February 2023 | Draft Supplemental Environmental Assessment

Nashville International Airport

Draft Supplemental Environmental Assessment for Concourse and Gate Expansion Project

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STRATEGIC PLANNING SERVICES

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1. PURPOSE AND NEED

1.1 INTRODUCTION

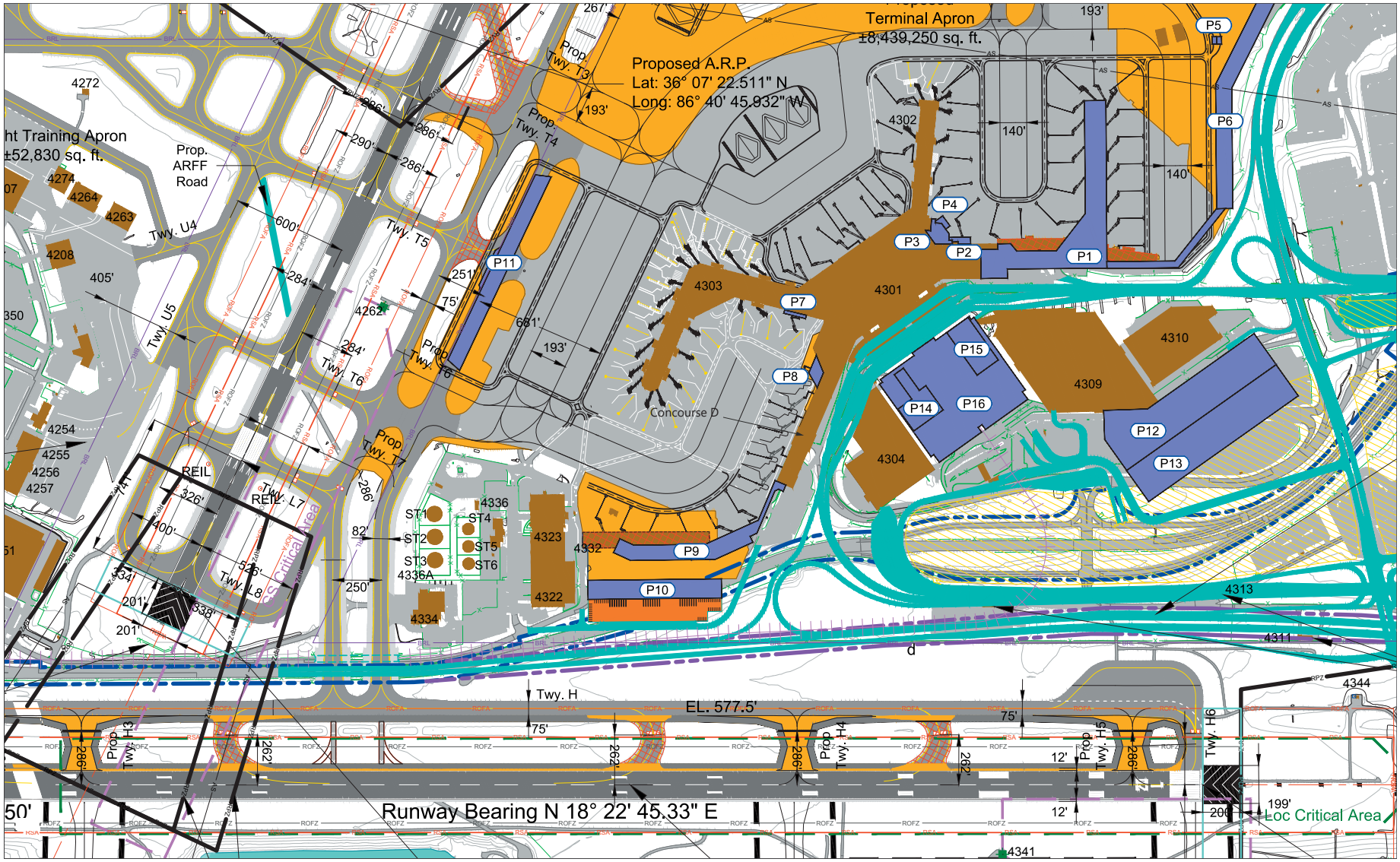
The Metropolitan Nashville Airport Authority (MNAA or the Authority) received approval for the Concourse and Gate Expansion (CAGE) program at Nashville International Airport (BNA or the Airport) in July 2021. The Federal Aviation Administration (FAA) issued a Finding of No Significant Impact (FONSI) on the Final Environmental Assessment (EA),[1] for the CAGE program that same month. The Draft EA was released for public review and comment on May 18, 2021.

The planned BNA terminal area is shown on the 2022 Future Airport Layout Plan (**Exhibit 1-1**). The CAGE program, as evaluated and approved in the Final EA, redeveloped the existing Concourse A into a 16-gate concourse, a net gain of ten (10) passenger gates – nine (9) arrival/departure domestic gates plus the replacement of one international arrivals-only gate (P1 on Exhibit 1-1). Associated improvements include improved amenities, concessions, ticket lobby, and baggage handling to enhance operational efficiency and the passenger experience as well as an expanded aircraft apron. The approved CAGE program also included a new satellite concourse that provides an additional eight (8) gates (P11 on Exhibit 1-1), as well as improvements to the main terminal to enhance operational efficiency and the passenger experience.

As planning for implementation of the Approved Action progressed, the Authority identified that aircraft operations and passenger activity levels were increasing faster than assumed in the CAGE EA. The Authority reassessed the aircraft operations and passenger forecasts and determined that the loss of gates during redevelopment of Concourse A, in combination with increases in demand, would cause a shortfall of passenger gates during construction that would negatively affect Airport operations and passengers. The MNAA identified that an additional five (5) passenger gates were needed to enable the redevelopment of Concourse A to maintain passenger aircraft operations and passenger level of service throughout the CAGE construction period.

Thus, MNAA proposes modifications to the CAGE program at BNA to construct a five-gate extension to the existing Concourse D building. The proposed modifications include related enabling and ancillary projects, which would affect an existing air freight building, multipurpose facility, ground service equipment (GSE) fueling facility, waste triturator, trash compactor, and deicing facility southeast of the terminal. Also included is the clearing and preparation of a construction storage and staging area on the south side of MNAA property (Proposed Modifications). In accordance with the National Environmental Policy Act (NEPA), the MNAA is preparing a Supplemental EA to evaluate the Proposed Modifications to the approved CAGE program.

[1] Garver, *Environmental Assessment (EA), Nashville International Airport, Concourse and Gate Expansion, MNAA Project 2019A*, July 12, 2021.



SOURCE: Metopolitan Nashville Airport Authority, *Nashville Int'l Airport, Proposed Airport Layout Plan,* February 22, 2022.

EXHIBIT 1-1

NORTH 0 Not To Scale

FUTURE AIRPORT LAYOUT PLAN

P:_PROJECTS\MNAA (Nashville)\21141237-BNA On-Call\09-Supplemental EA for Concourse D Extension\NEPA\Exhibit MasterDraft Concourse_Extension Draft Supp EA_Exhibit-1-1 20221121.pdf

1.2 LEGAL STANDARDS

To ensure full compliance with NEPA, MNAA is evaluating the change in environmental impacts, to determine if supplemental environmental documentation is required. This Supplemental EA follows guidance provided by FAA Environmental Orders 1050.1F[2] and 5050.4B.[3] Both Orders reference re-evaluating NEPA documents when there are new circumstances or information relevant to environmental concerns that come to light after the FAA has issued a finding.

FAA Orders 1050.1F and 5050.4B provide guidance as to the circumstances under which it is necessary to supplement an EA. FAA Order 1050.1F, Section 9-2,[4] states that where there are changes in the Proposed Action, or new information relevant to environmental concerns, the airport sponsor may prepare a written re-evaluation that will either conclude the contents of previously prepared environmental documents remain valid or that significant changes require the preparation of a supplemental or new EA.

FAA Order 1050.1F, Section 9-2.c[5] states "A new or supplemental EA or EIS need not be prepared if a written re-evaluation indicates that:

1. The proposed action conforms to plans or projects for which a prior EA and FONSI have been issued or an EIS has been filed and there are no substantial changes in the action that are relevant to environmental concerns;
2. Data and analyses contained in the previous EA and FONSI or EIS are still substantially valid and there are no new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts; and
3. Pertinent conditions and requirements of the prior approval have been, or will be, met in the current action."

If the proposed changes do not meet the criteria defined in Section 9-2.c (1)-(3), then further analysis is necessary.

Per FAA Order 1050.1F, paragraph 9-3:

A supplemental EA is required for a project if either of the following occurs:

1. There are substantial changes to the proposed action that are relevant to environmental concerns, or
2. There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts (see 40 CRF § 1502.9(c)(2), CEQ Regulations).

Based on the extent of the Proposed Modifications to the approved CAGE program, FAA has determined that a Supplemental EA needs to be prepared.

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[2] US Department of Transportation, Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures*, July 16, 2015.

[3] US Department of Transportation, Federal Aviation Administration, Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, April 28, 2006.

[4] US Department of Transportation, Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures*, July 16, 2015.

[5] US Department of Transportation, Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures*, July 16, 2015.

1.3 PURPOSE AND NEED

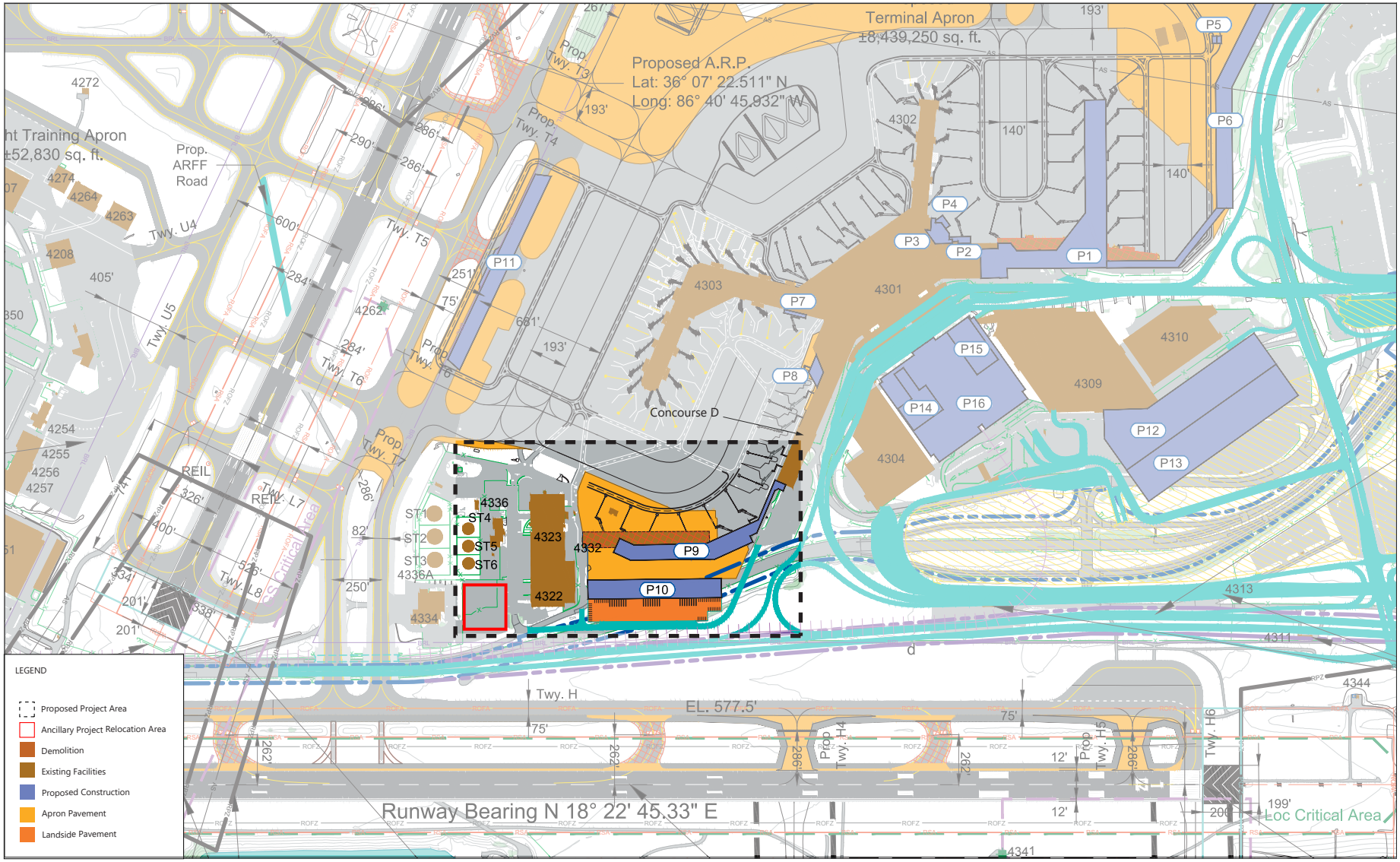
1.3.1 PURPOSE

The 2021 CAGE EA identified the purpose of the project described therein was to address current and forecasted passenger, air carrier, and stakeholder needs by providing BNA with 17 additional gates within the 20-year planning period. Similarly, the purpose of the Proposed Action is to efficiently serve passenger demand during construction of the CAGE program by providing sufficient contact gates through the construction period. In July 2021, the FAA approved construction of the CAGE program, which included 16 gates on a new Concourse A building, as documented in the Finding of No Significant Impact.[6] Reconstruction of Concourse A (P1 shown on Exhibit 1-1) requires the closure of six (6) existing contact gates, plus one international arrivals-only gate. The proposed extension of Concourse D (P9 on **Exhibit 1-2**) would provide sufficient gates to maintain operational efficiency during construction of Concourse A while allowing the Airport to meet the forecast increase in passenger demand.

1.3.2 NEED

The 2021 CAGE EA identified that the need for the Proposed Action was to accommodate projected increases in both enplanements and aircraft operations as a result of significant population, tourism, and economic growth in the greater Nashville area. Consistent with this need, the need for the Proposed Modifications is to increase the number of gates at Concourse D, prior to the closure of Concourse A, to accommodate the increase in aircraft operations and passenger enplanements forecast to occur at BNA by the planned completion date of the Concourse A project. Without the availability of the five (5) additional proposed contact gates on Concourse D, the decommissioning of gates during construction of Concourse A would result in a deficiency in contact gates to serve forecast demand, resulting in an increase in airline delays, flight cancellations, controller workload, and passenger inconvenience, and would reduce flexibility to accommodate irregular operations (IROPS) and/or delayed flights.

[6] US Department of Transportation, Federal Aviation Administration, *Finding of No Significant Impact, Concourse and Gate Expansion, Nashville International Airport, Nashville, TN*, July 2021.



SOURCE: Metropolitan Nashville Airport Authority, *Nashville Int'l Airport, Airport Layout Plan,* February 22, 2022.

EXHIBIT 1-2

PROPOSED MODIFICATIONS

NORTH 0 Not To Scale

ricondo:Shared:oDrive:Corporate:Creative Services:01 Projects:01 Client Projects:2022:BNA:MNAA:21141237-9_Concourse_Extension:Concourse_Extension_Exhibits.indd

1.3.2.1 PASSENGER GROWTH

Passenger growth at BNA increased rapidly following the decrease in air travel associated with the COVID-19 pandemic. As shown in **Table 1-1**, passenger enplanements forecast in the 2021 FAA Terminal Area Forecast (2021 TAF) are approximately seven percent and 18 percent higher in 2027 and 2037, respectively, than the CAGE EA forecast. Although forecast operations in the 2021 TAF are approximately 1.7 percent higher than the CAGE EA for 2027, BNA operations are forecast to be approximately more than 8 percent higher by 2037 in the 2021 TAF. A recent forecast prepared by MNAA shows an increase in expected near-term passenger levels and aircraft operations, relative to the FAA 2021 TAF. The previously approved CAGE program would not provide sufficient capacity for the duration of construction to accommodate the Airport's growth in passenger enplanements and aircraft operations since publication of the CAGE EA, particularly during construction of Concourse A.

TABLE 1-1 CAGE EA FORECAST VS. FAA 2021 TERMINAL AREA FORECAST VS. ACTUAL/PROJECTED

	ENPLANEMENTS BY FORECAST			OPERATIONS BY FORECAST		
YEAR	CAGE EA FORECAST	FAA 2021 TAF	MNAA FORECAST [2]	CAGE EA FORECAST	FAA 2021 TAF	MNAA FORECAST [3]
2017	7,076,371	6,748,782	--	205,802	204,731	--
2022	9,047,142	7,725,934	9,249,500	256,599	211,438	258,280
2025	9,571,771[1]	9,918,292	10,973,893	271,479[1]	264,909	281,361
2027	9,938,318	10,605,552	11,587,021	273,924	278,562	297,321
2032	10,886,036	12,303,040	12,706,580	291,664	307,942	326,929
2037	11,935,070	14,042,791	13,929,829	311,114	337,105	358,455

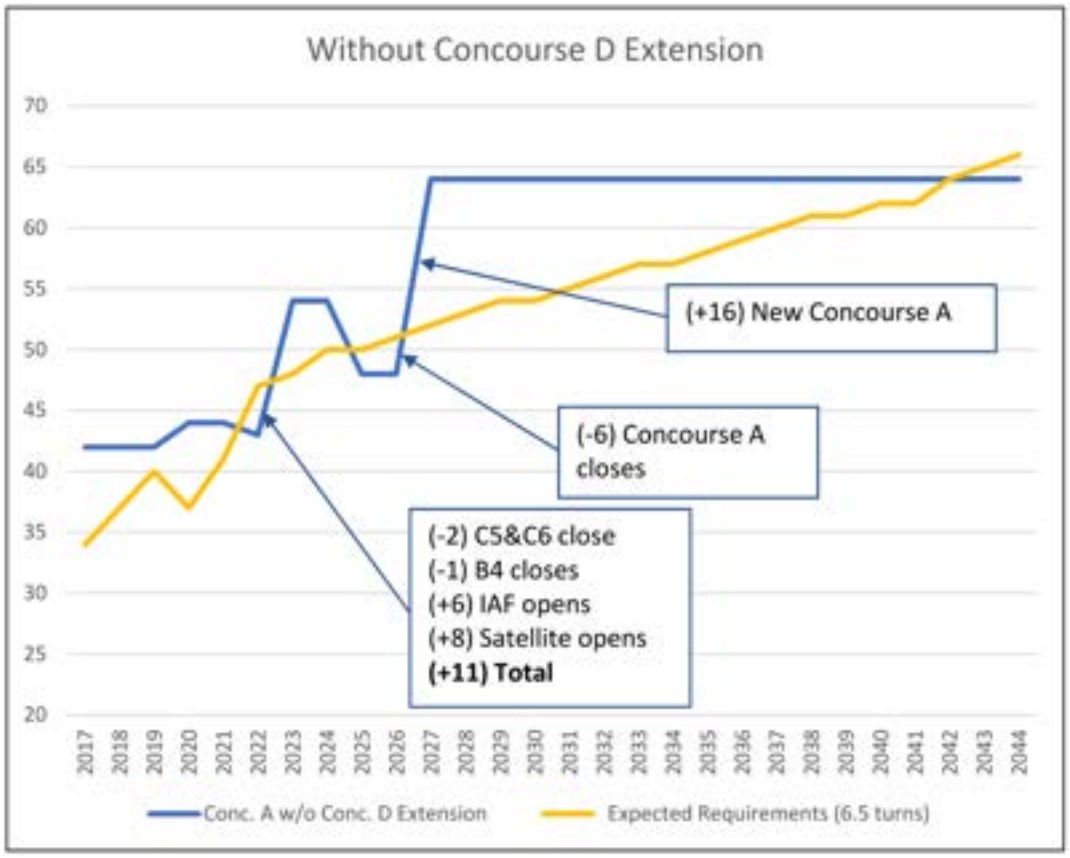
NOTES:
1 Data was interpolated from CAGE EA Forecast.
2 Fiscal Year Strategic Forecast compiled by MNAA 2021.
3 Compiled by MNAA, includes 2021 Strategic Forecast for passenger carriers combined with 2020 BNA Master Plan baseline forecast for cargo, air taxi, general aviation, and military operations.
SOURCE: AECOM, BNA Baseline Unconstrained Enplanement Forecast, 2020; Federal Aviation Administration, 2021 Terminal Area Forecast, June 2022; Metropolitan Nashville Airport Authority.

1.3.2.2 GATE DEMAND

In 2023, MNAA anticipates to open the satellite concourse and the International Arrivals Facility (IAF), which is located between Concourse B and Concourse C, adding a net total of 11 gates, bringing the airport gate count to 54.[7] The redevelopment of Concourse A requires that 6 of the existing aircraft gates at Concourse A be taken out of commission and demolished beginning in 2025, at which point BNA would have 48 aircraft gates, which would not meet demand. As shown on **Exhibit 1-3** below, without the Proposed Modifications, demand for gates (yellow line) would exceed contact gate supply by 2026 until Concourse A is completed in 2028.

[7] The satellite concourse was also referred to as "Concourse E" in the Finding of No Significant Impact prepared for the Environmental Assessment Nashville International Airport Concourse and Gate Expansion Project MNAA Project 2019A (2021).

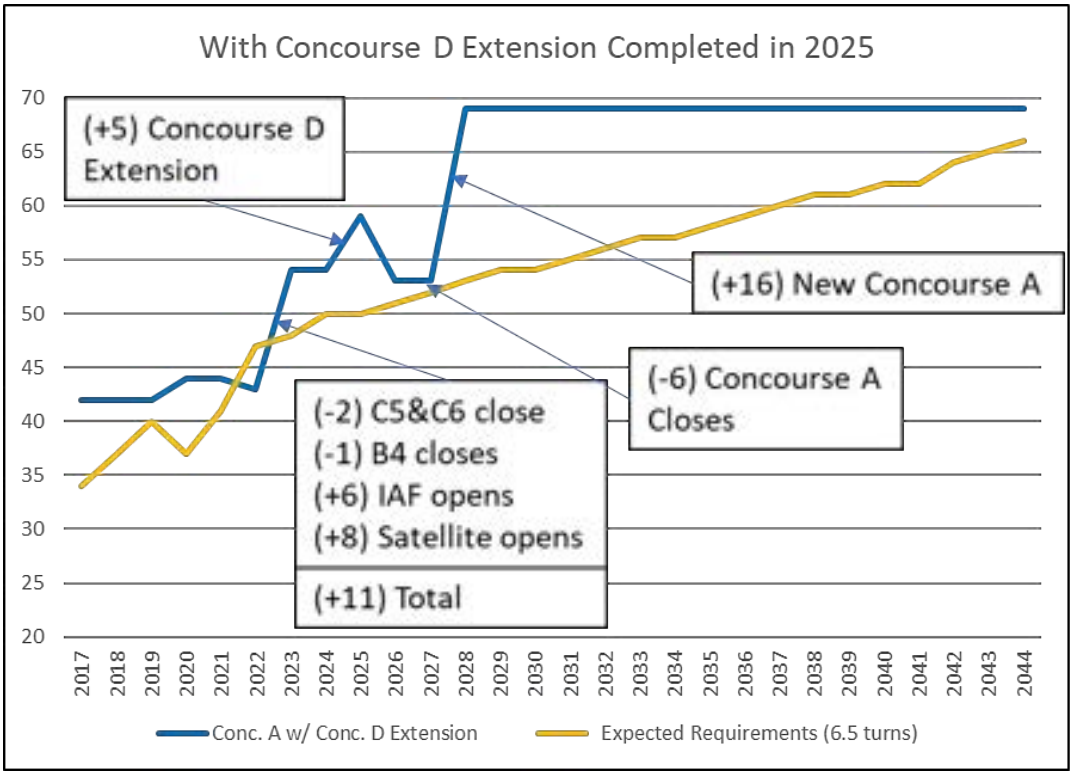
EXHIBIT 1-3 BNA GATE ALLOCATION DURING CAGE CONSTRUCTION WITHOUT CONCOURSE D



SOURCE: Metropolitan Nashville Airports Authority, Strategic Plan Review #3, September 20, 2021.

The Authority would begin construction of the Proposed Modifications in 2023, which would provide five (5) additional contact gates on Concourse D by the end of 2025, prior to construction of Concourse A. The five new gates provided at Concourse D would increase the gate count from 48 to 53, thereby offsetting the loss of six (6) gates during construction of Concourse A and allowing the Airport to efficiently serve increasing passenger demand throughout the construction period. The availability of five (5) additional contact gates on Concourse D would provide the Airport with a total of 59 contact gates prior to construction of Concourse A, which would then be reduced to 53 during the subsequent loss of six (6) gates during Concourse A construction. **Exhibit 1-4** illustrates that the extension of Concourse D would provide sufficient gates (blue line) to meet demand (yellow line) during the construction of Concourse A, while demand continues to increase through 2028. The five (5) new gates on Concourse D would serve as an "empty chair" to which Concourse A flights would be reassigned to maintain an efficient level of service during construction of Concourse A. Additional gates on Concourse D would alleviate the loss of gates at Concourse A as the construction required to complete the Concourse A improvements would take at least 3 years.

EXHIBIT 1-4 BNA GATE ALLOCATION DURING CAGE CONSTRUCTION WITH CONCOURSE D



SOURCE: Metropolitan Nashville Airports Authority, Strategic Plan Review #3, September 20, 2021.

Between 2017 and 2021, BNA averaged between 24 and 27 departures during the peak hour and between 5.1 and 6.1 turns per gate during an average day peak month. Peak hour departures in 2023 are forecast to equal 31; however, planning analysis determined departures would rise to 34 during the peak hour in 2028.[8] Using an average of 5.5 turns per gate, BNA would need 59 gates in 2023 to meet peak hour needs. If MNAA is able to achieve 6.5 turns per gate, BNA would need 50 gates in 2023 to accommodate all passenger aircraft operations at contact gates. Based on the MNAA forecasts, the need for gates would increase to 62 (using an average of 5.5 turns per gate) or 53 (using an average of 6.5 turns per gate) by 2028 when Concourse A redevelopment is anticipated to be completed. This same methodology was used to assess the need for gates in the BNA Master Plan and used as the basis to identify need for gates in the CAGE EA. Thus, MNAA has concluded that it needs additional gates from 2025 to 2028 to accommodate the anticipated peak hour operations and maintain an adequate level of passenger service. The extension of Concourse D would provide 5 additional gates, allowing MNAA to redevelop Concourse A and continue to provide contact gates for passenger operations.

Following construction of Concourse A in 2028, the surplus gate supply would provide important flexibility to manage operational variability, contribute to on-time performance, and reduce delays associated with variability in on-time performance and apron congestion as demand continues to increase in accordance with the FAA TAF. The surplus gate supply would also help the Airport and the airlines maintain efficient operations during irregular

[8] InterVISTAS, InterVISTAS Spreadsheet with Graphs_Updated Forecast 9.13.2021.xls. Microsoft Excel file. September 2021.

operations (IROPS), and consequently provide improved passenger levels of service based on BNA's standards and assumptions for gate utilization (see **Table 1-2**). However, the CAGE program would not alter or affect the runway system or runway utilization at BNA and thus, would not increase airfield capacity. Accordingly, the Proposed Action is not expected to increase the Airport's operational capacity.

TABLE 1-2 GATE AVAILABILITY BY CONSTRUCTION YEAR WITH PROPOSED MODIFICATIONS

	CONSTRUCTION YEAR						
CONCOURSE	2022	2023	2024	2025	2026	2027	2028
Concourse A	6	6	6	--	--	--	16
Concourse B	11	10	10	10	10	10	10
Concourse C	20	18	18	18	18	18	18
Concourse D	6	6	6	11	11	11	11
Satellite Concourse	0	8	8	8	8	8	8
Int'l Arrivals Facility	0	6	6	6	6	6	6
TOTAL	**43**	**54**	**54**	**53**	**53**	**53**	**69**

SOURCE: InterVISTAS, InterVISTAS Spreadsheet with Graphs Updated Forecast 9.13.2021, September 2022; Nashville International Airport, Final Environmental Assessment BNA Vision, February 2018.

1.4 PROPOSED MODIFICATIONS TO THE PROPOSED ACTION

1.4.1 DESCRIPTION OF THE 2021 ENVIRONMENTAL ASSESSMENT PROPOSED ACTION

The CAGE program comprises extension and redevelopment of Concourse A, construction of the satellite concourse, and improvements to the terminal and apron to accommodate existing and future passenger and aircraft operational demand. The project will require demolition of the existing approximately 110,353 square-foot, six-gate Concourse A structure and construction of an approximately 351,200 square-foot, double-loaded, 16-gate concourse.[9] The expanded Concourse A will serve multiple air carriers via 14 Airplane Design Group (ADG) III positions and two ADG V positions. Construction of an approximately 89,390 square-foot satellite concourse, originally intended to accommodate operations while Concourse A is closed for construction, will serve an additional eight ADG III gates.

Terminal improvements will provide modernized passenger processing, concessions, restrooms, and baggage handling systems to enhance airport safety, security, and passenger experience. The CAGE program includes an approximately 500,000 square-foot expansion of the north terminal apron to meet AC 150/5300-13[10] airfield design requirements. The proposed airfield improvements will provide dual taxilanes for the existing and forecast fleet mix and three additional Remain Overnight (RON) aircraft parking positions. An additional pavement expansion of approximately 170,000 square feet is required to accommodate the satellite concourse. Utility improvements and realignment of the air operations area (AOA) fence will also be required to complete the CAGE EA Proposed Action.

[9] The Concourse A redevelopment would provide a net gain of 10 passenger gates comprising nine (9) arrival/departure domestic gates and the replacement of one (1) international arrival-only gate.

[10] US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13B, *Airport Design*, April 4, 2022.

1.4.2 DESCRIPTION OF THE PROPOSED MODIFICATIONS

The Proposed Modifications includes construction of a five-gate Concourse D extension, demolition and relocation of Building 4321 (an air freight building); improvements to Buildings 4323 and 4322 (comprising the Multipurpose Facility); relocation of four ancillary airport support facilities comprising a ground support equipment (GSE) fueling station, waste triturator (Building 4332), a trash compactor facility, and a glycol/de-icing storage and distribution facility; and improvements to existing airfield and landside areas.

The demolition and site redevelopment components are described in further detail below. The construction quantities are summarized in **Table 1-3**.

- **Demolish Building 4321**, an approximately 60,000-square-foot air freight building with airfield access, landside truck docks, and an 85-vehicle parking lot, to accommodate extension of Concourse D. Demolition of approximately 150,000 square feet of landside pavement. Existing air freight operations would be temporarily moved to the existing Multipurpose Facility (Building 4323 and Building 4322) and permanently replaced in a new air freight facility.
- **Demolish Ancillary Airport Support Facilities,** a GSE fueling station, a waste triturator, trash compactor, and glycol storage and distribution facility, to accommodate aircraft gates at the proposed Concourse D extension. Demolition of approximately 75,000 square feet of pavement within the AOA. The airport support facilities proposed for demolition would be replaced, in kind, in proximity to the existing Multipurpose Facility pending final design of Concourse D and the Air Freight Building.
- **Construct Concourse D Extension (Building P9),** an approximately 75,000-square-foot extension serving six Airplane Design Group (ADG) III gates. Construction of the proposed extension will require permanent closure of an existing aircraft gate at the terminus of the existing Concourse D building. The proposed Concourse D extension would also include construction of approximately 265,000 square feet of aircraft apron and installation of hydrant fuel infrastructure at each aircraft parking position.
- **Construct Air Freight Building (Building P10),** an approximately 125,000 -square-foot air freight building, and landside pavement comprising approximately 25 truck docks, and approximately 40 landside parking spaces to replace existing landside parking, loading, and circulation associated with Building 4321.
- Connected and Enabling Actions:
  - **Realign AOA fencing** to encompass paved and developed areas proposed for the AOA.
  - **Reconfigure exterior lights and site utilities including stormwater management system infrastructure** to support demolition of Building 4321, renovation of Building 4332, and redevelopment of the site to accommodate Buildings P9 and P10 and the associated landside and AOA pavement improvements.
  - **Use of Additional Staging Area** to enhance flexibility for staging and storage of construction materials and equipment for the previously approved CAGE elements and the proposed Concourse D extension (see **Exhibit 1-5**).

Construction staging would occur on Airport property, at the locations identified on Exhibit 1-5. One new construction staging area would be included as a part of the Proposed Modifications.

Table 1-3 summarizes building and pavement areas to be demolished and constructed as part of the Proposed Action.

SOURCES: Nearmap, February 2022 (aerial photography–for visual reference only, may not be to scale); Metropolitan Nashville Airport Authority, Final Environmental Assessment for the BNA Vision Project, February 2018, and Ricondo & Associates, Inc., August, 2022 (project area, staging areas).

EXHIBIT 1-5

CONSTRUCTION STAGING AREAS

P:\GIS\Projects\BNA\APRX\BNA_Ex3_ProjectLocationArea_20220816.aprx

TABLE 1-3 SUMMARY OF DEMOLITION AND CONSTRUCTION AREAS

FACILITY	DEMOLITION FOOTPRINT (SF)			NEW CONSTRUCTION FOOTPRINT (SF)		
	BUILDING	LANDSIDE PAVEMENT	AIRSIDE PAVEMENT	BUILDING	LANDSIDE PAVEMENT	AIRSIDE PAVEMENT
Existing Building 4321 (Air Freight)	60,000	150,000	25,000	--	--	--
Existing Ancillary Airport Support Facilities	3,000	--	75,000	3,000	--	15,000[1]
Building P9 (Concourse D)	--	--	--	75,000	40,500	265,000[2]
Building P10 (Air Freight)	--	--	--	125,000	85,000	--
TOTAL	**63,000**	**150,000**	**100,000**	**148,000**	**125,500**	**280,000**

NOTES:
-- Not Applicable
SQ FT – Square Feet
1 Assumes consolidation of ancillary facilities and construction within existing paved areas of the airfield requiring minimal new pavement.
2 Total pavement associated with proposed Concourse D includes AOA areas adjacent to proposed Air Freight facility.
SOURCE: Metropolitan Nashville Airport Authority, Bureau of Planning and Environmental Affairs, *Nashville Int'l Airport Layout Plan*, February 22, 2021; Holder Construction Group, *BNA Concourse A&D Expansion Study, Nashville, TN, Conceptual Pricing Document*, April 11, 2022.

1.5 TIMELINE OF THE PROPOSED MODIFICATIONS

Temporary relocation of exiting air freight activities, renovation of Building 4332, and demolition of Building 4321, the airport support facilities, and surrounding pavement is expected to begin in April 2023 and be completed by January 2024. Construction of the proposed Concourse D extension, including the associated apron pavement, would occur from November 2023 to August 2025, and construction of the replacement Air Freight building, including AOA pavement and landside pavement, would occur from April 2025 to March 2027.

1.6 REQUESTED FEDERAL ACTIONS

The list of federal actions being requested of the FAA by the Airports Authority would include unconditional approval of the Airport Layout Plan (ALP) depicting the proposed improvements pursuant to 49 United States Code (USC) §§ 40103(b), 44718, and 47107(a)(16); Title 14 Code of Federal Regulations (CFR) Part 77, *Safe, Efficient Use and Preservation of the Navigable Airspace*; and 14 CFR 157, *Notice of Construction, Alteration, Activation, and Deactivation*.

2. ALTERNATIVES

The CAGE program analyzed in the 2021 EA assessed five terminal gate alternatives coupled with a satellite concourse, including the Proposed Action, as well as a No Action Alternative. This Supplemental EA analyzes modifications to the previously approved Proposed Action. As described in Section 1.3.2, the Proposed Modifications are needed to accommodate the increase in aircraft operations and passenger enplanements forecast to occur at BNA through completion of the Concourse A project. Without the availability of the five (5) additional proposed contact gates on Concourse D, the decommissioning of gates during construction of Concourse A would result in a deficiency in contact gates to serve forecast demand, resulting in an increase in airline delays, flight cancellations, controller workload, and passenger inconvenience, and would reduce flexibility to accommodate irregular operations (IROPS) and/or delayed flights.

To meet the increased forecast passenger and aircraft operation demand, gate expansion alternatives evaluated during the CAGE EA were considered to add the needed gates in combination with the approved CAGE program. The evaluation of these alternatives in relation to the purpose and need for the Proposed Modifications is discussed in the next section.

2.1 EVALUATION OF ALTERNATIVES

2.1.1 EXTENSION OF CONCOURSE A

CAGE EA Alternatives 1A and 1B are alternative redevelopment concepts for Concourse A. However, they are not feasible alternatives to the Proposed Modifications, as they would not provide any additional gates and the Proposed Modifications are needed to allow for the redevelopment of Concourse A without causing a deficiency in passenger aircraft gates needed to serve the forecast demand. Therefore, CAGE EA Alternatives 1A and 1B are not reasonable alternatives to the Proposed Modifications.

2.1.2 EXTENSION OF CONCOURSE B

CAGE EA Alternative 3 – Concourse B could not be constructed in combination with the CAGE EA Proposed Action due to the proximity of Concourse A to the Concourse B realignment depicted in the alternative. Thus, the Extension of Concourse B is not a feasible alternative to the Proposed Modifications, as it would not provide any additional gates during the redevelopment of Concourse A. CAGE EA Alternative 3 is not a reasonable alternative to the Proposed Modifications.

2.1.3 EXTENSION OF CONCOURSE C

CAGE EA Alternative 4 – Concourse C, would comprise the construction of four additional gates at Concourse C, which would not provide sufficient gates to meet demand through the construction period and could not feasibly be modified to accommodate additional gates. Additionally, Alternative 4 – Concourse C was determined not feasible in the CAGE EA, as it would incur environmental and permitting impacts associated with encapsulating Sims Branch. Thus, CAGE EA Alternative 4 is not a reasonable alternative to the Proposed Modifications.

2.1.4 EXTENSION OF CONCOURSE D

CAGE EA Alternative 5 – Concourse D was evaluated in the CAGE EA but was dismissed because, at the time the EA was prepared, the only feasible location for the relocation of the facilities that need to be relocated to allow for the extension of Concourse D (Building 4321, GSE fueling station, and ancillary facilities) was determined to be a site on

the north side of the Airport between Runway 20R and Runway 13, which would impact Sims Branch and a historic site. Since issuance of the FONSI on the CAGE EA, the Tennessee Department of Transportation has received approval and begun construction on relocation of the Interstate 40 Donelson Pike interchange, which shifts Donelson Pike (SR 255) adjacent to the Airport terminal area to the east. The shift of Donelson Pike to the east allows for the relocation of Building 4321 (air freight building) just east of the proposed Concourse D extension. Relocation of the GSE fueling station and ancillary facilities can also occur in this general area, avoiding impacts to Sims Branch and the historic site on the north side of the Airport. Thus, the modified CAGE EA Alternative 5 – Concourse D could be feasibly implemented to accommodate the necessary number of gates required to meet demand during construction of Concourse A. The modified CAGE EA Alternative 5 – Concourse D, referred to as the Proposed Modifications in this document, is illustrated on Exhibit 1-2.

2.1.5 EXTENSION OF CONCOURSE E / SATELLITE CONCOURSE

The Proposed Action approved in the CAGE EA includes the construction of an 8-gate satellite concourse (Concourse E), which is currently under construction east of the existing terminal complex. The satellite concourse cannot be extended without impacting aircraft access to Taxiway L and the terminal aircraft apron. Thus, increasing the number of gates at Concourse E is not a feasible alternative.

2.2 SUMMARY OF ALTERNATIVES EVALUATION

The only alternative that meets the purpose and need for the Proposed Modifications is the Extension of Concourse D. The extension of Concourse D can be implemented prior to the redevelopment of Concourse A, which would provide an additional 5 passenger aircraft gates to accommodate the increase in aircraft operations and passenger enplanements forecast to occur at BNA through completion of the Concourse A project. Thus, this alternative was carried forward for comparison to the Proposed Action in the CAGE EA.

The CAGE EA also included a No Action Alternative, as required by 40 CFR Section 1502.14(d) and paragraph 6-2.1(d) of FAA Order 1050.1F and paragraph 706(d) of FAA Order 5050.4B. Under the CAGE EA No Action Alternative, none of the proposed improvements and activities associated with the Proposed Action would occur. MNAA is in the process of implementing the improvements approved under the CAGE EA and will proceed with construction of previously approved CAGE EA projects notwithstanding the outcome of the Supplemental EA. Therefore, the No Action Alternative considered in this Supplemental EA comprises the improvements approved in the 2021 CAGE EA.

3. AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION

This section describes the existing conditions of and potential impacts to environmental resources potentially affected by the development of the Proposed Modifications, in comparison with the approved CAGE project, referred to as the Approved Project herein. In accordance with FAA Orders 1050.1F and 5050.4B, the affected environment for the Proposed Modifications encompasses those areas that could be directly or indirectly affected by the Proposed Modifications if it is implemented. This chapter also identifies the geographic areas potentially affected by the Proposed Modifications and the environmental resources that do not have the potential to be affected by the Proposed Modifications.

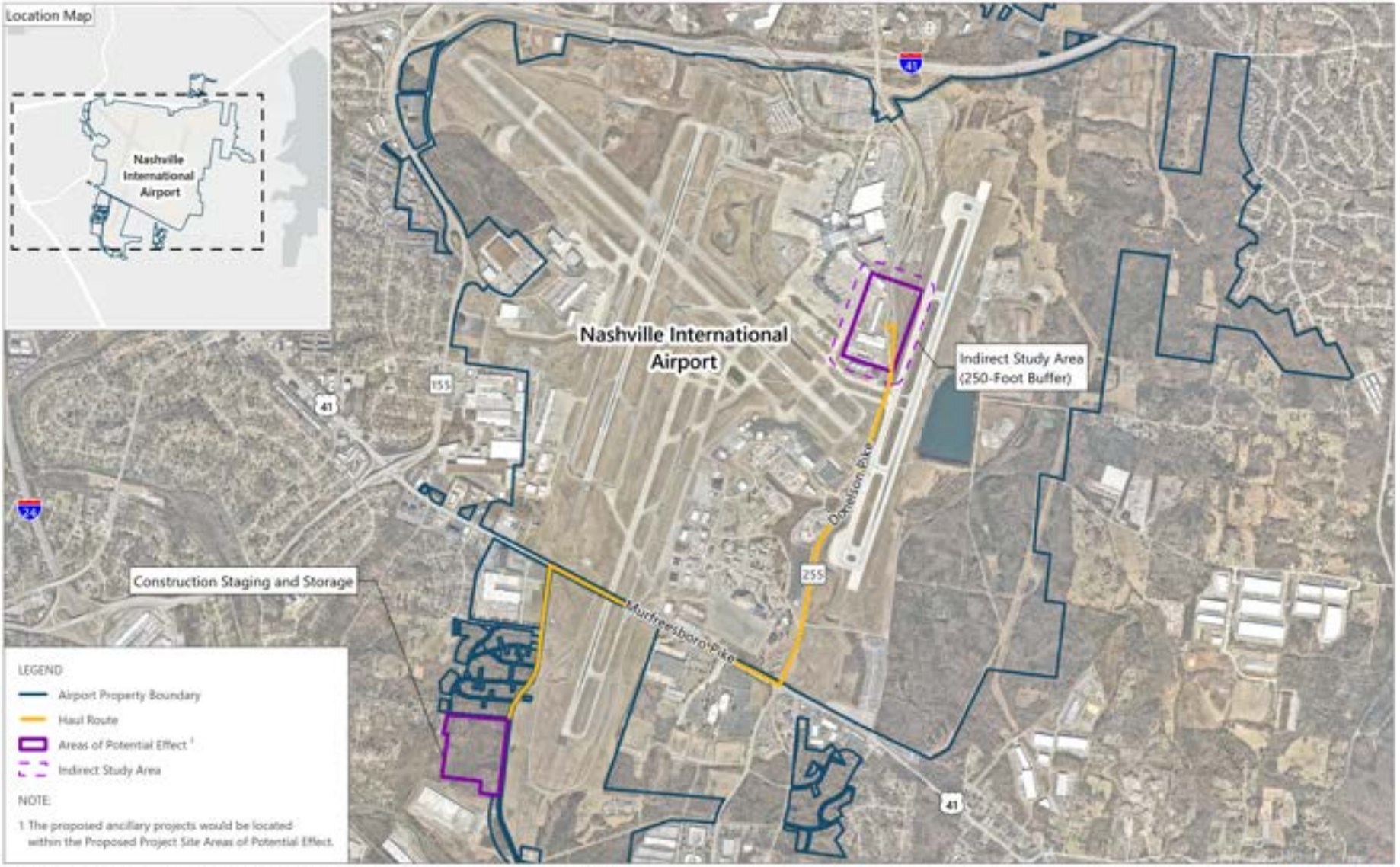
3.1 STUDY AREA AND STUDY YEARS

The CAGE EA identified a direct and indirect study area to adequately assess potential impacts caused by implementation of the Proposed Action. The direct study area for the Approved Project comprised portions of existing apron north of Concourse A; the Concourse A building; Taxiway J, and the adjacent unpaved infield areas, between Taxiway T4 and T6; and unpaved areas adjacent to the Sims Branch and Stream 2 north of the terminal complex. The direct study area is approximately 55 acres. The indirect study area for the approved CAGE project encompassed a 250-foot buffer area around the direct study area and included areas where visual effects could be observed, and audible impacts could occur due to noise level increases.

To adequately assess potential direct and indirect impacts of the Proposed Modifications, this Supplemental EA will focus on the Proposed Modifications Study Area (Study Area) depicted on **Exhibit 3-1**, which encompasses areas anticipated to be affected during construction and operation of the Proposed Modifications. The Study Area encompasses Concourse D; the apron south and east of Concourse D, west of the Air Freight Building; and the landside area east of the Air Freight Building (Building 4321), approximately 200 feet east of Airport Service Road, partially within the existing Donelson Pike right-of-way. The Study Area also includes an approximately 35-acre plot of undeveloped land located southwest of the Runway 2C end. The undeveloped area comprises relatively dense natural ground cover and hardwood trees and is proposed to be used as a construction storage and staging area (construction staging area) to support the development of the Proposed Modifications. Similar to the CAGE EA, each resource category may have a different Study Area.

The construction area associated with the Proposed Modifications is located in previously developed areas surrounded by aviation and transportation-related infrastructure, comprising paved landside and airside surfaces, unpaved infield areas, and existing buildings. Impacts analyzed for construction and operation of the Proposed Modifications, with the exception of the proposed staging area, are anticipated to be consistent with those analyzed for the Approved Project in the CAGE EA.

Ground disturbance and temporary effects associated with construction of the Proposed Modifications would occur between April 2023 and September 2027; all elements associated with the Proposed Modifications would be operational in 2027.



SOURCES: Nearmap, February 2022 (aerial photography–for visual reference only, may not be to scale); Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, September 2022 (basemaps); national Park ServeMetropolitan Nashville Airport Authority, February 2022 (Airport property boundary); Metropolitan Nashville Airport Authority, Final Environmental Assessment for the BNA Vision Project, February 2018, and Ricondo & Associates, Inc., August, 2022 (areas of potential effect)

EXHIBIT 3-1

PROPOSED MODIFICATIONS STUDY AREA

P:\GIS\Projects\BNA\APRX\BNA_SupplementalEnvironmentalAssessment_20220928.aprx

3.2 ENVIRONMENTAL RESOURCES NOT AFFECTED

Of the environmental impact categories defined in FAA Order 1050.1F, the following resources have been eliminated from further consideration because they do not exist within or near the Study Area.

- Coastal Resources – No coastal resources are present within the Study Area. Nashville is located approximately 380 miles north of the Gulf Coast, the closest coastal region to the Airport. Implementation of the Proposed Modifications would not conflict with regulations protecting coastal resources.
- Water Resources – Wild and Scenic Rivers – Only one (1) Wild and Scenic River is located in Tennessee. The Obed Wild and Scenic River is located approximately 130 miles east of the Study Area. Implementation of the Proposed Modifications would not affect Wild and Scenic Rivers.
- Farmlands – As discussed in the CAGE EA, no farmlands are located within or in the vicinity of the Study Area. Implementation of the Proposed Modifications would not result in any significant impacts on farmlands.
- Environmental Justice (EJ) – The Study Area is located entirely on Airport property. Implementation of the Proposed Modifications would not result in disproportionately high and adverse effects on environmental justice populations.

3.3 AIR QUALITY

3.3.1 REGULATORY SETTING

The Clean Air Act (CAA) of 1970, 42 USC § 7401, *et seq*., as amended, requires that states identify those areas where the National Ambient Air Quality Standards (NAAQS) are not being met for specific air pollutants. The US Environmental Protection Agency (USEPA) designates such areas as nonattainment areas. The USEPA, under mandates of the Clean Air Act Amendments (CAAA) of 1990, has established primary and secondary NAAQS for seven air contaminants or criteria pollutants. These contaminants are carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), sulfur dioxide (SO_2), particulate matter up to 10 micrometers in size (PM_{10}), and particulate matter equal to or smaller than 2.5 micrometers in size ($PM_{2.5}$). In areas that do not meet the NAAQS, federal conformity rules (40 CFR 93) apply. **Table 3-1** summarizes the NAAQS.

TABLE 3-1 NATIONAL AMBIENT AIR QUALITY STANDARDS

AIR POLLUTANT	AVERAGING TIME	FEDERAL PRIMARY STANDARD	FEDERAL SECONDARY STANDARD
Carbon Monoxide (CO)	1-hour	35 ppm	--
	8-hour	9 ppm	--
Nitrogen Dioxide (NO_2)	1-hour	0.100 ppm	--
	Annual	0.053 ppm	0.053 ppm
Particulate Matter (PM_{10})	24-hour	150 µg/m^3	150 µg/m^3
	Annual	--	--
Fine Particulates ($PM_{2.5}$)	24-hour	35 µg/m^3	35 µg/m^3
	Annual	12 µg/m^3	15 µg/m^3
Ozone (O_3)	8-hour	0.070 ppm	0.070 ppm
Sulfur Dioxide (SO_2)	1-hour	0.075 ppm	--
	3-hour	--	0.5 ppm
	24-hour	--	--
	Annual	--	--
Lead (Pb)	Calendar Quarter	0.15 µg/m^3	0.15 µg/m^3

NOTES
-- – No Standard Established
ppm – Parts per Million
µg/m^3 – Micrograms per Cubic Meter
SOURCE: US Environmental Protection Agency, NAAQS Table, https://www.epa.gov/criteria-air-pollutants/naaqs-table (accessed August 29, 2022).

3.3.2 AFFECTED ENVIRONMENT

The Study Area is located entirely within Davidson County, which is designated by the USEPA as in attainment for all criteria pollutants.[11] Therefore, the General Conformity Rule which requires compliance with the applicable State Implementation Plan (SIP) does not apply. The attainment designations for all criteria pollutants remains consistent with the CAGE EA; thus, there is no change to the affected environment with regard to air quality compared to the CAGE EA.

3.3.3 ENVIRONMENTAL CONSEQUENCES

3.3.3.1 METHODOLOGY

Emissions associated with the Proposed Modifications, were calculated using the Airport Cooperative Research Program (ACRP) Airport Construction Emissions Inventory Tool (ACEIT), the EPA's Motor Vehicle Emissions Simulator (MOVES) emission model, and industry standard models and methodologies. The modeling tools were used to estimate the construction schedule of equipment for each project component associated with the Proposed Modifications, identify emissions factors for construction equipment, and calculate emissions for demolition and construction activities. Construction emissions were calculated to determine whether emissions associated with demolition and construction activities would exceed *de minimis* thresholds set by the EPA for any of the proposed construction years.

[11] United States Environmental Protection Agency, Tennessee Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants, https://www3.epa.gov/airquality/greenbook/anayo_tn.html (accessed October 24, 2022).

Operational emissions were calculated for the additional aircraft operations, including ground support equipment and auxiliary power units, that would be accommodated by the Proposed Modifications. The AEDT tool was used to prepare emissions estimates for a No Action scenario and the Proposed Modifications scenario based on the FAA 2021 TAF, consistent with the noise analysis, as well as construction years 2023-2027. Criteria pollutant emissions for year 2035 were calculated for the Proposed Modifications and the updated No Action alternative to identify the net increase in emissions associated with the Proposed Modifications.

3.3.3.2 SIGNIFICANCE THRESHOLDS

As provided in FAA Order 1050.1F, an action would cause significant air quality impacts if pollutant concentrations were to exceed one or more of the NAAQS, as established by the USEPA under the CAA, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.

The General Conformity rule is designed to ensure that air pollutant emissions associated with federal actions do not prevent achievement of state and federal air quality goals. A detailed conformity determination under the General Conformity rule is required when a comparison of the changes in project-related air pollutant emissions (that is, the Proposed Modifications emissions minus the No Action Alternative emissions) exceed *de minimis* thresholds established in the General Conformity rule.

3.3.3.3 DIRECT IMPACTS

Approved Project

Under the Approved Project, demolition and construction activities were determined to result in an increase in criteria pollutants. Emissions would occur as a result of these activities from (1) engine exhaust from construction worker vehicle trips to and from the site, (2) truck trips associated with materials delivery and the operation of construction equipment, and (3) fugitive dust emissions during ground disturbing activities, materials handling, and equipment use on unimproved surfaces. However, the increase in emissions would be below *de minimis* throughout the construction period. Therefore, construction emissions impacts would be below the level of significance.

The CAGE EA also determined that operation of the Approved Project would result in an increase in all criteria pollutants due to increased aviation operations associated with the increase in gate capacity. However, the annual increase in emissions of criteria pollutants during the first year of operation of the Approved Project would be below *de minimis* and, therefore, below the level of significance.

Proposed Modifications

Construction of the Proposed Modifications would include demolition, site preparation, grading, and construction associated with the Concourse D and Air Freight buildings, the adjacent airside and landside paving, renovation of the Multipurpose Facility, and relocation of the airport support facilities. Clearing and paving would also be required to establish the proposed construction staging area. Emissions associated with construction and demolition activity would be below *de minimis* thresholds for all criteria pollutants each year of construction, as shown in **Table 3-2**. See **Appendix A** for additional information.

TABLE 3-2 CONSTRUCTION AND DEMOLITION EMISSIONS COMPARED TO DE MINIMIS THRESHOLDS

YEAR	CRITERIA POLLUTANT EMISSIONS (TONS PER YEAR)					
	CO	VOC	NO_2	SO_2	PM_{10}	$PM_{2.5}$
2023						
Total Emissions of Construction and Demolition	2.8	0.9	3.6	0.01	0.7	0.2
EPA De Minimis Threshold	100	100	100	100	100	100
Emissions below *de minimis* thresholds?	Yes	Yes	Yes	Yes	Yes	Yes
2024						
Total Emissions of Construction and Demolition	11.8	0.9	3.1	0.02	0.7	0.2
EPA De Minimis Threshold	100	100	100	100	100	100
Emissions below *de minimis* thresholds?	Yes	Yes	Yes	Yes	Yes	Yes
2025						
Total Emissions of Construction and Demolition	5.6	0.7	2.4	0.02	0.8	0.1
EPA De Minimis Threshold	100	100	100	100	100	100
Emissions below *de minimis* thresholds?	Yes	Yes	Yes	Yes	Yes	Yes
2026						
Total Emissions of Construction and Demolition	No construction emissions anticipated					
EPA De Minimis Threshold	100	100	100	100	100	100
Emissions below *de minimis* thresholds?	Yes	Yes	Yes	Yes	Yes	Yes
2027						
Total Emissions of Construction and Demolition	2.9	0.4	1.5	0.01	0.4	0.1
EPA de minimis Threshold	100	100	100	100	100	100
Emissions below *de minimis* thresholds?	Yes	Yes	Yes	Yes	Yes	Yes

SOURCE: HMMH, *Noise and Air Quality Analysis for BNA Supplemental EA,* 2022 (see Appendix A).

The Proposed Modifications were determined to result in increases in aircraft operations that include auxiliary power units and use of GSE.[12] The analysis contained in Appendix A determined emissions associated with operation of the Proposed Modification facilities and operation of additional aircraft accommodated by the Proposed Modifications would increase when compared to the updated No Action scenario; however, emissions would be below *de minimis* thresholds for all criteria pollutants, as shown in **Table 3-3**. Air quality impacts associated with the Proposed Modifications would be less than significant.

[12] Metropolitan Nashville Airport Authority. Final *Concourse and Gate Expansion Environmental Assessment,* July 2021.

TABLE 3-3 NET OPERATIONAL EMISSIONS CHANGES COMPARED TO DE MINIMIS THRESHOLDS

YEAR	CRITERIA POLLUTANT EMISSIONS (TONS PER YEAR)					
	CO	VOC	NO_2	SO_2	PM_{10}	$PM_{2.5}$
2035 Net Change in Operational Emissions due to the Proposed Modifications	+25.4	+2.7	+36.0	+2.8	+0.4	+0.3
EPA de minimis Threshold	100	100	100	100	100	100
Emissions below *de minimis* thresholds?	Yes	Yes	Yes	Yes	Yes	Yes

SOURCE: HMMH, *Noise and Air Quality Analysis for BNA Supplemental EA,* 2022 (see Appendix A).

3.3.3.4 INDIRECT IMPACTS

Approved Project

Indirect effects on air quality within and in proximity to the Airport were assumed to occur based on projected economic and population growth of the Nashville area and the associated increase in construction and operations. Compliance with the City of Nashville Air Pollution Program regulations will ensure continued compliance with the NAAQS. Indirect air quality impacts associated with the Approved Project were determined to be below thresholds of significance and, therefore, less than significant.

Proposed Modifications

Construction and operation of the Proposed Modifications would occur in the same area and generally serve the same functions as those associated with the Approved Project elements (i.e., aircraft and airport support uses). Emissions associated with construction and operation of the Proposed Modifications were determined to be below *de minimis* levels and would not contribute to exceedances of NAAQS criteria pollutant thresholds or otherwise affect existing State Implementation Plan efforts and obligations. Air quality impacts associated with the Proposed Modifications were determined to be below *de minimis* thresholds for maintenance areas and, therefore, when combined with other indirect emissions would be less than significant.

3.3.3.5 MITIGATION MEASURES

The Proposed Modifications would also be subject to the City of Nashville Air Pollution Program regulations and implement strategies identified in the Master Plan Update through the Envision program.[13] No mitigation was identified in the CAGE EA. The Proposed Modifications would not result in any direct or indirect air quality effects; therefore, no mitigation is required.

3.4 BIOLOGICAL RESOURCES

3.4.1 REGULATORY SETTING

3.4.1.1 FEDERAL

The following are the primary federal statutes related to the consideration of biological resources in the Study Area:

- The Endangered Species Act (ESA) was established to protect threatened and endangered plant and animal species and their habitats. The ESA is administered by the US Fish and Wildlife Service (USFWS), with

[13] Envision is a sustainability framework and rating system applicable to airport projects to implement, track, and achieve environmental and social sustainability goals.

responsibility for terrestrial and freshwater species, and the National Marine Fisheries Service (NMFS), with responsibility for marine species. The ESA prohibits activities affecting listed species and their habitats, unless authorized by a permit from the USFWS or the NMFS. Section 7(a)(2) of the ESA requires federal agencies, in consultation with the USFWS and/or the NMFS, to ensure that any federal action authorized, funded, or carried out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Consultation with the NMFS was not required for this project, because tidal waters are not present within or near the Study Area.

- The Bald and Golden Eagle Protection Act protects bald and golden eagles from the unauthorized capture, purchase, or transportation of the birds, their nests, or their eggs. This act is administered by the USFWS.
- The Fish and Wildlife Coordination Act requires federal agencies to consult with the USFWS, NMFS, and appropriate state fish and wildlife agencies regarding the conservation of wildlife resources when proposed federal projects may result in control or modification of the water of any stream or other water body. Consultation with the NMFS was not required for this project because tidal waters are not present within or near the Study Area.
- The Migratory Birds Treaty Act prohibits anyone from taking, possessing, importing, exporting, transporting, selling, purchasing, or bartering any migratory bird, or the parts, nests, or eggs of such a bird, except under the terms of a valid federal permit.

3.4.1.2 STATE

The Tennessee Wildlife Resources Agency (TWRA)[14] is the state's wildlife and freshwater fish management agency with regulatory jurisdiction over state and federally endangered and threatened species. The TWRA has the authority to determine likely impacts upon fish and wildlife resources and habitats, as well as recommend appropriate measures to avoid or reduce impacts and to compensate for impacts that cannot be avoided. The TWRA is a consulting agency under the US Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 USC 661 *et seq*.).

The *Tennessee State Wildlife Action Plan 2015*, prepared by the TWRA, presents a conservation strategy that gives special consideration to species that are endemic to Tennessee, are especially vulnerable to extirpation, or are exhibiting declining trends throughout the state. The *Tennessee State Wildlife Action Plan 2015* identifies conservation actions that will benefit a diversity of species and habitats and describes where those conservation actions should be implemented.[15]

3.4.2 AFFECTED ENVIRONMENT

3.4.2.1 VEGETATION

The Study Area consists of developed Airport property, within which the Proposed Modifications would be constructed, and approximately 35 acres of undeveloped Airport property southwest of the airfield, which would be used for construction storage and staging. As shown on Exhibit 3-1, the portion of the Study Area associated with the proposed Concourse D extension is located on the airfield and comprised of paved landside and airfield surfaces, unpaved infield areas, existing buildings, and a section of the existing Donelson Pike right-of-way. Vegetation in the

[14] Formerly known as the Tennessee Game and Fish Commission.

[15] Tennessee Wildlife Resources Agency, "2015 Tennessee Wildlife Action Plan", https://www.tn.gov/twra/wildlife/action-plan/tennessee-wildlife-action-plan.html (accessed August 29, 2022).

portion of the Study Area proposed for construction is mostly herbaceous with maintained lawn grasses and is consistent with the CAGE EA.

The undeveloped proposed construction staging area consists of dry (mesic) and deciduous wooded land.

3.4.2.2 WILDLIFE

The presence of wildlife within the Airport's operational area is limited due to the existing development and lack of available habitat. Species known to occur on operational Airport property are adaptive to a highly urbanized environment. The proposed construction staging area is undeveloped and may contain species common to the region.

In November 2022, a biological survey (2022 Assessment) was conducted of the proposed construction staging area (see **Appendix B**). During this survey, evidence of the following wildlife was identified: grey squirrel (*Sciurus carolinensis*), whitetail deer (*Odocoileus virginianus*), Hermit Thrush (*Catharus guttatus*), Red-bellied Woodpecker (*Melanerpes carolinus*), Northern Flicker (*Colaptes auratus*), Carolina Chickadee (*Poecile carolinensis*), Yellow-rumped Warbler (*Setophaga coronate*), Blue Jay (*Cyanocitta cristata*), American Crow (*Corvus brachyrhynchos*), and Tufted Titmouse (*Baeolophus bicolor*).

3.4.2.3 FEDERALLY LISTED SPECIES AND HABITAT

The Study Area and proposed construction staging area were assessed for the presence of threatened or endangered species using the USFWS Information for Planning and Consultation (IPaC) online tool (see **Appendix C**).[16] The IPaC report pulled during preparation of the CAGE EA remains consistent with the proposed Study Area; an additional IPaC report was generated to evaluate the potential presence of threatened and endangered species within the proposed construction staging area associated with the Proposed Modifications. The IPaC tool identified 11 threatened or endangered species and 12 migratory birds, identified in **Table 3-4**, that may occur in the Study Area or proposed construction staging area. Other than the monarch butterfly, a federally listed candidate species, and the tricolored bat, a species proposed for federal listing as endangered by the USFWS as of September 13, 2022, the listed threatened and endangered species potentially present within the Study Area and proposed construction staging area are consistent with the CAGE EA Study Area. According to the IPaC tool and consistent with the CAGE EA, no critical habitat for federally listed species exists within the Study Area.

The Nashville Crayfish is endemic to the Mill Creek Watershed, which is located approximately 0.3-mile south of the proposed construction staging area. Additionally, the Study Area is located approximately three miles southwest of McCrory Creek, which is located on the east side of Donelson Pike and Runway 2R-20L. Two biological assessments were conducted for the CAGE EA to survey for the presence of Nashville Crayfish within the CAGE EA Study Area, both of which resulted in no observations of the endangered species. However, neither assessment included areas associated with the Proposed Modifications. In 2019, the USFWS proposed the Nashville Crayfish for delisting due to increased and robust populations of the species documented in the Mill Creek Watershed. As part of the 2022 Assessment, it was determined the dry stream channels located in the proposed construction staging area would not provide the necessary water flow to support the Nashville Crayfish.

[16] US Department of the Interior, Fish and Wildlife Service, Information for Planning and Consultation (IPaC), https://ipac.ecosphere.fws.gov/ (accessed October 27, 2022).

TABLE 3-4 FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES

SPECIES NAME	COMMON NAME	FEDERAL STATUS
Mammals		
Myotis grisescens	Gray Bat	Endangered
Myotis sodalis	Indiana Bat	Endangered
Myotis septentrionalis	Northern Long-eared Bat	Threatened
Perimyotis subflavus	Tricolored Bat	Proposed Endangered
Insects		
Danaus plexippus	Monarch Butterfly	Candidate
Crustaceans		
Orconectes shoupi	Nashville Crayfish	Endangered
Flowering Plants		
Arabis perstellata	Braun's Rock-cress	Endangered
Astragalus bibullatus	Pyne's Ground-plum	Endangered
Dalea foliosa	Leafy Prairie-clover	Endangered
Apios priceana	Price's Potato-bean	Threatened
Physaria globose	Short's Bladderpod	Endangered
Migratory Birds		
Haliaeetus leucocephalus	Bald Eagle	Non-BCC Vulnerable
Coccyzus erythropthalmus	Black-billed Cuckoo	BCC
Dolichonyx oryzivorus	Bobolink	BCC
Dendroica cerulea	Cerulean Warbler	BCC
Chaetura pelagica	Chimney Swift	BCC
Spizella pusilla	Field Sparrow	BCC – BCR
Oporornis formosus	Kentucky Warbler	BCC
Dendroica discolor	Prairie Warbler	BCC
Protonotaria citrea	Prothonotary Warbler	BCC
Melanerpes erythroncephalus[1]	Red-headed Woodpecker	BCC
Euphagus carolinus	Rusty Blackbird	BCC – BCR
Hylocichla mustelina	Wood Thrush	BCC

NOTES:
Non-BCC Vulnerable – Not a Bird of Conservation Concern in this area but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
BCC – A Bird of Conservation Concern throughout its range in the continental USA and Alaska.
BCC – BCR – A Bird of Conservation Concern only in particular Bird Conservation Regions (BCRs) in the continental USA.
1 The Red-headed Woodpecker was identified by IPaC to be present within the Study Area but not within the proposed construction staging area.
SOURCE: US Department of the Interior, Fish and Wildlife Service, "Information for Planning and Consultation (IPaC)," August 2022.

As analyzed and discussed in the CAGE EA, approximately 6.7 acres of potential habitat for the Indiana Bat and the Northern Long-eared Bat was determined to be located within the ground disturbance area. During the 2022 Assessment, none of the required habitats by the threatened and endangered species or migratory birds were observed at the proposed construction staging area, with the exception of a single dead tree with loose bark. Although the Indiana Bat and Northern Long-eared Bat have been known to utilize dead trees with loose bark for roosting during the summer, the small number of dead trees observed (one tree) would not be likely to support a reproductive population of bats at the proposed construction staging area. These two bats, as well as the Gray Bat and Tricolor Bat, prefer caves, mines, and barns for hibernation and roosting and prefer open wooded areas near streams and ponds for foraging. These conditions were not observed at the proposed construction staging area.

The presence of threatened and endangered species and their habitat is consistent with the CAGE EA; therefore, there would be no change to the affected environment with regard to federally listed species and habitat for the Supplement EA analysis.

3.4.2.4 STATE-LISTED SPECIES AND HABITAT

Correspondence with the Tennessee Department of Environment and Conservation (TDEC) and TWRA during completion of the CAGE EA identified six state-listed species as potentially present in the Study Areas (see **Table 3-5**). TWRA requested that the USFWS be consulted regarding potential impacts to the Nashville Crayfish, resulting in the completion of a Biological Assessment for the Nashville Crayfish.

TABLE 3-5 STATE LISTED SPECIES

SPECIES NAME	COMMON NAME
Birds	
Ardea Herodias	Blue Heron – Rookery
Planarian	
Sphalloplana buchanani	A Cave Obligate Planarian
Crustaceans	
Orconectes shoupi	Nashville Crayfish
Plants	
Talinum calcaricum	Limestone Flamethrower
Stellaria fontinalis	Water Stitchwort
Panax quinquefolius	American Ginseng

SOURCE: Metropolitan Nashville Airport Authority, Concourse and Gate Expansion Environmental Assessment. July 2021

3.4.3 ENVIRONMENTAL CONSEQUENCES

3.4.3.1 METHODOLOGY

3.4.3.2 SIGNIFICANCE THRESHOLDS

Under the ESA, the FAA, as the responsible federal agency, determines if the Proposed Modifications have the potential to affect threatened or endangered species, and if so, the FAA must initiate consultation with the USFWS for terrestrial and freshwater species and the NMFS for marine species to determine significance. The Proposed Modifications and Approved Project were reviewed to determine whether either would:

- create a long-term or permanent loss of a protected species;
- adversely affect special status species or their habitats;
- create a substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or populations (structure placement, vegetation removal); or
- adversely affect a species' reproductive success rates, natural mortality rates, non-natural mortality, or ability to sustain minimum population levels required for population maintenance.

3.4.3.3 DIRECT IMPACTS

Approved Project

The Approved Project entails expansion of the north apron, redevelopment of Concourse A, and enabling projects, including construction of the Satellite Concourse. The north apron expansion was determined to impact 1,627 linear feet of intermittent stream habitat and directly impact 6.7 acres of woodland areas. Stream habitat and woodland area habitat impacts were determined not to affect Nashville Crayfish or other federally and state-listed species due to the low quality of the potential habitat affected.[17] Specifically, no known Northern Long-eared Bat maternity roost trees were found within or in proximity to the project area and Price's Potato Bean and American Ginseng habitat is not anticipated due to the low quality of the study area environs. Therefore, the Approved Project was determined not to result in any operational effects to biological resources.

Proposed Modifications

The Proposed Modifications would operate within the existing Airport property, on previously developed property. The extension of the Concourse D building, relocation of the Air Freight Building, and relocation of the airport support facilities would not result in a change of land use, encroachment on potential habitat, or otherwise affect listed species. Noise analysis of the Proposed Modifications indicates the 65 decibels (dB) day-night average sound level (DNL) would expand by approximately 28 acres; however, the expansion is not expected to affect wildlife in proximity to the Airport.

IPaC species queries for the Study Area confirmed the potential for the same species to inhabit the Proposed Modifications Area as were identified in the CAGE EA. The 2022 Assessment included a field survey of the wooded area located at the proposed construction staging area. Similar to the Approved Project analysis, no maternity roosting nests for the Northern Long-eared Bat were identified and the environs are of low quality and unlikely to support listed plant species. Clearing and grading of the proposed construction staging area would occur between October 15 and March 31 to minimize impacts to bats and nesting birds.

[17] Metropolitan Nashville Airport Authority. *Concourse and Gate Expansion Environmental Assessment,* July 2021.

Preliminary, informal consultation with TWRA completed in support of the field investigation confirmed no impacts associated with the Proposed Modifications would occur to state listed species.[18] Formal consultation with the USFWS confirmed that no adverse impacts to the Nashville Crayfish are anticipated to occur with adherence to proper erosion and sediment control best management practices (BMPs) during construction and operation of the Proposed Modifications.[19] Additionally, the field investigation determined no habitat suitable to accommodate the Nashville Crayfish is located at the proposed construction staging area or within the Study Area. Construction and operational impacts to biological resources would be less than significant when compared to the Approved Project.

3.4.3.4 INDIRECT IMPACTS

Approved Project

Lighting and noise associated with operation of the Approved Project was determined to result in minimal ongoing impacts to potential wildlife habitat. Improvements within the north airfield, particularly those associated with stream improvements and modifications, were determined to be a potential benefit to species due to the reduction of erosion and sedimentation in waterways. Effects to biological resources associated with the Approved Project were determined to be less than significant.

Proposed Modifications

The Proposed Modifications would be generally consistent with the Approved Project with regard to indirect effects to biological resources due to lighting and noise. The proposed improvements would operate in an existing area of developed Airport property and would not result in changes to Airport operations that would affect biological resources. The proposed staging area would continue to be used for construction staging and materials storage following construction of the Proposed Modifications. Effects of the Proposed Modifications to biological resources would be similar to the Approved Project and would remain less than significant.

3.4.3.5 MITIGATION MEASURES

The mitigation measures identified by USFWS in the CAGE EA included use of water quality control measures to prevent sedimentation and water quality effects downstream of the Proposed Modifications and an agreement to relocate species due to stream impacts as necessary. Additionally, forested habitat clearing minimization and seasonal clearing restrictions would be considered as appropriate. The identified BMPs would be applicable to the Proposed Modifications; therefore, no additional mitigation measures would be required.

3.5 CLIMATE

3.5.1 REGULATORY SETTING

The Intergovernmental Panel on Climate Change estimates that domestic aviation accounts for 4.1 percent of global transportation greenhouse gas (GHG) emissions.[20] Ongoing research is underway to better understand climate change, including any incremental atmospheric impacts that may be caused by aviation. Uncertainties are too large to accurately predict aviation's climate impacts; however, minimizing GHG emissions and identifying potential future impacts of climate change are important for a sustainable national airspace system.

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[18] Peiken, Andrew and Eric Low. *RE: Draft Protected Species Assessment.* Memorandum to Traci Holton. November 30, 2022.

[19] David Pelren, Fish and Wildlife Biologist, US Fish and Wildlife Service, "FWS #2023-0014713 Metro Nashville Airport concourse and gate extension," email to Avant Ramsey, January 6, 2023.

[20] Intergovernmental Panel on Climate Change, "Transport," *AR5 Climate Change 2014: Mitigation of Climate Change*, 2014, https://www.ipcc.ch/report/ar5/wg3/transport (accessed August 30, 2022).

Increasing concentrations of GHGs in the atmosphere affect global climate.[21, 22] Many natural sources contribute to GHGs in the atmosphere. In addition to natural sources, GHG emissions result from constructed (anthropogenic) sources, including the combustion of fossil fuels. GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), O_3, and fluorinated gases.[23] CO_2 is the most important anthropogenic contribution to GHGs because it is a long-lived gas that remains in the atmosphere for up to 100 years.

The Metropolitan Government of Nashville and Davidson County prepared the Baseline Inventory of Greenhouse Gas Emissions in 2009 and recently updated the inventory in 2017. The 2017 inventory indicates that approximately 11.4 million metric tons of carbon dioxide equivalent (CO_2e) were emitted in the Nashville-Davidson County Community in 2017, of which approximately 49 percent (5,610,743 metric tons of CO_2e) was attributed to the transportation sector.[24] MNAA has not developed a baseline for GHG emissions for BNA, but it has implemented several carbon-reducing projects, including the installation of solar-powered electric vehicle charging stations and the construction of several LEED and Parksmart[25] certified buildings.

3.5.2 AFFECTED ENVIRONMENT

The affected environment for evaluating GHG emissions is considered the greater Nashville area. MNAA has not developed a baseline for BNA GHG emissions, but it has implemented several carbon-reducing strategies, such as "green" design, energy efficiency, waste reduction and recycling, and measures for reducing fossil fuel use and greenhouse gas generation.[26] There is no change to the affected environment relative to climate compared to the CAGE EA.

3.5.3 ENVIRONMENTAL CONSEQUENCES

3.5.3.1 METHODOLOGY

An inventory of GHG emissions associated with construction of the Proposed Action (for example, construction equipment, construction haul trips, and construction worker commute trips) was conducted using the same methodology as the air quality analysis (see Section 3.3.3.1 and Appendix A). GHGs of concern from construction sources are primarily CO_2, CH_4, and N_2O. GHG emissions are reported in metric tons of CO_2 equivalent (MT CO_2e), a single metric that represents all GHGs and provides a consistent methodology for comparing GHG emissions.

3.5.3.2 SIGNIFICANCE THRESHOLDS

There are no defined significance thresholds for aviation GHG emissions, nor has FAA identified any factors to consider in making a significance determination for GHG emissions.

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[21] Intergovernmental Panel on Climate Change, *AR5 Synthesis Report: Climate Change 2014*, https://www.ipcc.ch/report/ar5/syr/ (accessed August 30, 2022).

[22] US Global Change Research Program, "Global Climate Change Impacts in the United States," https://nca2009.globalchange.gov/ (accessed August 30, 2022).

[23] US Environmental Protection Agency, "Overview of Greenhouse Gases," https://www.epa.gov/ghgemissions/overview-greenhouse-gases (accessed August 30, 2022).

[24] Metropolitan Government of Nashville & Davidson County, "Sustainability Advisory Committee," *Metro Government and Davidson County 2017 Greenhouse-Gas Emissions Inventory,* https://www.nashville.gov/departments/mayor/boards/sustainability-advisory-committee (accessed August 30, 2022).

[25] Parksmart is the world's only rating system designed to advance sustainable mobility through smarter parking structure design and operation.

[26] Garver, *Updated Technical Memorandum: Noise and Air Quality Analysis for BNA CAGE EA*, January 7, 2021.

3.5.3.3 DIRECT IMPACT

Approved Project

No significant GHG emission impacts were found to be associated with the Approved Project based on the analysis performed for the CAGE EA. GHG increases based on construction and aircraft operational activities were documented to comprise a very small fraction of the baseline emissions for Nashville and Davidson County.

Proposed Modifications

Table 3-6 presents the annual greenhouse gas emissions for demolition and construction activities as well as operational emissions associated with the Proposed Modifications. As shown in Section 3.3.3.3, construction and the net change in operational emissions under the Proposed Modifications would not result in a significant air quality impact. Similarly, any greenhouse gas emissions increase from construction and operational activity associated with the Proposed Modifications would comprise a small fraction of the baseline Nashville and Davidson County GHG emissions of 11.4 million metric tons of carbon dioxide equivalents (MMTCO2e).

TABLE 3-6 GHG EMISSIONS ASSOCIATES WITH CONSTRUCTION AND OPERATION OF THE PROPOSED MODIFICATIONS

CONSTRUCTION				
	GREENHOUSE GASES (METRIC TONS/YEAR)			
YEAR	CO_2	CH_4	N_2O	CO_2E[1]
2023	3,923	0.008	0.001	3,923
2024	5,035	0.030	0.006	5,037
2025	3,558	0.013	0.003	3,559
2026	No construction activity anticipated			
2027	2,464	0.007	0.002	2,465

OPERATIONAL					
	GREENHOUSE GASES (METRIC TONS/YEAR)				
	CO_2	CH_4	N_2O	CO_2E[1] (METRIC TONS/YEAR)	FUEL BURN
2035 No Action	205,373	0.492	0.0	205,387	71,755
2035 Proposed Action	211,621	0.495	0.0	211,635	73,937

NOTE:
1 Emissions are reported as metric tons of carbon dioxide equivalent to present a normalized unit of greenhouse gas emissions based on the global warming potential of each gas. CO_2e is a combination of CO_2 emissions with the CO_2-equivalent emissions of other greenhouse gases.

SOURCE: HMMH, *Noise and Air Quality Analysis for BNA Supplemental EA,* 2022 (see Appendix A).

3.5.3.4 INDIRECT IMPACT

Approved Project

GHG increases based on aircraft operational activities associated with the Approved Project were documented to comprise a very small fraction of the baseline emissions for Nashville and Davidson County. Indirect effects associated with the Approved Project were determined to be less than significant.

Proposed Modifications

Similar to the Approved Project, GHG increases based on aircraft operational activities associated with the Proposed Modifications were documented to comprise a very small fraction of the baseline emissions for Nashville and Davidson County. MNAA will be seeking LEED certification for elements of the Proposed Modifications, which would

reduce the amount of greenhouse gases emitted over the lifetime of the Proposed Modifications. Indirect effects associated with the Proposed Modifications would be less than significant.

3.5.3.5 MITIGATION

No mitigation measures for the Approved Project were determined to be required and none would be required for the Proposed Modifications, as effects of the Proposed Modification on climate would be less than significant.

3.6 DEPARTMENT OF TRANSPORTATION, SECTION 4(f)

3.6.1 REGULATORY SETTING

Section 4(f) of the Department of Transportation (DOT) Act of 1966, which was codified and renumbered as Section 303(c), dictates that, for any transportation program or project undertaken or approved by the DOT, impacts to the use of any publicly owned parks; recreation area; wildlife and waterfowl refuge of national, state, or local significance; or land from a historic site of national, state, or local significance must be considered. The act prohibits the use of these properties for transportation purposes unless no prudent and feasible alternative exists, and all efforts have been made to minimize impacts.

For Section 4(f) purposes, use includes not only actual physical takings of Section 4(f) lands but also adverse indirect impacts, referred to as constructive use. Constructive use occurs if Section 4(f) lands are substantially impaired by a proposed action, which includes substantially diminishing the activities, features, or attributes that contribute to the significance or enjoyment of the Section 4(f) resource.

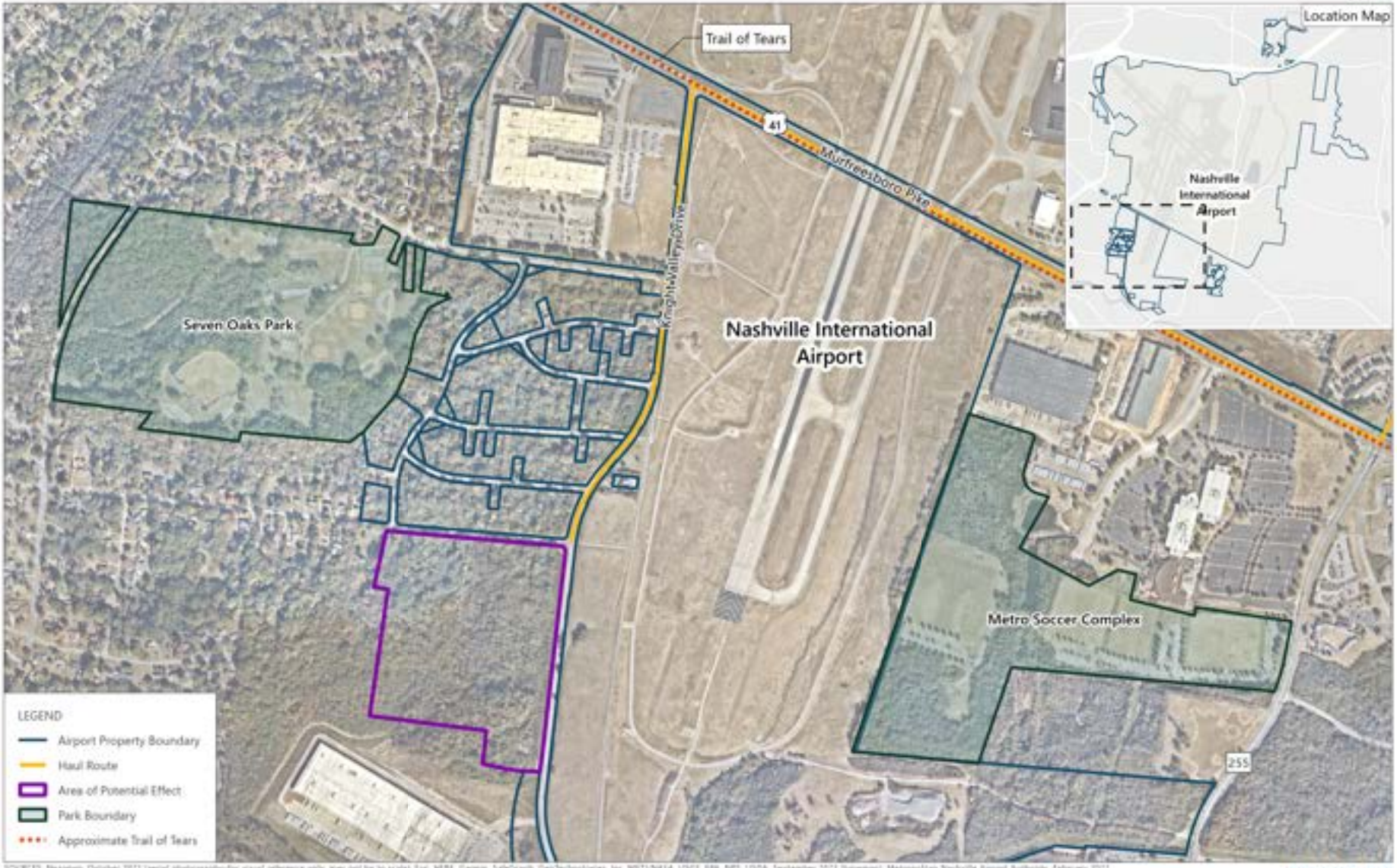
3.6.2 AFFECTED ENVIRONMENT

The CAGE EA identified the Metro Soccer Complex as the Section 4(f) resource nearest the Airport, located approximately 0.70 miles east of the CAGE EA Study Area (see **Exhibit 3-2**). The Metro Soccer Complex is a public recreation park open between dawn and 11 p.m. Park features include seven unlit soccer fields, portions of a multi-use trail with workout stations, restrooms, and associated parking. The park is owned by Metro's Industrial Development Board and was established in 1999. Noise contours completed for the CAGE EA indicated approximately 0.60-acre of the Metro Soccer Complex as being indirectly affected by noise levels associated with the Approved Project.

The nearest Section 4(f) resource to the Proposed Modifications is the Seven Oaks Park, accessible by School Lane and located approximately 0.40 miles northwest of the proposed staging area (see Exhibit 3-2). The Seven Oaks Park is a recreational facility with grassy and athletic fields, a disc golf course, picnic areas, and a playground owned and operated by the Metropolitan Government of Nashville and Davidson County. Noise contours completed for the Approved Project indicate approximately 1.2 acres of the Metro Soccer Complex would be exposed to noise levels of DNL 65 noise levels associated with the Approved Project.

A portion of the Trail of Tears, a National Historic Trail administered by the National Trails Office of the National Park Service (NPS), is located at the southern end of Airport property. Segments of the Trail of Tears extend east and west of Airport property at the south end of the Airport, coinciding with the Murfreesboro Pike right-of-way (see **Exhibit 3-3**). Concourse D and the proposed construction staging area are located approximately 7,200 feet north and 3,400 feet south of the Trail of Tears, respectively.[27]

[27] National Park Service – National Trails, *National Historic Trails Viewer*, https://nps.maps.arcgis.com/apps/webappviewer/index.html?id=24fc463363f54929833580280cc1a751 (accessed January 13, 2023).



SOURCES: Nearmap, October 2021 (aerial photography for visual reference only; may not be to scale); Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, NGTI/NASA, USGS, EPA, NPS, USDA, September 2022 (basemap); Metropolitan Nashville Airport Authority, February 2022 (Airport property boundary); National Park Service, January 2018 (approximate Trail of Tears); Metropolitan Government of Nashville and Davidson County, Tennessee, 2019 (parks); Metropolitan Nashville Airport Authority, Final Environmental Assessment for the BNA Vision Project, February 2018, and Ricondo & Associates, Inc., August, 2022 (areas of potential effect).

EXHIBIT 3-2

NORTH 0 1,000 ft

SECTION 4(F) RESOURCES

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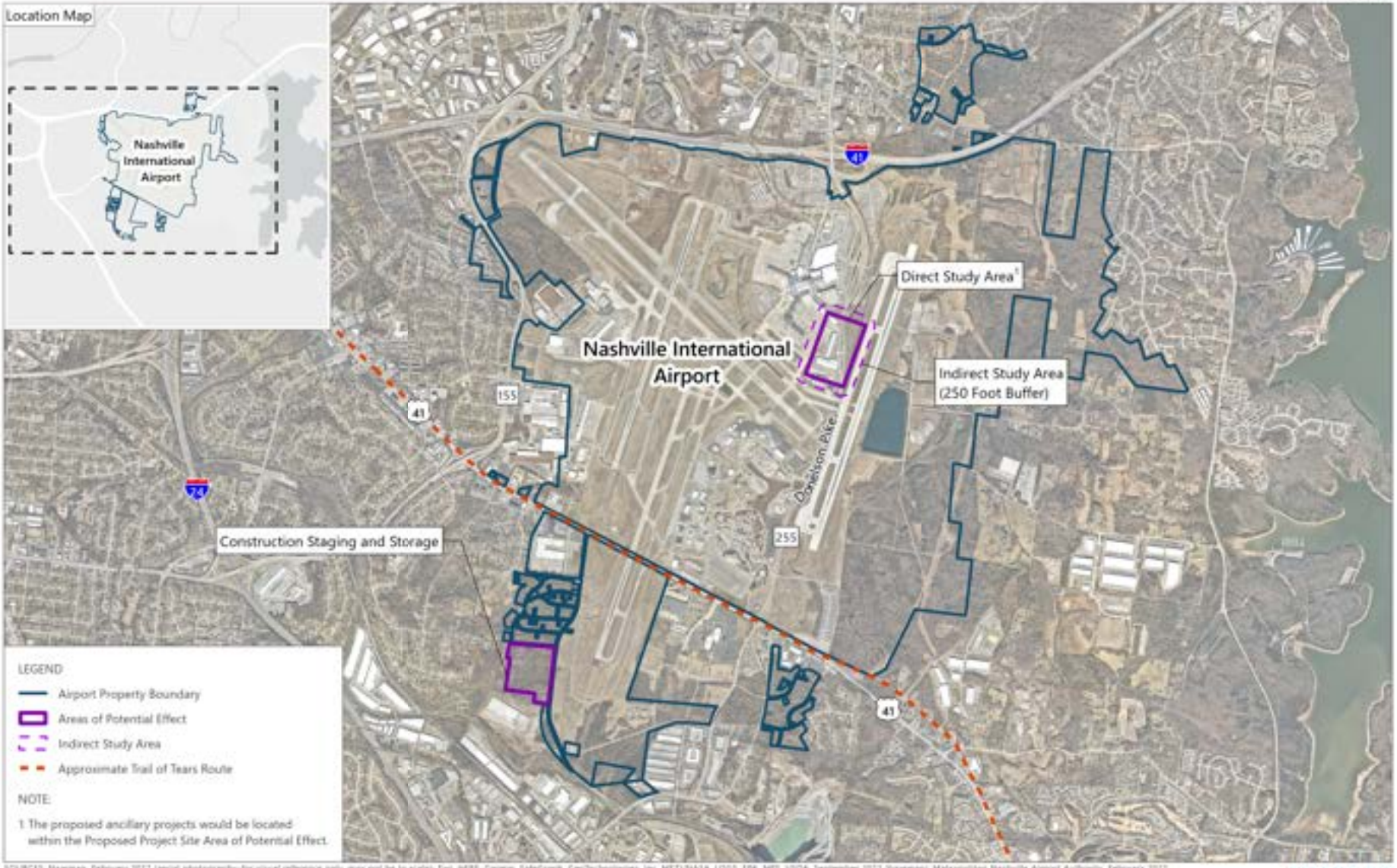

SOURCES: Nearmap, February 2022 (aerial photography for visual reference only, may not be to scale); Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, September 2022 (basemaps); Metropolitan Nashville Airport Authority, February 2022 (Airport Property boundary); National Park Service, January 2019 (Trail of Tears route); Metropolitan Nashville Airport Authority, Final Environmental Assessment for the BNA Vision Project, February 2018; and Ricondo & Associates, Inc., August, 2022 (areas of potential effect).

EXHIBIT 3-3

TRAIL OF TEARS NATIONAL HISTORIC TRAIL

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3.6.4 ENVIRONMENTAL CONSEQUENCES

3.6.4.1 METHODOLOGY

Section 4(f) of the US DOT Act of 1966 protects publicly owned parks and recreational areas, wildlife and waterfowl refuges, and public and private historic sites. Physical or constructive use of Section 4(f) protected resources, as defined by the US DOT Act of 1966, must be identified and described in detail. Resources protected under Section 4(f) were analyzed to determine whether a physical use or constructive use of each property would occur during construction or operation of the Proposed Modifications. The criteria used to assess physical use included:

- Physical taking of Section 4(f) property
- Physical, permanent, or temporary occupation of Section 4(f) property
- Alteration of structure or facilities on the property

The criteria used to assess constructive use required determination of whether any of the identified project impacts would impair the activities, features, or attributes that qualify the identified Section 4(f) properties as Section 4(f) resources.

3.6.4.2 SIGNIFICANCE THRESHOLDS

An adverse effect to a Section 4(f) property would occur through either a physical or constructive use of the resource. According to FAA Order 1050.1F, a physical use is an instance in which a Section 4(f) property is permanently incorporated into the transportation facility or, as a temporary physical use, in which a resource is occupied in a way that is adverse to the Section 4(f) property's activities or purpose, and is more than minimal. Constructive use is an instance in which, although a resource is not physically used, an action's indirect impacts substantially impair the Section 4(f) property's protected activities, features, or attributes. Substantial impairment occurs when the activities, features, or attributes of the property that contribute to its significance or enjoyment as a Section 4(f) property are substantially diminished.

3.6.4.3 DIRECT IMPACTS

Approved Project

The CAGE EA determined that the Approved Project would not result in physical use or taking, or the constructive use of Section 4(f) property. Construction of the Approved Project would not result in impacts that required analysis of physical or constructive use of the sole Section 4(f) resource in proximity of the project, the Metro Soccer Park. The Approved Project would have no direct effect on Section 4(f) properties. No Section 6(f) properties were found in proximity to the Approved Project.

Proposed Modifications

Construction of the Proposed Modifications would not result in the physical or constructive use of the Metro Soccer Park. No construction is proposed within or near the Metro Soccer Park. One additional Section 4(f) resource, Seven Oaks Park, was identified in proximity to the proposed construction staging area. No construction is proposed within or near Seven Oaks Park. Therefore, the Proposed Modifications would have no direct effect on Section 4(f) properties. No Section 6(f) properties are located in proximity to the Proposed Modifications.

The Approved Project would not result in physical use of a Section 4(f) resource. Operation of the Proposed Modifications would result in a nominal change in noise contours and increased emissions associated with the additional aircraft operations forecast to occur (see Sections 3.3.3 and 3.11.3). The change in the 65 DNL noise contour would not substantially impair the activities, features, or attributes that qualify the identified Section 4(f)

properties. Similarly, the increase in emissions was found to be below *de minimis* levels and would not substantially impair the activities, features, or attributes that qualify the identified Section 4(f) properties. The remaining operational impacts identified in this Supplemental EA are not in proximity to the identified Section 4(f) properties and would have no effect on either resource. Therefore, operation of the Proposed Modification would have no impact when compared to the Approved Project with regard to physical or constructive use of Section 4(f) properties.

3.6.4.4 INDIRECT IMPACTS

Approved Project

Of the impacts identified in the CAGE EA analysis, only noise impacts associated with additional aircraft accommodated by the Approved Project were found to affect a Section 4(f) resource, the Metro Soccer Park. The Proposed Modifications would result in indirect noise impacts to an additional 0.25 acres of Metro Soccer Park, increasing the impacted area to approximately 1.45 acres. The increase in noise-impacted area would be nominal and, therefore, determined not to result in a constructive use of the Section 4(f) resource. The Approved Project would have no indirect effect on the Section 4(f) properties.

Proposed Modifications

Potential impacts resulting from the Proposed Modifications would not substantially diminish protected activities, features, or attributes of either Section 4(f) resource. Given the high ambient noise associated with Airport operations and traffic on Donelson Pike and Murfreesboro Pike, construction and operational noise are not anticipated to significantly change noise levels at Metro Soccer Park or Seven Oaks Park. Air quality impacts associated with construction of the Proposed Modifications would be below *de minimis* levels and, therefore, would not result in impacts to Metro Soccer Park. All other potential impacts associated with construction and operation of the Proposed Modifications would not affect the identified Section 4(f) resources and, therefore, would not result in indirect effects to Section 4(f) resources. Therefore, the Proposed Modifications would have no change when compared to the Approved Project with regard to indirect effects to Section 4(f) properties.

3.6.4.5 MITIGATION MEASURES

Construction and operation of the Proposed Modifications would not result in significant impacts to Section 4(f) resources. No mitigation measures are proposed for Section 4(f) properties.

3.7 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

3.7.1 REGULATORY SETTING

3.7.1.1 HAZARDOUS MATERIALS REGULATION

Many federal laws regulate the handling and disposal of hazardous materials, chemicals, substances, and waste, including solid waste and pollution prevention. The federal laws applicable to the Airport and Study Area are:

- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- Resource Conservation and Recovery Act (RCRA)
- Clean Water Act (CWA)
- Safe Drinking Water Act (SDWA)
- CAA
- Hazardous Materials Transportation Act (HMTA)

Pursuant to delegation from the USEPA, the TDEC's Division of Solid Waste Management (DSWM) is primarily responsible for ensuring federal hazardous materials regulations are enforced and upheld at the state level. Federal regulations have been incorporated into state-level regulations, which are meant to ensure proper enforcement of federal regulations.

3.7.1.2 SOLID WASTE REGULATION

The TDEC enforces regulations included in the Tennessee DSWM's Policies and Guidance documents that assist with maintaining federal requirements and regulations pertaining to hazardous waste, solid waste, and asbestos and lead-based paint at the state level.

3.7.1.3 POLLUTION PREVENTION REGULATION

The CWA regulates the discharge of pollutants, including stormwater, into waters of the United States (WOTUS). Section 402 of the CWA formed the National Pollutant Discharge Elimination System (NPDES). The USEPA delegates authority in Tennessee to the TDEC's Division of Water Resources to issue NPDES permits and monitor permit compliance.

3.7.2 AFFECTED ENVIRONMENT

3.7.2.1 HAZARDOUS MATERIALS

The types, characteristics, and occurrences of hazardous materials and other regulated substances at BNA are typical of large metropolitan airports that offer commercial and cargo services. The Proposed Modifications includes the demolition and relocation of several support facilities including the GSE fueling station, a trash compactor facility, a triturator, and a glycol and deicing facility. The GSE fueling station provides fuel for combustible engine GSE throughout the Airport. The trash compactor serves as a trash compaction waypoint for all airside waste prior to transfer to municipal waste facilities. The triturator facility supports disposal of sewage from aircraft at BNA and the glycol and deicing facility supports storage and distribution of deicing chemicals for Airport equipment.

As shown on **Exhibit 3-4**, the GSE fueling facilities are located adjacent to the Air Freight Building and include fuel tanks and distribution pumps. Adjacent to the GSE fueling tanks are the trash compactor facility and glycol tanks and deicing facility and the triturator facility.

As discussed in the CAGE EA, 21 remediation sites are located within a one-mile radius of the Airport. Two of the 21 proximate remediation sites are open; however, neither are within the proposed study area for the Approved Project or the Proposed Modifications. TDEC has also identified several remediation sites on Airport property (see **Appendix D**), two of which were identified in the Study Area (see **Exhibit 3-5**). Remediation sites identified by the Tennessee Division of Remediation (DOR) for "American Airlines" (DOR Site ID SRS190349) and "American Airlines Fuel Farm Facility Nashville" (DOR Site ID SRS190793) are located near the existing Air Freight Building and are in proximity to Concourse D. According to the DOR, both sites have been closed, indicating they no longer pose a threat to the environment.[28] The Proposed Modifications would occur within extended areas of the existing Airport property adjacent to Concourse D, the Air Freight Building, and the Multipurpose Facility, as well as an additional staging area. No remediation sites are located within or in proximity to the construction staging area.

[28] Tennessee Department of Environment and Conservation, "Division of Remediation Site," https://tdeconline.tn.gov/dor/ (accessed October 24, 2022).

SOURCES: Nearmap, February 2022 (aerial photography–for visual reference only; may not be to scale); Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, October 2022 (basemap); Metropolitan Nashville Airport Authority, February 2022 (Airport property boundary); Metropolitan Nashville Airport Authority, CAGE Supplemental EA Project Status Meeting, October 21, 2022 (existing buildings).

EXHIBIT 3-4

NORTH 0 250 ft

EXISTING AIRPORT SUPPORT FACILITIES

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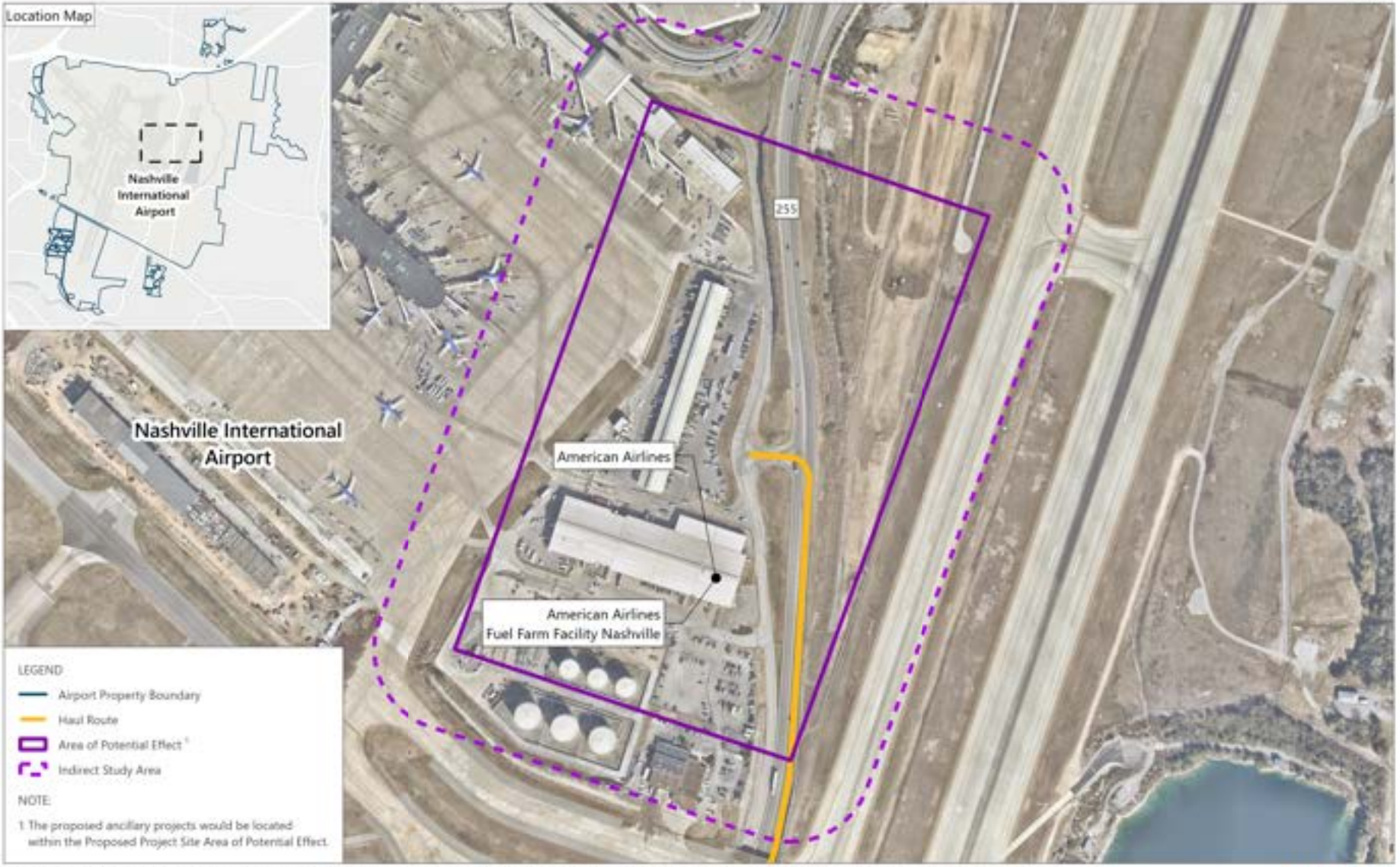

SOURCES: Nearmap, October 2022 (aerial photography–for visual reference only, may not be to scale); Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, September 2022 (basemap); Metropolitan Nashville Airport Authority, February 2022 (Airport property boundary); Metropolitan Nashville Airport Authority, Final Environmental Assessment for the BNA Vision Project, February 2018, and Ricondo & Associates, Inc., August, 2022 (area of potential effect).

EXHIBIT 3-5

EXISTING REMEDIATION SITES

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3.7.2.2 SOLID WASTE

The Airport generates typical industrial, construction, and municipal solid wastes that are disposed of by private waste companies contracted directly by the Authority or the Authority's construction contractors. The Metropolitan Nashville Department of Public Works Curby program is contracted by MNAA for disposal of recyclable paper, cardboard, plastic, and metal. BNA also recycles lighting, tires, batteries, and debris from maintenance and construction and demolition (C&D) projects. Existing Airport processes within the Study Area producing solid waste are consistent with the CAGE EA.

3.7.2.3 POLLUTION PREVENTION

Pollution prevention at BNA is implemented through a site-specific Spill Prevention Control and Countermeasures (SPCC) Plan, an industrial Stormwater Pollution Prevention Plan (SWPPP), and an individual NPDES permit. Several potential pollution sources were identified by the individual NPDES permit and SPCC plan, and a number of these pollution sources have the potential to occur within or near the Study Area. The waste glycol dump station and salt and sand storage areas, located on the north side of the north apron, are of specific concern for pollution prevention. Additionally, as discussed in the CAGE EA, uncontrolled spills and stormwater runoff from BNA aprons have the potential to enter Mill Creek. The Airport's pollution prevention plans and resources applicable to the modified project are consistent with the CAGE EA.

3.7.3 ENVIRONMENTAL CONSEQUENCES

3.7.3.1 METHODOLOGY

Facilities permitted to handle solid waste and sites identified for hazardous materials releases located on Airport property, are documented in Section 3.7.2.1. The locations of these facilities and sites were compared with the construction areas associated with the Proposed Modifications to identify the potential to encounter hazardous materials during ground-disturbing construction activities. The potential to generate hazardous materials and solid waste was also evaluated based on anticipated construction and operational activities. The findings of these evaluations were compared to the appropriate regulatory guidelines, significance thresholds, and other appropriate criteria. Relevant safeguards and precautions that would be undertaken to avoid or minimize potential environmental impacts associated with hazardous materials and/or environmental contamination during the construction and operational phases of the Proposed Modifications were also identified.

3.7.3.2 SIGNIFICANCE THRESHOLDS

The FAA has not established a significance threshold for hazardous materials, solid waste, or pollution prevention. However, FAA Order 1050.1F identifies factors to consider when evaluating potential environmental impacts. To identify the potential for impacts, the Proposed Modifications were reviewed to determine whether it would:

- violate federal, state, local, or tribal regulations;
- affect a contaminated site;
- produce an appreciably different quantity/type of hazardous waste;
- produce an appreciably different quantity/type of solid waste that would exceed local capacity; or
- adversely affect human health and the environment.

3.7.3.3 HAZARDOUS MATERIALS

Approved Project

The Approved Project would require the use of hazardous materials typical of development projects, such as fuels, oils, solvents, and paints during construction and operation. Demolition and construction of the Concourse A facility, the apron improvements, and associated enabling projects would generate solid waste, which may contain hazardous materials. An existing oil-water separator and waste glycol tank would be relocated as a part of the Approved Project. Construction of the Concourse A apron would also include installation of hydrant fuel system improvements and a new glycol (deicer) treatment trunk line. Paving, soil, and groundwater in proximity to these elements may contain hazardous materials due to the nature of previous uses. Accordingly, the facilities would be demolished, and the associated materials evaluated, in compliance with applicable laws and regulations, and disposed of in an appropriate off-site facility. Hazardous materials associated with demolition and construction activities will be stored, employed, and disposed of in accordance with applicable regulations.

The DOR identified one remediation site, SRS190349, within the Indirect Study Area associated with the Approved Project; however, the site is not within the Approved Project's ground disturbance area.[29]

Proposed Modifications

Demolition and construction associated with the Proposed Modifications would generate additional solid and hazardous waste when compared to the Approved Project. These activities would also require the use of hazardous materials typical of development projects, such as fuels, oils, solvents, and paints.

The Proposed Modifications would include demolition of existing air freight and airport support facilities, construction of a concourse extension, air freight building, and pavement areas, and relocation of facilities used in the storage, transport, and disposal of hazardous materials. These airport support facilities, in particular, contain petroleum products, solvents, sewerage, and consumer waste respectively and may also employ, in lesser quantities, oils, solvents, and other potentially hazardous materials associated with maintenance and operations. An existing underground storage tank (UST) associated with the GSE fueling facility; aboveground glycol storage tanks; a triturator; and a trash compactor facility would all be demolished and relocated. Remnant building materials generated from the demolition would be tested for contamination and disposed of in an appropriate off-site facility or recycled, in accordance with *Rules and Regulations for the use of Airports and facilities for Nashville International Airport and John C. Tune Airport* (MNAA Rules and Regulations) and the *MNAA Airport Improvement Request Manual*.[30,31]

The Proposed Modifications would require the construction of hydrant fuel system improvements to accommodate the proposed Concourse D aircraft parking positions. The fuel system would be installed in compliance with applicable laws and regulations, including FAA AC 150/5230-4C, *Aircraft Fuel Storage, Handling, Training and Dispensing on Airports*.

The DOR TDEC Remediation Sites mapper identifies two DOR sites: Site SRS190793, American Airlines Fuel Farm Facility Nashville, and Site SRS190349, American Airlines. Both sites are identified within the Multipurpose Facility

[29] Metropolitan Nashville Airport Authority. Final Concourse and Gate Expansion Environmental Assessment, July 2021.

[30] Metropolitan Nashville Airport Authority. Rules and Regulations for the use of Airports and facilities for Nashville International Airport and John C. Tune Airport, September 1, 2020.

[31] Metropolitan Nashville Airport Authority. Airport Improvement Request Manual. February 26, 2019.

footprint. Correspondence with the DOR dated December 1, 2022, confirmed that the two identified sites within the proposed Study Area are listed as "closed" within the TDEC-DOR database.[32] Accordingly, the DOR-identified sites are not expected to require additional remediation. However, construction and demolition activity in proximity to the Multipurpose Facility would include testing of demolished materials to ensure hazardous materials are identified and addressed appropriately.

Clearing and subsequent use of the proposed construction staging area would require the use of hazardous materials, in relatively small amounts, typically associated with construction equipment and materials storage. All hazardous materials would be stored in compliance with the *MNAA Airport Improvement Request Manual*.[33]

Hazardous materials used and generated during demolition for, and construction of the Proposed Modifications would be similar in composition to those used and generated under the Approved Project. The amount of additional hazardous waste generated would not exceed local disposal and recycling capacity.[34] Impacts associated with the storage, use, and generation of hazardous materials for the Proposed Modifications would be less than significant.

3.7.3.4 SOLID WASTE

Approved Project

Demolition and construction activity associated with the Approved Project would generate solid waste comprising structural materials, utility systems, and pavement. Waste generated from demolition and construction activities would be tested for the presence of hazardous materials and disposed of in an appropriate off-site facility or diverted for recycling.

Proposed Modifications

The extension of Concourse D, relocation of the airport support facilities, renovation of the Multipurpose Facility, and demolition and construction of the proposed enabling projects would generate solid waste comprising building materials, airport support equipment, and apron and landside pavement. Solid construction and demolition waste associated with the Proposed Modifications would be similar in content to the waste generated during construction and demolition of the Approved Project. The Proposed Modifications would produce construction waste in addition to the waste produced as part of the Approved Project. Specifically, demolition of existing Building 4321, the 75,000 square feet of AOA pavement, and 150,000 square feet of landside pavement would produce an estimated 42,000 cubic yards of waste material.[35] However, demolished pavement material, comprising approximately 16,250 cubic yards, would have a high diversion potential and the majority of the pavement would be recycled. The Authority would recycle the demolished Building 4321 materials to the extent possible.

The Proposed Modifications would result in additional waste generated during construction and operation of the Concourse D improvement; however, the high diversion probability and relatively limited amount of waste resulting from the Proposed Modifications would be consistent with the Approved Project. The Metropolitan Nashville and Davidson County landfill and recycling facilities have the capacity to accommodate additional mixed construction

[32] Alison Hensley, Environmental Manager, Tennessee Department of Environment & Conservation Division of Remediation, "Nashville Int'l Airport CAGE Supplemental EA," email to Avant Ramsey, December 1, 2022.

[33] Metropolitan Nashville Airport Authority. Airport Improvement Request Manual. February 26, 2019.

[34] Metropolitan Nashville and Davidson County. Metropolitan Nashville and Davidson County Solid Waste Master Plan: Achieving Zero Waste, August, 2019.

[35] Construction and demolition volume was calculated based on the Federal Emergency Management Agency *Debris Estimating Field Guide, FEMA 329/September 2010*.

and demolition waste from the Proposed Modifications for the foreseeable future. However, within the coming years, one of the most commonly used landfills for Davidson County, the Waste Management, Inc. Southern Services Construction and Demolition Landfill, would near capacity, requiring solid waste to be disposed of at one or more of the seven landfill facilities within 30 miles of the Airport.[36, 37] Thus, the cumulative impacts associated with the generation and disposal of solid waste associated with construction of the Proposed Modifications in addition to the Approved Project would be less than significant when compared to the Approved Project.

3.7.3.5 POLLUTION PREVENTION

Approved Project

Due to the nature of airport and aircraft operations, contaminated structural materials, pavement, soil, and groundwater may be discovered during demolition and construction. Solid waste associated with demolition and construction of the Approved Project would be tested and disposed of appropriately in accordance with federal, state, and local regulations. The existing SWPPP and SPCC Plan will be updated to ensure compliance with local, state, and federal regulations. Additionally, existing discharge permits will be modified as needed to maintain compliance during construction and demolition activities associated with the Approved Project.

Proposed Modifications

As previously noted, the use of hazardous materials during construction of the Proposed Modifications would be in quantities that are typical of the construction industry. Construction and demolition activities would adhere to the Authority's building permit(s), SWPPP, and SPCC Plan to ensure contaminants, sediments, and other pollutants are captured during construction and treated accordingly. Construction and demolition activities would also adhere to the MNAA Rules and Regulations and the *MNAA Airport Improvement Request Manual* to reduce or eliminate sediment and other pollutants in stormwater, as well as non-stormwater discharges. Adherence to the site-specific SWPPP and implementation of standard BMPs during construction would ensure discharges of pollutants of concern would be minimized. Therefore, impacts associated with pollution prevention and contamination of soil or groundwater due to spill or release of hazardous materials during the Proposed Modifications, in addition to the accumulated impacts of the Approved Project, would not be significant when compared to the Approved Project.

3.7.3.6 INDIRECT IMPACTS

Approved Project

The Approved Project would result in indirect impacts associated with increased fuel storage and use and storage of other regulated substances to support additional aircraft operations. The Approved Project would also result in additional, on-going solid waste generation by passengers and Airport employees. The increased use, storage, and disposal of hazardous materials and solid waste would be consistent with existing Airport operations and the associated effects would be less than significant.

Proposed Modifications

Similar to the Approved Project, the Proposed Modifications would result in increased fuel storage and use and storage of regulated substances to support additional aircraft operations, as well as the on-going generation of

[36] Metropolitan Nashville and Davidson County. Metropolitan Nashville and Davidson County Solid Waste Master Plan: Achieving Zero Waste. August, 2019.

[37] Tennessee Department of Environment and Conservation. Solid Waste Management (website and map), Accessed January 17, 2023. Accessible at: https://www.tn.gov/environment/program-areas/solid-waste/solid-waste-management.html.

solid waste by passengers and Airport employees. The use, storage, and disposal of hazardous materials and solid waste associated with the Proposed Modifications would be consistent with existing Airport activities and is not expected to change the volume or type of hazardous materials and solid waste to the extent that it would affect existing facilities and services. Indirect effects associated with hazardous materials, solid waste, and pollution prevention for the Proposed Modifications would be less than significant.

3.7.3.7 MITIGATION

Use, storage, and disposal of hazardous materials and solid waste associated with the Proposed Modification is consistent with the Approved Project. Therefore, adherence to applicable federal, State, and local regulations and the BMPs identified in the CAGE EA are applicable and sufficient for the construction and operation of the Proposed Modification.

3.8 HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

3.8.1 REGULATORY SETTING

Cultural resources are prehistoric sites and historic sites, districts, structures, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. The National Historic Preservation Act (NHPA) established the National Register of Historic Places (NRHP) and Section 106 of the NHPA requires federal agencies to consider whether proposed activities have the potential to have an adverse effect on historic properties that are already listed, determined eligible, or not yet evaluated under the NRHP criteria. The Tennessee Historical Commission (THC) has state and federally mandated programs that promote historic preservation and history. The THC advises and assists federal agencies in carrying out their responsibilities under Section 106.

3.8.2 AFFECTED ENVIRONMENT

Research conducted at the THC[38] indicated that no above-ground historic properties are located within the general area of CAGE EA project elements, which are adjacent to the Proposed Modifications Study Area. In certain cases, properties were not considered for the NRHP due to the date of construction. The Area of Potential Effect (APE) for the Proposed Modifications includes the south terminal area and the proposed staging area. The Multipurpose Facility and Air Freight Building were constructed in the 1980s; the buildings are utilitarian in form and function and neither were designed by a master architect. Therefore, they are not eligible for listing on the NRHP. There are no structures present within the proposed construction staging areas. A review of NRHP records revealed and preliminary consultation with the THC, in its capacity as the State Historic Preservation Office (SHPO), that there are no historic properties within or near the Study Area.

Research conducted at the Tennessee Division of Archaeology (TDOA) revealed that there are no previously recorded archeological sites within the direct APE of the Proposed Action.[39] The APE includes a previously disturbed area surrounded by aviation and transportation-related infrastructure that is not conducive to archaeological

[38] Amec Foster Wheeler Environment & Infrastructure, Inc., Corgan Architecture and Interior Design. *Final Environmental Assessment BNA Vision*, February 2018.

[39] Amec Foster Wheeler Environment & Infrastructure, Inc., Corgan Architecture and Interior Design. *Final Environmental Assessment BNA Vision*, February 2018.

findings, as well as the proposed storage and staging area, which consists of 35 acres of vegetated, undeveloped land. No known archeological sites are in proximity to the proposed staging area.

As described in Section 3.6, a portion of the Trail of Tears, a National Historic Trail administered by the National Trails Office of the NPS, is located at the southern end of Airport property (see Exhibit 3-3). Segments of the Trail of Tears extend east and west of Airport property at the south end of the Airport, coinciding with the Murfreesboro Pike right-of-way. Concourse D and the proposed construction staging area are located approximately 7,200 feet north and 3,400 feet south of the Trail of Tears, respectively.[40]

3.8.3 ENVIRONMENTAL CONSEQUENCES

3.8.3.1 METHODOLOGY

Activities associated with the construction and operations associated with the Proposed Modifications on historical, architectural, archeological, and cultural resources were evaluated through coordination with the SHPO. An APE for the Proposed Modifications was identified and additional outreach to THC, as the SHPO, was conducted. The SHPO did not submit comments on the proposed project during agency outreach in December 2022; therefore, the Authority assumes there were no sites of historic significance identified by the SHPO within the new APE and that no NHRP-listed or eligible properties would be affected, consistent with the THC correspondence dated September 3, 2020 (see **Appendix E**).

3.8.3.2 SIGNIFICANCE THRESHOLDS

The FAA has not established a significance threshold for cultural resources. If the potential for an adverse effect on a cultural resource is identified, then the effects of the action are evaluated and determined through the Section 106 consultation process with the SHPO. Adverse effects to historic properties include effects that:

- physically destroy or damage the property;
- alter the property in a way that is inconsistent with the Secretary of the Interior's Standards for Treatment of Historic Properties;
- remove the property from its historic location;
- change the character of the property's use or physical features within the property's setting that contribute to its historic significance;
- introduce an atmospheric, audible, or visual feature to the area that would diminish the integrity of the property's significant historic features; or
- result in neglect of a property that would cause its deterioration or the transfer, sale, or lease of a property out of federal ownership or control without adequate protection to ensure the long-term preservation of the property's historic significance.[41]

[40] National Park Service – National Trails, *National Historic Trails Viewer*, https://nps.maps.arcgis.com/apps/webappviewer/index.html?id=24fc463363f54929833580280cc1a751 (accessed January 13, 2023).

[41] 36 CFR 800.5, *Assessment of Adverse Effects.*

3.8.3.3 DIRECT IMPACTS

Approved Project

Consultation with the SHPO and Tribal representatives completed as a part of the Vision EA (2018) confirmed the Approved Project would have no direct or indirect impact on archaeological or historical sites eligible for or listed on the NRHP. Subsequent consultation with SHPO regarding the CAGE program resulted in THC's determination that no NRHP-listed or eligible properties would be affected by the Approved Project.[42]

No archeological or historical sites eligible for or listed on the NHRP were identified in either the on-Airport or off-Airport APEs for the Approved Project. THC concurred with the FAA's No Historic Properties Affected determination.

Proposed Modifications

The APE for the Proposed Modifications, comprising the construction area associated with the Proposed Modifications as well as the construction staging area, was submitted to THC, in its capacity as SHPO, in correspondence dated December 6, 2022. Construction of the Proposed Modifications would occur on developed Airport property adjacent to the existing Concourse D building, the Air Freight Building, and the Multipurpose Facility. The Authority constructed these facilities as a part of the development east of Runways 13-31 and 2L-20R in the late 1980s.[43] These facilities do not individually or collectively meet the eligibility requirements for listing on the NRHP and there are no known underlying historic properties, including archeological and tribal sites.

The Tennessee Historical Commission Viewer identified four historic sites within or in proximity to the proposed construction staging area.[44] The FAA and the Authority confirmed, via field survey, the identified sites were inaccurately mapped in the Tennessee Historical Commission Viewer. No historic properties are confirmed to be present in the APE and no properties listed on or eligible for the NRHP would be affected. Clearing of the proposed construction staging area, and subsequent use, would not affect any known historic properties.

The Trail of Tears NHT was identified to be located in the vicinity of the Airport. Through correspondence with the NPS dated January 10, 2023, the National Trails Office confirmed that no adverse effect to the Trail of Tears NHT or its resources would occur as a result of the Proposed Modifications.[45]

Operation of the Proposed Modifications would comprise ongoing use of additional gates, and associated apron, at Concourse D, a new Air Freight Building, airport support facilities adjacent to the Multipurpose Facility, and continued use of the Multipurpose Facility. The Proposed Modifications would be completed on existing, developed Airport property. The proposed construction staging area would continue to be used by the Authority, on an as-needed basis, following construction of the Proposed Modifications. Operation of the Proposed Modifications, including the construction staging area, would not result in direct impacts to historical resources listed on or eligible for the NRHP. The effects to historical, architectural, archeological, and cultural resources associated with the Proposed Modifications would be less than significant.

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[42] McIntyre Jr., E. Patrick to Ryan Mountain, RE: FAA / Federal Aviation Administration, Nashville International Airport, Concourse A and Gate Expansion, 36.131756, -86.6723237, Nashville, Davidson County, TN. September 3, 2020.

[43] AECOM. *Nashville International Airport Master Plan Update*, January 2020.

[44] Tennessee Historical Commission. Tennessee Historical Commission Viewer, Exported PDF. Accessed January 31, 2023. (Accessible at: https://tnmap.tn.gov/historicalcommission/)

[45] Jordan Jarrett, Archeologist, National Park Service, "Nashville Int'l Airport CAGE Supplemental EA," email to Avant Ramsey, January 10, 2023.

3.8.3.4 INDIRECT IMPACTS

Approved Project

The Approved Project was found to have no direct or indirect impacts on historic or archeological sites listed on or eligible for listing on the NRHP.

Proposed Modifications

Changes in noise contours would not result in any indirect impacts to historic resources in proximity to the Proposed Modifications. The Proposed Modifications would not affect historic, architectural, archaeological, or cultural resource compared to the Approved Project.

3.8.3.5 MITIGATION MEASURES

The Proposed Modifications would have no effect on historic, architectural, archeological, or cultural resources; therefore, no additional mitigation is required. Consistent with the BMPs specified in the CAGE EA, if archaeological materials are discovered during construction of the Proposed Modifications, work would be halted in the area of discovery and SHPO and the FAA would be notified immediately.

3.9 LAND USE

3.9.1 REGULATORY SETTING

The compatibility of existing and planned land uses for federal actions at airports is usually associated with noise impacts, which are described in Section 3.11. In addition to considering noise impacts, the FAA must evaluate the other potential impacts of actions that may affect land use compatibility, including disruption of communities, relocation, and induced socioeconomic impacts (discussed in Section 3.12), as well as land uses protected under the US DOT Act, Section 4(f) (not present within the Study Area, as discussed in Section 3.6). This section focuses on the potential for conflicts between a federal action and the objectives of federal, regional, state, and local land use plans, policies, and controls for the area of concern.

3.9.2 AFFECTED ENVIRONMENT

The Proposed Modifications are located entirely on developed Airport property. Use of the undeveloped area proposed for construction staging would not be compatible with existing zoning designation for the site and the surrounding residential-zoned areas, immediately west and north of the proposed construction staging area.[46] The nearest residential unit to the proposed construction staging area is approximately 200 feet, north of Currey Road. The Authority is currently in the process of requesting MNAA property currently zoned for residential use, including the proposed construction staging area, be rezoned as AR2a, IR, or IWD, consistent with the remainder of the Airport. The rezoning process would be completed under Metropolitan Government of Nashville and Davidson County Zoning Division regulations, prior to construction of the Proposed Modifications begins in April 2023. In the event that the rezoning process is incomplete before construction of the Proposed Modifications begin, the Authority will use other staging areas identified on Exhibit 1-5, pending rezoning of Authority property. Appendix A provides noise exposure maps that reflect the current land use zoning around BNA within the 65 DNL noise contour. Land use under the Proposed Modifications is consistent with the CAGE EA.

[46] Metro Planning Commission, Parcel Viewer, https://maps.nashville.gov/ParcelViewer/. (Accessed February 8, 2023.

3.9.3 ENVIRONMENTAL CONSEQUENCES

3.9.3.1 METHODOLOGY

Analysis of the potential land use and planning effects resulting from the Proposed Modifications would incorporate identification of federal, regional, state, and local land use plans and policies applicable to the Airport and surrounding communities, and assessment of those plans and policies for consistency and compatibility with the Proposed Modifications.

Land use and zoning regulations within and in proximity to the Airport property are defined, planned, and implemented by the Metropolitan Government of Nashville and Davidson County (Metro). Land use compatibility associated with the Proposed Modifications was assessed using the Metro's *Community Character Manual, 2017*, the Nashville Planning Department's online Parcel Viewer tool, and MNAA maps. Airport property, identified as the Airport Overlay District, is within the Metro extents and generally subject to Metro zoning code. Chapter 17.36, Article VI of the Metro Code of Ordinances specifies that in cases of discrepancy (between Metro zoning designations and Airport land use controls), MNAA would take precedence over generalized boundaries.

3.9.3.2 SIGNIFICANCE THRESHOLDS

The FAA has not established a significance threshold for land use. However, the FAA has established a factor to consider when evaluating potential impacts. Potential land use impacts were evaluated based on the following: "The determination that significant impacts exist in the land use impact category is normally dependent on the significance of other impact categories."[47]

3.9.3.3 DIRECT IMPACTS

Approved Project

The Approved Project is located within the Airport Overlay (zoning) District, entirely on Airport property, and is compatible with adjacent land uses. The Approved Project, including the associated Low-Impact-Development (LID) sites approved as a part of the Approved Project's mitigation, would not result in land use changes. Impacts related to land use resulting from the construction of the Approved Project were determined to be less than significant.

Operation of the Approved Project, including the expanded north apron area and the LID sites, would occur on Airport property and would not require any land use changes or conflict with existing land uses on- or off-Airport. No impacts with regard to land use would occur.

Proposed Modifications

Construction of the Proposed Modifications, including the clearing and use of the proposed construction staging area, would occur on Airport property. Construction of the proposed Concourse D extension, relocation of airport support facilities, and renovation of the Multipurpose Facility would occur on land designated as AR2A, within the Airport Overlay District, per the Nashville Planning Department's online Parcel Viewer tool. Uses within and in proximity of the terminal complex are compatible with surrounding land uses. Clearing and use of the proposed construction staging area would occur on Airport-owned parcels zoned RS10 and R10, both of which are Residential,

[47] US Department of Transportation, Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures,* July 16, 2015.

per the Parcel Viewer tool and the Metro's Zoning District Land Use Table. Industrial uses, such as construction staging, are not permitted by right according to the Metro Zoning Code.[48]

Use of the construction staging area would adhere to MNAA Rules and Regulations, as well as applicable Metro ordinances regarding construction noise, pollution prevention, and traffic controls. Construction activity may cause temporary, intermittent fluctuations in noise levels; however, reasonable measures would be taken to minimize noise impacts and disturbances from construction-related activities. Construction of the Proposed Modifications would result in a land use inconsistent with local zoning policy by constructing and operating an Airport construction staging area on land currently zoned residential (although it is owned by MNAA). The Proposed Modifications would, therefore, result in an effect with regard to land use.

The Proposed Modifications would comprise ongoing use of additional gates, and associated apron, at Concourse D, a new Air Freight Building, airport support facilities adjacent to the Multipurpose Facility, and continued use of the Multipurpose Facility. Constructed elements of the Proposed Project would occur entirely on previously developed Airport property and constitute a continuation of existing airport uses.

Following construction of the Proposed Modifications, the construction staging area would continue to be used for future MNAA projects. Due to the construction staging area designation as a residential land use (RS10, R10), operation of the site would conflict with uses allowed under the Metro Code of Ordinances. Industrial uses, such as construction staging, are not permitted by right according to the Metro Zoning Code. Additionally, construction storage and staging associated with Airport uses are not permitted within 500 feet of residential zones, per Metro Code of Ordinances, Section 17.16.105 – *Transportation uses*.

Continued operation of the construction staging area would adhere to MNAA Rules and Regulations, as well as applicable Metro ordinances regarding construction noise, pollution prevention, and traffic controls. Construction activity may cause temporary, intermittent fluctuations in noise levels; however, the Airport environs have a relatively high ambient noise level and reasonable measures would be taken to minimize noise impacts and disturbances from construction-related activities. Additionally, the Authority would adhere to Metro Code of Ordinances, including the establishment and maintenance of a 500-foot buffer from construction staging activity and residential zones. The Metro Code of Ordinances does permit parking adjacent to residential areas; thus, some portions of the proposed construction area located within 500 feet of residential zones would be used for construction employee parking. According to the Metro Code of Ordinances Section 17.16.105, no variance is required for parking use within the proposed construction area; MNAA would maintain a minimum 10-foot-wide vegetated buffer between any construction employee parking areas and residential uses. Operation of the Proposed Modifications would result in a land use inconsistent with the local zoning policy. The Proposed Modifications would, therefore, result in an effect with regard to land use.

3.9.3.4 INDIRECT IMPACTS

Approved Project

As there are no relocations involving the Proposed Action, no impacts to areas land uses are anticipated. Any expansion of the 65 dB DNL contour would not hinder land uses identified in those areas. One additional residence would be impacted by the 65 DNL noise level expansion. Indirect effects associated with the Approved Project would be less than significant.

[48] Metropolitan Government of Nashville and Davidson County. Code of Ordinances, Title 17, Chapter 17.08. September 7, 2022.

Proposed Modifications

Construction and operation of the facility improvements associated with the Proposed Modifications would be consistent with existing land uses within and adjacent to the Airport. Operation of the construction staging area, however, would constitute an on-going conflict with Metro zoning policy barring a variance. The proposed construction staging area would be consistent with nearby activities given the proximity of local industrial uses and the BNA airfield. Therefore, the indirect effects associated with the Proposed Modifications would be less than significant.

3.9.3.5 MITIGATION MEASURES

The Approved Project would not result in effects to land use and, accordingly, did not require mitigation. Land use effects due to construction and demolition associated with the Proposed Modifications would comprise a nonconforming use of Airport property zoned as RS10 and R10 (residential). Implementation of construction BMPs identified in the MNAA Rules and Regulations and the Metro Code of Ordinances would be employed to reduce impacts associated with the Proposed Modifications. Additionally, implementation of the following mitigation measure would ensure any construction and operational activity occurring at the proposed staging area is in compliance with local zoning regulations:

Mitigation Measure LU-1

In compliance with Metro Code of Ordinances, Chapter 17, Zoning, Article VIII. – Variances, MNAA would be required to obtain a zoning variance with the Metro Board of Zoning and Appeals.

Procurement of a zoning variance would eliminate nonconformance with Metro zoning regulations. The Proposed Modifications would be consistent with MNAA construction staging sites throughout the Authority's property. With implementation of Mitigation Measure LU-1, land use effects resulting from the Proposed Modifications would be reduced to less than significant.

Mitigation Measure LU-2

The Metro Code of Ordinances prohibits storage and staging of construction materials within 500 feet of residential zones. The Authority would utilize Airport property within 500 feet of the easternmost residential area south of Curry Road for construction employee parking. The Authority would maintain a minimum 10-foot-wide vegetated buffer between any construction employee parking areas and residential uses. With implementation of Mitigation Measure LU-2, land use effects resulting from the Proposed Modifications would be reduced to less than significant.

3.10 NATURAL RESOURCES AND ENERGY SUPPLY

3.10.1 REGULATORY SETTING

Sections 1502.15(e) and (f) of the Council on Environmental Quality (CEQ) Regulations require that federal agencies consider energy requirements, depletable natural resource requirements, and the conservation potential of alternatives and mitigation measures. Executive Order 13934, *Executive Order Regarding Efficient Federal Operations*, directs federal agencies to manage their buildings, vehicles, and operations to optimize energy and environmental performance, reduce waste, and reduce cost.

3.10.2 AFFECTED ENVIRONMENT

The Airport is located within the Nashville Metropolitan Area, which is an urbanized area with adequate access to energy and consumable natural resources. A review of natural resources and energy supply including water, asphalt,

aggregate, wood, electricity, natural gas, and fuel was completed for the CAGE EA to compare the existing and proposed usage of these resources. Principles of sustainability and use of sustainable technologies and practices would be considered by the Airport whenever and wherever practicable. Nashville Electric Service (NES) supplies electricity and Piedmont Natural Gas (PNG) supplies natural gas to the Airport.

The existing electrical load demand for the terminal building serving Concourses A, B, C, and D is 6,058 Kilowatts (kW). Energy supplied to the main terminal building is used for indoor lighting and heating, ventilation, and cooling (HVAC) systems. Energy demand for the main terminal building is substantial; approximately 25 percent of the electricity usage for the main terminal building is billed to individual tenants. The Proposed Modifications site is in proximity to the existing terminal complex and Airport support buildings. The existing development uses energy consistent with the surround development.

3.10.3 ENVIRONMENTAL CONSEQUENCES

3.10.3.1 METHODOLOGY

Natural resources and energy supply analysis considers the demand for consumable natural resources and energy under the Proposed Modifications and the Approved Project. Impacts to electricity demand, water usage, fuel consumption, and other consumable materials were determined by evaluating the extent to which construction and Airport operations under the Proposed Modifications would change demand compared to the Approved Project and whether any deficiencies would be anticipated as a result of the Proposed Modifications.

3.10.3.2 SIGNIFICANCE THRESHOLDS

The FAA has not established a significance threshold for consumable natural resources and energy supply. Significant impacts would occur when an action's construction or operation would cause demand for scarce consumable natural resources and energy to exceed available or future supplies.

3.10.3.3 DIRECT IMPACTS

Approved Project

Construction of the Approved Project was determined to have the potential to temporarily increase energy demands and consumption of natural resources through fuel consumption, electricity use, and use of building materials (i.e., sand, aggregate, steel, copper, etc.). Construction related energy use was not found to result in significant effects to energy and natural resources.

The Approved Project was projected to increase energy demand due to operation of additional Airport facilities, the increase in aircraft operations, and the accommodation of additional passengers and employees. Energy use required to support Concourse A and the Satellite Concourse was calculated to be 2,773 kW and 2,001 kW respectively, combining for approximately 19% of future energy use at BNA. The Approved Project is projected to consume approximately 320 kilo-British thermal unit (kBtu) per square foot year (sf-yr), which is approximately 120 kBtu/sf-yr higher than the average energy efficient airport terminal per the US Energy Administration.[49] Additionally, potential long-term operational impacts associated with natural resources include increases in aviation fuel use to serve increased demand. Energy and natural resources effects associated with operation of the Approved Project would be less than significant.

[49] Garver, *Environmental Assessment (EA), Nashville International Airport, Concourse and Gate Expansion, MNAA Project 2019A*, July 12, 2021.

Proposed Modifications

The Proposed Modifications would increase the amount of energy used and natural resources consumed during construction compared to the Approved Project. Additional energy, primarily in the form of fuel and electricity, would be expended during the use of construction equipment and during materials hauling trips. Construction of the Concourse D extension, the Air Freight Building, and airport support facilities, as well as renovation of the Multipurpose Facility would require use of additional building materials. Construction of the Proposed Modifications would temporarily increase the use of readily available natural resources and commonly used energy sources. The temporary demands on required resources are not expected to exceed local supply or cause shortages. When compared to the Approved Project, direct, construction-related impacts associated with energy and natural resources would be less than significant.

The Proposed Modifications would comprise operation of a 5-gate concourse extension, and the associated apron, a relocated Air Freight Building and airport support facilities, continued use of the Multipurpose Facility, and a construction staging area. The Concourse D extension and the construction staging area would comprise new uses, while the Air Freight Building, airport support facilities, and the Multipurpose Facility operations would constitute the continuation of existing uses at new or renovated facilities.

The 75,000-square-foot Concourse D extension would use energy, primarily in the form of fuel, natural gas, and electricity. The extension would also result in an increase in ongoing natural resource use. The structure would be approximately 80 percent smaller than the previously approved Concourse A structure and is expected to comprise an additional eight (8) percent of the total forecast energy load demand of 24,938 kW. The Air Freight Building and Multipurpose Facility would be constructed with modern, energy efficient design and materials and are expected to use less energy than the current facilities. Ongoing energy and natural resource use associated with the airport support facilities are expected to be nominal given the size and nature of the elements. Thus, the direct, operational effects of the Proposed Modifications on natural resources and energy supply would be less than significant.

3.10.3.4 INDIRECT IMPACTS

Approved Project

The Airport continues to use sustainable practices and is incorporating energy conservation measures during construction of the Approved Project. Indirect effects of the Approved Project were found to be less than significant.

Proposed Modifications

All construction would be completed with modern, energy efficient design and materials. When compared with the Approved Project, the effects associated with additional energy and natural resource use required for operation of the Proposed Action would be less than significant.

3.10.3.5 MITIGATION MEASURES

The incorporation of sustainable practices, pollution prevention, and energy conservation strategies, including use of the geo-cooling system identified in the Vision 1.0 EA, is expected to reduce peak and daily electricity and water usage during the life of the Approved Project. The Approved Project would also incorporate resiliency systems to further reduce energy demand of project elements. These BMPs would also be applicable to the Proposed Modifications. Based on the availability of improved, efficient building design, materials, and systems, construction and operation of the Proposed Modifications would not result in significant increases of energy and natural resources use at BNA; therefore, no additional mitigation is required.

3.11 NOISE AND NOISE-COMPATIBLE LAND USE

3.11.1 REGULATORY SETTING

Appendix B of FAA Order 1050.1F contains the FAA requirements for Noise and Noise-Compatible Land Use, as well as compliance with DOT Section 4(f). The Proposed Action in the CAGE EA would result in a change in aircraft operations, fleet mix, or runway use, resulting in a change in aircraft noise levels. The FAA defines a significant noise impact as one which would occur if the proposed action would cause noise-sensitive areas to experience an increase in noise of 1.5 dB or more at or above the 65 DNL noise contour. This section focuses on the extent of noise-related impacts to surrounding properties.

3.11.2 AFFECTED ENVIRONMENT

A detailed noise analysis was completed for the CAGE EA to document potential land use impacts related to noise levels associated with future conditions (year 2035) and the No Action Alternative. Several commercial and industrial developments surrounding the Airport fall within the 65 A-weighted decibels (dBA) DNL (see **Exhibit 3-6**).[50] The construction area associated with the Proposed Modifications extends beyond the study area identified in the CAGE EA, as shown on Exhibit 3-1.

3.11.3 ENVIRONMENTAL CONSEQUENCES

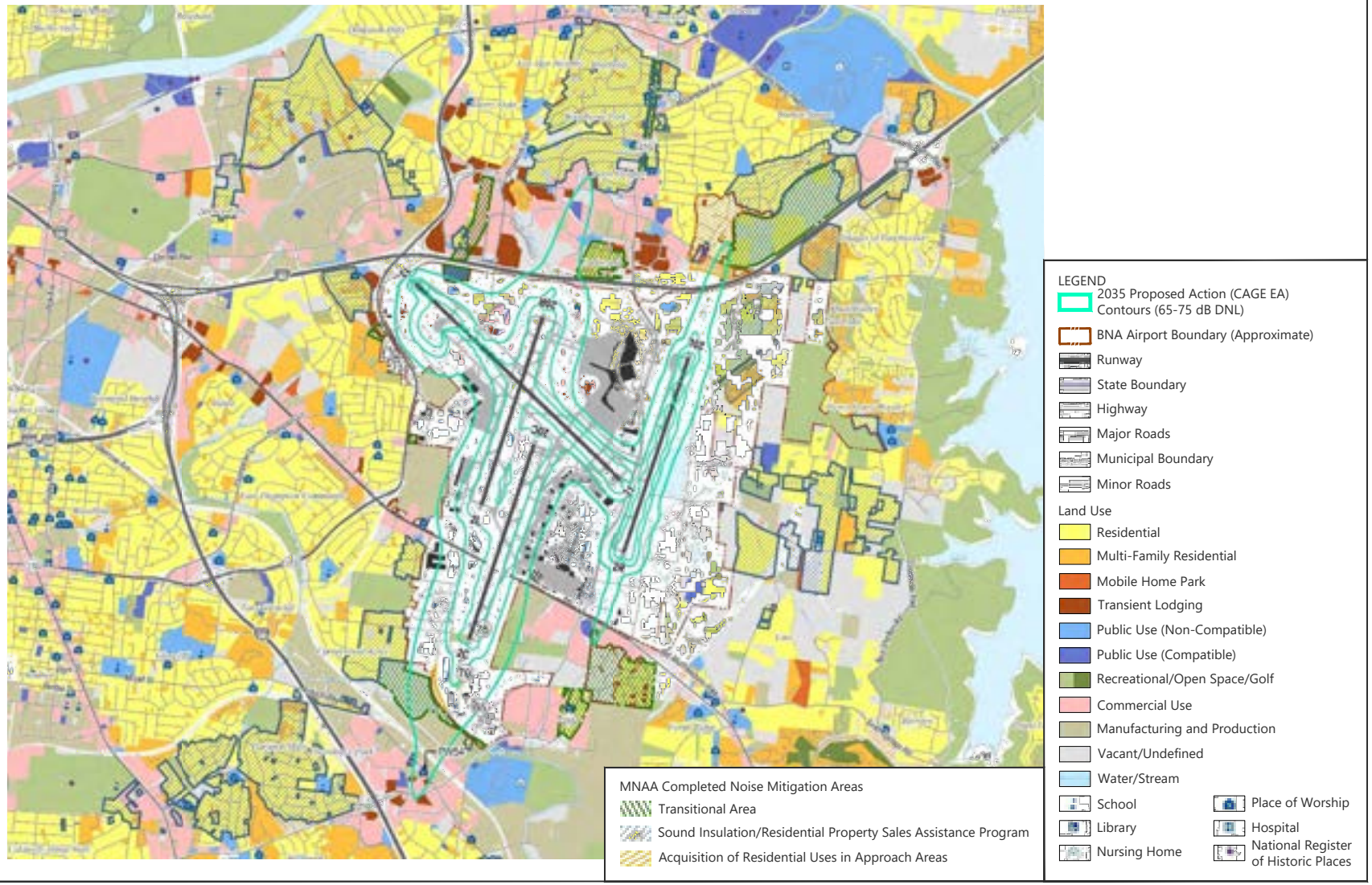
3.11.3.1 METHODOLOGY

As described in Chapter 1, the Proposed Modifications would result in an increase in aircraft operations similar to the CAGE EA. Thus, noise generated by aircraft operations would be affected and an aircraft noise analysis in compliance with FAA methodologies was conducted. Consistent with the analysis performed for the Approved Project, operational noise was modeled using the FAA's Aviation Environmental Design Tool (AEDT) to determine potential noise-related impacts to surrounding land uses (see Appendix A). Modifications to the Approved Project are being proposed to accommodate the increase in aircraft operations specified in the 2021 TAF. Operations for a 2035 Proposed Action scenario, comprising operation of all gates associated with the Approved Project and the Proposed Modifications, and a 2035 No Project scenario[51] were modeled to identify the difference in noise contours between the two scenarios. Additionally, the aircraft fleet mix used in the model was updated to more accurately represent the equipment assumed to be in operation in 2035.

The analysis of construction noise included a qualitative evaluation of whether noise from construction activities would exceed limits established in Nashville and Davidson County noise ordinances.

[50] The DNL represent a 24-hour A-weighted noise dose and includes an adjustment for nighttime noise (from 10 p.m. to 7 a.m.) of an additional 10 dB.

[51] The No Action scenario was calculated by reducing the number of Proposed Action scenario operations, for year 2035, by an amount commensurate with the number of operations 22 additional gates would accommodate annually. The Proposed Action scenario would operate 22 more gates, associated with the Approved Project and the Proposed Modifications, than the No Action scenario.



SOURCE: HMMH. Updated Technical Memorandum: Noise and Air Quality Analysis for BNA Supplemental EA.

NORTH 0 6,000 ft

EXHIBIT 3-6

EXISTING NOISE CONTOURS

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3.11.3.2 SIGNIFICANCE THRESHOLDS

In accordance with FAA Order 1050.1F, the Proposed Modifications would be considered to have a significant impact with regard to aviation noise, when compared to the no action alternative for the same timeframe, if it would:

- cause noise-sensitive areas exposed to noise at or above the DNL 65 dBA to experience an increase of at least DNL 1.5 dBA; or
- cause an increase of DNL 1.5 dBA that introduces new noise-sensitive areas to DNL 65 dBA or more.

3.11.3.3 DIRECT IMPACTS

Approved Project

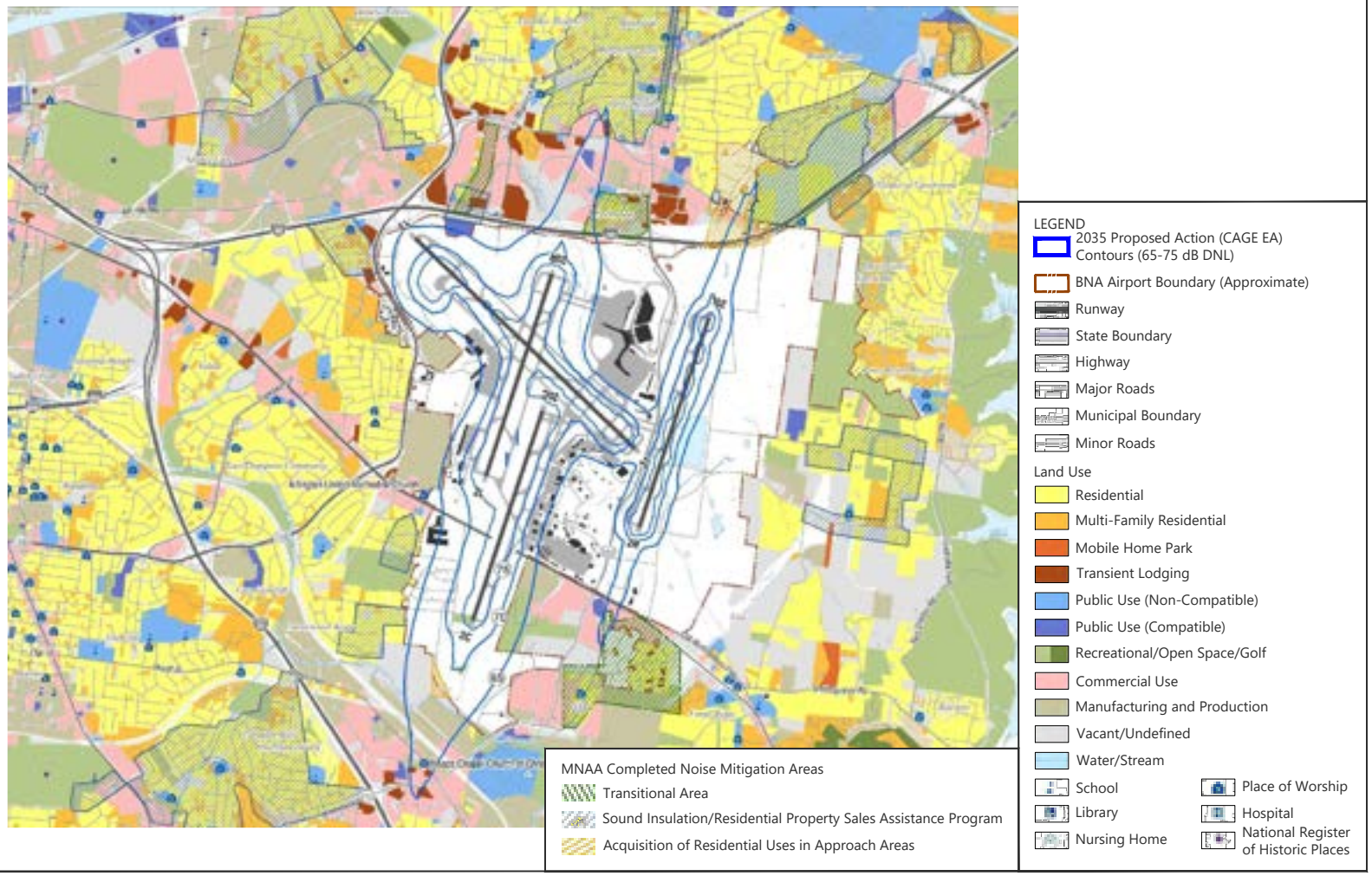
Construction-related noise associated with the Approved Project was determined to be consistent with existing conditions. Therefore, no effect would occur due to the Approved Project. The Approved Project was determined to result in the expansion of the 65 DNL noise contour by 21.9 acres, comprising a one-percent increase in area impacted by aircraft operations. Five residences are located within the 65-70 DNL contour, all of which have undergone previous mitigation and are considered compatible uses. Additionally, approximately 0.60 of an acre at the Metro Soccer Complex would be impacted by the Approved Project. Effects associated with construction and operation of the Approved Project were determined to be less than significant.

Proposed Modifications

Construction and ongoing operation of the Concourse D extension, relocation of the Air Freight Building and airport support facilities, and continued operation of the Multipurpose Facility would occur near terminal, aircraft apron, and cargo functions. The ambient noise in proximity to the airfield and Donelson Pike is relatively high. Noise generated from the construction and operation of the Proposed Modifications would be similar to existing noise generated in the area.

The Proposed Modifications would increase the area exposed to operational aircraft noise levels of 65 DNL or higher by approximately 27.8 acres compared to the No Action alternative (see **Exhibit 3-7**). The analysis concluded that no areas within the Proposed Modification 65 DNL contour would experience an increase of 1.5 dB or more; thus, the Proposed Modifications would not result in a significant noise impact. An additional three residential units, comprising an estimated 7 people, would be encompassed by the expanded 65-70 DNL contour associated with the Proposed Modifications when compared to the No Action alternative. The Proposed Modifications would result in an increase of five residential units and 21 additional people being located within the 65-70 DNL contour when compared to the Approved Project. All housing units affected by the Proposed Modification are within existing noise mitigation areas and none of the units are considered incompatible. One noise sensitive parcel, the Meades Chapel Church of Christ, is located within the existing 65-70 DNL noise contour and would remain the sole noise sensitive parcel under the Proposed Modifications scenario.

The Proposed Modifications would result in a small increase in the size of the aircraft noise contours and would include additional residential units and residents within the 65 DNL noise contour (see Exhibit 3-7). However, none of these residences would experience an increase of 1.5 DNL or greater and affected units are located in mitigation areas where noise attenuation for the structures has been previously addressed. Therefore, noise effects associated with the Proposed Modifications would be less than significant.



SOURCE: HMMH. Updated Technical Memorandum: Noise and Air Quality Analysis for BNA Supplemental EA.

EXHIBIT 3-7

NORTH 0 6,000 ft

PROPOSED MODIFICATIONS NOISE CONTOURS

Drawing: P:_projects\MNAA (Nashville)\21141237-BNA On-Call\09-Supplemental EA for Concourse D Extension\NEPA\Exhibit Master\ACAD\Titleblock\8.5x11-L.dwgLayout: Noise Contours-Future Plotted: Feb 8, 2023, 12:22PM

3.11.3.5 INDIRECT IMPACTS

Approved Project

As discussed in the Vision 1.0 EA, an average existing DNL of 67 dBA could be experienced as a result of combined aviation and traffic related noise from area highways such as 1-40, Briley Parkway, Murfreesboro Road, and Donelson Pike. The cumulative effects of aviation-related noise generated by the Proposed Action and these surrounding highways is not anticipated to cause an incompatible land use as the areas falling within the Proposed Action's 65 DNL sound level contour are contained within the airport overlay zone. Additionally, these highways are located further away from sensitive receivers where overlap of the 65 DNL noise contour occurs.

Effects associated with construction and operation of the Approved Project were determined to be less than significant.

Proposed Modifications

Changes to the noise contours associated with operation of the Proposed Modifications would not result in land use incompatibility with any existing or known future land uses in proximity of the Airport as no noise-sensitive uses would experience an increase of 1.5 DNL or greater (see Appendix A). Noise generated at the proposed construction staging area and noise associated with construction of the proposed site improvements is not expected to differ greatly from existing background ambient noise. However, the Authority would adhere to applicable Nashville and Davidson County noise ordinances to avoid and minimize construction and operational noise for residential land use zones in proximity to the construction staging area. Additionally, the Authority would adhere to the Metro Code of Ordinances, which prohibits storage and staging of construction materials within 500 feet of residential zones. Indirect effects associated with construction and operation of the Proposed Modifications would be less than significant.

3.11.3.6 MITIGATION MEASURES

The five additional residential units within the 65-70 DNL noise contour as a result of the Proposed Modifications have been previously mitigated. The Airport also actively employs abatement noise measures, including diversion of nighttime operations to Runway 13/31 in compliance with Part 150 and FAA's voluntary program, and limiting construction during night hours. No additional mitigation is proposed for operation of the Proposed Modifications.

Construction contractors would adhere to BMPs identified in the Airport Improvement Request Manual, Rules and Regulations, and Metropolitan Nashville and Davidson County code during use of the proposed construction staging area.

3.12 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S HEALTH AND SAFETY RISKS

3.12.1 REGULATORY SETTING

Socioeconomics encompasses the activities and resources associated with the everyday human environment, particularly related to population centers, their demographics, and the economic activities generated. The principal social impacts to be considered are those associated with relocation or other community disruptions, transportation, planned development, and employment, as follows:

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, was signed in 1994 to ensure the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and

enforcement of environmental laws, regulations, and policies. The Executive Order requires that, to the greatest extent practicable, each federal agency must identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

- US DOT Order 5610.2(c), U.S. Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, is a key component of the DOT's environmental justice strategy to comply with Executive Order 12898. The Order sets forth policy to consider environmental justice principles in all DOT policies, programs, and activities.
- Executive Order 13045, *Protection of Children from Environmental Health and Safety Risks* (April 21, 1997), requires federal agencies to prioritize the identification and assessment of environmental health and safety risks resulting from policies, programs, activities, and standards that may disproportionately affect children.

3.12.2 AFFECTED ENVIRONMENT

Consistent with the CAGE EA, evaluation of socioeconomic conditions considers the Study Area and the greater Nashville Area. Nashville is experiencing high rates of population and job growth, with a job growth of 26 percent over the past decade. BNA is one of the fastest growing airports in the U.S. and serves as a catalyst for commercial, industrial, and residential expansion in the surrounding area. It is forecasted that total passenger enplanements are approximately seven percent and 18 percent higher in 2027 and 2037, respectively, than the CAGE EA forecast based on the 2021 FAA Terminal Area Forecast (2021 TAF). Although forecast aircraft operations in the 2021 TAF are approximately 0.5 percent higher than the CAGE EA forecasts for 2027, BNA aircraft operations are forecast to be approximately more than 8 percent higher by 2037 in the 2021 TAF.

Approximately 12 to 16 percent of individuals within the Nashville Metropolitan Statistical Area (MSA) have incomes below the poverty threshold as identified by the US Census Bureau.[52] Davidson County and the Nashville MSA are not considered to be High Minority Areas, per the US Census Bureau; however, the population within the census tract encompassing the construction staging area (Tract 157) comprises more than 30 percent minority residents, as defined by the US Census Bureau.[53] Tract 157 is designated a High Poverty Area per the US Census Poverty Status Viewer.[54] There are three additional High Poverty Area tracts adjacent to the proposed construction staging area; Census Tract 158.04, located approximately 2.5 miles north of the proposed staging area, and Census Tracts 156.13 and 191.08, located approximately 1.5 miles south of the proposed construction staging area.

3.12.3 ENVIRONMENTAL CONSEQUENCES

3.12.3.1 METHODOLOGY

Socioeconomic data, including demographics (race and ethnicity), housing characteristics, and employment data, were gathered using US Census data during preparation of the CAGE EA. Projected population, housing, and employment data were compared to existing conditions of the Study Area and significance thresholds to determine potential impacts. Secondary (induced) impacts were analyzed for the census tract adjacent to and within the Study Area boundaries, which could potentially be affected by the Approved Project. Social impacts were determined

[52] Garver, *Environmental Assessment (EA), Nashville International Airport, Concourse and Gate Expansion, MNAA Project 2019A*, July 12, 2021.

[53] US Census Bureau. Census Poverty Status Viewer (ACS19). Accessed January 30, 2023. (Accessible at https://mtgis-portal.geo.census.gov/arcgis/apps/MapSeries/index.html?appid=2566121a73de463995ed2b2fd7ff6eb7)

[54] US Census Bureau. Census Poverty Status Viewer (ACS19). Accessed January 30, 2023. (Accessible at: https://mtgis-portal.geo.census.gov/arcgis/apps/webappviewer/index.html?id=31e10881bd1040b7b0ae685559917509)

through the evaluation of how the implementation of the No Action Alternative or Approved Project could impact sensitive populations and resources important to surrounding populations.

For purposes of the Supplemental EA, the Proposed Modifications were qualitatively analyzed to determine whether and how the socioeconomic elements, comprising projected population, housing, and employment changed in comparison to the Approved Project. Environmental justice impacts were evaluated by determining whether impacts associated with the Proposed Modifications would have disproportionately high and adverse human health or environmental effects on the minority population adjacent to the Study Area in comparison with the Approved Project. Lastly, impacts associated with the Proposed Modifications were evaluated qualitatively for risks to children's environmental health and safety.

3.12.3.2 SIGNIFICANCE THRESHOLDS

The FAA has not established significance thresholds for socioeconomics, environmental justice, or children's environmental health and safety risks; however, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts of the Proposed Modifications for these topics. Based on the methodology previously described, the following factors[55] are considered to determine the potential for a significant impact:

- Socioeconomic and Secondary (Induced) Impacts
  - Induce substantial economic growth in an area, either directly or indirectly (for example, through establishing projects in an undeveloped area);
  - Disrupt or divide the physical arrangement of an established community;
  - Cause extensive relocation when sufficient replacement housing is available;
  - Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities;
  - Disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities; or
  - Produce a substantial loss in the community tax base.
- Environmental Justice
  - Cause disproportionately high and adverse human health or environmental impacts to minorities and low-income populations, considering significant impacts in other environmental impact categories.[56]
  - Other factors to consider include whether the Proposed Modifications would have impacts on the physical or natural environment that affect an environmental justice population in a way that the FAA determines is unique and significant to the environmental justice population.

[55] US Department of Transportation, Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures,* July 16, 2015.

[56] A disproportionately high and adverse effect on minority and low-income populations means an adverse effect that (1) is predominantly borne by a minority population and/or low-income population; or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority and/or non-low-income populations.

- Children's Environmental Health and Safety Risks – These impacts may result if an action would cause disproportionate health and safety risks to children.

3.12.3.3 DIRECT IMPACTS

Approved Project

Operation of the Approved Project at BNA would be consistent with existing Airport terminal, cargo, and airport support activity. The CAGE project would accommodate forecast passenger demand by expanding Airport facilities and services. The Approved Project would result in additional business opportunities at BNA and provide additional jobs to the local labor market. No direct, socioeconomic effects would occur due to residential and business acquisition, and the Approved Project would not require relocation of existing residences or businesses, disrupt established or planned communities, or otherwise impact the health and safety of children or other sensitive noise receptors.

Proposed Modifications

The Proposed Modifications would comprise the construction of new Airport facilities, relocation and renovation of existing Airport facilities, and the establishment of a new construction staging area. Construction of these elements would provide a temporary increase in construction-related jobs. Workers are expected to be available within the local labor pool; thus, the Proposed Modifications would not result in a significant change in the local population or housing to complete construction and no additional public services would be required when compared to the Approved Project.

Similar to the Approved Project, construction of the Proposed Modifications would not directly affect residential or business acquisition or result in relocations. The nearest residential area is approximately 200 feet from the proposed construction staging area. While construction activity may result in increases in traffic, this increase is not expected to result in a reduction of level of service to disrupt local traffic patterns or substantially reduce the levels of service of roads serving the Airport and surrounding communities. Similarly, the Proposed Modifications would not produce noise or air quality effects that would significantly affect nearby residents as construction would be subject to local noise ordinances and BMPs, consistent with the *MNAA Airport Improvement Request Manual*. No existing or planned developments would be disrupted, and the Proposed Modifications would not affect the health or safety of children or other sensitive noise receptors.

The Proposed Modifications would comprise the expansion and continuation of existing uses within and in proximity to the terminal complex, and ongoing use of a new construction staging area in the southern area of Airport property. Operation of uses within and in proximity to the terminal complex would result in a minor net increase in ongoing jobs at BNA; however, given the number and type of jobs produced by the Proposed Modifications, it is expected new positions would be absorbed by the local labor force. The Proposed Modifications would not reduce employment opportunities or exacerbate poverty in High Minority Areas or High Poverty Areas in proximity to the proposed construction staging area.

Operation of the proposed construction staging area would continue following construction of the Proposed Modifications. The nearest residence to the staging area is approximately 200 feet west. The Metro Code of Ordinances prohibits storage and staging of construction materials within 500 feet of residential zones. The Authority would utilize Airport property within 500 feet of the easternmost residential area south of Curry Road for construction employee parking. The Authority would maintain a minimum 10-foot-wide vegetated buffer between any construction employee parking areas and residential uses. Thus, the proposed activity is not expected to affect local residents.

Noise from truck traffic would be similar to existing airport operational noise and noise generated on the local surface transportation network near the staging area. MNAA and its construction contractors would also adhere to the *MNAA Airport Improvement Request Manual* protocol as well as BMPs and avoidance and minimization measures identified in the Metro Code of Laws, Chapter 10.56, Air Pollution Control, to minimize noise and air pollution, as well as other construction-related disruptions to the local community. Additionally, the Authority would adhere to applicable Nashville and Davidson County noise ordinances to avoid and minimize construction and operational noise for residential land use zones in proximity to the construction staging area. Furthermore, the Authority would adhere to the Metro Code of Ordinances, which prohibits storage and staging of construction materials within 500 feet of residential zones. Thus, use of the proposed construction staging area would not result in a disproportionate impact to environmental justice populations.

Operation of additional aircraft associated with the Proposed Modifications would result in an increase in the 65-70 DNL noise contour, which would encircle an additional 5 residential units and 21 people. The affected residential units are within an existing noise mitigation areas and effects due to noise have been addressed to less than significant levels.

When compared to the Approved Project, the Proposed Modifications would increase the potential for socioeconomic effects associated with operation of the proposed improvements. However, with the implementation of BMPs, socioeconomic effects of the project would remain less than significant.

3.12.3.4 INDIRECT IMPACTS

Approved Project

Construction associated with the Approved Project was determined not to affect residential and business acquisition, require relocation of existing residences or businesses, disrupt established or planned communities, or otherwise impact the health and safety of children or other sensitive noise receptors. One residence, located on McCrory Creek Road, is expected to incur indirect noise impacts; however, the residence is located in an area previously identified for noise mitigation.

Proposed Modifications

No increase in population or housing would result from operation of the Proposed Modifications. The terminal complex is approximately 1.4 miles away from the nearest residential area and activity associated with operation of the Proposed Modifications is not expected to result in any effects to local traffic, child safety and health, or existing or planned development. Additionally, the scope and scale of the Proposed Modifications are consistent with existing Airport operations and local public services, including health and safety services, medical and educational institutions, and transit would accommodate the improvements.

3.12.4 MITIGATION MEASURES

Mitigation identified for the Approved Project comprised the requirement for construction contractors to develop a traffic management plan to minimize potential impacts to BNA customers and aircraft operations. In addition to the previously identified mitigation, the Proposed Modifications would require implementation of BMPs identified in the *MNAA Airport Improvement Request Manual* and adherence to regulations identified in the Metro Code of Laws, Chapter 10.56, Air Pollution Control, during construction and operation.

3.13 VISUAL EFFECTS

3.13.1 REGULATORY SETTING

Visual effects pertain to the extent a proposed action would either (1) produce light emissions that create annoyance or interfere with activities or (2) contrast with, or detract from, the visual resources and/or the visual character of the existing environment. Defining visual effects can be difficult because they involve subjectivity, but are generally defined as follows:

- Light emissions include any light that emanates from a light source into the surrounding environment. Sources of light emissions include airfield and apron flood lighting, navigational aids, terminal lighting, parking facility lighting, and roadway lighting.
- Visual resources include buildings, sites, traditional cultural properties, and other natural or constructed landscape features that are visually important or have unique characteristics. Visual resources may include structures or objects that obscure or block other landscape features. In addition, visual resources can include the cohesive collection of various individual visual resources that can be viewed at once or in concert from the area surrounding landscape features, such as open grass fields, forests, mountains, or deserts.
- Visual character refers to the overall visual makeup of the existing environment where the proposed action and alternative(s) would be located. For example, areas close to densely populated areas generally have a visual character that could be defined as urban, whereas less developed areas could have a visual character defined by the surrounding landscape features, such as open grass fields, forests, mountains, or deserts.

3.13.2 AFFECTED ENVIRONMENT

Construction and operation of the Proposed Modifications would take place entirely on Airport property, consistent with the affected environment analyzed in the CAGE EA. Light emissions originate from various landside and airside sources at the Airport in compliance with FAA standards for security, apron flood lighting, obstruction clearance, and navigation lighting.

3.13.3 ENVIRONMENTAL IMPACTS

3.13.3.1 METHODOLOGY

Impacts from light emissions associated were determined by evaluating the extent to which lighting would change, as well as the potential for the changes to create an annoyance at sensitive land uses (for example, residential uses) in the vicinity of the Airport. The primary focus of the analysis of light emissions was on light spillover effects. Light spillover effects involve light that shines beyond the area intended for illumination that can be a source of annoyance to adjoining properties, particularly for residences where light (such as direct illumination) might disturb sleep or privacy.

Impacts to visual character and resources were determined by considering the potential changes in landscape and views in the vicinity of the Airport.

3.13.3.2 SIGNIFICANCE THRESHOLDS

FAA Order 1050.1F does not provide significance thresholds for light emissions or visual effects, and there are no federal requirements or special purpose laws regarding light emissions or visual effects. However, other special purpose laws protecting environmental resources have provisions regarding potential visual effects-related impacts on resources (for example, DOT Section 4(f) and Section 106 of the NHPA).

3.13.3.3 DIRECT IMPACTS

Approved Project

The Approved Project will require additional lighting during construction. Light and the visual character of the approved construction area would change nominally; however, the effects were determined to be perceivable by passengers using terminal facilities, Airport employees, and user of the local surface transportation system. No sensitive receptors would be impacted, and the visual character of the Airport would generally be maintained throughout construction. The Approved Project would not result in any direct effects.

Proposed Modifications

Additional lighting would be required throughout construction of the Proposed Modification for safety and security purposes within and in proximity to the proposed construction areas. Similar to the Approved Project, lighting would be directed towards work areas to reduce glare that may affect Airport operations, sensitive receptors, and wildlife. Construction lighting would also be deployed in accordance with the *MNAA Airport Improvement Request Manual*. Construction lighting at the proposed staging area would be minimized due to proximity to residential areas and roadways. Lighting at the construction site and the staging area would not result in a change to the visual character of the Study Area. The proposed buildings would be designed to maintain the character of the BNA terminal complex and adjacent airport support facilities.

Construction equipment and materials at the proposed construction site and staging area would be visible from areas within and adjacent to Airport property, particularly in proximity to the terminal buildings, as well as from the surrounding surface transportation network. Construction equipment would be typical of the Airport and urban environment and would not change the visual character of the Study Area. When compared to the Approved Project, visual effects associated with construction of the Proposed Modification would be less than significant.

3.13.3.4 INDIRECT IMPACTS

Approved Project

Existing light emissions are not anticipated to contribute to the indirect nature of light emissions in proximity of the Airport. Light emissions may increase due to construction and operation of the Approved Project, but these increases would not contribute to impacts to sensitive, off-Airport receptors, including wildlife, or otherwise affect the local visual character.

Proposed Modifications

When compared to the Approved Project, construction and operational lighting improvements associated with the Proposed Modifications would not deviate greatly with regard to indirect impacts to the surrounding area. Lighting used for the Proposed Modifications would be consistent with lighting used for construction of on- and off-site projects of similar scale and would occur on previously developed areas within the Airport.

Construction of the Proposed Modifications would comprise buildings, systems, and facilities typical of modern airports and would not contribute to a change in the visual character of the Airport or surrounding community. Indirect affects to any individual or collective visual resources or the local visual character due to construction or operation of the Proposed Modifications would be less than significant.

3.13.3.5 MITIGATION MEASURES

Consistent with the CAGE EA, the Proposed Modifications would be required to adhere to FAA standards in AC 150/5345-53, *Airport Lighting Equipment Certification Program* to reduce the potential for construction and

operational lighting effects to aircraft and off-Airport receptors. Generally, the Proposed Modifications would comprise the addition of lighting and the construction of facilities consistent with the existing character of the Airport and surrounding area. Therefore, no mitigation is required.

3.14 WATER RESOURCES

Water resources are surface waters and groundwater that are vital to society; they are important in providing drinking water and in supporting recreation, transportation and commerce, industry, agriculture, and aquatic ecosystems. Surface water, groundwater, floodplains, and wetlands do not function as separate and isolated components of the watershed, but rather as a single, integrated natural system. Disruption of any one part of this system can have consequences to the functioning of the entire system. The regulatory setting and affected environment for water are organized by water resource type and are discussed below.

3.14.1 REGULATORY SETTING

Wetlands

Wetlands, waterways, and special aquatic sites have important functions and values and are protected under federal and state regulations. The US Army Corps of Engineers (USACE) defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands provide valuable water quality enhancement and recharge functions, as well as provide valuable wildlife habitat. Some of the functions of wetlands are groundwater recharge, sediment/toxicant retention, nutrient removal, and flood flow alteration.

Laws, regulations, and policies related to wetlands include:

- CWA, Section 401, gives the USEPA and states certification responsibility and authority over violations of water quality standards within the respective jurisdictions.
- CWA, Section 404, gives the USACE responsibility and authority over activities that result in the discharge of dredge or fill material into wetlands and waterways.
- Executive Order 11990, Protection of Wetlands, requires consideration of indirect effects on wetlands and provides a long-term goal of no net loss of wetlands.
- DOT Order 5660.1A, Preservation of the Nation's Wetlands, implements the guidelines set forth in Executive Order 11990 to assure the protection, preservation, and enhancement of the nation's wetlands to the extent practicable.
- TDEC, Division of Water Resources NPDES Permitting requires persons discharging pollutants directly from point sources into surface waters to obtain an NPDES discharge permit. Direct discharges include industrial, municipal, and commercial wastewater and industrial stormwater discharges.

Floodplains

Floodplains are defined as the lowland and relatively flat areas adjoining inland and coastal waters, including, at a minimum, areas subject to a one percent or greater chance of flooding in any given year (that is, the area inundated by a 100-year flood).

DOT Order 5650.2, *Floodplain Management and Protection*, and FAA Order 1050.1F and 5050.4B contain policies and procedures for implementing Executive Order 11988, *Floodplain Management*; the National Flood Insurance Act of 1968; and the Flood Disaster Act of 1973. Executive Order 11988 directs federal agencies to take action to reduce the risk of flood loss; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains. Pursuant to these orders, the FAA is required to review potential floodplain impacts and avoid developing within the floodplain, unless no alternative exists. When no practical alternative exists and floodplain encroachment would occur, steps must be taken to minimize adverse impacts.

Surface Waters

Section 401 of the CWA is the primary federal statute governing the discharge of pollutants into Waters of the US (WOTUS). Section 401 authorizes states to review and approve, condition, or deny federal permits that might result in discharge into WOTUS. Federal permits or licenses are not issued until a Section 401 Water Quality Certification is obtained from the state in which the discharge originates. The certification process ensures prospective permits comply with the state's water quality standards.

Groundwater

The SDWA authorizes the USEPA to set standards for drinking water quality, and the USEPA can delegate authority to states to implement the Act within their jurisdictions if they meet or exceed USEPA standards. Title 40 CFR Parts 141-149 prohibit federal agencies from funding actions that would contaminate USEPA-designed Sole Source Aquifers or recharge zones. A Sole Source Aquifer is defined as an aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer.

3.14.2 AFFECTED ENVIRONMENT

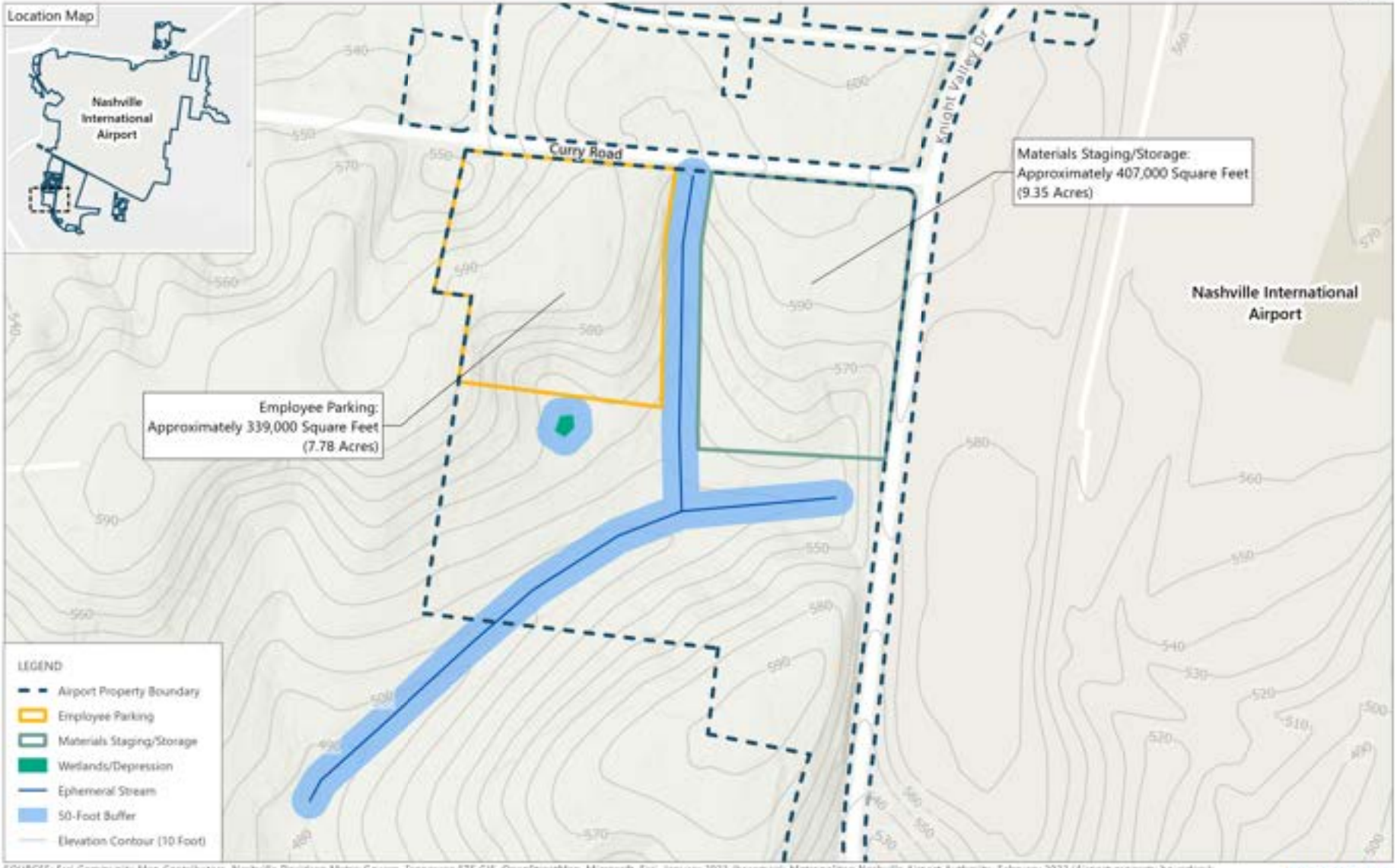
Wetlands

A wetland delineation report completed for the CAGE EA identified three small wetland areas within the stormwater detention area along Sims Branch, totaling approximately 0.04-acre; however, these wetlands are outside of the Study Area for Proposed Modifications. The USFWS National Wetlands Inventory database identified one 0.14-acre man-made wetland depression within the proposed construction staging area, as shown on **Exhibit 3-8**. A USACE jurisdictional determination for the depression is pending. A wetland delineation report completed for the proposed construction staging area identified two ephemeral stream systems; totaling approximately 1,940 linear feet, and one excavation/depressional feature; approximately 0.07 acres, on the property (see **Appendix F**). The wetland delineation report concluded ephemeral streams were determined not to be connected to any other jurisdictional water; however, the USACE and the Authority conducted a site visit on January 17, 2023 and are in the process of preparing a jurisdictional determination within the construction staging area to verify results of the report.

Floodplains

The Proposed Modifications Study Area comprises additional area in proximity to the terminal complex and undeveloped area southwest of the Runway 2C end. The Study Area is not located within a Federal Emergency Management Agency (FEMA) mapped floodplain or floodway, as shown on **Exhibits 3-9A** and **3-9B**.[57]

[57] Federal Emergency Management Agency, National Flood Hazard Layer FIRMette, July 12, 2021.

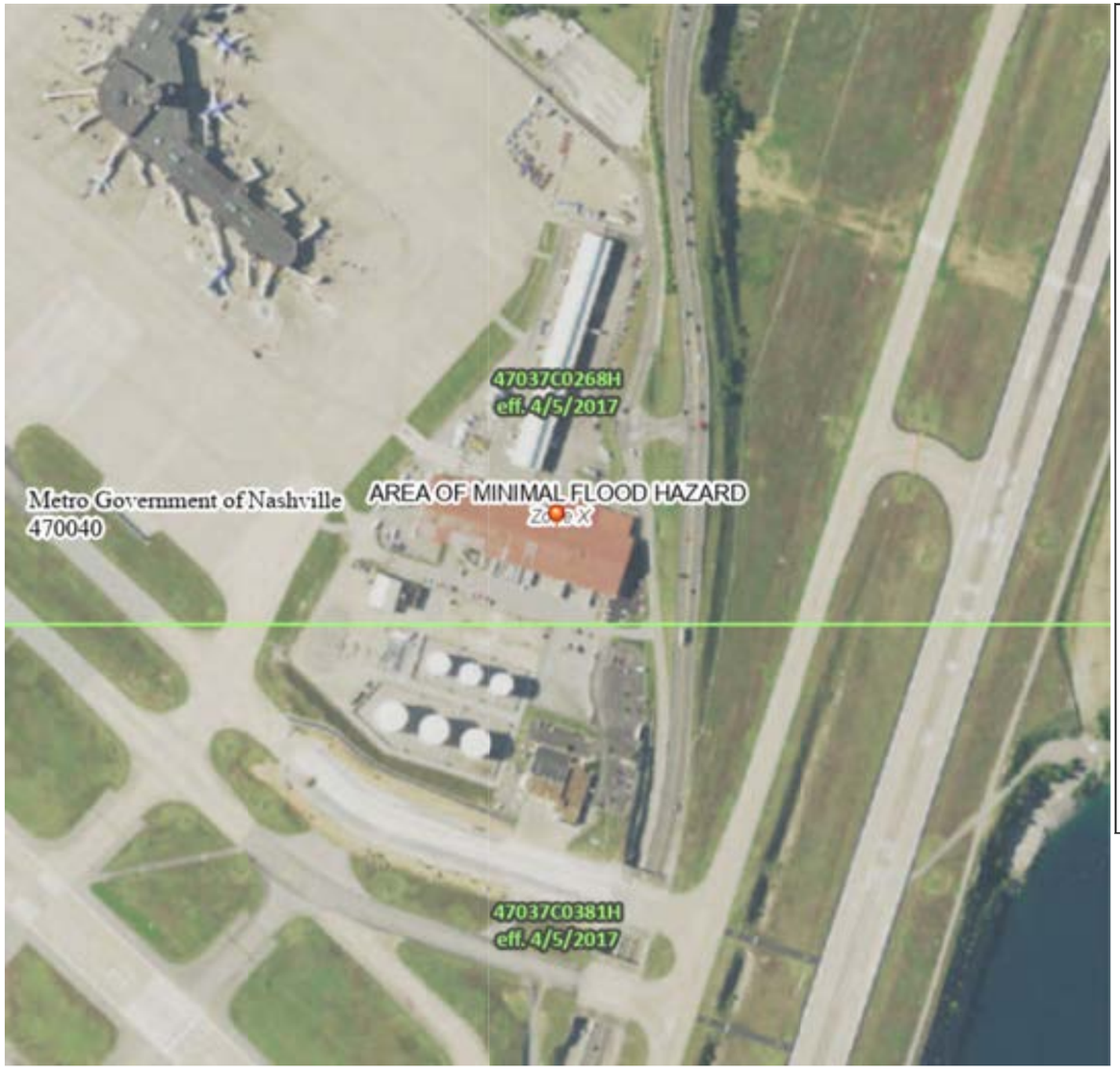


SOURCES: Esri Community Map Contributors, Nashville Davidson Metro Govern, Tennessee STS GIS, OpenStreetMap, Microsoft, Esri, January 2023 (basemap); Metropolitan Nashville Airport Authority, February 2022 (Airport property boundary); US Geological Survey, National Geospatial Technical Operations Center - 3D Elevation Program, November 2022 (elevation contours); Interek, Site Observations, November 2022 (wetlands/depression, parking/staging/storage areas).

EXHIBIT 3-8

EXISTING WETLANDS

Project: P:\GIS\Projects\BNA\APRX\BNA_SupplementalEnvironmentalAssessment_20220518.aprx Layout: BNA_Ex3_8_ExistingWetlands_20230208



LEGEND

SPECIAL FLOOD HAZARD AREAS

- **Without Base Flood Elevation (BFE)** *Zone A, V, A99*
- **With BFE or Depth** *Zone AE, AO, AH, VE, AR*
- **Regulatory Floodway**

OTHER AREAS OF FLOOD HAZARD

- **0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood with Average Depth less than One Foot or with Drainage Areas of less than One Square mile** *Zone X*
- **Future Conditions 1% Annual Chance Flood Hazard** *Zone X*
- **Area with Reduced Flood Risk due to Levee. See Notes.** *Zone X*
- **Area with Flood Risk due to Levee** *Zone D*
- NO SCREEN **Area of Minimal Flood Hazard** *Zone X*

OTHER AREAS

- **Effective LOMRs**
- **Area of Undetermined Flood Hazard** *Zone D*

GENERAL STRUCTURES

- **Channel, Culvert, or Storm Sewer**
- **Levee, Dike, or Floodwall**
- 20.2 **Cross Sections with 1% Annual Chance**
- 17.5 **Water Surface Elevation**
- **Coastal Transect**
- **Base Flood Elevation Line (BFE)**
- **Limit of Study**
- **Jurisdiction Boundary**

OTHER FEATURES

- **Coastal Transect Baseline**
- **Profile Baseline**
- **Hydrographic Feature**

MAP PANELS

- **Digital Data Available**
- **No Digital Data Available**
- **Unmapped**

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

NOTES:

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **11/22/2022 at 12:21 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imageery, flood zone labels, legend scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used regulatory purposes.

SOURCE: Basemap: USGS National Map: Othoimagery: Data refreshed October 2020

NORTH 0 500 ft

EXHIBIT 3-9A

FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATER MAP – CONCOURSE D

Drawing: P:_projects\MNAA (Nashville)\21141237-BNA On-Call\09-Supplemental EA for Concourse D Extension\NEPA\Exhibit Master\ACAD\Titleblock\11x17-L.dwgLayout: Existing Conditions Plotted: Feb 8, 2023, 12:32PM

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LEGEND

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- **Without Base Flood Elevation (BFE)** *Zone A, V, A99*
- **With BFE or Depth** *Zone AE, AO, AH, VE, AR*
- **Regulatory Floodway**
- **0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood with Average Depth less than One Foot or with Drainage Areas of less than One Square mile** *Zone X*
- **Future Conditions 1% Annual Chance Flood Hazard** *Zone X*
- **Area with Reduced Flood Risk due to Levee. See Notes.** *Zone X*

OTHER AREAS OF FLOOD HAZARD
- **Area with Flood Risk due to Levee** *Zone D*
- NO SCREEN **Area of Minimal Flood Hazard** *Zone X*
- **Effective LOMRs**

OTHER AREAS
- **Area of Undetermined Flood Hazard** *Zone D*

GENERAL STRUCTURES
- **Channel, Culvert, or Storm Sewer**
- **Levee, Dike, or Floodwall**
- 20.2 **Cross Sections with 1% Annual Chance**
- 17.5 **Water Surface Elevation**
- **Coastal Transect**
- **Base Flood Elevation Line (BFE)**
- **Limit of Study**
- **Jurisdiction Boundary**
- **Coastal Transect Baseline**

OTHER FEATURES
- **Profile Baseline**
- **Hydrographic Feature**

MAP PANELS
- **Digital Data Available**
- **No Digital Data Available**
- **Unmapped**
- **The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.**

NOTES:

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **11/22/2022 at 12:21 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imageery, flood zone labels, legend scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used regulatory purposes.

SOURCE: Basemap: USGS National Map: Othoimagery: Data refreshed October 2020

NORTH 0 500 ft

EXHIBIT 3-9B

FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATER MAP – STAGING AREA

Drawing: P:_projects\MNAA (Nashville)\21141237-BNA On-Call\09-Supplemental EA for Concourse D Extension\NEPA\Exhibit Master\ACAD\Titleblock\11x17-L.dwgLayout: Existing Conditions Plotted: Feb 8, 2023, 12:33PM

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Surface Waters

No surface waters exist within or in proximity to Concourse D, the Air Freight Building, or the Multipurpose Facility. Ephemeral streams were identified at the proposed construction staging areas; however, these streams contain surface water and flow in direct response to a rain event. Besides the stream bank and bed, no other hydrologic conditions, hydric soils, or hydrophytic vegetation was found near the streams that would identify them as containing a relatively permanent flow of water (intermittent or perennial). According to the EPA's NEPAssist mapping tool, the proposed project area is located within portions of the Lower Mill Creek Watershed and Stones River Watershed. The proposed project area includes three streams identified as impaired, meaning they do not meet one or more water quality standards: Finley Branch, Sims Branch, and McCrory Creek.

Groundwater

The Study Area is located within the Ordovician Carbonate Aquifer of Tennessee, which is a karst area identified to typically contain less than one percent of sinkholes. Sinkholes usually develop within karst areas as surface water percolates into the subsurface. One potential sinkhole is located on the west side of the Airport, outside of the Proposed Modifications Study Area. Springs/seeps have also been found adjacent to the west apron area.

3.14.3 ENVIRONMENTAL CONSEQUENCES

3.14.3.1 METHODOLOGY

Wetlands

Potential effects to wetlands were evaluated by comparing the location of these resources within the Study Area to components associated with the Proposed Modifications to the Approved Project. Additionally, this analysis provides a discussion of potential secondary effects on wetlands, such as stormwater runoff. Exhibit 3-8 illustrates water resources within the limits of disturbance of the Proposed Modifications.

Floodplains

Potential effects to floodplains were evaluated by comparing their location within the Study Area to components associated with the Proposed Modifications and the Approved Project.

Surface Waters

Potential effects to surface water resources were evaluated by comparing the location of these water resources within the Study Area to components associated with the Proposed Modifications and the Approved Project. Additionally, this analysis provides a discussion of potential secondary effects on surface water resources, such as stormwater runoff.

Groundwater

Potential effects to groundwater resources were evaluated by comparing the location of groundwater resources within the Study Area to components associated with the Proposed Modifications and the Approved Project. Additionally, this analysis provides a discussion of potential secondary effects on groundwater resources, such as stormwater runoff.

3.14.3.2 SIGNIFICANCE THRESHOLDS

Wetlands

- Wetlands – a significant impact to wetlands would occur if the action would: [58]
  - adversely affect the function of a wetland relative to the protection of the quality and quantity of municipal water supplies and maintenance of natural systems;
  - substantially alter the hydrology necessary to sustain a wetland;
  - substantially reduce the ability of a wetland to retain floodwaters or storm runoff;
  - promote development of secondary activities that would cause the circumstance previously listed;
  - adversely affect the maintenance of natural systems supporting wildlife and fish habitat or other important resources of the affected of surrounding wetland; or
  - be inconsistent with applicable state wetland strategies.

Floodplains

- Floodplains – a significant impact to floodplains is determined based on the intensity of the impact on the natural and beneficial floodplain values.

Surface Waters

- Surface Waters – a significant impact to surface waters would occur if the action would:
  - exceed water quality standards established by the regulatory agencies; or
  - contaminate public drinking water

Groundwater

- Groundwater – a significant impact to groundwater would exist if the action would:
  - exceed groundwater quality standards established by the regulatory agencies; or
  - contaminate an aquifer used for public water supply

3.14.3.3 DIRECT IMPACTS

Wetlands

Approved Project

Three wetlands were identified within an existing detention basin proposed for expansion as a part of the Approved Project; however, no construction activity was proposed within or in proximity to wetlands. The Approved Project was determined to have no effect on wetlands.

Proposed Modifications

No wetlands exist within the airfield and adjacent landside areas associated with construction and operation of the Concourse D extension, the relocated Air Freight and airport support facilities, and Multipurpose Facility. Potential wetlands and jurisdictional waters within the construction staging area would be avoided with implementation of a

[58] US Department of Transportation, Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures,* July 16, 2015.

50-foot buffer between potential wetlands/jurisdictional waters and employee parking, on the west side of the construction staging area, and materials and equipment storage and staging activities on the east side. The Proposed Modifications would have no direct effect on wetlands or jurisdictional waters.

Floodplains

Approved Project

The Approved Project does not include construction or operation of facilities within a floodplain. The Approved Project was determined to have no effect on floodplains.

Proposed Modifications

The Proposed Modifications would not occur within a floodplain. Therefore, the Proposed Modifications would have no effect on floodplains.

Surface Water

Approved Project

The Approved Project would require filling, re-routing, and encapsulation of an intermittent stream, to accommodate the north apron expansion, and ground disturbance of approximately 20 acres. Filling, re-routing, and encapsulation of the stream was determined to result in direct impacts to the stream and adjacent embankments. Analysis determined construction activity would temporarily affect stormwater runoff water quality due to increased sedimentation and siltation associated with ground disturbance activities. Operation of the Approved Project was determined to result in additional runoff due to the increase in impervious surface at the north apron. The Approved Project was determined likely to affect surface water resources without implementation of BMPs and mitigation measures.

Proposed Modifications

The USACE is in the process of preparing a jurisdictional determination for the three ephemeral streams within the construction staging area, which would be avoided by the Proposed Modifications. The Proposed Modifications have the potential to further degrade the streams and temporarily degrade the water quality of other streams nearby the area. BMPs identified in accordance with state, federal, and Airport regulations, would be implemented during and after construction to minimize erosion and stormwater impacts on the ephemeral streams, as well as Finley Branch, Sims Branch, and McCrory Creek, to prevent degradation.

Erosion control rules and regulations of the Metropolitan Government of Nashville and Davidson County, Tennessee and the TDEC, would be implemented during and after construction to prevent runoff and erosion from affecting on-site and proximate water resources. BMPs include implementation of erosion and sediment control devices and structures to help protect exposed soils against erosion and adherence to proper sediment control methods and procedures. MNAA would also require erosion and sedimentation control plans to ensure local code and best practices are met during project construction.[59] The proposed BMPs and adherence to applicable local regulations would minimize likelihood of affects to surface water resources. Therefore, the Proposed Modifications would have no effect on surface water.

[59] Metropolitan Nashville Airport Authority. Airport Improvement Request Manual. January 17, 2023.

Groundwater

Approved Project

The Approved Project is not expected to directly impact public drinking water supplies, public wells, or groundwater resources. No springs were identified within or in proximity to ground disturbance areas associated with the Approved Project. The Approved Project was determined to have no effect on groundwater resources.

Proposed Modifications

The Proposed Modifications would be constructed on existing, developed Airport property. Much of the proposed project area comprises paved surfaces or Airport facilities; however, relatively small areas of unpaved airfield would be paved as a part of the Proposed Modifications. Improvements associated with the Concourse D extension, construction of the Air Freight Building, relocation of the airport support facilities, and continued use of the Multipurpose Facility would be integrated with the Airport's existing drainage system and operation of the Proposed Modifications would be subject to water quality permits and regulations. Adherence to regulatory requirements applicable to construction and operation of the Proposed Modifications would ensure groundwater is not impacted by the Proposed Modifications. No effects to groundwater resources are expected due to the Proposed Modifications.

3.14.3.4 INDIRECT IMPACTS

Wetlands

Approved Project

The Approved Project was determined to have no indirect effect on wetlands.

Proposed Modifications

No wetlands are located within or in proximity to the terminal area. Implementation of the 50-foot wetland buffer described in Section 3.14.3.3 and adherence to the construction SWPPP and the NPDES permit would ensure indirect impacts to wetlands and jurisdictional waters identified in the construction staging area are avoided. The Proposed Modifications would have no indirect effects on wetlands.

Floodplains

Approved Project

The Approved Project was determined to have no indirect effect on floodplains.

Proposed Modifications

The Proposed Modifications would not result in land use within floodplains that would impact human life or safety or transportation facilities or impact the natural or beneficial value of a floodplain. The Proposed Modifications, therefore, would have no indirect effect on floodplains.

Surface Water

Approved Project

Analysis performed for the CAGE EA determined temporary indirect impacts may affect downstream portions of Sims Branch due to erosion, resulting in sediment-ladened water draining off-site during construction. Additionally, partial riparian zone impacts within the 60-foot TDEC water quality buffer, along Sims Branch, are expected to occur,

contributing to additional effects associated with temporary sedimentation. The Approved Project would result in indirect impacts to surface water resources.

Proposed Modifications

The Proposed Modifications would be constructed and operated in accordance with local, state, and federal water quality permits and regulations. Operation of the Proposed Modifications would not result in a change to surface drainage near the terminal complex. Adherence to stormwater management and pollution prevention regulations would avoid or minimize indirect effects of construction and operation of the Proposed Modifications to a less than significant level.

Groundwater

Approved Project

No indirect impacts to groundwater resources would occur due to the Approved Project; however, groundwater seeps were identified as a possibility based on occurrences in proximity to the Approved Project. The Approved Project would have no indirect effect on groundwater.

Proposed Modifications

The Proposed Modifications would not require use of groundwater. New construction would be integrated with existing drainage systems near the terminal area and would not affect groundwater recharge in proximity to the Airport. Continued use of the proposed construction staging area would adhere to local, state, and federal water quality permits and regulations to avoid or minimize effects to groundwater in proximity to the construction staging area. The Proposed Modifications would have no indirect effect on groundwater.

3.14.3.5 MITIGATION MEASURES

Wetlands

No impacts to wetland resources were determined to occur as a result of the Approved Project; therefore, the CAGE EA did not establish any mitigation measures for wetland impacts. Similarly, the Proposed Modifications would avoid the potential wetlands/jurisdictional waters identified in the proposed construction staging areas, and thus, would have no impact on wetland resources and no mitigation measures are required.

Floodplains

No impacts to floodplains were determined to occur as a result of the Approved Project; therefore, the CAGE EA did not establish any mitigation measures for floodplains. Similarly, the Proposed Modifications would have no impact on floodplains and no mitigation measures are required.

Surface Waters

The Approved Project and the Proposed Modifications are subject to state and federal regulations and permitting requirements. Best management practices were used in the design of embankment slope alterations associated with the approved stream realignment and apron improvements. The Approved Project would adhere to FAA AC 150/5370-10F *Standards for Specifying Construction of Airports*. As a best management practice, MNAA would increase capacity of an existing detention basin and install drainage outlet improvements to the existing drainage system to minimize impacts to surface waters in proximity of the north apron area due to additional stormwater runoff.

The Authority's existing NPDES permit would be revised to include operation of the Approved Project. Additionally, due to the size of the ground disturbance associated with the Approved Project, a construction-specific NPDES permit (Tennessee General Permit No. TNR10-0000 for Storm Water Discharges from Construction Activities) from TDEC will be obtained. General construction BMPs, including construction of temporary silt fencing and check dams, will be employed during construction. BMPs for the prevention and minimization of potential release of contaminants into surface waters, provide response to accidental spills, and define acceptable on-site storage of potentially hazardous materials would be employed during construction and operation of the Approved Project. A Section 401 Water Quality Certification, with the Section 404 permit, and TDEC Aquatic Resource Alteration Permit will be obtained for the Approved Project as well to meet water quality standards for construction and operation of the Approved Project.

One mitigation measure was identified for effects to surface waters caused by the Approved Project. Encapsulation of 1,627 linear feet of an existing stream and 125 feet of riparian zone near Sims Branch will be mitigated through purchase of Functional Feet credits. Credits were identified through local mitigation bank and in lieu fee (ILF) assets.

Adherence to the applicable regulations and permits were determined to reduce effects of the Approved Project to less than significant levels. The Proposed Modifications would not affect additional surface water resources in comparison with the Approved Project. Best management practices identified in the CAGE EA as well as standard regulatory permit requirements would apply to the Proposed Modifications. No additional mitigation would be required.

Groundwater

The Approved Project was determined not to result in effects to groundwater, therefore, no mitigation was required. However, construction BMPs associated with local, state, and federal regulations and permits would be implemented to minimize the risk of stormwater discharge into known sinkholes. The same BMPs would be applicable to the Proposed Modifications for work at the proposed construction staging area.

4. SCOPING AND PUBLIC INVOLVEMENT

4.1 INTRODUCTION

This section documents coordination with agencies and the public during the completion of this Supplemental EA. When conducting the NEPA process for the preparation of an EA, the FAA and the airport sponsor are encouraged to begin early coordination with the proper federal, state, tribal, and local agencies, including surrounding municipalities, to determine any possible environmental concerns. The primary components of the agency coordination and public involvement program conducted for this Supplemental EA were:

- Agency scoping
- Agency and public review of the Draft Supplemental EA

A list of agencies contacted during the preparation of this Supplemental EA is included in **Section 4.2** and the public notification process is detailed in **Section 4.3**.

4.2 AGENCY SCOPING

4.2.1 AGENCY SCOPING LETTER

Scoping letters were sent to 18 agency representatives in December 2022, consistent with recipients of the CAGE EA. These letters were sent to advise of the preparation of the Supplemental EA; to request any relevant information that agencies may have regarding the Study Area environs; and to solicit comments regarding potential issues as the Supplemental EA is prepared. **Table 4-1** lists the agencies and organizations that were contacted during scoping and consulted with for the preparation of the Draft Supplemental EA. Agency scoping materials, including a sample scoping letter and mailing list, are provided in **Appendix G**.

4.2.2 SCOPING COMMENTS

MNAA requested scoping comments be submitted by agencies within 30 days of receipt of the scoping letter. During this time, responsible agencies were encouraged to provide input on the purpose and need for the project and alternatives considered, as well as to identify any specific concerns that should be examined in the Draft Supplemental EA. Eight agency responses were received, via email, during the scoping period, copies of which are provided in Appendix G.

TABLE 4-1 AGENCIES AND ORGANIZATIONS CONTACTED DURING SCOPING

AGENCY/ORGANIZATION NAME
Federal Agencies
▪ US Army Corps of Engineers (USACE)
▪ US Coast Guard (USCG)
▪ US Environmental Protection Agency, Region 4 (EPA)
▪ US Fish and Wildlife Service, Tennessee Field Office (USFWS)
▪ US Forest Service (USFS)
▪ Federal Highway Administration (FHWA)
▪ Federal Emergency Management Agency (FEMA)
▪ National Park Service (NPS)
▪ Natural Resources Conservation Service (NRCS)
State Agencies
▪ Tennessee Valley Authority (TVA)
▪ Tennessee Department of Environment and Conservation, Division of Water Resources (DWR)
▪ Tennessee Department of Environment and Conservation, Division of Remediation (DOR)
▪ Tennessee Historical Commission (THC) as State Historic Preservation Office (SHPO)
▪ Tennessee Department of Environment and Conservation, Division of Water Resources, Division of Archaeology (DOA)
▪ Tennessee Department of Environment and Conservation, Division of Water Resources , Division of Transportation (TDOT)
▪ Tennessee Department of Agriculture, Division of Forestry (TDF)
▪ Tennessee Wildlife Resources Agency (TWRA)
Local/Regional Agencies
▪ Metropolitan Government of Nashville and Davidson County (METRO)

SOURCE: Ricondo & Associates, Inc., December 2022.

4.3 REVIEW OF THE DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

The Draft Supplemental EA is available for review by the public, government agencies, and interested parties for a period of 30 days. The Notice of Availability (NOA) for the Draft Supplemental EA was published on the Airport Authority's website and in the *Nashville Tennessean* on Wednesday, February 15, 2023.

A physical copy of the Draft Supplemental EA is available for public review at MNAA offices, located at 1370 Murfreesboro Pike, Building #3, Nashville, Tennessee 37127. The Airport Authority also made the document available on their website. **Table 4-2** lists the locations where the Draft EA is available for review.

TABLE 4-2 LOCATIONS WHERE THE DRAFT ENVIRONMENTAL ASSESSMENT IS AVAILABLE

LOCATION	ADDRESS	CITY	ZIP CODE
Online – Airport Authority	https://flynashville.com/nashville-airport-authority/airport-data-and-reports	N/A	N/A
Physical Copy	1370 Murfreesboro Pike, Building #3, Nashville, Tennessee 37127 (Hensel Phelps Offices)	Nashville, TN	37127

NOTE:
N/A – Not Applicable
SOURCE: Ricondo & Associates, Inc., February 2023

The comment period for the Draft Supplemental EA began on February 15, 2023 and will close on March 17, 2023. Anyone wishing to comment on the information and conclusions in this Draft Supplemental EA may do so at any time during the review and comment period. Comments should be as specific as possible and address the adequacy of the Proposed Action, the merits of the alternatives, the analysis of potential environmental impacts, and the mitigation being considered. The Airports Authority and the FAA will review and consider all comments received during the public comment period.

Written comments should be submitted by email (preferred) or mail to one or all of the following:

Peggy Kelley
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Blvd., Ste. 2250
Memphis, TN 38118-2462
Peggy.Kelly@faa.gov

or

Keith Wilschetz
Strategic Planning
Metropolitan Nashville Airport Authority
140 BNA Park Drive, Suite 520
Nashville International Airport
Nashville, TN 37214
keith.wilschetz@flynashville.com

or

Avant Ramsey
Ricondo
700 17th Street, Suite 2000
Denver, CO 80202
aramsey@ricondo.com

All written comments must be received by: **5:00 p.m. Central, Friday, March 17, 2023**. Please allow enough time for mailing.

4.4 FINAL SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

The MNAA will prepare and submit a Final Supplemental EA to the FAA. The FAA will independently review the Final Supplemental EA to determine its adequacy under NEPA, CEQ regulations implementing NEPA (40 CFR Part 1500), and FAA Orders 1050.1F and 5050.4B. If the Final Supplemental EA is determined to be adequate, the FAA will decide whether to issue a FONSI or prepare an environmental impact statement (EIS).

5. LIST OF PREPARERS

This chapter briefly describes the qualifications and responsibilities of those involved in the preparation of this Supplemental EA.

5.1 FEDERAL AVIATION ADMINISTRATION

Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118

Tommy Dupree, Manager, Memphis Airports District Office

- Qualifications – Over 45 years of engineering experience within three federal agencies: The Federal Aviation Administration (FAA), the U.S. Army Corps of Engineers (USACE), and the U.S. Forest Service (USFS). Accomplished in project management, administration of federal grant-in-aid and public works programs, airport planning and design, land acquisition, preparation of project specifications for civil and military construction and Implementation of the National Environmental Policy Act (NEPA).
- Responsibilities – Directed the preparation of this Supplemental EA for the FAA

Peggy Kelley, Environmental Protection Specialist, Memphis Airports District Office.

- Qualifications – PE, BS, and MS in Civil Engineering. Over 30 years of experience with government agencies: 11 years with USACE and 19 years with FAA primarily in Environmental and Part 150 studies.
- Responsibilities – Coordinate FAA internal review of this Supplemental EA for the FAA. Ensure adherence to NEPA and associated special purpose law. Perform and review consultation with federal and state agencies.

5.2 METROPOLITAN NASHVILLE AIRPORT AUTHORITY

Metropolitan Nashville Airport Authority
140 BNA Park Drive, Suite 520
Nashville, TN 37214

Keith Wilschetz, Assistant Vice President, Planning Department, MNAA

- Qualifications – Over 34 years of airport, aviation, and environmental planning and airport operational experience as airport sponsor staff and consultant. Mr. Wilschetz has early 20 years of airport consulting experience and has served in senior airport leadership roles at three of the Nation's top 40 busiest commercial airports.

  Responsibilities – Strategic direction for MNAA and oversight of all strategic planning functions at BNA. Coordination of FAA and federal resource agency consultation and preparation of this Supplemental EA on behalf of the Authority.

5.3 CONSULTANT TEAM

Ricondo & Associates, Inc.

Stephen Culberson, Vice President, Ricondo & Associates, Inc.

- **Qualifications**—Mr. Culberson has over 30 years of experience in airport and environmental planning studies, with significant experience in NEPA EA and EIS document preparation and process management, airport master planning projects, and activity forecasts.
- **Responsibilities**—Project management and quality assurance/quality control. Strategic approach coordination for document preparation agency coordination, and project construction and operation.

Joseph Birge, Director, Ricondo & Associates, Inc.

- **Qualifications**—Mr. Birge has over 35 years of aviation experience, including in airport planning and as an airport executive; with significant experience in planning and facility development projects for all types of airports.
- **Responsibilities**—Project management and overall documentation review.

Avant Ramsey, Managing Consultant, Ricondo & Associates, Inc.

- **Qualifications**—Mr. Ramsey has more than 14 years of airport and environmental planning experience, including facilities requirements analyses; NEPA documents preparation; impact analyses; and local, state, and federal agency coordination and permitting.
- **Responsibilities**—Project management, Purpose and Need, Alternatives, Affected Environment/Environmental Consequences, and overall NEPA documentation.

Ashley Zayed, Consultant, Ricondo & Associates, Inc.

- **Qualifications**—Ms. Zayed has experience providing NEPA documentation for environmental assessments and environmental impact statements.
- **Responsibilities**—NEPA Documentation

Hannah Choe, Consultant, Ricondo & Associates, Inc.

- **Qualifications**—Ms. Choe has experience supporting the environmental review process, including documentation and analysis of NEPA documents.
- **Responsibilities**—NEPA Documentation

HMMH, Inc.

Robert Mentzer, Principal Consultant, HMMH, Inc.

- **Qualifications**—Mr. Mentzer has over 34 years of experience in noise and NEPA studies for a wide range of airport projects at General Aviation to Large Hub Airports.
- **Responsibilities**—Noise analysis, management, and Noise related Affected Environment/Environmental Consequences.

Philip DeVita, Principal Consultant, HMMH, Inc.

- **Qualifications**—Mr. DeVita has over 34 years of experience in the air quality and renewable energy field for large and small projects including NEPA analysis and documentation for the transportation section including airports, surface transportation, and rail.
- **Responsibilities**—Air Quality and Climate Analysis, Affected Environment and Environmental Consequences.

Aofei Li, Consultant, HMMH, Inc.

- **Qualifications**—Mr. Li has over 6 years of airport and environmental planning experience, including noise planning and abatement, simulation and modeling, public outreach, and facility support.
- **Responsibilities**—Noise and Operational Emissions Model preparation and documentation.

Strategic Planning Services

Douglas F. Goldberg, President, Strategic Planning Services, Inc.

- **Qualifications**—Mr. Goldberg has over 40 years of experience in airport planning, programming, and technical support services, with specialized experience in aircraft capacity planning and airfield layout planning.
- **Responsibilities**—Planning activity level and capacity analysis and documentation. Construction phasing and operations strategy.