produce approximately 3,869.55 Metric Tons (MT) of CO₂e and the No Action Alternative would produce approximately 3,808.21 MT of CO₂e. This represents a slight increase of approximately 61.33 MT of CO₂e or 1.61 percent under the Preferred Alternative when compared to the No Action Alternative. Similarly, in 2024, the No Action Alternative would produce approximately 4,310.73 MT of CO₂e and the Preferred Alternative would produce approximately 4,381.17 MT of CO₂e. This represents a slight increase of approximately 70.44 MT of CO₂e or 1.63 percent under the Preferred Alternative when compared to the No Action Alternative. This would compromise less than .000000829 percent of U.S.-based greenhouse gas emissions as reported for 2017.

Department of Transportation Act, Section 4(f) Resources

The FAA identified resources within the General Study Area that had the potential to qualify for protection under Section 4(f) of the Department of Transportation Act (Section 4(f)). Under FAA Order 1050.1F, the FAA is responsible for determining whether project-related impacts would substantially impair a Section 4(f) resource. Under FAA Order 1050.1F, a significant impact would occur when a proposed action either involves more than a minimal physical use of a Section 4(f) resource or would result in a “constructive use” substantially impairing the 4(f) property. No land acquisition, construction, or other ground disturbance activities would occur under the Preferred Alternative; therefore, the Preferred Alternative would not physically incorporate a resource that may impact important activities, features, or attributes associated with it, or to substantially impair it. Accordingly, the FAA assessed the Preferred Alternative’s potential for constructive use that could occur as a result of both noise and visual impacts.

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 a resource protected under Section 4(f) would be substantially impaired by a change in aircraft noise exposure and/or aircraft overflights. Consultation with the National Park Service did not identify any constructive use of any resources protected under Section 4(f) within Rocky Mountain National Park, as well as other resources, such as National Historic Landmarks, designated through programs administered by National Park Service. At the request of the National Park Service, the FAA was asked to consider the use of appropriate supplemental noise metrics. In collaboration between the FAA and the National Park Service, the two agencies consulted on the use of supplemental noise analysis of the effects of aircraft overflying Rocky Mountain National Park. The FAA determined that further analysis using supplemental metrics would not produce meaningfully different results than the previous analysis under the 2012 Environmental Assessment for the *FAA RNAV and RNP Procedures at Denver International Airport, Centennial Airport and Rocky Mountain Metropolitan Airport*. In addition, the FAA determined that supplemental noise analysis would not better inform the environmental analysis specific to the action as the Preferred Alternative involves incremental changes and refinements to existing flight procedures and would not affect the number or type of aircraft overflying the Rocky Mountain National Park. Additionally, through 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. Consultation was initiated with the U.S. Forest Service in September 2019, and with the Golden Gate Canyon State Park in October 2019.

As stated in FAA Order 1050.1F, Appendix B, paragraph B 2.2.2, changes in aircraft noise exposure, noise would need to be at levels high enough to have a negative consequence of a substantial nature that amount to a taking of a park or portion of a park for transportation purposes.

The analysis for assessing the potential constructive use considers the change in aircraft noise exposure levels and identifies any significant or reportable noise increases.

For the identified Section 4(f), Historic, and Cultural Resource areas in the modeled year of 2019, the Preferred Alternative would not result in a DNL 1.5 dB increase or decrease in areas exposed to DNL of 65 dB and higher, nor would it result in a reportable noise increase or decrease of DNL 3.0 dB in areas exposed to DNL 60 dB to 65 dB compared with the 2019 No Action Alternative. Additionally, the Preferred Alternative would not result in a DNL 5 dB reportable increase or decrease in areas exposed to DNL between 45 dB and 60 dB compared with the 2019 No Action Alternative.

For the identified Section 4(f), Historic, and Cultural Resources areas in the modeled year of 2024, the Preferred Alternative would not result in a DNL 1.5 dB increase or decrease in areas exposed to DNL of 65 dB and higher, nor would it result in a reportable noise increase or decrease of DNL 3.0 dB in areas exposed to DNL 60 dB to 65 dB in almost all areas when compared with the 2019 No Action Alternative. However, one Section 4(f) noise grid point would experience a DNL 5 dB reportable noise increase in areas exposed to DNL between 45 dB and 60 dB (a reportable increase in noise).

The single reportable Section 4(f) noise grid point is located above the Lost Creek Wilderness Area of the Pike and San Isabel National Forests, on a ridgeline south of Shawnee Peak of the Kenosha Mountains, at a ground elevation of approximately 12,000 feet mean sea level (MSL). From an air traffic perspective, the reportable Section 4(f) noise grid point is just outside the Denver Terminal Radar Approach Control Facility (TRACON) boundary, between the SSKII and BGDEE fixes on the Preferred Alternative SSKII1 STAR flight procedure. From a geographic perspective for the corresponding location on the ground, the reportable Section 4(f) noise grid point is approximately 6.5 statute miles west-southwest of Bailey, Colorado and 4.1 statute miles south-southwest of Shawnee, Colorado within the Lost Creek Wilderness Area boundaries. The reportable Section 4(f) noise grid point is 1.5 statute miles north of vehicle accessible and travelled County Road 56, also known as Lost Park Road that leads to the Lost Creek Campground. The reportable Section 4(f) point is bound on the north by the Craig Park/Craig Creek (hiking/biking) Trail, on the south by the Colorado (hiking/biking) Trail, the Ben Tyler (hiking/biking) Trail on the west, and the Brookside McCurdy (hiking/biking) Trail on the east.

In the 2024 No Action Alternative, there were 37,168 (approximately 102 flights per day) DEN arrival operations using this southwest arrival gate of which 36,315 (97.7 percent, approximately 99 flights per day) are within ± 1.5 nautical miles of the Preferred Alternative SSKII1 STAR flight procedure center-line. Flights range from 15,500 feet MSL (3,500' feet AGL) to 22,000 feet (10,000 feet AGL) in this region. In the 2024 Preferred Alternative, there were 37,255 (approximately 102 flights per day) DEN arrival operations using this southwest arrival gate of

which 36,535 (98.0 percent or approximately 100 flights per day) are within ± 1.5 nautical mile of the Preferred Alternative SSKIII STAR flight procedure center-line. Flight tracks have historically been at approximately 15,500 feet MSL (3,500 feet AGL) to 22,000 feet MSL (10,000 feet AGL) in this region.

The reportable noise increase in the 2024 Preferred Alternative can be attributed to aircraft operating on the TELLR2 and CREDE3 arrival flight procedures in the 2024 No Action Alternative shifting to SSKIII STAR flight procedure in the 2024 Preferred Alternative. The basis for this occurrence is the CREDE waypoint on the CREDE3 STAR moved 0.743 nautical miles to the northwest (on a heading 339 degrees) to become the SSKII waypoint on the Preferred Alternative SSKIII STAR flight procedure. The location of the single reportable Section 4(f) noise grid point has been overflowed, and will continue to be overflowed by aircraft utilizing the primary southwest arrival gate for the DEN arrivals, and arrivals to all airports in the Denver metropolitan area using arrival flight procedures through this southwest arrival gate. Radar track data analysis from the existing condition data (2017), and additional radar track analysis indicated aircraft have historically been present over this reportable noise grid point, and continue to follow the southwest arrival gate flight path.

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. The FAA's aircraft noise exposure analysis indicates that the Preferred Alternative would not exceed the threshold of significance for changes in aircraft noise exposure at any Section 4(f) resource identified within the General Study Area when compared with the No Action Alternative. Therefore, no constructive use of the Lost Creek Wilderness Area associated with the change in aircraft noise exposure would be anticipated. Additionally, the Preferred Alternative would closely follow historic flight paths of the primary southwest arrival gate. Due to the historic presence of aircraft flight paths in this vicinity, no impairment to the view or setting of the Lost Creek Wilderness Area would be anticipated. Therefore, no constructive use of a Section 4(f) resource associated with the Preferred Alternative would occur and no visual impacts would be anticipated.

Therefore, the Preferred Alternative when compared to the No Action Alternative would not result in a constructive use of the Lost Creek Wilderness Area. Moreover, the FAA has determined that the Preferred Alternative when compared to the No Action Alternative, would not result in potential impacts to resources protected under Section 4(f).

Historic, Architectural, Archeological, and Cultural Resources – Historic Properties and Cultural Resources Sub-Categories Only

Section 106 of the National Historic Preservation Act (NHPA) requires the FAA to consider the effects of its undertakings on properties listed or eligible for listing in the National Register of Historic Places (National Register). In assessing whether an undertaking, such as the Preferred Alternative, affects a property listed or eligible for listing on the National Register, FAA must consider both direct and indirect effects. Direct effects include the physical removal or alteration of an historic resource. Indirect effects include changes in the environment of the historic resource that could substantially alter the characteristics that made it eligible for listing on the National Register. Such changes could include changes in noise exposure and visual impacts. No land acquisition, construction, or other ground disturbance activities would occur under the Preferred Alternative; therefore, the Preferred Alternative would not directly (i.e., physically) affect any historical, architectural, archaeological, or cultural resources.

Area of Potential Effect

To assess the potential effects of the Preferred Alternative on historic resources, an area of potential effects (APE) was defined. Federal regulations define the APE as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. At the time consultation under Section 106 was initiated with the Colorado State Historic Preservation Office (SHPO) the FAA did not have results related to the environmental analysis of the relevant NEPA impact categories. At that time, the FAA defined the APE boundary the same as the General Study Area boundary. Subsequent to the noise modelling analysis the boundaries of the APE were revised based on the results of the noise modelling analysis. The noise modelling analysis identified the locations of noise grid points at the threshold of a reportable change in aircraft noise exposure. The areas of a reportable noise were applied in determining the revised APE in order to identify the location of eligible and listed historic properties. This APE did not change with any of the revisions to the Preferred Alternative for the Final EA.

Identification of Properties

In consultation with the Colorado SHPO, the FAA requested their assistance to identify other interested parties that would likely have an interest in the undertaking and its effects on historic properties. The Colorado SHPO encouraged the FAA to seek out advice from the municipalities with historic preservation ordinances. The database provided by the Colorado SHPO includes a list of municipalities with historic preservation commissions, and those that are noted as Certified

Local Governments. The FAA identified three municipalities whose boundaries intersect the boundaries of the APE. The FAA initiated consultation with the City of Arvada, Jefferson County, and Elbert County. The FAA sought information from these consulting parties having jurisdiction and/or special expertise to identify surveyed and recorded historical resources, affording them the same status as the Colorado SHPO with respect to potential effects of this undertaking.

Additionally, the Colorado SHPO advised the FAA that certain eligible and listed property data may only be found in the Colorado Office of Archaeology and Historic Preservation Information Management System (Information Management System), and not available through our research of readily available federal, state, and local sources. The Colorado SHPO recommended conducting a file search of the Information Management System in order to identify previous survey and recorded cultural resources within the APE. The file search request identified potentially eligible properties within the APE.

Within the APE area in Elbert County, the file search results report identified one survey area (SHPO ID EL.SC.NR75) and two site locations (SHPO ID 5EL.46 and SHPO ID 5EL.82). The resource site information for SHPO ID 5EL.82 indicates the resource was collected and is no longer on-site, and the site SHPO ID 5EL.46 was a comparison of multiple sites across a broad geographic area on private lands, and does not identify specific resources. Aircraft operating under instrument flight rules arriving and departing from the Denver Metroplex Project Study Airports have historically, and will continue in the reasonably foreseeable future, to overfly the resources identified by SHPO for the APE in Elbert County.

Within the APE area in Jefferson County, the file search report identified two site records (SHPO ID 5JF.1235, SHPO ID 5JF.2402) and two surveys (SHPO ID JF.LG.R15 and SHPO ID JF.LG.R45). The location of these resources are within the Coal Creek Canyon Open Space of which Ralston Buttes is a portion. The Coal Creek Canyon Study Area Management Plan does not indicate the area is managed for anything other than terrestrial access, and species de-confliction. Aircraft operating under instrument flight rules arriving and departing from the Denver Metroplex Project Study Airports have historically, and will continue in the reasonably foreseeable future, to overfly the resources identified by SHPO for the APE in Jefferson County.

Assessment of Effects

The assessment for adverse effects to historic and cultural resources focused on the potential for adverse effects that may result from changes in air traffic routes, such as aircraft noise and visual impacts. Based on the modeled results for the unique noise grid points and General Study Area uniform noise grid points, no historically, architecturally or culturally significant properties listed on the National Register located in the area exposed to DNL 65 dB or higher would experience a

significant increase of DNL 1.5 dB or higher. Furthermore, the Preferred Alternative would not cause reportable noise increases of DNL 3 dB or higher in areas exposed to noise between DNL 60 dB and 65 Db. However, reportable noise of DNL 5 dB or higher in areas exposed to noise between DNL 45 dB and DNL 60 dB was identified.

The file search results did not identify that any of these properties having a quiet setting, or note where the potential for aircraft overflight could cause an alteration in the character of the historic property that qualify it for the National Register. When compared with the No Action Alternative, the Preferred Alternative would not result in changes in aircraft noise exposure in 2019 or 2024 that would exceed FAA's significance threshold for noise.

Public Involvement

Throughout the Section 106 process and prior to making any determination of effect, the FAA has coordinated with and included interested parties and the public. The FAA coordinated the public involvement process under Section 106 and NEPA to provide the interested public opportunity to provide input in a timely manner. Accordingly, the FAA used the Agency's procedures for public involvement under NEPA in lieu of public involvement requirements under 36 CFR § 800.2, as it provides adequate opportunities for public involvement consistent with the requirements. Consistent with the requirements, the FAA used multiple measures to inform the public of the opportunities for their involvement and input under the NHPA. The FAA published the Notice of Intent (NOI) to prepare an EA on May 6, 2016. The NOI advised that the FAA sought public inputs for the environmental resource categories or sub-categories that the Denver Metroplex Project could potentially effect. The resource categories or sub-categories defined within FAA Order 1050.1F, Environmental Impacts: Policies and Procedures include Historical, Architectural, Archeological and Cultural Resources (Historic and Cultural Resources sub-categories only). The Denver Metroplex Project Draft EA was released April 22, 2019, and included notification to the public of the undertaking and its effect on historic properties. The FAA considered the public inputs received during the Draft EA 45-day comment period in order to make a preliminary decision as to the potential for the undertaking to effect historic properties. Due to the revisions of the undertaking, the FAA released the Final EA for public review and comment. The FAA published a Notice of Availability for the release of the Final EA. As part of this review, a 30-day public comment period from November 18, 2019 through December 20, 2019 was made available for the interested public to submit comments on any of the changes made in the Final EA and Errata, and the FAA's process and determinations under Section 106 of the NHPA.

Subsequent to the reasonable and good faith efforts for identification of historic properties, the Gilpin County Historic Preservation Advisory Commission submitted a comment on the Final EA and Errata. The Gilpin County Historic Preservation Advisory Commission noted that in addition to certain historic resources listed on the National Register of Historic Places, other resources have not yet been identified within in Gilpin County. It is important to note that locations within Gilpin County are outside of the APE and that any changes to the Final EA Preferred Alternative did not

change the boundaries of the APE presented to the SHPO during consultation. However, the FAA acknowledges the concerns of the Gilpin County Historic Preservation Advisory Committee that the Preferred Alternative routes additional aircraft from a flight path overflying Boulder County to overflying Gilpin County. The implementation of the Preferred Alternative would not increase the number of aircraft operations at the Study Airports. Furthermore, not all of the changes requested by the public could be incorporated for the RNAV SID flight procedures that depart to the west. Due to the potential reduction in air traffic control safety requirements, moving the proposed ZIMMR RNAV SID further south than the 2.0 nautical miles would require also moving the proposed COORZ, CONNR and BAYLR RNAV SID procedures to maintain air traffic control separation standards and would conflict with inbound traffic to Denver International Airport. Therefore, the proposed COORZ, CONNR, and BAYLR RNAV SID flight procedures will closely follow current flight corridors over Boulder County and Gilpin County, while the ZIMMR RNAV SID flight procedure will overfly north of the Gilpin County boundary. Aircraft operating under instrument flight rules arriving and departing from the Denver Metroplex Project Study Airports have historically, and will continue in the reasonably foreseeable future, to overfly the resources identified by SHPO for the APE. However, rapidly changing atmospheric conditions and convective activity over the Front Range may require air traffic control to build in a greater margin of safety to than the minimum separation standards for aircraft which may affect aircraft on the ZIMMR RNAV SID flight procedure.

Determination of Effects

The Preferred Alternative when compared to the No Action Alternative would not introduce an audible or visual element that would likely adversely affect an eligible or listed historic property. Consultation with the interested parties having special expertise or jurisdiction within the APE did not identify any historic 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. No properties were identified having a quiet setting, or note where the potential for aircraft overflight could cause an alteration in the character of the historic property that qualify it for the National Register. Furthermore, changes in aircraft routes associated with the Preferred Alternative would generally occur at altitudes above 3,000 feet AGL; therefore, the visual sight of aircraft and aircraft lights would not be considered intrusive. Aircraft operating under instrument flight rules arriving and departing from the DEN Metroplex Project Study Airports have historically overflown the resources identified in the APE. Such aircraft will continue to do so in the reasonably foreseeable future.

After reviewing all comments received on the Final EA and Errata as well as the FAA's preliminary Section 106 determination and after careful consideration, the FAA reaffirms its

determination that the Preferred Alternative when compared to the No Action Alternative would have “no adverse effects” to historic properties for the DEN Metroplex Project as the effects by aircraft overflights would not diminish the integrity of any historic property and therefore do not meet the criteria for adverse effect under 36 CFR 800.5. The Colorado SHPO has provided their written concurrence of FAA’s determination of “no adverse effect” to historic properties.

In addition, in accordance with Executive Order 13175, *Consultation and Coordination with Indian and Tribal Governments* and FAA Order 1210.20, *American Indian and Alaska Native Tribal Consultation Policy and Procedures*, the FAA participated in government to government consultation to identify any concerns that could uniquely or significantly affect Tribal interests related to the DEN Metroplex Project. While there are no on-tribal or off-tribal lands located within the General Study Area based on readily available data, the FAA initiated consultation in April 2019 with the Native American Tribes leadership and Tribal Historic Preservation Officers for those Tribes that have a legacy occupation within the State of Colorado. A total of 99 Tribal representatives were contacted as part of the Section 106 process. Of the 99 recipients of the FAA letter dated April 8, 2019, representatives of three Tribes requested additional information and/or expressed their interest to assist with consultation. One Tribe concluded consultation in July 2019, with the remaining two Tribes concluding consultation in August, 2019. Each of the three Tribes expressed concurrence to FAA’s proposed finding of “no adverse effects” to historic properties for the DEN Metroplex Project.

Letters of concurrence and acknowledgement from interested parties received following the release of the Final EA and Errata as well as the Section 106 consultation information can be found in the FONSI/ROD Appendix B: *Agency Coordination*.

Natural Resources and Energy Supply - Energy Supply Sub-Category Only (Aircraft Fuel Only)

Under the Preferred Alternative, the optimized air traffic routes would improve the efficiency of air traffic routes and operations, including continuous climb-outs and optimized descents, where possible. However, aircraft fuel consumption would increase slightly compared with the No Action Alternative.

Aircraft fuel burn is considered a proxy for determining whether the Preferred Alternative would have a measurable effect on local energy supplies when compared with the No Action Alternative. The FAA’s AEDT model calculates aircraft-related fuel burn as an output along with calculating aircraft noise exposure. AEDT fuel burn analysis was completed for the Preferred Alternative and No Action Alternative. In comparison to the No Action Alternative, the Preferred Alternative would result in approximately 19.44 metric tons (MT) more fuel burned in 2019 (1.61 percent

increase) and approximately 22.33 MT more fuel burned in 2024 (1.63 percent increase). Given these relatively small increases, the FAA expects that when compared with the No Action Alternative, the Preferred Alternative would not adversely affect local fuel supplies. Therefore, no significant impacts to energy supply would be anticipated.

Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks – Environmental Justice Sub-Category Only

Under the Preferred Alternative, neither people nor businesses would be displaced. As discussed in Section 5.1, under the Preferred Alternative no census block centroids in the General Study Area would experience a significant noise impact in either 2019 or 2024. The Preferred Alternative would not have the potential to lead to a disproportionately high and adverse impact to an environmental justice population, i.e., a low-income or minority population, due to an absence of significant impacts in other environmental impact categories; and a lack of significant impacts on the physical or natural environment that affect an environmental justice population in a way that the FAA has determined are unique to the environmental justice population and significant to that population. Under 2019 conditions, there are no population centroids (thus representing zero persons) located in areas identified as environmental justice communities that experience reportable noise increases of DNL 3 dB in areas exposed to DNL 60 to 65 dB. One 0.5 nautical mile noise grid point is on the edge of an area identified as an environmental justice community that experience reportable noise increases of DNL 5 dB in areas exposed to DNL 45 to 60 dB. The 0.5 nautical mile noise grid point affected by reportable noise is depicted in Exhibit 5-3 in the Final EA and Errata.

At the location of the 2019 0.5 nautical mile noise grid point experiencing a reportable noise increase located in the area of Environmental Justice, two ranch/farm residences with multiple outbuildings are located in the immediate vicinity. One ranch/farm residence is immediately north of the 0.5 nautical mile noise grid point, and the second ranch/farm residence is immediately south of the 0.5 nautical mile noise grid point for a total of two ranch/farm residences in the immediate vicinity. A total of 9,623 housing units are reported in Elbert County as of 2017. The two ranch/farm residences in the immediate vicinity of the 0.5 nautical mile noise grid point for reportable noise represent 0.021 percent of the total residences in Elbert County and thus do not represent a disproportionately high number of total residences affected by reportable noise exposure.

Under 2024 conditions, there is one population centroid representing 34 persons and eight 0.5 nautical mile noise grid points located in areas identified as environmental justice communities that experience reportable noise increases of DNL 5 dB in areas exposed to DNL 45 to 60 dB. This census centroid and the 0.5 nautical mile noise grid points are depicted in Exhibit 5-4 in the Final

EA and Errata. Approximately 3,917,842 persons reside in the General Study Area and of this total, one census centroid located in Elbert County represents 0.000087 percent of the total noise exposed population are exposed to a reportable noise increase. The reportable noise does not represent significant noise impacts, nor do they reflect disproportionately high or adverse impacts to minority or low-income communities relative to the General Study Area or Elbert County as whole. Therefore, no adverse direct or indirect effects would occur to any environmental justice populations within the General Study Area under the Preferred Alternative for 2019 and 2024.

Under the No Action, neither people nor businesses would be displaced. Furthermore, air traffic routes would not change and there would be no change in aircraft noise exposure in 2019 or 2024 that could result in an indirect impact. Therefore, the No Action would not result in disproportionately high and adverse human health or environmental effects on minority and low-income populations.

Visual Effects (Visual Resources / Visual Character Only)

The FAA has not established a significance threshold for Visual Resources / Visual Character. Significant factors to consider include potential effect an action has on the nature of the visual character of the area, potential to contrast with the visual resources and/or visual character in the General Study Area, and/or potential to block or obstruct the views of visual resources.

Implementation of the Preferred Alternative would not increase the number of aircraft operations at the Study Airports compared with the No Action Alternative. Changes in aircraft traffic patterns under the Preferred Alternative are expected to be at altitudes and distances sufficiently removed from viewers that visual impacts would not be anticipated. Under the No Action Alternative, no changes in air traffic routes would occur and no changes in aircraft overflight patterns would be expected. Therefore, the No Action Alternative would not result in visual impacts.

Cumulative Impacts

Council on Environmental Quality regulations define a cumulative impact 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.” The regulations also state that cumulative impacts can result from individually minor, but collectively significant actions that take place over a period of time.

Research was conducted to identify planned airport improvement projects at all Study Airports that in combination with the Preferred Alternative might result in cumulative environmental

impacts. Past, present, and reasonably foreseeable future actions that would have direct or indirect effects on aircraft flight patterns within the General Study Area were considered. Therefore, the type of projects that would be 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. “Reasonably foreseeable future actions” refers to projects that would likely be completed before 2024. A comprehensive search of the FAA Airport Capital Improvement Programs for the identified Study Airports did not identify any runway or taxiway modification projects that would affect runway endpoint or airfield elevation changes within the timeline horizons of the Final EA and Errata.

The same significance thresholds used to determine impacts associated with the Preferred Alternative are applied to determine significant cumulative impacts. Chapter 5, Table 5-1 *Summary of Potential Environmental Impacts*, identifies the environmental impact categories that the Preferred Alternative could potentially affect, and the threshold of significance used to determine the potential for environmental impact, and the results of the significant impact determination for each impact category resulting from implementing the Preferred Alternative under 2019 and 2024 forecast conditions. As the implementation of the Preferred Alternative when considered with other past, present and reasonably foreseeable actions that could alter where aircraft fly would not be expected to result in significant cumulative impacts, no further analysis for cumulative impacts is required.

X. AGENCY COORDINATION AND COMMUNITY ENGAGEMENT

Subsequent to the Denver Metroplex Study Team phase, the FAA undertook a community engagement process to provide an opportunity for the public to comment on the Preliminary Procedure Designs. The community engagement process included activities that encompassed 23 briefings with select officials, aviation stakeholders, and public workshops. These community engagement activities occurred between November 2015 and December of 2018. A total of 42 meetings, briefings and/or workshops were conducted throughout the General Study Area during this timeframe. As a result of the public workshops held along the Front Range, 866 email comments and 61 written comments were received and considered in the procedure design process. Design changes were made to preliminary designs and in all cases where appropriate, were carried forward to the Preferred Alternative in the Draft EA.

The FAA community engagement and early consultation process within the overall environmental assessment process began with a notice the FAA was initiating preparation of a Draft EA for the DEN Metroplex Project. On May 6, 2016, the FAA distributed a letter containing the notice of intent to prepare a Draft EA for the DEN Metroplex Project to 395 federal, state, regional, and local officials.

On May 8, 2016, a notice of intent to prepare a Draft EA was published in the Denver Post. Eleven comments were received in response to the notice of intent and were considered in preparation of the Draft EA. On April 8, 2019, the FAA initiated Section 106 consultation with the Colorado SHPO office. In addition, the FAA, the FAA initiated government to government consultation on April 9, 2019 with 99 parties listed by the Colorado SHPO.

On April 22, 2019, the FAA released a Draft EA for the proposed DEN Metroplex Project for a 45-day public review and comment period. The comment period closed on June 6, 2019. The FAA recognizes the importance and value of public input in this process. In addition to accepting written comments, the FAA hosted twelve (12) public workshops between April 29 and May 16 in the cities of Boulder, Erie, Broomfield, Aurora, Parker, Centennial, Greenwood Village, Littleton, Longmont, Denver, Brighton, and in Denver again. FAA representatives were available at each public workshop to help attendees better understand the Project.

The comments received were submitted through the FAA website comment form, regular mail, the public workshop comment card, and FAA email correspondence. The FAA received 522 comments by private citizens and groups, elected officials, municipalities, local, State, and Federal agencies. Of the 522 total comments received, 385 were submitted through the FAA website comment form, 102 were submitted through regular mail, 24 were submitted at the public workshops, and 11 were received at an FAA email address. Of the 385 website comment forms received, 4 forms were blocked messages as the message contained a file attachment with a prohibited file extension; and the message was blocked by the FAA Exchange messaging transport rule 'BLOCK File EXTENSION Filter for ALL Mailflow'. We, therefore, cannot provide any response. Consistent with FAA Order 1050.1F, all substantive comments to the Draft EA and the FAA's responses were included in Appendix J (Volumes 1-10) of the Final EA and Errata.

After the conclusion of the public review period for the Draft EA, the FAA reviewed all comments received during the April 22 through June 6, 2019 public review period from the public as well as feedback from airports, agencies, and elected representatives related to proposed procedure designs.

In addition to considering all comments received regarding potential impacts of the project, an analysis was conducted to determine whether community concerns could be addressed through minor design modifications while still meeting the purpose and need of the Project.

On November 18, 2019, the FAA released a Final EA and Errata for the proposed DEN Metroplex Project for a 32-day public review and comment period. The comment period closed on December 20, 2019. The FAA recognizes the importance and value of public input in this process and solicited comments specifically on the changes to the text, exhibits, tables, and appendices in the Final EA and Errata as well as on the preliminary determinations made under Section 106 of the National Historic Preservation Act. The comments received were submitted through the FAA

website comment form, regular mail, and FAA email correspondence. The FAA received 453 comments by private citizens and groups, elected officials, municipalities, local, State, and Federal agencies. Of the 453 total comments received, 424 were submitted through the FAA website comment form, 28 were submitted through regular mail, and one (1) was received at an FAA email address. The FAA carefully considered all comments received and no changes were made to the Preferred Alternative as described in the Final EA and Errata.

XI. AGENCY FINDINGS

A. The DEN Metroplex Project will ensure the safety of aircraft and the efficient use of airspace. (49 U.S.C. § 40103(b)).

The Federal Aviation Act of 1958 gives the Administrator the authority and responsibility to assign by order or regulation the use of the navigable airspace in order to ensure the safety of aircraft and the efficient use of the airspace. In its continuous effort to ensure safety of aircraft and improve the efficiency of transit through the navigable airspace, the FAA will create or modify SIDs and STARs in the DEN Metroplex. The DEN Metroplex Project will enhance the efficiency of the airspace in the DEN Metroplex by creating shorter, more predictable ground and vertical paths through the limited airspace in the DEN Metroplex. Additionally, this Project will allow the FAA to continue to achieve its NextGen goals.

In deciding to implement the Preferred Alternative, the FAA carefully evaluated both the Preferred Alternative and the No Actions. The No Action will not improve the efficiency of the airspace or address any of the three key causal factors for airspace efficiency. The No Action would not further the Agency's goal in transitioning to NextGen.

B. This Project does not involve the direct or constructive use of any resources protected under Department of Transportation Act Section 303(c), also known as Section 4(f).

The Project does not involve any physical development or modification of facilities and therefore no actual, physical use of resources protected under Section 4(f) of the Department of Transportation Act or Section 106 of the National Historic Preservation Act would result. The Project would also not result in a constructive use of any protected property because it would not cause increases in noise sufficient to impair the value of those resources. None of the protected properties in the General Study Area have a quiet setting as a generally recognized purpose and attribute. Additionally, the Project would not introduce aircraft overflights over protected properties. The Preferred Alternative would closely follow historic flight paths of the primary southwest arrival gate. Due to the historic presence of aircraft flight paths in this vicinity, no

impairment to the view or setting of protected properties would be anticipated. Therefore, no the Preferred Alternative would not results in the constructive use of resources protected under Section 4(f).

C. This Project does not adversely affect historic resources protected under Section 106 of the National Historic Preservation Act that are listed on the National Register of Historic Places or eligible for listing.

The Project would not cause an adverse effect under Section 106 of the National Historic Preservation Act on historic resources listed on or eligible for listing on the National Register of Historic Places located with the Area of Potential Effect. This determination is based on consultation under Section 106 of the National Historic Preservation Act with the Colorado State Historic Preservation Officer and other consulting parties.

D. Clean Air Act, Section 176 (c)(1) Conformity Determination (42 U.S.C. § 7506(c)).

The Project is an air traffic control activity that adopts approach and departure procedures for air operations. It is presumed to conform under 72 Fed. Reg. 41565 (July 30, 2007). The Project would not result in the development of physical facilities nor would it result in or induce an increase in operational capacity in the study area. Detailed analysis was not necessary to conclude that the Project conforms to the purposes of the State Implementation Plan for the State of Colorado. The Project will not cause a new violation of the National Ambient Air Quality Standards (NAAQS), worsen an existing violation, or delay meeting the standards of the NAAQS in the General Study Area.

E. The Preferred Alternative does not involve a disproportionately high and adverse impact to minority or low income populations (Executive Order 12898)

The FAA has determined that no disproportionately high and adverse impacts to environmental justice communities would occur from the Preferred Alternative, based upon findings that there are no noise impacts on residential communities, no community disruptions or divisions, no surface transportation impacts, no human health impacts and no essential services disruptions or other impacts that could potentially disproportionately impact any minority or low-income community.

XII. DECISIONS AND ORDERS

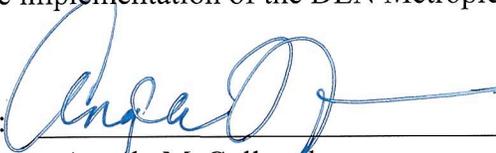
After careful and thorough consideration of the Final EA and Errata and the facts contained herein including Appendix A, I find that the Preferred Alternative is consistent with existing national environmental policies and objectives as set forth in Section 101 of National Environmental Policy Act and other applicable environmental requirements and is not a major federal action that will significantly affect the quality of human environment or otherwise include any condition requiring consultation pursuant to Section 102(2)(C) of National Environmental Policy Act.

I, the undersigned, have carefully and thoroughly considered the facts contained in the referenced Final EA and Errata including the evaluation of the purpose and need that this Project would serve, the alternative means of achieving the purpose and need, and the environmental impacts associated with these alternatives. I find the Project described in the Final EA and Errata is reasonably supported, and issuance of a finding of no significance is appropriate. Therefore, an environmental impact statement will not be prepared.

I have carefully considered the FAA's statutory mandate under 49 U.S.C. § 40103 to ensure the safe and efficient use of the National Airspace System as well as the other aeronautical goals and objectives discussed in the Final EA and Errata.

Accordingly, under the authority delegated to me by the Administrator of the FAA, I approve the operational changes as described in the Preferred Alternative and direct that actions be taken that will enable implementation of the DEN Metroplex Project.

Approved: _____



Angela McCullough
Vice President, Mission Support Services
Air Traffic Organization
Federal Aviation Administration

1/24/2020

Date

RIGHT OF APPEAL

This FONSI/ROD constitutes a final order of the FAA Administrator and is subject to exclusive judicial review under 49 U.S.C. § 46110 by the U.S. Circuit Court of Appeals for the District of Columbia or the U.S. Circuit Court of Appeals for the circuit in which the person contesting the decision resides or has its principal place of business. Any party having substantial interest in this order may apply for review of the decision by filing a petition for review in the appropriate U.S. Court of Appeals no later than 60 days after the order is issued in accordance with the provisions of 49 U.S.C. § 46110. Any party seeking to stay implementation of the ROD must file an application with the FAA prior to seeking judicial relief as provided in Rule 18(a) of the Federal Rules of Appellate Procedure.