U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
CENTRAL REGION

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT (STL)

ST. LOUIS, MISSOURI

DRAFT ENVIRONMENTAL ASSESSMENT

FOR

Site Development for Aircraft Assembly and Flight Testing

and other work as described within.

September 2023

Prepared by: Jacobs

For: St. Louis Lambert International Airport Authority

This Environmental Assessment becomes a federal document when evaluated, signed, and dated by the Responsible Federal Aviation Administration (FAA) Official.

Responsible FAA Official	**Date**

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1 Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
ADA	*Americans with Disabilities Act*
AEDT	Aviation Environmental Design Tool
AEM	Area Equivalent Method
airport	St. Louis Lambert International Airport
ALP	Airport Layout Plan
APCP	Air Pollution Control Program
APE	area of potential effects
ATS	Airport Terminal Services
BE	biological evaluation
BMP	best management plan
Boeing	The Boeing Company
CAA	*Clean Air Act*
CEO	Chief Executive Officer
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CUP	Central Utility Plant
dB	decibel(s)
DNL	day night average sound level
EA	Environmental Assessment

EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FAA	Federal Aviation Administration
FedEx	Federal Express
FEMA	Federal Emergency Management Agency
ft^2	square foot (feet)
GHG	greenhouse gas emissions
GIS	geographic information system
GSE	ground support equipment
H_2S	hydrogen sulfide
H_2SO_4	sulfuric acid
HAP	hazardous air pollutant
HASP	health and safety plan
HVAC	heating, ventilation, and air conditioning
ID	identification
ISO	International Standards Organization
LEED	Leadership in Energy and Environmental Design
LOS	level of service
LQG	large quantity generator
LTO	landing takeoff
LWCF	Land and Water Conservation Fund
MBTA	*Migratory Bird Treaty Act*
MOA	Memorandum of Agreement
MoDNR	Missouri Department of Natural Resources

MOVES3	MOtor Vehicle Emission Simulator 3
MRO	maintenance, repair, overhaul
MSD	Metropolitan St. Louis Sewer District
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	*National Environmental Policy Act of 1969*
NHPA	*National Historic Preservation Act of 1966*
NOx	nitrogen oxides
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSR	New Source Review
O_3	ozone
Pb	lead
PCB	polychlorinated biphenyl
PFAS	per- and polyfluoroalkyl substances
$PM_{2.5}$	particulate matter equal to or less than 2.5 microns in diameter
PM_{10}	particulate matter equal to or less than 10 microns in diameter
QR	quick response
RCRA	*Resource Conservation and Recovery Act*
RCS	radar cross section
REC	recognized environmental condition
SEMA	State Emergency Management Agency
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan

SLAPS	St. Louis Airport Site
SO_2	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasures
SRM	Safety Risk Management
STLAA	St. Louis Airport Authority
SVOC	semivolatile organic compound
SWPPP	Stormwater Pollution Prevention Plan
TPH	total petroleum hydrocarbon
tpy	ton(s) per year
U.S.C.	United States Code
UPS	United Parcel Service
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound

1 If using a screen reader, you may need to adjust your default settings.

1. Purpose and Need

1.1 Introduction

The St. Louis Lambert International Airport (hereafter referred to as the airport) proposes to sponsor the airport's partner, The Boeing Company (Boeing), to develop airport property in support of defense aircraft assembly and testing operations at the airport.

This Environmental Assessment (EA) analyzes the potential environmental effects of the Proposed Action, which includes constructing aircraft Assembly Buildings, associated supporting buildings, and flight ramps, as well as performing aircraft testing once assembled. The Proposed Action also includes Boeing leasing parcels from the airport. Section 1.4 includes a full description of the Proposed Action, and Section 2 includes the alternatives considered.

This EA has been prepared in accordance with the Council on Environmental Quality's implementing regulations under the *National Environmental Policy Act of 1969* (NEPA) (40 *Code of Federal Regulations* [CFR] 1500 through 1508) and the *Airport and Airway Improvement Act of 1982* (Public Law 97-248), as amended.

The Federal Aviation Administration (FAA) is the lead Federal Agency to ensure compliance with NEPA for this Proposed Action; therefore, this EA was prepared in accordance with FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, and FAA Order 5050.4B, NEPA Implementing Instructions for Airport Actions.

1.2 Background

The St. Louis Lambert International Airport is a commercial service airport owned and operated by the City of St. Louis. The St. Louis Airport Authority manages the airport's daily operations (Landrum & Brown, Inc. 2012). The airport is approximately 14 miles northwest of downtown St. Louis (Figure 1-1). The airport encompasses approximately 3,686 acres of land and is generally bounded to the west by Interstate 270, to the northwest by Berry Hill Golf Course, to the north by a railroad line, to the southeast by Interstate 170, and to the south by Interstate 70. The airport is partially within the Cities of Bridgeton to the west, Hazelwood to the north, and Berkeley to the north. Additional cities that abut the interstates include Kinlock to the east; St. Ann, Edmunson, and Woodson Terrace to the south; and Champ to the southwest. Multiple commercial entities, including Federal Express (FedEx), United Parcel Service (UPS), and Boeing, have long-term leases on property along the northern portions of the airport. Interstate 70 provides commercial passenger access to the airport. A local roadway network provides access to cargo and other commercial aviation functions.

The Greater Metropolitan St. Louis Region has a population of 2.8 million people (USCB 2021). The airport is the primary access point for commercial passengers that serve the metropolitan population and region. The airlines flew 75,695 scheduled flights and transported more than 13.6 million passengers in calendar year 2022 (St. Louis Lambert International Airport 2023).

The airfield system consists of four runways: three parallel runways (12R-30L; 12L-30R, and 11-29) and one crosswind runway (6-24). Primary Runway 12R-30L intersects the crosswind runway. The airfield also includes a network of taxiways, apron taxiway connectors, aprons, and hold pads. (Landrum & Brown, Inc. 2012)

Site Map
Boeing STL Expansion

Figure 1-1
St. Louis Lambert International Airport

DATE: 7/27/2023

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1.3 Purpose and Need

The FAA *Reauthorization Act of 2018* requires that FAA ensure the safe and efficient use of airport properties and monitor the value of federal investments at airports. The purpose of the Proposed Action is to improve aircraft assembly capabilities at the airport and to allow Boeing additional airfield access for aircraft flight testing. The Proposed Action needs to occur to allow for the development of currently underused airport property, support regional economic development, and provide facilities necessary to support national defense objectives.

1.4 Description of the Proposed Action

The airport's partner, Boeing, proposes to lease land from the airport to support construction and operation for U.S. defense-related aircraft production and testing. Figure 1-2 depicts tracts of land at the airport evaluated for development (Northern Tract parcel, Brownleigh parcel, Northern Air Cargo parcel, and Berry Hill/Golf Course parcels). Aircraft flight testing, evaluation, and product delivery require a parcel with direct access between the Hangar and associated facilities to taxiways and runways at the airport. Flight testing is proposed to take place in similar airspace away from the airport that is used by legacy programs originating from the airport. The merits of these parcels were evaluated and the location for the Proposed Action was identified during the alternatives analysis discussion in Section 2.

Figure 1-2. Tracts of Land Evaluated for Development at St. Louis Lambert International Airport

Source: Boeing 2023.

1.4.1 Phase 1

Phase 1 of the Proposed Action includes construction and operation of Boeing's Assembly and Testing Campus. To construct the facilities, Boeing would first demolish existing structures, clear vegetation, and grade the chosen parcels. Phase 1 proposed construction would include the following:

- Approximately 979,000-square-foot (ft^2) Assembly Building
- Approximately 82,000-ft^2 Central Utility Plant (CUP)
- Approximately 58,000-ft^2 CUP
- Approximately 191,500-ft^2 Hangar
- Approximately 94,550-ft^2 Radar Cross-section (RCS) Range Building
- Approximately 25,000-ft^2, Open-air Aircraft Shelters (Launch and Recovery Structures)
- Approximately 14,500-ft^2 Hush House
- Approximately 15,600-ft^2 Maintenance Building
- Approximately 15,200-ft^2 Fuel Calibration Building
- Approximately 11,800-ft^2 Fire Department Satellite Building
- Several small support or storage structures (each under 10,000 ft^2)
- Taxiway connector(s) to connect to taxiway(s)

Additional construction would be required for roads, parking areas, and other infrastructure improvements within the parcel(s). The parcel(s) would be secured with new perimeter fencing, with guardhouses and badge access, similar to other facilities in the area that Boeing occupies.

Aircraft would be assembled at the Assembly Building site and then towed to the Hangar at the flight ramp site, two to four times a month. Additionally, aircraft would be towed from the Hangar to the existing Boeing paint booth (Building 69) located near the intersection of Taxiways Foxtrot and Kilo to be painted, and returned to the Hangar, also occurring two to four times a month. The flight ramp site parcel(s) must contain the flight ramp structures, and the aircraft would move between the Hangar, Fuel Calibration Building, RCS, Hush House, and open-air shelters, and to the existing paint booth, as needed. Aircraft operations are primarily the production acceptance of new-build aircraft and the U.S. Government acceptance of those aircraft at the factory. Boeing operates the aircraft built here in accordance with contractual requirements levied by our government customers to verify they meet the specifications and requirements set by our government customer. For these contracts, the aircraft would be operated under public use rules with military airworthiness oversight. These activities, which would be supported by this expansion, continue the long-established, industry-standard processes for the acceptance of aircraft delivered to government customers.

1.4.2 Phase 2

Phase 2 of the Proposed Action would construct additional structures and/or additions to existing structures and increase operations of Boeing's Assembly and Testing Campus. Phase 2 is optional, and implementation is dependent on meeting specific proprietary requirements.

Phase 2 proposed construction would include the following:

- Approximately 720,000-ft^2 Assembly Building
- Approximately 75,700-ft^2 Hangar addition
- Approximately 205,000-ft^2 Paint Building
- Approximately 12,500-ft^2 additional Open-air Aircraft Shelters (Launch and Recovery Structures)
- Approximately 13,300-ft^2 additional Hush House
- Approximately 12,000-ft^2 additional Fuel Calibration Building

If Phase 2 is implemented, frequency of the movement from the Assembly Buildings would increase as a result of the second Assembly Building coming online with towing increasing to four to six times a month. Test flights would occur as described under Phase 1, and test flight numbers would stay roughly the same after Phase 2 implementation and legacy flight reductions (refer to Table 3-4 for flight counts).

1.5 Agency Actions and Approvals

The Proposed Action is not included on the airport's latest Airport Layout Plan (ALP). FAA Airports Division has provided guidance regarding the FAA's ALP update requirements to show Boeing's proposed taxiway connectors to Taxiways Foxtrot and Victor. Boeing will provide a conceptual layout of the taxiway connectors and a conceptual operations plan to FAA Airports Division and the airport for review and comment. Boeing will schedule and facilitate a planning meeting to review the layout and operations plan with the airport, FAA, and remaining aeronautical Northern Tract tenants. The airport will submit the revised Future Airport Layout Drawing depicting the proposed taxiway connectors to Taxiways Foxtrot and Victor to FAA Airports Division. FAA Airports Division will circulate the revised Future Airport Layout Drawing for FAA review and comment. If no objections are raised the FAA Airports Division can complete the FAA Form 5200-8 to conclude the Safety Risk Management (SRM) process. If objections are raised, Boeing will facilitate an independent SRM panel in accordance with SRM requirements. Once the SRM process is concluded, FAA Airports Division will approve the ALP revision conditioned upon completion of the NEPA analysis and Special Purpose Laws process.

For the Proposed Action to proceed, the following Agency actions and approvals are requested:

- Conditional approval of ALP and Future Airport Layout Drawing to depict the proposed improvements pursuant to 49 United States Code (U.S.C.) §§ 40103(b) and 47107(a)(16)
- Determination under 49 U.S.C. § 44502(b) that the airport development is reasonably necessary for use in air commerce or in the interests of national defense

1.6 Timeframe of the Proposed Action

Implementation of the Proposed Action would only occur after FAA has issued a decision based on this EA. Preliminary design of the proposed facilities is currently ongoing to define specific elements of the Proposed Action, including grading and drainage requirements, foundations, building heights, and structural materials to be used. If FAA approves the Proposed Action at the end of 2023, final design, demolition, and construction activities are proposed to begin in 2024 (after FAA approval) and continue into 2027. Target occupancy is proposed in January 2026 and January 2027 for Phase 1 and January 2029 for Phase 2 based on future needs.

2. Alternatives Analysis

2.1 Alternative Screening Process

The best operational and engineering solutions were evaluated based on the following criteria:

- Consistency with future land uses and the airport's Master Plan
- Consistency with state, regional, and local plans
- Consistency with FAA policies, guidance, and directives
- Functional compatibility with adjacent facilities
- Co-location of like services
- Economic feasibility
- Availability of sites and adequacy of space
- Environmental constraints

Alternatives were screened to identify a range of reasonable alternatives that meet the purpose and need. The first step in this screening process was to determine if an alternative can address the purpose and need by providing necessary facilities for national defense aircraft production and testing. The second step considered whether the alternative was practical or feasible to implement from an economic and constructability standpoint. An alternative that would result in substantial site development costs, but provide the same operational benefits, would not be retained for detailed evaluation. Constructability considers functionality, compatibility with existing and future land use, compatibility with adjacent facilities, infrastructure availability, and other environmental factors. These physical characteristics can affect engineering costs, project schedules, operational efficiency, and construction sequencing or phasing. An alternative that would result in substantial constructability or technical issues would not be retained for detailed evaluation. Additionally, a test fit assessment was performed to determine whether each alternative's site size and shape were sufficient to accommodate the proposed facilities.

2.2 Initial Alternatives and Alternatives Evaluation

The following five alternatives were subject to the alternatives screening process. The initial range of alternatives to be evaluated include the No Action Alternative, three alternatives that look at implementation of the Proposed Action on different parcels (Figure 2-1), and one alternative that looks at the same locations but with different phasing.

- No Action Alternative
- Proposed Action Alternative: Brownleigh and Northern Tract Parcels (Concurrent Development)
- Action Alternative 1: Berry Hill/Golf Course Parcels
- Action Alternative 2: Brownleigh and Northern Tract Parcels (Sequential Development – Northern Tract Parcel Only for Phase 2)
- Action Alternative 3: Brownleigh and Existing Northern Air Cargo Facility Parcel

These subsections evaluate whether an alternative meets the purpose and need, as well as whether the alternative is practical or feasible to implement from an economic and constructability standpoint, as outlined in Section 2.1.

2.2.1 No Action Alternative

Under the No Action Alternative, the construction and demolition activities would not occur. The current configuration at the airport would be deficient for Boeing's proposed national defense-related aircraft production and testing needs. Boeing would locate their new facilities in another market that is able to meet their national defense aircraft assembly and testing needs. If the facilities have to be relocated to a

new market, then Boeing could not provide co-located facilities, resulting in loss of operational and economic efficiencies. This would result in substantial loss of economic activity in the St. Louis region and prevent the airport from receiving the development activity and ground rent income associated with the Proposed Action.

Although the No Action Alternative does not meet the Proposed Action's Purpose and Need, it is carried forward in the assessment of environmental impacts to establish a baseline condition.

2.2.2 Proposed Action Alternative: Brownleigh and Northern Tract Parcels (Concurrent Development)

Under the Proposed Action Alternative, the airport's partner, Boeing, would lease two parcels, the 76-acre Northern Tract and 109-acre Brownleigh, from the airport to support construction and operation of Boeing's Assembly and Testing Campus (Figure 2-1).

Phases 1 and 2, as designed on Brownleigh and Northern Tract, include a total of 2,612,000 ft^2 of building construction, would have approximately 2,096 occupants, and would result in approximately 185 acres of land development. The target occupancy is January 2026 for Phase 1 on Brownleigh parcel, January 2027 for Phase 1 on Northern Tract parcel, and January 2029 for Phase 2.

The Phase 1 planned construction on Brownleigh is as follows:

- Approximately 979,000-ft^2 Assembly Building
- Approximately 82,000-ft^2 CUP
- Taxiway to connect Taxiway Foxtrot into the parcel

The Phase 1 planned construction on Northern Tract is as follows:

- Approximately 191,500-ft^2 Hangar
- Approximately 94,550-ft^2 RCS Range Building
- Approximately 58,000- ft^2 CUP
- Approximately 25,000-ft^2, Open-air Aircraft Shelters (Launch and Recovery Structures)
- Approximately 14,500-ft^2 Hush House
- Approximately 15,600-ft^2 Maintenance Building
- Approximately 15,200-ft^2 Fuel Calibration Building
- Approximately 11,800-ft^2 Fire Department Satellite Building
- Several small support or storage structures (each under 10,000 ft^2)
- Taxiways to connect Taxiway Victor to the parcel

The Phase 2 planned construction on Brownleigh is as follows:

- Approximately 720,000-ft^2 Assembly Building

The Phase 2 planned construction on Northern Tract is as follows:

- Approximately 75,700-ft^2 Hangar addition
- Approximately 205,000-ft^2 Paint Building
- Approximately 12,500-ft^2 additional Open-air Aircraft Shelters (Launch and Recovery Structures)
- Approximately 13,300-ft^2 additional Hush House
- Approximately 12,000-ft^2 additional Fuel Calibration Building

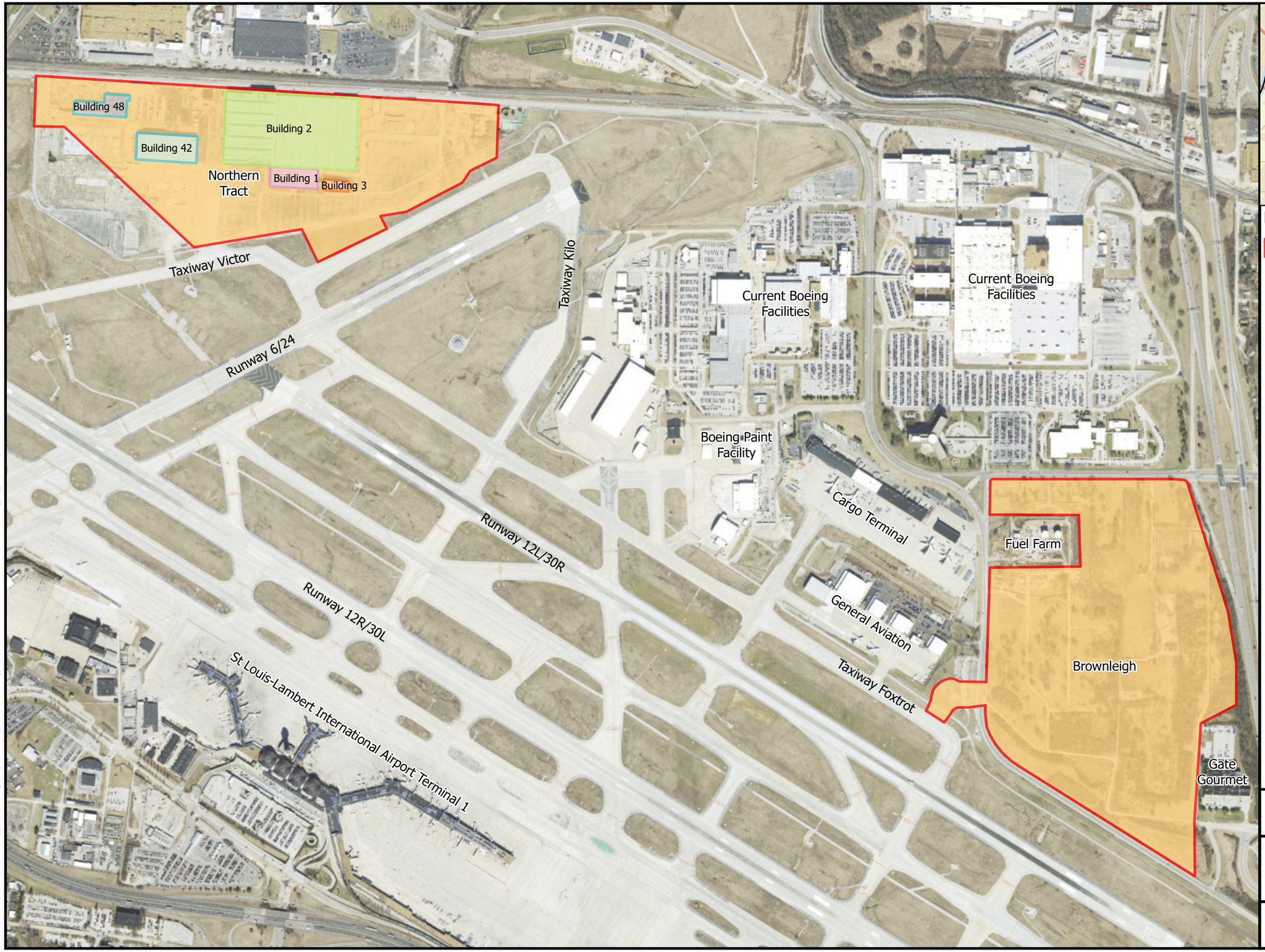
The Proposed Action Alternative would use two parcels, the Northern Tract and Brownleigh. These two parcels would support construction and operation of Boeing's Assembly and Testing Campus with construction occurring on both Brownleigh and the Northern Tract during Phase 1 and Phase 2.

A test fit assessment evaluated a layout based on initial design requirements. That potential layout passed the test fit and would have sufficient functionality, would strengthen compatibility with adjacent facilities, would increase operations efficiency, and would increase future flexibility. Additional capabilities and

design requirements were added after charettes and design reviews resulting in a larger Assembly Building and RCS as well as adding a Fire Department Satellite Building and CUP. This concurrent approach on these parcels meets the current design requirements and would still have sufficient functionality, would strengthen compatibility with adjacent facilities, would increase operations efficiency, and would increase future flexibility.

The Proposed Action Alternative meets the screening criteria outlined in Section 2.1. This Alternative meets the Proposed Action's Purpose and Need, was considered a practicable alternative, and is generally described in the following text.

Both parcels would be connected to the airfield taxiways via taxiway connectors. One taxiway connector would link the Brownleigh parcel to Taxiway Foxtrot. Another two taxiway connectors would link the Northern Tract parcel to Taxiway Victor. The western and southern edges of the Northern Tract lie within the Runway 12L runway protection zone and underneath the Runway 12L approach and departure surfaces. Runway 6-24 is located southeast of the Northern Tract parcel. The proposed towpath avoids the Runway 6-24 high-energy zones.



LEGEND:

Detailed Study Area

N

BASE MAP SOURCE:
USGS USA Topo Map

0 1,000
FEET

Site Map
Boeing STL Expansion

Figure 2-1
Proposed Action Alternative

DATE: 8/23/2023

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To construct the Phase 1 facilities, Boeing would demolish functionally obsolete structures on the parcels, clear vegetation, and level the ground as needed to create a pad-ready environment for the campus. Northern Tract facilities that would need to be demolished include the McDonnell Douglas complex (Building 1, Building 2, Building 3, Building 48, and associated structures) and asphalt surface parking. The McDonnell Douglas complex buildings have been unoccupied and disconnected from utilities for more than 20 years and have been damaged by storms in recent years. Efforts to bring new tenants to the buildings using state tax credits and other incentives have not been successful. Additionally, the security level of the Boeing programs requires a structure to meet Intelligence Community Directive Number 705 standards, and the existing structures do not meet that standard. The buildings were purpose built for hands-on assembly line construction methods for the small planes that the Curtiss-Wright Aeroplane Factory produced during World War II. The buildings do not meet the needs of a modern aeronautical manufacturing tenant for internal configuration because of numerous internal columns, 20-foot-tall ceiling trusses, and a limited floor load (basements under majority of footprints).

Boeing would demolish Building 42 and asphalt surface parking as part of the implementation of Phase 2. Existing tenants of Building 42 (Airport Terminal Services [ATS] Jet Center and GoJet Airlines) would need to be relocated to new or existing facilities on airport property. The airport, in coordination with FAA, would evaluate available sites to determine compatibility with other airport uses. These sites would be evaluated for potential environmental impacts in a supplemental NEPA evaluation once a decision has been made to implement this portion of the Phase 2 development and suitable sites have been identified.

The Brownleigh parcel is currently vacant with the exception of a bulk fuel storage facility and Gate Gourmet facility, which would both remain in the Brownleigh area for future use.

Roads, parking areas, and other infrastructure would be created during both phases within the parcels. Parcels would be secured with new perimeter fencing, guardhouses, and badge access, similar to other Boeing facilities in the area.

Aircraft would be assembled on Brownleigh and then be towed across James S. McDonnell Boulevard into a secure holding area (“sally-port”) with gated access to the Air Operations Area. Security measures would be put into place to control vehicular traffic during the towing operations; once the tow operations are complete, the road would remain open to vehicular traffic. From there, the Airport Traffic Control Tower would approve access to Air Operations Area, and the towed aircraft would proceed to the Northern Tract. The proposed towpath avoids the Runway 6-24 high-energy zones. Under Phase 1, these towing operations are anticipated to occur between two and four times per month. Under Phase 2, these towing operations would increase to four to six times per month. An effort would be made to avoid towing operations during high traffic periods.

The Northern Tract parcel would contain the flight ramp structures, and the aircraft would move between the Hangar, Fuel Calibration Building, RCS, Hush House, and open-air shelters, as needed.

Aircraft operations are primarily the production acceptance of new-build aircraft and the U.S. Government acceptance of those aircraft at the factory. Flights will occur via the taxiway connector to Taxiway Victor. Boeing operates the aircraft built here in accordance with contractual requirements levied by our government customers to verify they meet the specifications and requirements set by our government customer. For these contracts, the aircraft would be operated under public use rules with military airworthiness oversight. These activities, which would be supported by this expansion, continue the long-established, industry-standard processes for the acceptance of aircraft delivered to government customers. Flight testing would generally occur at a rate at which and in the locations where current Boeing test flights are occurring today. There are currently 44 Boeing test flights per month (2 per day for 22 days a month) for all programs from the airport.

If Phase 2 is implemented, the parcels would generally have the same function and operations. Frequency of the movement from Brownleigh would increase as a result of the second Assembly Building coming online. Boeing anticipates towing operations between four and six times a month.

The precise design, footprint, and location of all projects are in the early planning stages. Figures 2-2 and 2-3 provide a conceptual layout for each parcel; however, this may change during the design process. Should locations and final layouts differ substantially from those anticipated in terms of the land use category involved or the compatibility with the land use category at the final designated location, or should the change in location result in additional potential impacts to the previously defined sensitive resources, then separate environmental documentation for those projects would be required.

2.2.3 Action Alternative 1: Berry Hill/Golf Course Parcels

Action Alternative 1 would involve constructing Boeing's Assembly and Testing Campus on the Berry Hill/Golf Course parcels during Phase 1 and Phase 2. Action Alternative 1 would meet the Proposed Action's Purpose and Need but did not meet the screening criteria outlined in Section 2.1. Action Alternative 1 was determined not practical or feasible to implement from an economic and constructability standpoint and was not retained for detailed analysis for the following reasons:

- The parcel is at the western end of the airport with limited vehicular access. It is also furthest from existing Boeing facilities, requiring long tow operations to reach these existing facilities.
- The parcel slopes into a large stormwater runoff pit, which creates challenges in grading the site and would result in substantial earthwork. Additionally, the airfield runoff would have to be diverted to a new location if the site was developed, and there is no known suitable location. These challenges would add scope, engineering challenges, and cost to the Proposed Action.
- Large areas of the parcel closest to the runway are unusable due to mandatory height restrictions in areas with navigable airspace (CFR Title 14 Part 77). The test fit assessment evaluated a layout using initial design requirements. During this initial review, the taller assembly, radar testing, and Hangar structures would create substantial layout challenges and result in additional site development costs as more of the parcel would need to be developed.
- The center of the parcel contains a municipal golf course, which would have to be relocated at an additional cost. Suitable replacement sites within the City of Bridgeton (the course's owner) would be challenging to find, and delays could cause problems with the Proposed Action schedules and construction sequencing.

CONCEPTUAL - SUBJECT TO CHANGE

Lindbergh Boulevard

Norfolk Southern Railroad Tracks

Banshee Road

Building Restriction Line

Runway Protection Zone (Arrival)

Taxiway Victor

Runway 6/24

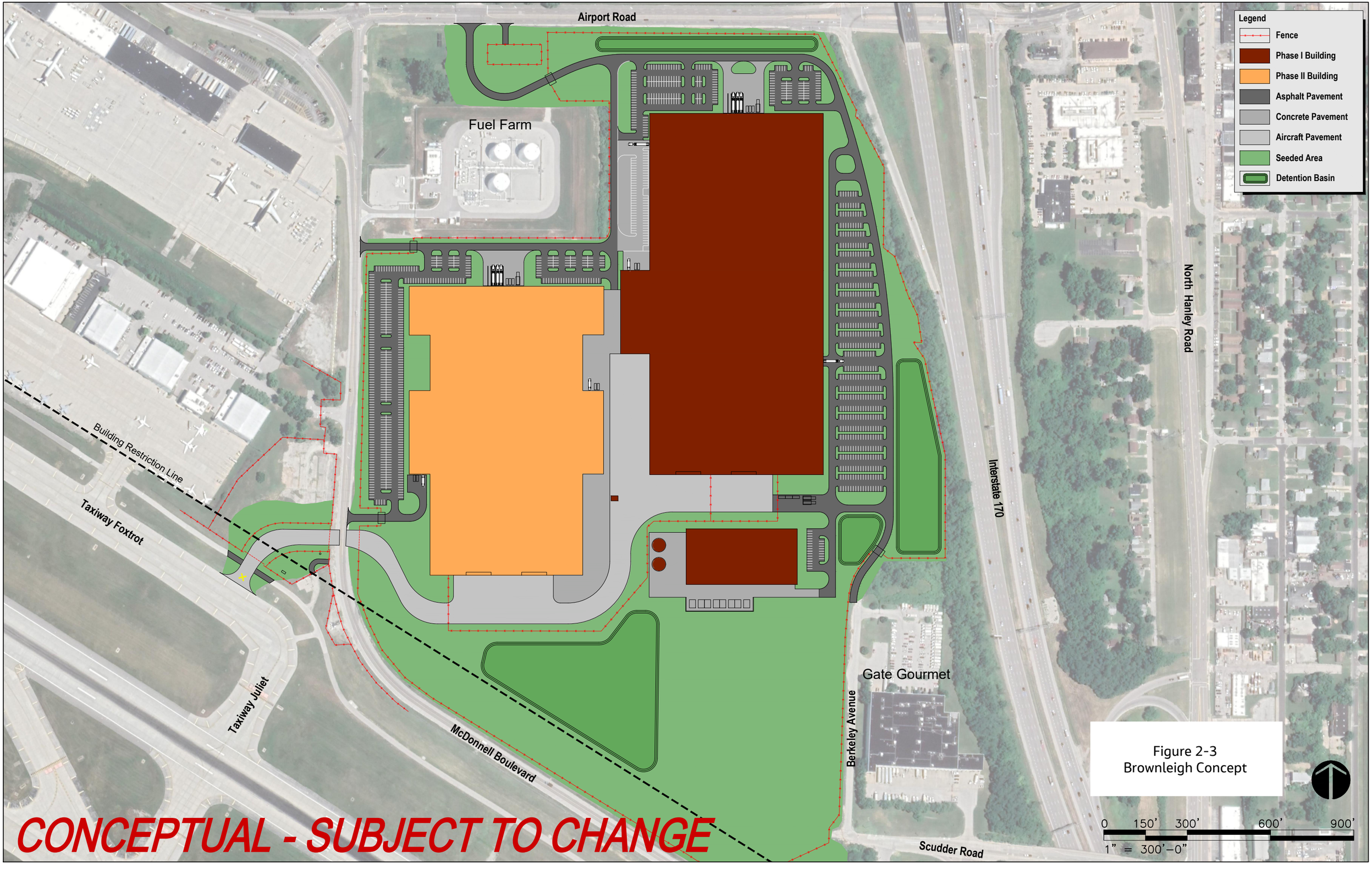
0 150' 300' 600' 900'

1" = 300'–0"

Legend

- Fence
- Phase 1 Building
- Phase 2 Building
- Asphalt Pavement
- Concrete Pavement
- Aircraft Pavement
- Seeded Area

Figure 2-2
Northern Tract Concept


Airport Road
Fuel Farm
Legend
Fence
Phase I Building
Phase II Building
Asphalt Pavement
Concrete Pavement
Aircraft Pavement
Seeded Area
Detention Basin
North Hanley Road
Interstate 170
Building Restriction Line
Taxiway Foxtrot
Taxiway Juliet
McDonnell Boulevard
Berkeley Avenue
Gate Gourmet
Scudder Road
Figure 2-3
Brownleigh Concept
0 150’ 300’ 600’ 900’
1” = 300’–0”
CONCEPTUAL - SUBJECT TO CHANGE

2.2.4 Action Alternative 2: Brownleigh and Northern Tract Parcels (Sequential Development – Northern Tract Parcel Only for Phase 2)

Throughout the planning process, different approaches using the Brownleigh and Northern Tract parcels were studied. Action Alternative 2, similar to the Proposed Action Alternative, uses the Northern Tract and Brownleigh to support construction and operation of Boeing's Assembly and Testing Campus, but Phase 1 construction would only occur on Brownleigh and Phase 2 construction would occur on Brownleigh and the Northern Tract. Flight ramp operations at Brownleigh would result in flight ramp noise in a new location because flight ramp operations have not occurred here previously. Although this could result in a possible noise risk, it was not examined in enough detail to know whether that risk would affect constructability. Action Alternative 2 would meet the Proposed Action's Purpose and Need but did not meet the screening criteria outlined in Section 2.1. Action Alternative 2 was determined not practical to implement from a constructability standpoint and was not retained for detailed analysis for the following reasons:

- James S. McDonnell Boulevard would need to be permanently closed to accommodate the flight ramp from the Brownleigh parcel and to create the necessary access to the airfield.
- The test fit assessment evaluated a layout using initial design requirements. This potential layout passed the test fit but would create a very crowded flight ramp on Brownleigh and would decrease functionality, would weaken compatibility with adjacent facilities, would reduce operations efficiency, and would limit future flexibility. However, additional capabilities and design requirements were added after charettes and design reviews resulting in a larger Assembly Building and RCS, as well as adding a Firehouse and CUP. As a result, this sequential approach would not meet the current design requirements.
- Concerns arose that if the full buildout does not occur as planned, the Northern Tract parcel would not be developed and the currently underused airport property would not be redeveloped.

2.2.5 Action Alternative 3: Brownleigh Parcel and Existing Northern Air Cargo Facility Parcel

Action Alternative 3 involves building Boeing's Assembly and Testing Campus with construction occurring on the Brownleigh parcel and existing Northern Air Cargo Facility parcel during Phase 1 and Phase 2. Action Alternative 3 would meet the Proposed Action's Purpose and Need but did not meet the screening criteria outlined in Section 2.1. Action Alternative 3 was determined not practical to implement from a constructability standpoint and was not retained for detailed analysis for the following reasons:

- The Northern Air Cargo Facility would have to be relocated and the primary tenants, FedEx, UPS, and Amazon Air (Prime) would need to be relocated into a new air cargo facility before implementing the Proposed Action. The time required to relocate the Northern Air Cargo Facility to another place on the airfield, including design and construction of a new air cargo facility, would exceed the required schedule for implementation of Phase 1 of the Proposed Action.
- Air cargo parcel facilities that would need to be demolished include the existing FedEx and UPS air cargo buildings, apron, taxiway, and asphalt surface parking, all of which are considered functional structures. As previously noted, the existing tenants (FedEx and UPS) would need to be relocated but potentially farther from key highway and roadway connections.
- The combined parcel acreage was also less than the required acreage, creating layout issues for the overall proposed campus during the initial test fit assessment. With the additional capabilities and design requirements added after charettes and design reviews, the layout issues for the overall proposed campus identified during the test fit would likely result in this parcel not meeting the current design requirements.

2.3 Alternatives Carried Forward for Detailed Evaluation

After these initial assessments, three alternatives (Action Alternatives 1, 2, and 3) were eliminated because they failed to meet one or more of the screening criteria outlined in Section 2.1. The No Action Alternative and Proposed Action Alternative: Brownleigh and Northern Tract Parcels (Concurrent Development) have been retained for a more detailed environmental evaluation.

3. Affected Environment and Environmental Consequences

3.1 Introduction

This section is organized by resource topics, with the impacts of all alternatives combined under resource headings. It provides a concise analysis of environmental impacts and conceptual measures needed to mitigate the impacts only for resources affected by at least one of the alternatives.

3.2 Identification of the Study Areas

To evaluate environmental impacts, two study areas are defined, the General Study Area and the Detailed Study Area. The General Study Area includes the areas within a 1-mile radius of the airport. The Detailed Study Area, referred to in this EA as the "project area," includes the area that may be physically disturbed (direct impacts) with the development of the Proposed Action. The timeframes for the analysis include the construction of the facilities, which is anticipated to span from 2024 through 2029 if both Phase 1 and Phase 2 are executed, and subsequent operation of the facilities.

3.3 Environmental Impact Categories Not Affected

The No Action Alternative, Proposed Action, and reasonable alternatives would not affect coastal resources, farmlands, or land use. Therefore, these resources were considered but not analyzed in detail in this EA.

- **Coastal resources**: There are no coastal zones within Missouri.
- **Land use**: Land use for the Proposed Action is classified as "Airport-related Development." The airport-related development is compatible with the surrounding on- and off-airport land uses. On airport, the airport's 2023 ALP shows the sites associated with the Proposed Action as Aeronautical Development, therefore, land use for the Proposed Action is consistent with the airport's ALP. Off-airport land use is zoned commercial/industrial. The airport sponsor has committed to making land use compatible with airport operations (refer to Appendix A for sponsor land use letter).
- **Farmlands**: The Brownleigh and Northern Tract parcels within the airport are located within a highly urbanized area. There are no areas on airport property currently being used for agriculture. The Northern Tract parcel is entirely developed and does not contain land characterized as prime or unique farmland. The Brownleigh parcel has been highly disturbed by past development activity. Approximately 4.7 acres of the Proposed Action area in the Brownleigh parcel have soils that have been designated as farmland of statewide importance (NRCS 2019). Given the urbanized area, lack of agricultural land uses within or surrounding the airport, and the site's low farmland value (based on U.S. Department of Agriculture Form AD-1006 Farmland Conversion Impact Rating), there would be no adverse effects to farmlands considered to be prime, unique, or of statewide or local importance.
- **Wetlands:** Executive Order 119900, Protection of Wetlands, requires federal agencies to avoid the adverse impacts associated with the destruction or modification of wetlands. There are no wetlands in the Proposed Action area, and construction would not take place within wetland areas (USFWS n.d.a). Therefore, there would be no impacts to wetlands.
- **Wild and scenic rivers:** The *Wild and Scenic Rivers Act of 1968*, 16 U.S.C. 1271-1287, regulates effects to rivers having remarkable scenic, recreational, geologic, fish, wildlife, historic, or cultural values. There are no rivers within St. Louis County listed in the Nationwide Rivers Inventory (NPS 2016). Therefore, there would be no impacts to wild and scenic rivers.

3.4 Air Quality

3.4.1 Regulatory Setting

In accordance with federal *Clean Air Act* (CAA) requirements, the air quality in a region or area is defined by measured concentrations of pollutants in ambient air. Air quality is a result of not only the types and quantities of atmospheric pollutants and pollutant sources in an area, but also the surface topography, size of the topological "air basin," and prevailing meteorological conditions.

3.4.1.1 National and State Ambient Air Quality Standards

CAA provides for the establishment of standards and programs to evaluate, achieve, and maintain acceptable air quality in the U.S. The U.S. Environmental Protection Agency (EPA) establishes numerical, concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants determined to affect human health and the environment. The NAAQS represent the maximum allowable concentrations for six pollutants: ozone (O_3), carbon monoxide (CO), nitrogen oxides (NO_X) measured as nitrogen dioxide (NO_2), sulfur oxides, respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM_{10}] and particulate matter equal to or less than 2.5 microns in diameter [$PM_{2.5}$]), and lead (Pb). The CAA also gives authority to states to establish air quality rules and regulations aimed at meeting air quality standards. The State of Missouri has adopted the NAAQS, as presented in Table A-1 (Appendix B) and has also state standards for hydrogen sulfide (H_2S) and sulfuric acid (H_2SO_4).

EPA classifies the air quality in a region or area by comparing monitored concentrations of criteria pollutants with the NAAQS. Areas are designated as "attainment," "nonattainment," "maintenance," or "unclassified" on a pollutant-specific basis. Attainment means that the air quality measurements for that pollutant are lower than the NAAQS; nonattainment indicates that the pollutant levels exceed the NAAQS; maintenance indicates that an area was previously designated nonattainment but is now in attainment; and unclassified indicates that there is not enough information, so the area is considered attainment for that pollutant.

The CAA helps ensure that human health and the environment are protected from adverse effects of air pollution. Much of the responsibility for controlling air pollution is delegated to the state level. Each state designated as nonattainment or maintenance for any NAAQS must develop a State Implementation Plan (SIP), which is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS.

3.4.1.2 General Conformity

The CAA General Conformity Rule (40 CFR Section 93 Subpart B) requires that federal activities must conform with the requirements of the applicable SIP or federal implementation plan. Federal agencies, like the FAA, are prohibited from funding, approving, or permitting projects or actions that would cause a new violation of the NAAQS, contribute to an increase in the frequency or severity of violations of NAAQS, or delay the timely attainment of any NAAQS or NAAQS compliance milestones. The General Conformity Rule applies only to federal actions in nonattainment or maintenance areas. Only the preferred alternative must undergo conformity analysis.

3.4.1.3 State and County Air Permitting and Compliance

The Missouri Department of Natural Resources (MoDNR) works to protect, improve, and maintain Missouri's air quality as directed by the federal CAA and the Missouri Air Conservation Law. MoDNR's Air Pollution Control Program issues construction and operating permits, inspects sources, collects and

analyzes air monitoring data, and develops SIPs. Construction permits, also called New Source Review (NSR) permits, allow an applicant to construct and operate a new air emission source or modify an existing facility or source. Construction permits are required prior to commencing construction. Construction permits focus on the activities that may increase air emissions, for example, changes in operation, addition of equipment, changes in fuel or raw materials, or the relocation of sources. The MoDNR oversees several types of NSR or construction permits, including major, minor and *de minimis* permits (MoDNR 2020b). In St. Louis County, permitting and compliance for some sources of criteria air pollutants are overseen by the St. Louis County Department of Public Health, Environmental Services Division, Air Pollution Control (St. Louis County n.d.b).

3.4.2 Affected Environment

The airport, existing Boeing facilities, and areas that would encompass the Proposed Action are in the unincorporated area of St. Louis County, Missouri. As of April 2023, St. Louis County is designated by EPA as a moderate nonattainment area for the 8-hour ozone NAAQS. In the past, St. Louis County has also experienced high levels of $PM_{2.5}$, but the area was redesignated to maintenance for the 1997 primary annual $PM_{2.5}$ NAAQS (level of 15 micrograms per cubic meter) in October 2018. The 1997 $PM_{2.5}$ standard has been revoked in attainment and maintenance areas, so the General Conformity Rule does not apply for this pollutant. The project area is designated as attainment or unclassified for all other criteria pollutants (EPA 2023b).

Boeing currently has a Title V Operating Permit (Permit Number: OP2021-014) issued by the MoDNR and renewed on June 7, 2021. Title V of the CAA Amendments of 1990 requires states and local agencies to issue operating permits to major stationary sources. Under Title V, a major stationary source has the potential to emit more than 100 tons per year (tpy) of any one criteria air pollutant or precursor pollutant, 10 tpy of a hazardous air pollutant (HAP), or 25 tpy of any combination of HAPs. The purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and monitor their impacts on air quality. Section 112 of CAA defines the sources and kinds of HAPs that are to be regulated.

The Installation Description in the Title V permit states, "The Boeing Company, designs, develops, manufactures, integrates, and supports a variety of aerospace, defense, and security products and services. These include military and commercial aircraft, helicopters, missiles, space launch vehicles and other space systems, and sensing systems. Equipment includes paint spray booths, halogenated solvent degreasers, and boilers. The installation is subject to 40 CFR Part 63 Subpart GG, National Emission Standards for Aerospace Manufacturing and Rework Facilities, and has potential emissions greater than operating permit major source thresholds for all pollutants" (MoDNR 2021a).

3.4.3 Thresholds of Significance

As stated in FAA Order 1050.1F, Exhibit 4-1, the FAA's significance threshold for air quality is whether "the action would cause pollutant concentrations to exceed one or more of NAAQS, as established by EPA under CAA, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations" (FAA 2015).

The environmental consequences to local and regional air quality conditions that would result from the Proposed Action are evaluated based on the increases in regulated pollutant emissions relative to existing conditions, the No Action Alternative, and the relevant regulatory thresholds. Impacts on air quality in NAAQS nonattainment or maintenance areas are considered to conflict with the plans to achieve standards (the applicable SIP) and result in significant impacts if the net changes in project-related pollutant emissions would result in any of the following:

- Cause or contribute to a violation of any NAAQS or state ambient air quality standard.
- Increase the frequency or severity of a violation of any ambient air quality standard.
- Delay the attainment of any standard or other milestone contained in the SIP or permit limitations.

The General Conformity Rule establishes federal *de minimis* thresholds in 40 CFR 93.153(b) for individual criteria pollutants and their precursors. The applicable thresholds depend on the EPA-designated attainment status for each NAAQS pollutant in the project area. The thresholds are only applicable to increases of pollutants and their precursors associated with federal actions in nonattainment and maintenance areas. These emissions rates (represented in tpy) are used to delineate federal actions with the potential to conflict with the applicable SIP or substantially and adversely affect air quality. If the federal action includes sources that require NSR permitting, that portion of the action is not subject to conformity determination (40 CFR 93.153(d)). As a result, sources that must obtain air permits (for example, boilers, paint booths, emergency generators) are not required to be included in the emissions totals used to evaluate the applicability of the General Conformity Rule. Annualized emissions from sources that do not require permits (for example, mobile sources, construction equipment, aircraft and airport ground support equipment [GSE] operations, employee commute vehicles) must be estimated and compared with regulatory thresholds to determine the applicability and stringency of requirements.

Table A-2 (Appendix B) presents the applicable general conformity *de minimis* thresholds. The General Conformity Rule applicability thresholds are used in NEPA analysis for determination of the relative significance of project impacts. With respect to the General Conformity Rule, effects of the Proposed Action on air quality would be considered significant if the federal action by FAA to approve the Proposed Action would result in any emissions increase greater than the applicable *de minimis* thresholds.

Other regulatory thresholds that apply to permitting in Missouri include the Permitting *de minimis* Levels/Federal Significance Levels for criteria pollutants (presented in tpy) in Table B-4 (Appendix B) (MoDNR 2020b, n.d.a, n.d.b, n.d.e). In addition, according to 10 Code of State Regulations 6.060 (5)(D), an applicant must submit an air quality analysis if the project's potential HAP emissions exceed the Screening Modeling Action Levels established by the MoDNR Air Pollution Control Program (APCP). Although pollutant-specific significant impact levels have not been defined for HAPs, the MoDNR APCP has adopted thresholds equal to 4% of the Risk Assessment Levels defined in the MoDNR HAPs, Screening Modeling Action Levels, and Risk Assessment Levels table (MoDNR 2020a, 2022b).

If results of the emissions estimates and the air quality impact analysis indicate potential for significant air quality impacts, required mitigation measures must be detailed, along with a plan and responsible parties to implement enforceable mitigation monitoring and reporting requirements.

3.4.4 Environmental Consequences

3.4.4.1 No Action

Implementation of the No Action Alternative would not result in a change in current conditions. No demolition or construction would occur, and operations would not change. Therefore, no impacts to air quality would occur.

3.4.4.2 Proposed Action

The Proposed Action would result in emissions from construction, demolition, and operation of facilities for defense-related aircraft production and testing. To construct the facilities, equipment would be used to demolish existing structures, clear vegetation, and grade the chosen parcels. Buildings, roads, parking areas, and other infrastructure improvements would then be constructed in two phases.

Stationary sources associated with the Proposed Action would include paint booths, boilers and heaters, fire pumps, and standby generators. These sources will require NSR and air permitting. Under NAAQS, emissions from sources subject to NSR and permitting are not included in evaluation of general conformity applicability; however, under NEPA, these emission must still be disclosed, even though they will not be counted toward the significance determination. Boeing proposes to permit the stationary sources associated with each phase of the Proposed Action separately because they will be independently awarded by different federal agencies, would be separated by more than 2 years, and will manufacture different aircraft types. Emissions from point sources for each phase would be capped to less than 40 tpy

for volatile organic compounds (VOCs) and NO_x for each phase (including Building 69) to meet regulatory de minimis levels required for a MoDNR Section (5) permit (MoDNR 2020b).

Operation of mobile sources would also directly affect the amount and type of emissions that would result from the Proposed Action and indirectly affect local air quality. Mobile sources of air emissions include "on-road sources" and "nonroad sources." On-road mobile sources include automobiles and light- and heavy-duty trucks used for employee commutes and material transport. Nonroad sources include aircraft, GSE, and various types of construction equipment. Typical aircraft GSE includes equipment to provide services such as air conditioning, air start, towing, fueling, and emergency response. Emissions from these sources are counted toward general conformity significance determination.

3.4.4.2.1 Construction and Demolition Emissions

Although temporary by nature, construction can degrade air quality mainly because of dust and emissions from fuel combustion in construction vehicles. Fugitive dust emissions may occur during excavation, when materials are hauled, and when vehicles travel to and from the project site on paved and unpaved roads.

Adverse impacts on local and regional air quality would result from the Proposed Action construction and demolition activities. Construction and demolition activities would generate air pollutant emissions primarily from site-disturbing activities such as vegetation clearing, grading, filling, compacting, and trenching; operating construction and demolition equipment; and evaporative emissions from architectural coatings, such as painting. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. Construction and demolition activities would incorporate best management practices (BMPs) and control measures (such as frequent use of water for dust-generating activities) to limit fugitive particulate matter emissions, such as dust, from leaving the work site. Construction workers commuting daily to and from the construction site in their personal vehicles would also result in criteria pollutant emissions.

Construction and demolition emissions were estimated approved emission factors from sources such as EPA's Compilation of Air Pollutant Emission Factors (AP 42) and the MOtor Vehicle Emission Simulator 3 (MOVES3). MOVES3 is an emission modeling system developed by EPA to estimate emissions for mobile sources at the national, county, and project level for criteria air pollutants, greenhouse gas (GHG), and air toxics. Emission calculations have been conducted to estimate total annual air emissions from construction and demolition activities for comparison with applicable thresholds of significance. Table B-3 (Appendix B) summarizes the results; Appendix B provides details of the inputs, assumptions, and results.

3.4.4.2.2 Operational Emissions

No significant impacts on local and regional air quality would result from operation of the Proposed Action. The operations are described in Section 2.2.2.

Operational emissions were estimated using approved emission factors from sources such as the FAA's Aviation Environmental Design Tool (AEDT) Version 3e and MOVES3. Emission calculations have been conducted to estimate operational emissions of the Proposed Action for comparison with applicable thresholds of significance. Table B-4 (Appendix B) summarizes the results.

Owners and operators of all proposed and existing facilities that are significant sources of air emissions must obtain approval from appropriate authorities to construct, modify, and operate the sources. The MoDNR will review the air emissions estimated for the Proposed Action to confirm that the construction and operation would comply with applicable state and federal laws and regulations. In this case, the Proposed Action must obtain approval in the form of a construction air permit for the stationary air emission sources including painting and assembly facilities, boilers and heaters, fire pumps, and emergency generators, before beginning construction of the project. MoDNR will confirm that air emissions from the sources are within applicable technology-based guidelines and would be designed and

operated to be protective of human health. After approval and construction of the project, and as part of the construction air permit requirements, the Proposed Action must obtain required operating permits, including modification of the facility's Title V permit. Continuous compliance with the construction permit conditions and Title V air permit limits must be demonstrated.

Appendix B contains detailed inputs, assumptions, and calculations used to estimate the annual air emissions from the operation of the Proposed Action.

3.4.4.2.3 General Conformity Applicability

As documented in the previous sections, construction and operational emissions have been estimated for the Proposed Action. Project-related emissions from sources subject to NSR and permitting are not included in evaluation of general conformity applicability. The annualized criteria pollutant emissions estimated for operation of sources not subject to permitting and the emissions estimated for project construction during the peak construction year (2025) have been summed for comparison with the applicable general conformity *de minimis* levels in Table B-5 (Appendix B). As indicated previously, the General Conformity Rule applicability thresholds are used in NEPA analysis for determination of the relative significance of potential project impacts.

None of the applicable *de minimis* thresholds would be exceeded, indicating that that the project can be assumed to conform, and no further analysis under the General Conformity Rule is required. The results of this General Conformity Rule evaluation indicate that the Proposed Action would not result in emissions that would exceed applicable federal de minimis thresholds, conflict with the applicable SIP, or substantially or adversely affect air quality. A summary of emissions subject to the General Conformity Rule and the applicable thresholds can be found in Table 3-1.

Table 3-1. Estimated Emissions and General Conformity Applicability

Emission Source	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
Operational Emissions from Sources Subject to General Conformity	2.33	38.90	4.65	0.20	0.41	0.13
Construction Emissions (Peak Construction Year 2025)	0.24	85.36	7.34	4.87	24.22	3.66
de minimis Levels (tpy)	100	N/A	100	N/A	N/A	N/A
Threshold Exceeded for Any Activity?	No	N/A	No	N/A	N/A	N/A

Note: Estimated emissions rates are presented in units of tons per year.

N/A = No general conformity *de minimis* threshold

3.4.5 Proposed Mitigation

Since all project-related emissions are less than *de minimis*, the Proposed Action will not have any significant impact on Air Quality and no mitigation is required. For each phase of the Proposed Action, necessary air permits for painting and assembly facilities, boilers and heaters, fire pumps, emergency generators, and any other associated stationary source shall be obtained before the start of construction.

Air quality BMPs would be implemented during construction, demolition, and operations to reduce exhaust emissions and fugitive dust. These may include all or a combination of the following:

- Use vehicles that are equipped with zero-emission technologies or Tier 4 engines.
- Establish an anti-idling policy for internal combustion vehicles.
- Use onsite renewable electricity generation and/or grid-based electricity rather than diesel-powered generators or other equipment when possible.
- Where appropriate, retrofit older nonroad engines with an exhaust filtration device before it enters the construction site to capture diesel particulate matter.

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative, where appropriate.
- Where appropriate, install wind fencing.

3.5 Biological Resources

Biological resources consist of plants and animals and their habitats. These resources provide aesthetic, recreational, and socioeconomic benefits to society. This section describes the plant and animal species that occur, or are likely to occur, in the project area.

Three federal laws are applicable to the analysis of biological resources for the project:

- The *Migratory Bird Treaty Act* (MBTA), as amended, implements various treaties and conventions between the U.S. and Canada, Japan, Mexico, and Russia for the protection of migratory birds. Under MBTA, taking, killing, or possessing listed birds is unlawful, unless permitted by regulation. Species listed under MBTA are protected even if they are year-round residents of a region.
- The *Bald and Golden Eagle Protection Act*, as amended, provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possessing, and buying or selling of such birds.
- The *Endangered Species Act*, as amended, requires the government to protect threatened and endangered plants and animals (listed species) and the habitats upon which they depend. The *Endangered Species Act* requires federal agencies to ensure that any action it authorizes, funds, or conducts does not adversely affect listed species or "destroy or adversely modify" critical habitat for that species. "Critical habitat" is defined as a specific geographic area that contains features for the conservation of an endangered species and may require special management and protection.

3.5.1 Affected Environment

A Biological Evaluation (BE) (Boeing 2023), provided in Appendix C, was prepared to support development of this EA and was developed based on review of remote data and information obtained during a site visit conducted in March 2023. The BE focused on federally listed species subject to the provisions of the *Endangered Species Act*; however, state-listed species were included in an appendix to the BE.

The Northern Tract parcel is fully built out and devoid of vegetative communities. Sightings of wildlife species within the Northern Tract parcel during the March 2023 survey events were limited to introduced avian species that commonly occur in developed or urban environments. Habitat within the Brownleigh parcel is typically made up of open fields interspersed with varying degrees of tree cover. Forested areas within the parcel consist primarily of hardwood species. Observations of wildlife species within the Brownleigh parcel were common, particularly for avian species (Boeing 2023). Species observed were those typical for urban or suburban areas.

The U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation report (USFWS n.d.b), USFWS Environmental Conservation Online System, and the Missouri Department of Conservation indicate that 24 state- and/or federally listed species Table 3-2 have the potential to occur on the Brownleigh and Northern Tract properties. Federally and state-listed species are collectively referred to as special-status species within this EA. There are no designated critical habitats within the project areas.

Table 3-2. Special-status Species Potentially Occurring within Project Area

Species Type	Common Name	Scientific Name	State Status	Federal Status
Mammals	Gray bat	*Myotis grisescens*	Endangered	Endangered
	Indiana bat	*Myotis sodalis*	Endangered	Endangered
	Northern long-eared bat	*Myotis septentrionalis*	Endangered	Endangered
	Tricolored bat	*Perimyotis subflavus*		Under Review/ Proposed Endangered
	Eastern spotted skunk	*Spilogale putorius*	Endangered	
Birds	Bachman's sparrow	*Peucaea aestivalis*	Endangered	
	Northern harrier	*Circus hudsonius*	Endangered	
	Rufa red knot	*Calidris canutus rufa*		Threatened
	Flathead chub	*Platygobio gracilis*	Endangered	
	Lake sturgeon	*Acipenser fulvescens*	Endangered	
	Pallid sturgeon	*Scaphirhynchus albus*	Endangered	Endangered
Amphibians	Eastern hellbender	*Cryptobranchus alleganiensis*	Endangered	Endangered
Mollusks	Spectaclecase	*Cumberlandia monodonta*	Endangered	Endangered
	Elephant-ear	*Elliptio crassidens*	Endangered	
	Snuffbox	*Epioblasma triquetra*	Endangered	
	Pink mucket	*Lampsilis abrupta*	Endangered	Endangered
	Scaleshell	*Leptodea leptodon*	Endangered	Endangered
	Sheepnose	*Plethobasus cyphyus*	Endangered	
Invertebrates	Monarch butterfly	*Danaus plexippus*		Under Review
Plants	Decurrent false aster	*Boltonia decurrens*	Endangered	Threatened
	Eastern prairie white-fringed orchid	*Platanthera leucophaea*	Endangered	Threatened
	Mead's milkweed	*Asclepias meadii*	Endangered	Threatened
	Western prairie white-fringed orchid	*Platanthera praeclara*	Endangered	Threatened
	Running buffalo clover	*Trifolium stoloniferum*	Endangered	

Sources: Boeing 2023; USFWS n.d.a; MDC n.d.a; MDC 2022.

Suitable habitat for seven listed species was observed within the Brownleigh parcel during the March 2023 survey events. Forested areas within the Brownleigh parcel may provide summer refugia for Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), and tricolored bat (*Perimyotis subflavus*). There is suitable habitat to potentially support the eastern spotted skunk (*Spilogale putorius*), Bachman's sparrow (*Peucaea aestivalis*) (nesting), and northern harrier (*Circus hudsonius*) (foraging habitat only). Suitable feeding habitat for the monarch butterfly (*Danaus plexippus*) may be present within unmaintained brushy areas during spring and fall migrations if nectaring plant species occur, and suitable breeding habitat may occur if milkweeds (*Asclepias spp.*) occur. No remnant fruiting structures of milkweeds were observed during site surveys (Boeing 2023).

Abandoned structures within the Northern Tract parcel may be used by tricolored bats. There is no habitat on either parcel for gray bat (*Myotis grisescens*), rufa red knot (*Calidris canutus rufa*), or the fish, amphibian, mollusk, and plant species listed in Table 3-2. (Boeing 2023)

Ten bird species protected under MBTA potentially occur near the project area: American golden-plover (*Pluvialis dominica*), bald eagle (*Haliaeetus leucocephalus*), black-billed cuckoo (*Coccyzus*

erythrophthalmus), chimney swift (*Chaetura pelagica*), lesser yellowlegs (*Tringa flavipes*), Kentucky warbler (*Oporornis formosus*), prothonotary warbler (*Protonotaria citrea*), red-headed woodpecker (*Melanerpes erythrocephalus*), rusty blackbird (*Euphagus carolinus*), and wood thrush (*Hylocichla mustelina*) (USFWS n.d.a).

3.5.2 Thresholds of Significance

As stated in FAA Order 1050.1F, Exhibit 4-1, a significant impact in this category would result if USFWS or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species, or would result in the destruction or adverse modification of federally designated critical habitat.

A significant impact to biological resources is also defined as unpermitted "take" of a species that is state endangered or protected under MBTA or the *Bald and Golden Eagle Protection Act* or a loss or impairment of sensitive or other native habitats that negatively affect the population of a species.

3.5.3 Environmental Consequences

3.5.3.1 No Action

No new construction or development activities are proposed under the No Action Alternative. Therefore, no impacts on biological resources would be anticipated.

3.5.3.2 Proposed Action

The Proposed Action would have minor, long-term, direct, and indirect adverse impacts on vegetation and wildlife from the conversion of the previously developed but currently overgrown and wooded areas of the Brownleigh parcel to developed impervious and landscaped areas. Impacts would be minor because of the low quality of habitat and because wildlife near the Proposed Action area is species that are tolerant of noise and human activity common in urban environments.

The Proposed Action would have a minor, short-term, direct adverse impact on wildlife from disturbances from noise, human activity, construction, and heavy equipment use. Some injury and/or mortality to less mobile wildlife would be expected for those animals that could not easily vacate the area during construction, but no population-level effects to any common wildlife species would be expected. It is expected that most wildlife would avoid the active construction sites. If common wildlife species are observed in the construction areas, efforts would be made to allow them to leave the area.

Seven special-status species have potential to occur in the project area, including the Indiana bat, northern long-eared bat, tricolored bat, eastern spotted skunk, Bachman's sparrow, northern harrier, and monarch butterfly.

Tree clearing in the Brownleigh parcel and abandoned building demolition in the Northern Tract parcel would result in minor indirect impacts to listed bat species due to habitat alteration. Tree removal would occur, if possible, during the winter season (November 1 to March 31) to avoid direct impacts to listed bat species. If tree clearing would not be feasible within the winter season due to construction schedules, surveys by a USFWS-permitted biologist would be conducted and USFWS would be consulted before any tree clearing. Presence or absence surveys for tricolored bats would be conducted before demolition of abandoned structures. Therefore, FAA determined that the Proposed Action *may affect but is not likely to adversely affect* the Indiana bat, northern long-eared bat, and tricolored bat. USFWS concurred with FAA's determination in an email dated May 23, 2023. Appendix C includes the biological survey prepared for the Brownleigh parcel and USFWS consultation documentation.

As a candidate species, the monarch butterfly is not yet listed or proposed to be listed. Where feasible, native species and pollinator-friendly plants would be incorporated into landscaped areas. Therefore, FAA

determined that the Proposed Action *may affect but is not likely to adversely affect* the monarch butterfly. Refer to Appendix C for additional information.

Implementation of the Proposed Action may result in displacement and loss of habitat for the state endangered eastern spotted skunk and Bachman's sparrow. Populations of the eastern spotted skunk are scattered and rare in Missouri (MDC n.d.a), and the Missouri Natural Heritage Program's Heritage Search (MDC n.d.b) does not list eastern spotted skunk or Bachman's sparrow as occurring in St. Louis County. Therefore, there is a low likelihood of these species occurring in the project area and being adversely affected by the Proposed Action. The Proposed Action is unlikely to affect the northern harrier because there is comparable foraging habitat for this species in the nearby vicinity. No population-level effects to state-listed wildlife species would be expected.

The red-headed woodpecker is a year-round resident and MBTA-protected species with potential to occur in the Brownleigh parcel. Although the red-headed woodpecker was not observed during biological site surveys, multiple woodpecker cavities were observed onsite. The Proposed Action could result in loss of nesting sites and displacement of resident red-headed woodpeckers. Before removal of trees containing cavities, red-headed woodpecker surveys would be completed. To protect nesting birds protected under MBTA, tree removal would occur, if possible, outside of the typical bird breeding season, and surveys for nesting birds would be conducted before any brush clearing activities during the bird breeding season to avoid impacts.

With implementation of proposed protection measures, no significant impacts to biological resources would occur.

3.5.4 Proposed Mitigation

Species-specific protection measures and BMPs will be required during clearing activities because listed species may occur on the properties. These practices include the following avoidance and minimization measures:

- Complete presence or absence survey of abandoned structures for tricolored bat before demolition.
- Conduct tree removal/trimming activities during the winter season (November 1 to March 31) after bat pups have fledged. If clearing activities cannot be accomplished within the winter season, consultation with the local USFWS office and surveys would be conducted before cutting trees in the Brownleigh parcel.
- Conduct nesting bird surveys before any tree or brush clearing activities during the bird breeding season. If active nests are observed, stop-work orders would be put in place and the area around the nest cordoned off until the birds are fully fledged, and nest sites are no longer active.
- Conduct year-round, red-headed woodpecker surveys before removal of trees containing cavities.
- Where feasible, incorporate native species and pollinator-friendly plants into landscaped areas.

3.6 Greenhouse Gas Emissions and Climate Change

Climate change is a global problem, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. GHGs have long atmospheric lifetimes (1,000 to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more carbon dioxide (CO_2) is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration.

Global warming and the associated changes in global climate are predicted to result in negative environmental, economic, and social consequences for the U.S. and the world. Federal, state, and local agencies are preparing climate plans and taking actions to reduce GHG emissions.

3.6.1 Affected Environment

The National Climate Assessment (USGCRP 2018) finds that in the Midwest, extreme heat, heavy downpours, and flooding will affect infrastructure, health, air, and water quality. Major storm events are occurring with increasing frequency and intensity. Missouri has not developed a statewide adaptation plan (Georgetown Law n.d.). Per EPA, most of Missouri has warmed 1/2 to 1 degree Fahrenheit in the last century, and floods are becoming more frequent. From the National Climate Assessment, additional state-specific climate change impacts could include:

- Heavy Precipitation and Flooding: Climate change is likely to increase the frequency of floods in Missouri. Over the last half century, average annual precipitation in most of the Midwest has increased by 5 to 10 percent. But rainfall during the four wettest days of the year has increased about 35 percent, and the amount of water flowing in most streams during the worst flood of the year has increased by more than 20 percent.
- Summer droughts are likely to be more severe: Higher evaporation and lower summer rainfall are likely to reduce river flows.
- Impacts to navigation and riverfront communities: Increased flooding could damage properties and close rivers to navigation. Summer drought could also close rivers to navigation.
- Tornadoes: Research is ongoing to learn whether tornadoes would change frequency in the future.
- Agriculture: Climate change could have both adverse and beneficial effects on farming. Hot weather causes cows to eat less, produce less milk, and grow more slowly; it could threaten their health. Hotter summers are likely to reduce yields of corn. But higher concentrations of atmospheric CO_2 increase crop yields, and that fertilizing effect is likely to offset the harmful effects of heat on soybeans, assuming that adequate water is available. However, on farms without irrigation increasingly severe droughts could cause more crop failures. More severe droughts or floods would also hurt crop yields.
- Human Health: Concerns like heat stroke and dehydration resulting from higher temperatures, exacerbated in vulnerable people with pre-existing health issues. Rising temperatures can also increase the formation of ground-level ozone that can aggravate lung diseases like asthma and lead to premature death. Climate change may also increase the length and severity of the pollen season for allergy sufferers.

Although the airport is in St. Louis County, it is operated by the St. Louis Airport Authority, which is majority controlled by officials from the City of St. Louis. As such, portions of emissions from the airport are included within both the government and community GHG inventories.

In April 2017, the City of St. Louis published their Climate Action and Adaptation Plan (City of St Louis, 2017). This climate planning document builds on existing efforts and takes the City's objectives on climate protection to the next stage. The Climate Action and Adaptation Plan outlines in detail the strategies that will be required to achieve an 80% reduction in City-wide GHG emissions by 2050 and implement adaptation measures to establish and build climate resilience.

The airport is a leader in sustainable practices and is committed to use of alternative fuels to power its fleet vehicles. The Mayor's Sustainability Action Agenda set a goal to expand use of alternative fuels to 85% of the airport's fleet. In the 2017 Climate Action and Adaptation Plan, the airport was reported to power 79% of its fleet with alternative fuels including biodiesel, biofuel, compressed natural gas, electric, propane, and diesel electric. Biodiesel fuel use was the most prominent, powering 41% of airport fleet vehicles (City of St. Louis 2017).

3.6.2 Thresholds of Significance

FAA has not identified specific factors to consider in making a significance determination, and as stated in FAA Order 1050.1F, Exhibit 4-1, FAA has not established a significance threshold for GHGs or climate change.

The most common GHGs emitted from natural processes and human activities include CO_2, methane (CH_4), and nitrous oxide (N_2O). In emissions inventories, GHG emissions are typically reported as metric tons of carbon dioxide equivalent (CO_2e). CO_2e is calculated as the product of the mass emitted of a given GHG and its specific global warming potential. $CH_4$and N_2O have much higher global warming potential than CO_2, but CO_2 is emitted in higher quantities and accounts for the majority of GHG emissions in CO_2e, both from commercial developments and from human activity in general.

3.6.3 Environmental Consequences

3.6.3.1 No Action

Under the No Action Alternative, the construction and demolition activities would not occur. There would be no changes to the existing conditions. Therefore, there would be no impacts from GHG and no impacts from climate change.

3.6.3.2 Proposed Action

3.6.3.2.1 Construction and Demolition GHG Emissions

GHG emissions associated with construction and demolition were estimated using approved emission factors from sources such as EPA's Compilation of Air Pollutant Emission Factors (AP 42) and MOVES3. MOVES3 is an emission modeling system developed to estimate emissions for mobile sources at the national, county, and project level for criteria air pollutants, GHGs, and air toxics. Emission calculations have been conducted to estimate total annual GHG emissions from construction and demolition activities and results are summarized in Table 3-2, and details of the inputs, assumptions, and results are provided in Appendix B.

3.6.3.2.2 Operational GHG Emissions

Operations associated with the Proposed Action will generate GHG emissions. Sources of operational GHG emissions associated with the Proposed Action include the following:

- Sources of direct emissions that are controlled or owned by Boeing (Scope 1 emissions in GHG inventories):
  - Stationary Sources
    - Boilers, heaters
    - Emergency generators
    - Fire pumps
    - Painting facilities
    - Maintenance hangars
    - Fuel storage and dispensing
    - Building heating, ventilation, and air conditioning (HVAC) or refrigeration
  - Mobile Sources
    - Aircraft operations
    - GSE
    - Hush houses
- Source of indirect GHG emissions associated with the project-related purchase of electricity, steam, heat, or cooling (Scope 2 emissions):
  - Electricity usage
- Other sources of emissions that would result indirectly from implementation of the Proposed Project, such as purchased goods and services and waste management, (Scope 3 emissions).

- Increased worker commutes (construction employees and 800 to 1000 "net new" Boeing employees)

Operational emissions were estimated using approved emission factors from sources such as the FAA's AEDT Version 3e and MOVES3. Emission calculations have been conducted to estimate operational emissions of the proposed project for comparison to applicable thresholds of significance. Results are summarized in Table 3-3. Appendix B contains detailed inputs, assumptions, and calculations used to estimate the annual air emissions from the operation of the Proposed Action.

Table 3-3. Carbon Dioxide Equivalent (tons)

Scope	Activity	Year 2024 (CO_2e)	Year 2025 (CO_2e)	Year 2026 (CO_2e)	Year 2027 (CO_2e)	Year 2028 (CO_2e)	Year 2029 (CO_2e)	Year 2030 (CO_2e)	Steady State (CO_2e)
1	Construction Equipment	1,012	1,364	518	-	1448	1,329	-	-
1	Construction Deliveries	11	14	4	-	13	12	-	-
3	Construction Commutes	6,424	8,737	3,404	-	8,038	12	-	-
1	Fugitive Dust	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Aircraft and GSE	-	-	95	284	378	378	378	378
1	Aircraft Testing	-	-	5	16	21	21	21	21
1	Nonroad Equipment	-	-	12	25	37	37	37	37
3	Employee and Delivery Commutes	955	1,408	1,709	2,385	2,744	3,465	3,739	3,739
2	Electricity Usage	9,507	14,326	17,667	25,151	29,483	35,034	40,960	40,960
1	Paint & Assembly	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Boilers & Heaters	-	-	4,559	54,711	54,711	58,986	106,003	106,003
1	Fire Pumps	-	-	-	-	-	22	261	261
1	Standby Generators	-	-	-	-	-	10	119	119

Scope is to identify if it is a direct, indirect utility, or indirect third party source. For example, Aircraft is Scope 1–- direct, employee commutes are Scope 3 – third party.

CO_2e = Carbon dioxide equivalent, calculated using Global Warming Potentials from 40 CFR 98 Table A-1.

- = no activity that year

N/A = source type does not emit GHGs

3.6.4 Proposed Mitigation

The FAA has not identified specific factors to consider in making a significance determination for GHG emissions; therefore, no mitigation measures are required to mitigate the GHGs attributed to the Proposed Action. Although not specific to GHG emissions, BMPs implemented to reduce impacts to air quality would also reduce GHG emissions.

3.7 Historical, Architectural, Archaeological, and Cultural Resources

FAA evaluates direct and indirect impacts from federal actions on historic, architectural, archaeological, and other cultural resources under Section 106 of the *National Historic Preservation Act of 1966* (NHPA) (54 U.S.C. § 300101 et seq.), the principal statute concerning cultural resources. Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties, defined as "any precontact or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP [National Register of Historic Places], which is maintained by the Secretary of the Interior" (36 CFR 800.16), and to consult with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officers, and other parties to develop and evaluate alternatives or modifications to the undertaking where necessary to avoid, minimize, or mitigate adverse effects. The independent federal agency overseeing federal historic preservation and tribal programs, the Advisory Council on Historic Preservation (ACHP), must be afforded a reasonable opportunity to comment on such undertakings subject to Section 106. The ACHP limits its involvement in individual Section 106 reviews to situations that meet the criteria in Appendix A of the regulations at 36 CFR Part 800.

The scale of the undertaking and the extent of FAA involvement define the scope of the Section 106 review, including FAA's obligation to identify historic properties, assess effects, and develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects on historic properties. In this case, FAA's role is limited to approval or disapproval of an ALP depicting the project sponsor's proposal.

Cultural resources may include archaeological resources (any site that contains material remains of past human life or activities) or other places or items that possess cultural importance to individuals or a group.

Properties listed in NRHP or recommended eligible for listing in NRHP are treated the same under Section 106 of NHPA. After cultural resources within the area of potential effects (APE) are identified and evaluated, effects evaluations are completed to determine whether the Proposed Action has no effect, no adverse effect, or an adverse effect on historic properties.

3.7.1 Affected Environment

FAA is obligated under 36 CFR 800.4(b)(1) to make a "reasonable and good faith effort" to identify historic properties potentially affected by the undertaking. Because of the nature of this action involving demolition and replacement of manufacturing, industrial, and airport infrastructure with proposed similar infrastructure of approximately the same footprint, primary impacts of this undertaking are limited to those sites and the FAA focused its identification efforts in those areas.

An APE is defined as the geographic area(s) within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties (36 CFR 800.16(d)). The determination of the APE considers the character of a project area and the potential for resources to be found. For this project, the APE consists of two discontiguous areas within the Northern Tract and Brownleigh parcels where ground-disturbing activities may occur and the surrounding area where foreseeable visual changes may be perceivable. The project footprint, which includes all ground-disturbing activities, will occur within a 75-acre portion of the Northern Tract parcel and 110-acre portion of the Brownleigh parcel. A small buffer was applied to the project footprint to account for the potential for changes within the viewshed. The total APE is 256 acres, including the 117-acre Northern Tract parcel and 139-acre Brownleigh parcel.

The APE does not extend beyond the immediate vicinity of the Proposed Action due to the scale of the proposed facilities, commercial and industrial nature of the existing setting, and separation from residential and sensitive resources by existing visual buffers. Figures 3-1 and 3-2 show the APEs for the Northern Tract and Brownleigh parcels, respectively. The APE was part of the May 2023 SHPO submittal. SHPO's response in June 2023 did not include any comments on the APE.

LEGEND:

- Area of Potential Effects
- Parcel Boundary
- Building 1
- Building 2
- Building 3
- Building 42
- Building 45 (Demo'd)
- Building 48

N

BASE MAP SOURCE:
Esri World Imagery

0 250 500
FEET

St. Louis Expansion, St. Louis County, Missouri

Figure 3-1
Northern Tract

DATE: 7/27/2023

Jacobs

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LEGEND:

- Area of Potential Effects
- Parcel Boundary

N

BASE MAP SOURCE:
Esri World Imagery

0 250 500
FEET

St. Louis Expansion,
St. Louis County, Missouri

Figure 3-2
Brownleigh

DATE: 7/27/2023

Jacobs

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3.7.1.1 Identification of Historic Properties

Secretary of the Interior-qualified staff conducted a literature review of the study area, which is a 1-mile radius of the project area in March 2023. The study area includes a 1-mile radius around the project area in order to identify historic properties and cultural resources surveys within a broader area to give context for the cultural resources within the APE and to give a general overview of cultural resources and the historic context of the project vicinity.

The records review revealed one NRHP-listed property in the Northern Tract parcel, and one archaeological site that intersects with the Brownleigh parcel. An additional 29 archaeological resources and 3 architectural resources were identified within the study area. The records review showed 22 previously reported cultural resource surveys have been identified within the study area, 3 of which have been conducted within the APE. A total of 16 historic properties are identified within the study area that are listed or eligible for listing in NRHP. Of the 16 historic properties, 4 architectural resources and 12 archaeological resources are identified within the study area.

As part of the process to identify historic properties, FAA initiated consultation with Native American tribes in May 2023. FAA asked the tribes about any traditional cultural properties, sacred sites, or places that have historic, religious, or cultural significance in the vicinity and whether they would like to participate in Section 106 consultation. Three of the twelve tribes contacted provided a response (Appendix F): Quapaw Tribe of Indians, Peoria Nation, and Osage Nation. This consultation is ongoing.

3.7.1.1.1 Archaeological Resources

The only archaeological site within the APE is Site 23SL354. Originally reported in 1979, Site 23SL354 is a precontact (prehistoric) site. Site 23SL354 may be associated with Site 23SL31, directly west of the project footprint. Site 23SL354 has not been evaluated for listing on NRHP (Diaz-Granados 1979).

A discrepancy between the recorded location for Site 23SL354 and the mapped location in the MoDNR Geographic Information System (GIS) Archaeology Viewer was identified during the records review. The corrected location is partially coincident with the Brownleigh site and APE, and the exact location of the site is unknown.

Geotechnical borings conducted onsite at the Brownleigh Parcel in May 2023 were monitored by an archaeologist, and no cultural materials were observed.

3.7.1.1.2 Architectural Resources

An architectural survey was completed the week of March 13, 2023. MoDNR, SHPO, Architectural/Historic Inventory Forms were prepared for architectural resources within the APE that are 50 years or older. Within the Brownleigh parcel, no extant architectural resources that require consideration under Section 106 of NRHP were identified, and no inventories were prepared. The architectural resources in the Northern Tract parcel are provided in the following sections.

3.7.1.1.2.1 Curtiss-Wright Aeroplane Factory

The Curtiss-Wright Aeroplane Factory (16000586), referred to as the McDonnell Douglas complex (5250 Banshee Road), is within the Northern Tract parcel and is a previously NRHP-listed historic property. It is significant under Criterion A for military and industry with a period of significance from 1940 to 1946, and Criterion C as the embodiment of a distinctive period in architecture and the representative work of a master architect. The complex was designed by Albert Kahn (1869 to 1942), who is regarded as a pioneer of American modern industrial architecture (Bürklin and Reichardt 2019; Lynch 2020; Historic Detroit n.d.). Of the five buildings in the Northern Tract parcel, only three buildings and two structures were considered contributing resources to the historic property; the administrative building, annex, and factory portions, a parking lot and aeroplane apron.

3.7.1.1.2.2 Building 42

Building 42 is part of the airport property and is privately used as the GoJet maintenance, repair, overhaul (MRO) base and the ATS Jet Center fixed base operator. Built in 1951, Building 42 is a mid-20th-century modern industrial building with similar architectural design elements as the Curtiss-Wright Aeroplane Factory (16000586). The building was constructed outside of the period of significance for the Curtiss-Wright Aeroplane Factory property and does not contribute to that property.

The building retains sufficient historic integrity of association, design, materials, workmanship, location, and feeling with some diminishment in integrity of setting to reflect it architectural significance as a representative example of mid-century industrial design. Therefore, Building 42 is recommended individually eligible for listing in NRHP under Criterion C as an example of mid-20th-century aerospace architecture. The FAA's determination was submitted to SHPO for concurrence in May 2023. SHPO's response, dated June 20, 2023, did not provide comment on the eligibility of Building 42; therefore, the FAA assumes that the SHPO concurs with it being eligible for listing in the NRHP.

3.7.1.1.2.3 Building 48

Building 48, which consists of three structures and is presently vacant, is located on the northwestern corner of the Northern Tract parcel and is part of the airport property. Built by the McDonnell Corporation in 1958 with an addition built in the 1990s, the building lacks discernable architectural style and was principally used for airplane painting and paint storage. The building was built outside of the established period of significance for the NRHP-listed historic property and does not contribute to the Curtiss-Wright Aeroplane Factory (16000586). Therefore, Building 48 is recommended not eligible for listing in NRHP under any criteria. The FAA's determination was submitted to SHPO for concurrence in May 2023. SHPO's response, dated June 20, 2023, did not provide comment on the eligibility of Building 48; therefore, the FAA assumes that the SHPO concurs with it not being eligible for listing in the NRHP. The Agency's responsibilities for this property under Section 106 are fulfilled and it will not be considered further (36 CFR 800.4(d)(1)(i)).

3.7.2 Thresholds of Significance

FAA Order 1050.1F, Exhibit 4-1, indicates that FAA has not established a significance threshold for historical, architectural, and cultural resources. A factor to consider is whether the action would result in a finding of adverse effect under Section 106; however, an adverse effect finding is not automatically a significant impact triggering preparation of an Environmental Impact Statement.

Effects on cultural resources are evaluated by assessing the impacts that the Proposed Action would have on the characteristics that make the property eligible for listing in NRHP and on the property's integrity. Types of potential adverse effects include physical impacts such as the destruction of all or part of a resource; actions that adversely affect the historic setting of a resource, even if built resources are not physically affected; noise impacts evaluated according to accepted professional standards; changes to significant viewsheds; and cumulative effects or those that may occur later in time. If the project will have an adverse effect on historic properties, measures could be taken to avoid, minimize, or mitigate that effect. If adverse effects are unavoidable, mitigation may be needed to address the adverse effects to historic properties.

3.7.3 Environmental Consequences

3.7.3.1 No Action

No demolition, new construction, or development activities would take place under the No Action Alternative. Therefore, no impacts on historic, architectural, archaeological, and cultural resources would be anticipated.

3.7.3.2 Proposed Action

The Proposed Action would demolish all extant buildings within the Northern Tract parcel, including the NRHP-listed Curtiss-Wright Aeroplane Factory and associated buildings and structures, as well as NRHP-eligible Building 42. In addition, archaeological Site 23SL354 is recorded within the Brownleigh parcel APE and may be affected by ground-disturbing activities. Because the exact location of archaeological Site 23SL354 is ambiguous, it is not clear if the Proposed Action would affect this archaeological site.

Based on the proposed demolition of the Curtiss-Wright Aeroplane Factory and Building 42, the Proposed Action would have an adverse effect on historic properties within the APE. In accordance with Section 106 of NHPA, consultation with the Missouri SHPO is required to discuss the recommended eligibility determinations for historic properties and recommended effect finding. The lead Federal Agency, FAA, initiated Section 106 consultation with SHPO and area tribes in May 2023. SHPO concurred with the adverse effect on historic properties finding in June 2023. With SHPO concurrence of adverse effects, Section 106 requires that the FAA notify the ACHP and invite them to participate in consultation to resolve adverse effects. In their response, dated July 26, 2023, the ACHP declined the invitation to consult. The ACHP requested the FAA to file the final Section 106 agreement document (Agreement), developed in consultation with the Missouri SHPO and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the Agreement and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the NHPA. Because of the anticipated adverse effect from the project, consultation under Section 106 will continue with the SHPO to resolve the adverse effect pursuant to 36 CFR 800.6, and an agreement document will be prepared under 40 CFR 800.14(b) to codify the measure to address the adverse effect.

3.7.4 Proposed Mitigation

The FAA, St. Louis Airport Authority (STLAA), SHPO, the Quapaw Nation, and the Osage Nation are engaged in the Section 106 consultation process for this project. Because there is an adverse effect on historic properties, the adverse effect will be resolved through execution of a Memorandum of Agreement (MOA).

Because the exact location of archaeological Site 23SL354 on the Brownleigh parcel is uncertain, archaeological monitoring of ground-disturbing activities near the recorded site boundary is recommended. This recommendation is pending consultation with SHPO and tribes. Archaeological monitoring is not requested at the Northern Tract parcel; however, inadvertent discovery clauses will be included in construction contracts for both Brownleigh and the Northern Tract parcels to stop work in the event human remains or cultural objects are encountered during construction.

Although the Proposed Action will result in an adverse effect, mitigation measures in the MOA are intended to resolve adverse effects. Through implementation of these measures, impacts will be mitigated below the level of significance, and, therefore, the Proposed Action would not result in a significant impact to this category of resources under NEPA.

3.8 Department of Transportation Act, Section 4(f)

Section 4(f) of the *U.S. Department of Transportation Act of 1966* protects significant publicly owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. Section 4(f) of the *Department of Transportation Act of 1966* is currently codified as 49 U.S.C. Section 303. This EA will refer to 49 U.S.C. Section 303 as Section 4(f). Section 4(f) provides that the Secretary of Transportation may approve a transportation program or project requiring the use of publicly owned land off a public park, recreation area, or wildlife or waterfowl refuge of national, state, or local significance, or land of a historic site of national, state, or local significance, only if there is no feasible and prudent alternative to the using that land and the program or project includes all possible planning to minimize harm resulting from the use. Appendix D includes the full Section 4(f) statement.

Parks may also be protected under Section 6(f) of the Land and Water Conservation Fund (LWCF) Act (16 U.S.C., Section 4601 et. seq.); 36 CFR Part 59. Section 6(f) provides funds for buying or developing public use recreational lands through grants to local and state governments. Section 6(f)(3) prevents conversion of lands purchased or developed with LWCF funds to nonrecreation uses, unless the Secretary of the Department of the Interior, through the National Park Service, approves the conversion.

3.8.1 Affected Environment

There are no publicly owned parks, recreational areas, or wildlife and waterfowl refuges on the Northern Tract or Brownleigh parcels. Additionally, there are no LWCF Section 6(f) resources on these parcels. Both parcels have historic resources.

FAA has determined and the State of Missouri SHPO has concurred that the Northern Tract includes buildings that are listed or eligible for listing on the National Register of Historic Places (NRHP) and, therefore, would be considered Section 4(f) resources. These buildings are as follows: the NRHP-listed, Curtiss-Wright Aeroplane Factory, also referred to as the McDonnell Douglas complex, and its contributing resources that include Buildings 1, 2, and 3 (administrative building, manufacturing/factory annex, and engineering annex), a parking lot, and an aeroplane apron; and the NRHP-eligible Building 42, which is currently in use as the GoJet MRO base and the ATS Jet Center fixed base operator.

The Brownleigh parcel includes archaeological Site 23SL354. This site was discovered in 1979 and has not been evaluated for NRHP eligibility. The location of the site is ambiguous and may have previously been mapped incorrectly. Section 4(f) applies to archaeological sites that are on or eligible for the NRHP and that warrant preservation in place, including those sites discovered during construction. If the site were determined to be eligible in a future evaluation and preservation in place was deemed warranted, a Section 4(f) approval would be required at that time.

Please refer to Section 3.7 of this EA for a detailed description of the NRHP-eligible and NRHP-listed resources.

3.8.2 Thresholds of Significance

As stated in Exhibit 4-1 of FAA Order 1050.1F and Paragraph 5.3.7 of the FAA Order 1050.1F Desk Reference (FAA 2020), a significant impact would occur when the action involves more than a minimal physical use of a Section 4(f) resource or a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished. A significant impact under NEPA would not occur if mitigation measures eliminate or reduce the effects of a use less than the threshold of significance.

3.8.3 Environmental Consequences

3.8.3.1 No Action

No new construction or development activities are proposed under the No Action Alternative. Therefore, no physical or constructive use of any Section 4(f) resources would occur, and no impacts to Section 6(f) resources would be anticipated.

3.8.3.2 Proposed Action

3.8.3.2.1 Physical Use

The Proposed Action would not include the conversion of lands purchased or developed using LWCF Act funds to nonrecreational uses.

The Proposed Action would result in a physical use of a Section 4(f) resource with the total demolition of the NRHP-listed, Curtiss-Wright Aeroplane Factory, contributing buildings, and associated facilities and NRHP-eligible Building 42. All of the existing structures on the Northern Tract would be demolished to allow Boeing to construct their Assembly and Testing Campus. The demolition of these sites would constitute an adverse effect to eligible or listed historic resources under Section 106 and a physical use of Section 4(f) resources. Before approving an action, Section 4(f) requires a finding that there is no feasible or prudent alternative that would avoid the use of the Section 4(f) properties and that the project includes all possible planning to minimize harm resulting from the use. As defined in 23 CFR 774.17, "all possible planning" means that all reasonable measures to minimize harm or mitigate adverse impacts must be included in the project[1]. With regard to historic sites, this means the measures as agreed by the FAA and SHPO in accordance with the consultation process under the regulations implementing Section 106 of the NHPA. Because the Proposed Action would involve a use, a separate Section 4(f) evaluation has been prepared. This evaluation is included in the draft Section 4(f) Statement in Appendix D of this EA.

There are no alternatives that address the purpose and need of the project and are both prudent and feasible. The FAA has consulted with STLAA and the SHPO, under Section 106, to develop an MOA. The MOA outlines the mitigation measures needed to resolve adverse effects of the Proposed Action on the National Register-listed/eligible historic properties. The mitigation measures are a requirement of the Proposed Action and would address the Section 4(f) requirement that the project include all possible planning to minimize harm when there is a use of a Section 4(f) resource. The FAA is coordinating with the U.S. Department of Interior for concurrence with the FAA's determination.

The MOA outlines the mitigation measures needed to resolve the adverse effects under Section 106 of the Proposed Action. Execution of the MOA and implementation of its terms also would fulfill the Section 4(f) requirement that the project include all possible planning to minimize harm and reduce the effects of the use of the Section 4(f) resource below the threshold of significance. Execution of the MOA and implementation of its terms is a requirement of the Proposed Action. Therefore, the Proposed Action will not result in a significant impact under NEPA.

3.8.3.2.2 Constructive Use

The FAA relies on land use compatibility guidelines in 14 CFR Part 150 ("Part 150") to determine whether there is constructive use under Section 4(f) where the land uses specified in Part 150 are relevant to the value, significance, and enjoyment of the 4(f) resources in question. These guidelines are used to determine noise impacts by relating land use type to certain airport noise levels. The Proposed Action would not result in new incompatible land uses due to noise associated with Boeing aircraft testing and assembly activities, as described in Section 3.11 Noise and Noise-compatible Land Use.

A review of the impacts for other resource areas including air quality, water resources, light emissions and visual impacts, and socioeconomic impacts, was conducted to determine if there would be a substantial impairment to Section 4(f) resources as a result of these resource areas. As discussed in each of the applicable sections in this EA, the Proposed Action would not result in significant impacts to any of these resource areas. Therefore, a constructive use of Section 4(f) resources would not occur.

3.8.4 Proposed Mitigation

The FAA, SHPO, STLAA, and Boeing are currently developing an MOA that will outline mitigation measures to resolve the adverse effects as a result of the demolition of the properties. This agreement will be finalized and agreed upon by all parties before the NEPA process being completed. Potential mitigation measures under consideration are included in Section 3.7.

[1] These regulations, issued by the Federal Highway Administration, Federal Transit Administration, and Federal Railroad Administration are not binding on the FAA but may be used as guidance to the extent relevant.

3.9 Hazardous Materials, Solid Waste, and Pollution Prevention

This section describes potential hazardous materials used or stored at the considered locations, waste streams that would be generated by the project, and methods used to avoid, prevent, or reduce pollutant discharges or emissions.

Hazardous material is defined in 49 CFR 171.8 as a "substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has been designated as hazardous under U.S.C. Title 49 Section 5103." For purposes of this EA, hazardous material refers to any item or agent (biological, chemical, or physical) that has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors.

Solid waste is defined by the implementing regulations of the *Resource Conservation and Recovery Act* (RCRA) generally as any discarded material that meets specific regulatory requirements and can include such items as refuse and scrap metal, spent materials, chemical byproducts, and sludge from industrial and municipal wastewater and water treatment plants (40 CFR 261.2).

The *Pollution Prevention Act* (42 U.S.C. 13101-13109) requires pollution prevention and source reduction control so wastes have less effect on the environment while in use and after disposal. The *Pollution Prevention Act* describes methods used to avoid, prevent, or reduce pollutant discharges or emissions.

The Boeing St. Louis region has an environmental health and safety department and is International Standards Organization (ISO) 14001 certified. ISO 14001 is an internationally agreed standard that sets out the requirements for an environmental management system, with compliance obligations being a mandatory requirement of the standard. ISO14001 stipulates that an environmental management system must contain five main requirements: Environmental Policy, Planning, Implementation, Checking and Corrective Action, and Management Review.

3.9.1 Affected Environment

3.9.1.1 Hazardous Materials

3.9.1.1.1 Northern Tract Parcel

Prior investigations concluded that soil and groundwater on the Northern Tract parcel are contaminated with VOCs, polyacrylic aromatic hydrocarbons, polychlorinated biphenyls (PCBs), metals, and total petroleum hydrocarbons (TPHs) (Stantec 2023a).

The Northern Tract parcel is part of the RCRA Site "Tract 1", which encompasses approximately 210 acres bounded by McDonnell Boulevard, Lindberg Boulevard, and the airport. Boeing maintains a Missouri Hazardous Waste Management Facility Part I Permit Number MOD000818963 (MoDNR 2017) for post-closure care of releases to the environment that occurred on the property. The permit requires continued groundwater monitoring of the site and additional requirements for any construction, such as area-specific health and safety plans (HASPs).

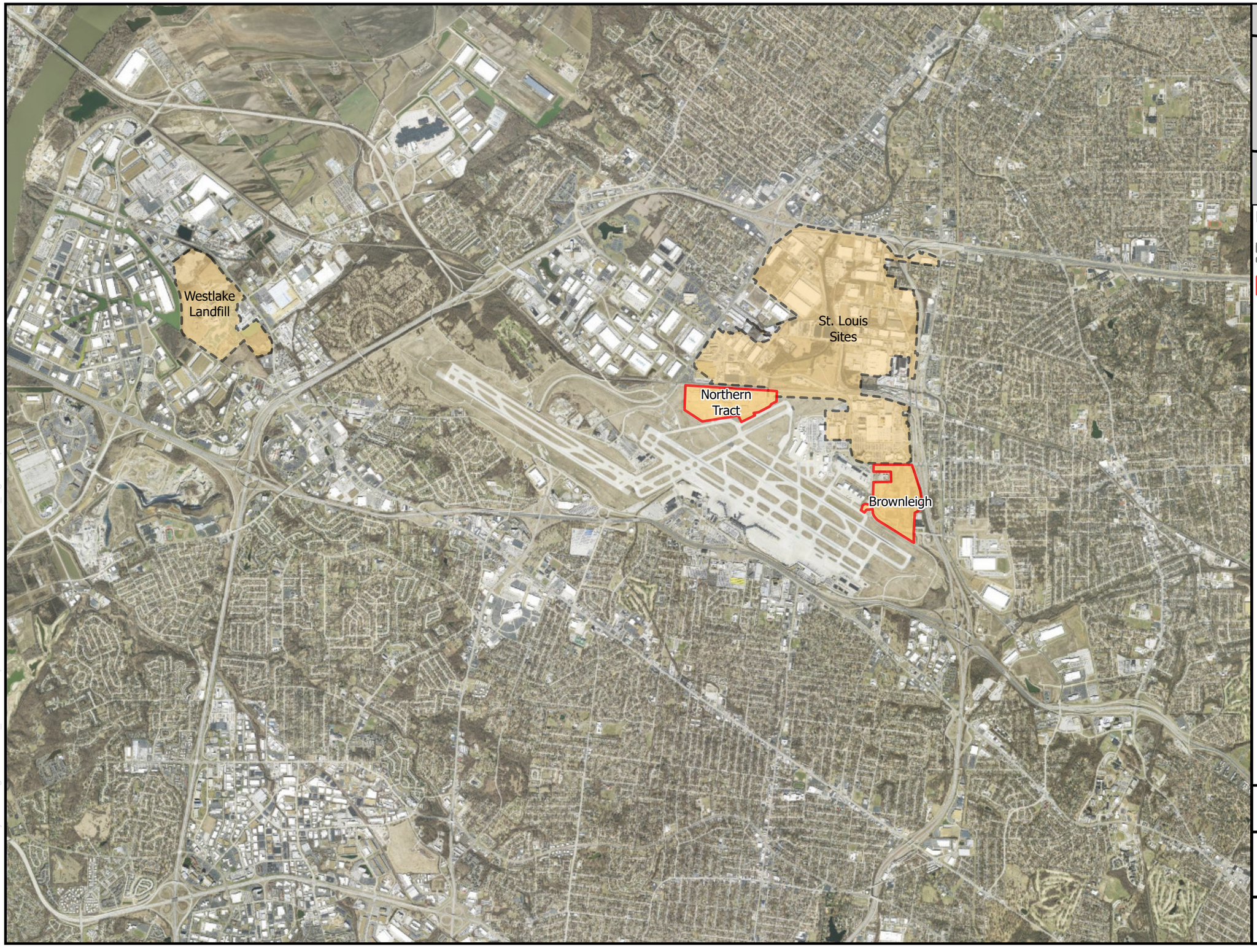
Boeing entered into an Environmental Covenant agreement between the City of St. Louis and MoDNR for the Northern Tract parcel in 2020, which is used to mitigate potentially unacceptable future exposures to residual contamination at the site. The Environmental Covenant includes a Soil Management Plan that limits contact with groundwater and soils during soil disturbance activities and requires area-specific HASPs before subsurface excavations. There are also area-specific construction restrictions for any enclosed building intended for habitation (MoDNR, Boeing, and City of St. Louis 2020). There are 13 active groundwater monitoring wells and 26 plugged monitoring wells on the Northern Tract parcel.

A Phase II ESA was conducted at the Northern Tract from June to July 2023. Soil, groundwater, and soil vapor samples were collected across the site and analyzed for various VOCs, SVOCs, TPH, and metals.

Samples were compared against Missouri Non-Residential Use Screening Levels. Arsenic was detected in several soil samples, with one sample located in the north-central portion of the site, greater than the screening level. Groundwater samples from two monitoring wells in the eastern portion of the site contained SVOCs at concentrations higher than the screening levels, with one of the wells also having lead greater than the screening level. Lastly, soil vapor detections did not exceed Missouri Non-Residential Use Screening Levels.

Buildings 1 and 2 (Figure 2-1) are known to the have asbestos and suspected to have lead-based paint. These buildings have not been occupied in approximately 20 years.

Two Superfund sites are located near the St. Louis Lambert International Airport (Figure 3-3): St. Louis Airport, Hazelwood Interim Storage, and Futura Coatings Company (St. Louis Sites) and Westlake Landfill. The St. Louis Sites consists of two locations and multiple properties, including the St. Louis Airport Site (SLAPS). SLAPS is located immediately north of the Northern Tract parcel and approximately 1.4 miles northwest of the Brownleigh parcel. Remediation at SLAPS was completed in 2007 (USACE 2020). The 200-acre Westlake Landfill in Bridgeton, which is in the Remedial Design and Remedial Investigation phases, is located approximately 5 miles northwest of the Northern Tract parcel and approximately 7 miles northwest of the Brownleigh parcel.



LEGEND:

- Superfund Site Boundary
- Detailed Study Area

N

BASE MAP SOURCE:
USGS USA Topo Map

0 1,500 3,000 4,500 6,000 7,500
FEET

St. Louis Expansion,
St. Louis County, Missouri

FIGURE 3-3
SUPERFUND SITE BOUNDARY

DATE: 8/17/2023

Jacobs

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3.9.1.1.2 Brownleigh Parcel

A Phase II ESA was conducted in May 2023. The Phase II included the collection of soil vapor samples for VOC analysis and soil and groundwater samples for VOCs, semivolatile organic compounds (SVOCs), TPHs, and metals analysis, asbestos and PCBs in shallow and mid-depth soil samples only, and per- and polyfluoroalkyl substances (PFAS) in select groundwater samples. Initial laboratory results indicate the presence of VOCs, SVOCs, TPH, and metals in multiple groundwater and soil samples, PFAS in one groundwater sample, PCBs in one soil sample, and VOCs in multiple soil vapor samples but not at concentrations that exceed their Missouri non-residential screening levels. Asbestos was detected in two soil samples.

3.9.1.2 Solid Waste

Champ Landfill in Maryland Heights, Missouri, is the only solid waste landfill permitted in St. Louis County (Champ Landfill n.d.) and serves the disposal needs of the western St. Louis County and St. Charles County. Champ Landfill accepts household waste, nonhazardous commercial waste, agricultural waste, and construction debris. The Champ Landfill permitted footprint is 254 acres on the 523-acre site with a 129-million-cubic-yard capacity. The landfill has capacity to serve customers for decades (Champ Landfill n.d.).

Rock Hill Quarries Company Demolition Landfill in St. Louis, Missouri, is the only permitted demolition landfill in St. Louis County accepting waste debris from construction and demolition activities.

3.9.1.3 Pollution Prevention

The Northern Tract and the Brownleigh parcels are located within the Industrial Stormwater Pollution Prevention Plan (SWPPP) boundary of the airport's National Pollutant Discharge Elimination System (NPDES) Site-specific Missouri State Operating Permit MO-0111210. The SWPPP requires routine monitoring and reporting of stormwater discharges (MoDNR Missouri Clean Water Commission 2022).

3.9.2 Thresholds of Significance

FAA Order 1050.1F, Exhibit 4-1, indicates that FAA has not established a significance threshold for this resource. However, FAA Order 1050.1F does identify the following factors that may be applicable to this category and, depending on intensity, could indicate a significant impact:

- Violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management.
- Involve a contaminated site.
- Produce an appreciably different quantity or type of hazardous waste.
- Generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would exceed local capacity.
- Adversely affect human health and the environment.

3.9.3 Environmental Consequences

3.9.3.1 No Action

Under the No Action Alternative, the project sites would remain in their current condition; therefore, no change to the use, generation, or disturbance of hazardous materials, solid waste, or pollution prevention would be expected.

3.9.3.2 Proposed Action

3.9.3.2.1 Hazardous Materials

The Proposed Action would result in short-term negligible adverse impacts related to hazardous materials and petroleum products from construction activities. Construction would require the use of hazardous materials such as gasoline, oils, coolant, and lubricants commonly used by construction equipment, paints, welding gases, solvents, preservatives, and sealants. Equipment servicing and repair activities could temporarily generate oily and hazardous wastes, such as spent solvents, residual fuels, used oils, used batteries, antifreeze, and filters. Construction activities would be conducted consistent with hazardous waste and pollution use and storage regulations, with guidelines specified in an SWPPP.

There is potential for construction to disturb existing soil and groundwater contamination on the Northern Tract site. The basement of the Curtiss-Wright building would be removed and filled. Although none of the buildings on the Northern Tract would be designed to have basements, site preparation would require cut and fill to construct the buildings higher than the base flood elevation and account for building foundations. Any contaminated soil not reused onsite under the terms of the Environmental Covenant agreement would be hauled away by a licensed and trained disposal service, such as Clean Harbors or Heritage Environmental Services. Additionally, the Environmental Covenant agreement requires there to be ground cover on the Northern Tract, which could include cover such as landscaping, asphalt, or concrete. There is also potential for the Proposed Action to disturb hazardous materials that could be present on the Brownleigh parcel.

BMPs documented in an SWPPP and/or a project-specific site construction safety plan would be followed to avoid significant risks or health hazards associated with hazardous materials and hazardous wastes. A variety of environmental inspections would be performed by staff or contractors, such as stormwater pollution prevention, hazardous waste management, spill prevention and counter measures and control, and air pollution audits. With adherence to all requirements in the Missouri Hazardous Waste Management Facility Part I Permit Number MOD000818963 (MoDNR 2017) and the Environmental Covenant agreement (MoDNR, Boeing, and City of St. Louis 2020) and implementation of BMPs and inspections, construction, and demolition activities would not be expected to release contamination to neighboring properties or to the environment.

A hazardous materials survey would be conducted before demolition to identify the exact types and quantities of hazardous building materials in the buildings on the Northern Tract. Regulated structures would be inspected by a Missouri-certified asbestos inspector. The construction contract would require the contractor to handle disposal of all hazardous materials in accordance with applicable federal, state, and local regulations and requirements. In accordance with St. Louis County Air Pollution Control Code Section 612.513 and 40 CFR Subpart M 61.145, a registered asbestos abatement contractor would remove any asbestos-containing material and properly dispose of it in either a state-permitted sanitary landfill (friable and Category II nonfriable asbestos) or a state-permitted demolition landfill (Category I nonfriable asbestos). Lead-safe work practices would be implemented to minimize lead-based paint dust and debris generated during demolition activities. These practices include containing dust inside the work area, using dust-minimizing work methods (for example, wetting surfaces to control the spread of leaded dust into the air), and conducting careful cleanup during the demolition. With adherence to applicable regulations and requirements and implementation of BMPs, no significant adverse impacts from demolition of hazardous building materials would be expected.

The Phase 2 paint facility would be located within an area of the Northern Tract parcel that requires an area-specific HASP for construction and an evaluation for vapor intrusion from volatile chemicals of concern. A vapor intrusion mitigation system would be built to prevent intrusion of chemical vapors from existing contaminated groundwater and soil into the Phase 2 paint facility in the Northern Tract parcel. During construction at the Northern Tract parcel, all requirements in the Missouri Hazardous Waste Management Facility Part I Permit Number MOD000818963 (MoDNR 2017) and the Environmental Covenant agreement (MoDNR, Boeing, and City of St. Louis 2020) would be adhered to, and, if necessary,

mitigation measures would be taken to ensure the health and safety of construction workers and Boeing facility workers.

If existing active or plugged monitoring wells are determined to be within the construction footprint on either parcel, these wells would be relocated or abandoned in coordination with MoDNR. If any previously unknown contaminants are discovered during construction, MoDNR will be informed and work will proceed following requirements established in the Environmental Covenant (MoDNR, Boeing, and City of St. Louis 2020) and Agency-approved Soil Management Plan.

Operations at the new facilities would require the use of hazardous materials and generation of hazardous waste. The Brownleigh parcel would have a new RCRA Large Quantity Generator (LQG) status. LQGs generate 1,000 kilograms per month or more of hazardous waste or more than 1 kilogram per month of acutely hazardous waste and are required to obtain an EPA Identification (ID) number. All Boeing employees that handle hazardous materials would receive training on hazardous waste management and spill response. The Northern Tract parcel would either be a new LQG or may be incorporated into the current LQG EPA ID number in conjunction with facilities adjacent to the Northern Tract parcel. Hazardous wastewater generated in the aircraft assembly booths would be stored in a 5,000-gallon tank with aboveground containment and removed by a tank-truck, pick-up service (Clean Harbors or Heritage Environmental Services) on a regular schedule. Washdown of aircraft would require collection of the water so that it can be properly processed to remove any hazardous chemicals or elements before entering the sanitary sewer system. Garage or maintenance trench drains and associated waste and vent piping would be routed out of the building to an oil/water separator before connection to the sanitary sewer system. Hazardous materials, such as cleaners, lubricants, propellants, and stencil ink, would be stored in the appropriate storage cabinets within designated areas. Spill containment piping would be provided for areas where chemical, solvents, or paints are stored or mixed. In the event of a fire, sprinkler water and firefighting foam would be collected in trenches that are routed to a sump and into an exterior below-grade containment tank.

Boeing would comply with federal, state, and local laws that control the use, generation, disposal, and monitoring of hazardous materials and would obtain and comply with applicable permits. Therefore, no significant impacts to hazardous materials from operation of the Proposed Action would be expected.

3.9.3.2.2 Solid Waste

Under the Proposed Action, there would be an increase in construction and demolition debris. Solid waste generated from the proposed construction and demolition activities would consist of typical building materials, such as solid pieces of concrete, metal, glass, and lumber. Contractors would be required to recycle construction and demolition debris to the extent practicable, thereby diverting if from landfills. Materials with possible recycling potential include glass, plastics, asphalt, concrete, metal, carpeting, and gypsum wallboard and lumber. Solid waste generated during construction, demolition, and operation of the Proposed Action would be disposed of at local, permitted landfills and would not exceed landfill capacity in St. Louis County. Therefore, impacts to solid waste would be less than significant.

3.9.3.2.3 Pollution Prevention

A Construction SWPPP and a Land Disturbance Permit from MoDNR would be required for construction of the Proposed Action. BMPs would be implemented to avoid or minimize accidental spills or releases and so that any spills or releases do not result in contamination. With adherence to all requirements in the Missouri Hazardous Waste Management Facility Part I Permit Number MOD000818963 (MoDNR 2017), the Environmental Covenant agreement (MoDNR, Boeing, and City of St. Louis 2020), and implementation of BMPs and inspections, construction and demolition activities would not be expected to release contamination to neighboring properties or to the environment.

3.9.4 Proposed Mitigation

- Adhere to all federal, state, and local laws and regulations that control the use, generation, disposal, and monitoring of hazardous materials and comply with applicable permits.
- Adhere to all requirements in the Missouri Hazardous Waste Management Facility Part I Permit Number MOD000818963 (MoDNR 2017) and the Environmental Covenant agreement (MoDNR, Boeing, and City of St. Louis 2020).
- A vapor intrusion mitigation system would be built to prevent intrusion of chemical vapors from existing contaminated groundwater and soil into the Phase 2 paint facility in the Northern Tract parcel.
- Implementation of SWPPP, construction site safety plans, and BMPs would minimizes potential impacts associated with construction and operation associated with the Proposed Action.

3.10 Natural Resources and Energy Supply

This section describes the consumption of natural resources (such as water, asphalt, aggregate, wood) and the use of energy supplies (such as coal for electricity, natural gas for heating, and fuel for aircraft or other ground vehicles) that would result from construction and operation of the Proposed Action or alternatives.

3.10.1 Affected Environment

Electrical service is provided to the airport by Ameren Missouri, which is the state's largest electric utility and has a generating capacity of approximately 10,000 megawatts (Ameren Missouri 2023). Spire, Inc. supplies natural gas. Spire Inc.'s St. Louis Pipeline provides an abundant and reliable supply of natural gas to the St. Louis area (Spire Inc. n.d.).

Missouri American Water supplies potable water. In St. Louis County, approximately 80% of the water supply comes from the Missouri River and approximately 20% comes from the Meramec River. Both rivers have a plentiful supply of water (Missouri American Water 2022). Wastewater is collected and routed to treatment plants operated by Metropolitan St. Louis Sewer District, the fourth largest sewer system in the U.S. Metropolitan St. Louis Sewer District operates seven wastewater treatment facilities that process an average of 350 million gallons of sewage every day (Metropolitan St. Louis Sewer District n.d).

The airport has a newly constructed (2019) bulk fuel storage facility, which receives liquid petroleum products from the St. Louis Pipeline (St. Louis Pipeline Operating Co., LLC)(Spire Inc. n.d.). The bulk fuel storage facility is located within the northwestern portion of the Brownleigh parcel.

No scarce or unusual materials would be used for construction of the new facilities.

3.10.2 Thresholds of Significance

FAA Order 1050.1F, Exhibit 4-1, shows that FAA has not established a significance threshold for this impact category. However, a factor to consider is whether the action would have the potential to cause demand to exceed available or future supplies of these resources.

3.10.3 Environmental Consequences

3.10.3.1 No Action Alternative

No new construction or development activities are proposed under the No Action Alternative. Therefore, there would be no increase in demand for natural resources and energy from this alternative. Electricity, petroleum, natural gas, water, and wastewater services would continue to be used at existing facilities at the airport.

3.10.3.2 Proposed Action

Under the Proposed Action, there would be a short-term increase in demand of natural resources (construction materials and water) and energy supplies (vehicle or equipment fuel and electricity) during the construction phase. There would be a long-term increase in demand of energy supplies (electricity, natural gas, gasoline, and jet fuel) associated with operation of the new facilities and aircraft test flights. The new facilities would also require new water and wastewater utility lines. Project engineers have coordinated with utility providers regarding supply infrastructure, and energy supply, water supply, and wastewater treatment capacity are sufficient to accommodate the increased demand resulting from the new facilities. Sustainable design would be incorporated to the maximum extent feasible with a target of achieving U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) New Construction Silver Certification.

The Proposed Action would not cause demand to exceed available or future supplies of natural resources and energy; therefore, impacts would be less than significant.

3.11 Noise and Noise-compatible Land Use

An assessment must be made to determine the aircraft noise impact of a proposed airport action. This assessment compares the present noise impact on the environment with that of the proposed change for the year of anticipated project implementation and 5 to 10 years after implementation in accordance with FAA Order 1050.1F guidance. For aviation noise analyses, FAA has determined that the cumulative noise energy exposure of individuals to noise resulting from aviation activities must be established in terms of day night average sound level (DNL), FAA's primary noise metric. FAA uses the 14 CFR 150, Airport Noise Compatibility Planning, land use compatibility guidelines to determine compatibility with most land uses. The DNL 65 decibels (dB) is the noise level where noise-sensitive land uses (such as residences, churches, schools, libraries, and nursing homes) become noncompatible land uses. All land uses are generally determined to be compatible with airport noise less than DNL 65 dB.

3.11.1 Affected Environment

The airport is an active commercial airport. It is the primary commercial airport serving the Greater Metropolitan St. Louis Region and the busiest airport in the State of Missouri. The airport has four runways.

The Airport Noise Compatibility Program addresses ways to potentially reduce current and future noise levels on communities surrounding the airport. The program has three focus areas: noise abatement, land use planning, and program management. Noise abatement measures include approved departure routes of aircraft and time restrictions on various aircraft operations and movements. Land use planning includes the airport's efforts to work with local jurisdictions to ensure optimal development can occur that is compatible with airport and aircraft operations. Program management measures include the airport's Noise and Operations Monitoring System and outreach programs with area communities.

The latest Part 150 Noise Compatibility Study Update was prepared in 2010 and documented existing and projected noise levels around the airport. As of 2010, all eligible land uses in the DNL 65+ dB have been mitigated or were offered and declined mitigation from the existing noise mitigation programs.

According to the Executive Summary of 2010 Part 150 Noise Compatibility Study, there were 107 housing units in the DNL 65 to 70 dB noise exposure contour, as well as 3 churches. There were no schools, libraries, hospitals, or nursing homes. Of the 107 housing units, 17 participated in the Sound Insulation Program, 3 participated in Limited Avigation Easement Program.

3.11.2 Thresholds of Significance

According to FAA Order 1050.1F, Exhibit 4-1, a significant noise impact would occur if the analysis shows that the Proposed Action would result in noise-sensitive areas experiencing an increase in noise of DNL

1.5 dB or more at or greater than DNL 65 dB noise exposure level, or that will be exposed at or greater than the DNL 65 dB level due to a DNL 1.5 dB or greater increase when compared with the No Action Alternative for the same timeframe.

The Area Equivalent Method (AEM) is a screening procedure used to simplify the assessment step in determining the need for more detailed noise modeling using AEDT. AEM is a mathematical procedure that provides an estimated noise contour area of a specific airport given the types of aircraft and the number of operations for each aircraft. The noise contour area is a measure of the size of the landmass enclosed within a level of noise as produced by a given set of aircraft operations. AEM produces noise contour areas (in square miles) for the DNL 65 dB noise level, and the purpose of AEM is to screen for significant impact within the DNL 65 dB contour area. AEM is used to develop insight into the potential increase or decrease of noise resulting from a change in aircraft operations.

A 17% increase indicates that the Proposed Action could result in a DNL 1.5 dB or greater increase at a noise-sensitive area and that further analysis is required. Conversely, if the screening process shows less than a 17% increase, it may be concluded that there are no significant impacts on a noise-sensitive area. If the percentage difference from the change is less than 17%, no further study is necessary.

3.11.3 Environmental Consequences

3.11.3.1 No Action

No new construction or development activities are proposed under the No Action Alternative, and the No Action Alternative would not involve any major changes to the existing conditions and aircraft traffic. No proposed changes would be implemented. Noise would remain at existing levels, and no impacts on noise-sensitive receptors would be anticipated.

3.11.3.2 Proposed Action

3.11.3.2.1 Aircraft Traffic

One AEM model was prepared for the year of the project implementation, and one model was prepared for 5 years after implementation, assuming all other aircraft traffic was equal. Airport-wide aircraft traffic information was derived from the 2022 L3Harris Noise and Operations Monitoring System data provided by the airport. Annual traffic was sorted by equipment type and time of the day. Traffic information was then divided by 365 days to obtain the average daily operations per equipment type for both daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.). This information was then included in the AEM models.

For the 12 months preceding April 2023, Boeing traffic averaged 2.1 sorties a day. On average, a sortie includes one takeoff and two landings (one traffic pattern and one landing). For AEM analysis only, it was assumed this was equivalent to 4.2 landing takeoffs (LTOs). Table 3-4 summarizes the daily LTOs used for AEM modeling for the Boeing traffic. Boeing anticipates a reduction in the existing F-15 operations due to client programs ending. The new program will compensate the reduction in F-15 operations. Total yearly operations for the new program should be slightly lower than the basecase scenario. However, a slight increase was planned for AEM modeling purposes as a conservative approach. The F18 program is set to terminate by end of year 2025. The F18 operations have been removed in the project +5 year scenario. Other programs are anticipated to ramp up in the future starting in 2026, including TX and T7 programs. For AEM modeling, the T-38A has been used to model these programs.

Traffic patterns will be similar to existing programs. All flight testing will be conducted between dawn and dusk; no nighttime flight testing is anticipated.

Table 3-4. Boeing's St. Louis Lambert International Airport Landing Takeoffs

Daily LTO	F15	F18	T-38A (to model TX and T7 programs)	Total
Basecase	2.1	1.7	0.4	4.2 LTOs, 2.1 sorties
Project Implementation	2.5[a]	1.7	0.4	4.6 LTOs, 2.3 sorties
Project + 5 Years	2.5[a]	0	1.6	4.1 LTOs, 2.05 sorties

[a] Even though traffic is likely to be lower due to schedule and ending of various Boeing programs, a conservative approach was used and a slight increase in the F15 operations was planned.

Table 3-5 summarizes AEM results. The screening process for the Proposed Action shows less than a 17% increase, which indicated there are no significant impacts on a noise-sensitive area and no further study is necessary.

Table 3-5. Area Equivalent Method Results

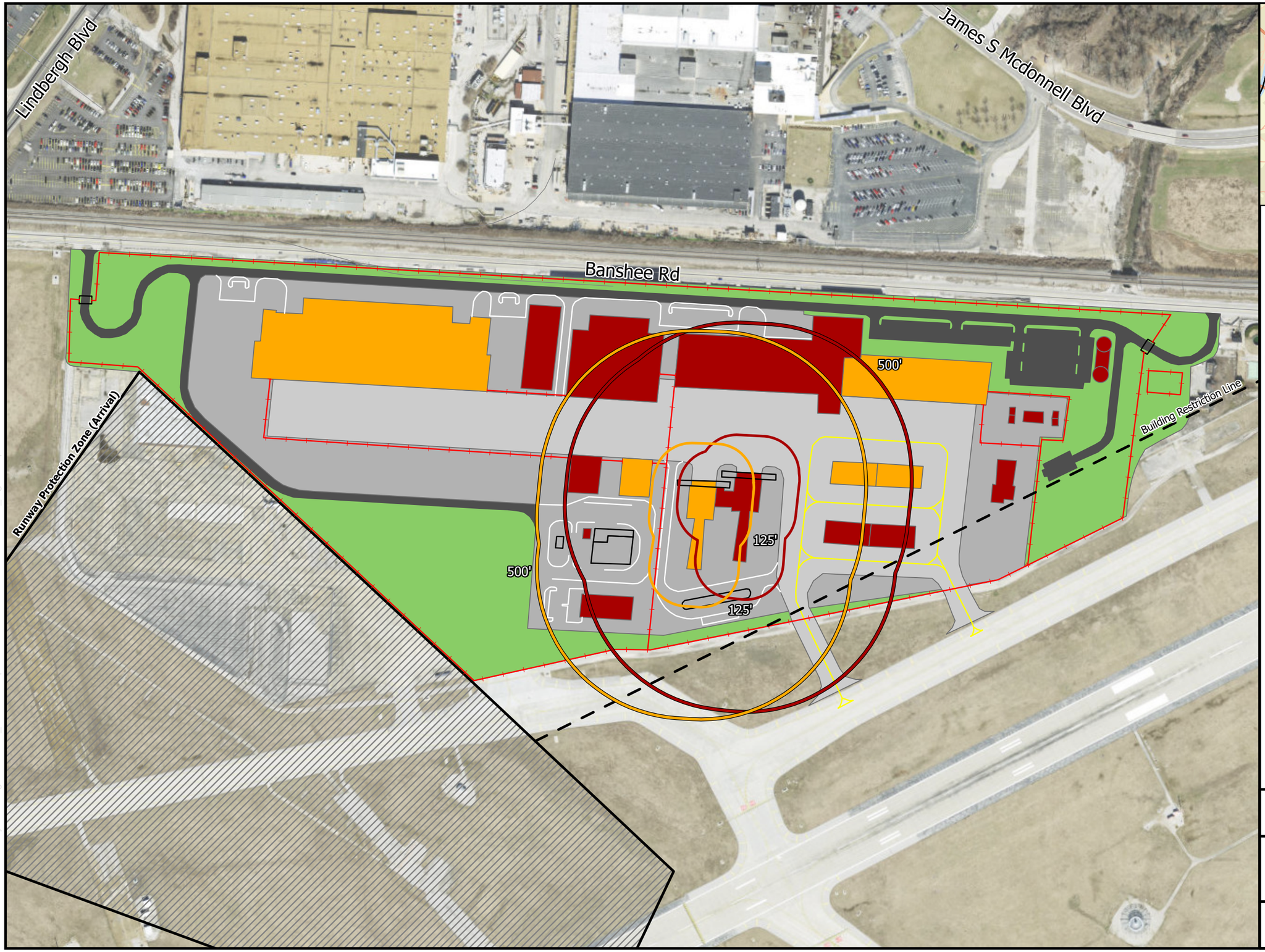
DNL (dB)	Baseline Area (square miles)	Alternative Area Project Implementation (square miles)	Percent Change in Area	Alternative Area Project +5 Years (square miles)	Percent Change in Area
65	6.5	6.8	4.4%	6.6	0.9%

3.11.3.2.2 Engine Testing and Hush Houses

Outdoors aircraft engine testing would take place at an existing "stump" on Papa Pad and is not expected to significantly increase from existing levels. A stump is an anchor or anchors in the pavement suitable to restrain an engine at full thrust. In addition, engine and aircraft equipment testing would take place in Hush Houses on the Northern Tract parcel. A hush house is an enclosed facility used to abate noise during aircraft systems testing. The Proposed Action includes two Hush Houses for aircraft testing, both on the Northern Tract parcel. The first Hush House would be built during Phase 1, and the second Hush House would be built during Phase 2.

Hush Houses are located near the existing airport taxiway, inside the campus. Several buildings are located between the Hush Houses and the airport property's limit, which should further dampen noise from testing. In addition, historical data for existing Hush Houses show that for locations tested at 125 feet, the resulting noise is typically between 76 dB and 83 dB maximum. One location was tested at 500 feet, and the noise levels were less than DNL 60 dB.

Figure 3-4 depicts the 125-foot and 500-foot radius from the conceptual locations of the proposed Hush Houses. Both the 125-foot (DNL 83 dB maximum) and 500-foot (DNL 60 dB) radius are entirely contained on airport property and the Proposed Action campus and do not include noise-sensitive receptors. Existing hush houses are approximately 5,000 feet from the closest residential properties. The closest residential properties are approximately 4,700 feet from the proposed hush houses and noise from the hush houses is not expected to be significant on residential properties. If during continued site design the location of the hush houses were to shift to any other location within the Northern Tract, the distance to the closest residential properties would still be far enough away to expect less than significant impacts.



Legend

- Building Restriction
- Fence

Detail

Type
- Line Type 1
- Line Type 2
- Gate/Impassable
- Seeded Area
- Runway Protection Zone

125' Buffer

Phase
- I
- II

500' Buffer

Phase
- I
- II

Building

Phase
- I
- II

Pavement

Type
- Aircraft
- Asphalt
- Concrete

N

BASE MAP SOURCE:
USGS USA Topo Map

0 500
FEET

Boeing STL Expansion

Figure 3-4
Noise Map

DATE: 8/16/2023

Jacobs

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3.11.3.3 Construction Noise

Temporary construction noise, including noise from demolition of existing site facilities and building new facilities, would result in minor, short-term, direct, adverse impacts. Construction noise would not result in noticeable impacts at off-airport properties because of its temporary duration and the lack of sensitive receptors in direct proximity to the Proposed Action. The closest residential properties are approximately 4,700 feet from the Northern Tract parcel and construction noise is not expected to be significant on residential properties.

3.11.3.4 Proposed Mitigation

The Proposed Action would not cause significant impacts on noise-sensitive receptors; therefore, no proposed mitigation is included.

3.12 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

This section includes an overview of socioeconomics, environmental justice, and children's environmental health and safety risks.

3.12.1 Affected Environment

3.12.1.1 Socioeconomics

Socioeconomics refers to the characteristics of the social and economic environment, including population, economy and employment, and local traffic and transportation.

3.12.1.1.1 Population and Economy

The project site is in St. Louis County, Missouri, which has a population of 998,227 people. The population within the county and the greater St. Louis area has seen a slight population decline in recent years.

The U.S. Department of Defense and other military operations are major contributors to Missouri's economy. In fiscal year 2018, $18.2 billion in military spending supported more than 180,000 direct and indirect jobs (7% of statewide employment) and has a $29.2 billion in total direct and indirect economic impact. Nearly two thirds of this spending is from the defense aerospace industry, with Boeing being the largest contractor (Missouri Military Advocate 2020). Boeing currently employees approximately 15,000 people in the St. Louis region, making it one the state's largest employers.

The airport is and will continue to be a major attractor of business and development in the St. Louis region. The airport currently employs more than 15,000 people and generates an estimated $5.1 billion annually to the St. Louis region. In 2008, military operations, including Boeing, accounted for 1.2% of total aircraft operations at the airport (St. Louis Lambert International Airport 2012). According to the Boeing and airport lease agreement, Boeing pays an annual rent of $227,111 to the airport (St. Louis Lambert International Airport n.d.). The Brownleigh parcel is located on vacant land owned by the airport. The Northern Tract parcel, also owned by the airport, currently has both vacant buildings and existing tenants (ATS Jet Center and GoJet Airlines).

3.12.1.1.2 Local Traffic and Transportation

There are numerous existing roadways that provide access to the airport. Access to the main terminal is provided via Lambert International Boulevard, and vehicles access existing Boeing buildings via Airport Road to James S. McDonnell Boulevard, with gate access at Genaire Drive. The primary roadways used to access general aviation land uses surrounding the airport are described in the following bulleted list and

are shown on Figure E-1. Table E-1 (Appendix E) shows the average annual daily traffic for the primary roadways within the project area.

- **James S. McDonnell Boulevard** is a north-south roadway. South of Airport Road, James S. McDonnell Boulevard is a two-lane roadway that provides access to Airport Road and is classified as a Major Collector. North of Airport Road, James S. McDonnell Boulevard is a four-lane roadway that provides access to Banshee Road and US 67 (Lindbergh Boulevard) and is classified as a Principal Arterial.
- **Airport Road** is a four-lane, east-west roadway that provides access to James S. McDonnell Boulevard and Interstate 170. Airport Road is classified as a Principal Arterial.
- **US 67 (Lindbergh Boulevard)** is a six-lane, north-south roadway that provides access to James S. McDonnell Boulevard and Interstate 270. US 67 (Lindbergh Boulevard) is classified as a Principal Arterial.
- **Banshee Road** is a two-lane, east-west roadway that provides access to James S. McDonnel Boulevard and Missouri Bottom Road. Banshee Road is classified as a Major Collector.
- **Missouri Bottom Road** is a four-lane, east-west roadway that provides access to Banshee Road, US 67 (Lindbergh Boulevard), and Interstate 270. Missouri Bottom Road is classified as a Major Collector.

The existing roadway network capacities were analyzed using guidelines set forth in the *Highway Capacity Manual, Seventh Edition* (Transportation Research Board 2022). The level of service (LOS) was calculated to determine how the existing intersections near the airport are currently operating. LOS refers to the operational conditions within a traffic stream and the perception by motorists in terms of delay, freedom to maneuver, traffic interruptions, convenience, comfort, and safety. It ranges from "A" (best) to "F" (worst). Vehicles experience very little delay under LOS A conditions and excessive delays under LOS F conditions. Most agencies and municipalities consider LOS D to be the minimum acceptable LOS. Results of the analysis indicate that the study intersections generally operate above LOS D. There are two intersections that currently operate below LOS D. One intersection is located at the northeast-bound approach at intersection of Airport Road (N) and James S. McDonnell Boulevard, which currently operates under unacceptable LOS in both peak hours with the overall intersection operating at a LOS F in the p.m. peak hour. The second intersection located at James S. McDonnell Boulevard and Boeing Gate 64 currently operates at unacceptable LOS in the p.m. peak hour with the overall intersection operating at LOS F.

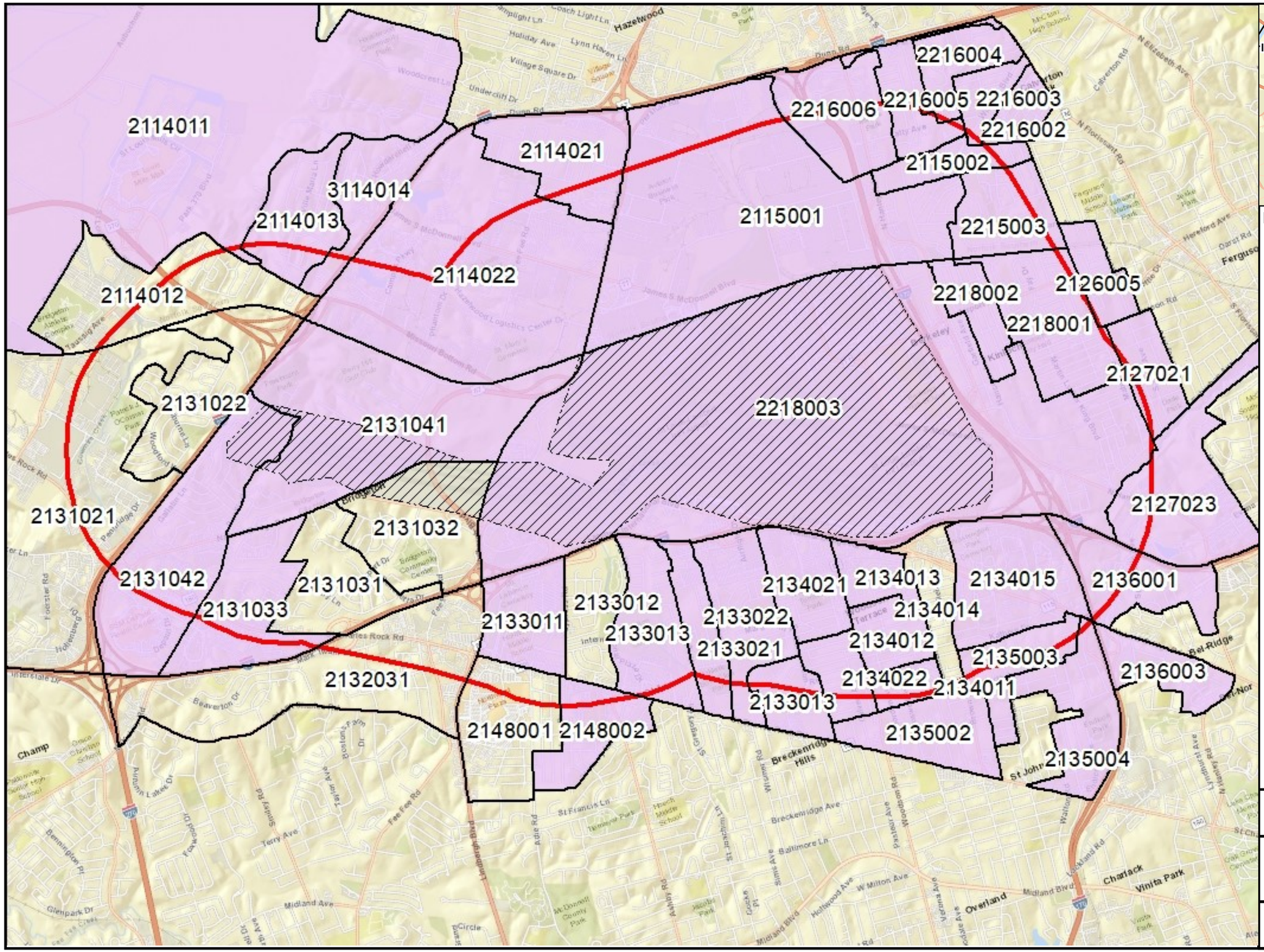
3.12.1.2 Environmental Justice

Environmental justice reviews consider the presence of minority populations, low-income populations, or Indian tribes in the area affected by the Proposed Action. For the purposes of this analysis, a 1-mile radius around the airport was used as the study area for the initial assessment. The study area demographics were compared with St. Louis County, Missouri, and the nation, as shown in Table E-2 (Appendix E).

The total population of the study area is 24,200. The total minority population of the study area is 60%, compared with 35% for St. Louis County, 21% for Missouri, and 40% for the U.S. The total low-income population of the study area is 46%, compared with 23% for St. Louis County, 31% for Missouri, and 30% for the U.S., as shown in Table 3-6. For the purposes of this analysis, it is assumed that minority or low-income populations are present if the population is "meaningfully greater" than the general population. Table 3-7 shows the census block groups within the study area with a minority or low-income population greater than St. Louis County. Based on this analysis, 39 out of the 49 census blocks within the study area are considered environmental justice populations; therefore, there are environmental justice populations within the study area. Figure 3-6 shows the land use surrounding the airport, including the presence of residential areas near the proposed project sites.

Table 3-6. Demographic Data for Study Area Compared to Surrounding Areas

Demographic	Study Area Number	Study Area Percent	St. Louis County Number	St. Louis County Percent	Missouri Number	Missouri Percent	U.S. Number	U.S. Percent
Total Population	24,200	100%	996,179	100%	6,124,160	100%	318,558,162	100%
White	9,581	40%	645,623	65%	4,850,569	80%	197,362,672	62%
Black	11,042	46%	240,821	24%	696,649	12%	39,098,319	12%
American Indian or Alaska Native	34	0%	1,405	0%	22,474	0%	2,084,326	1%
Asian	671	3%	44,312	4%	106,801	2%	16,425,317	5%
Pacific Islander Native Hawaiian	10	0%	259	0%	5,886	0%	508,924	0%
Some Other Race	51	0%	3,068	0%	8,742	0%	676,003	0%
Two or More Races	632	3%	31,295	3%	131,246	2%	7,203,494	2%
Hispanic or Latino	2,179	9%	29,396	3%	237,284	4%	55,199,107	17%
Total Minority	14,520	60%	348,663	35%	1,286,074	21%	127,423,265	40%
Total Low Income	11,132	46%	229,121	23%	1,898,490	31%	95,567,449	30%



LEGEND:

- Lambert Airport
- Census block groups with a minority or low-income population greater than thresholds
- Census Block Groups within 1-mile radius
- 1-mile buffer area

N

BASE MAP SOURCE:
USGS USA Topo Map

0 1,500 3,000 4,500 6,000 7,500
FEET

St. Louis Expansion,
St. Louis County, Missouri

Figure 3-5
Study Area Census Block Groups
Greater Than Threshold

DATE: 9/13/2023

Jacobs

Bridgeton
Hazelwood
Florissant
Earth City
ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
Berkeley
Champ
Ferguson
St. Ann
Maryland Heights
Woodson Terrace
St. John
Breckenridge Hills
370
270
67
170
70
180

LEGEND
- Airport Boundary
- 2015 Noise Contours (65 dNL)
- Airport Facilities
- Airport Property
- Single Family
- Duplex/Townhome
- Multi-Family
- Commercial
- Institution
- Industrial/Utility
- Recreation
- Park
- Vacant/Agriculture

Figure 3-6
St. Louis Lambert International Airport Surrounding Land Use

SOURCES: Open Governmen portal for St. Louis County, MO for July 2020 (basemap/land uses), https://data-stlcogis.opendata.arcgis.com/; St. Louis Lambert International Airport Layout Plan, 2012 (noise contours).

3.12.1.3 Children's Environmental Health and Safety Risk

There are schools, childcare centers, parks, and similar areas frequented by children in the 1-mile radius study area, as shown on Figure E-3 (Appendix E). There are no community resources on the airport property that serve children.

3.12.2 Thresholds of Significance

3.12.2.1 Socioeconomics

Socioeconomic impacts are assessed to determine the effect that the Proposed Action would have on the surrounding communities. FAA Order 1050.1F has not established a significance threshold or socioeconomics, so the following factors were used to assess for impacts to socioeconomics:

- 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 unavailable.
- Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities.
- Disrupt local traffic patterns and substantially reduce the LOSs of roads serving an airport and its surrounding communities.
- Produce a substantial change in the community tax base.

3.12.2.2 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, requires all federal agencies, to the greatest extent practicable and permitted by law, to make achieving environmental justice part of its mission by identifying and addressing disproportionate high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.

FAA Order 1050.1F provides guidance for the preparation of environmental justice analysis. Although FAA has not established a significance threshold for environmental justice, the FAA Order indicates that FAA should consider whether the action would have the potential to lead to a disproportionately high and adverse impact on a low-income or minority population because of significant impacts in other environmental impact categories or impacts on the physical or natural environment that affect an environmental justice population in a way that the FAA determines are unique to the environmental justice population and significant to that population. If a significant impact would affect low-income or minority populations at a disproportionately higher level than it would other population segments, an environmental justice issue is likely.

3.12.2.3 Children's Environmental Health and Safety Risks

Children's environmental health and safety risks include any risks to the health or safety that may disproportionately affect children that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soils, or products they might use or be exposed to. Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires all federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children.

3.12.3 Environmental Consequences

This section describes the potential environmental consequences on socioeconomics, environmental justice, and children's environmental health and safety risks, from the Proposed Action and No Action Alternative.

3.12.3.1 No Action

Under the No Action Alternative, the construction and demolition activities would not occur. There would be no impacts to environmental justice or children's health and safety. However, there would be adverse impacts to socioeconomics. The current configuration at the airport would be deficient for Boeing's proposed national defense-related aircraft production and testing needs. Boeing would locate their new facilities in another market that is able to meet their national defense aircraft assembly and testing needs. If the facilities are relocated to a new market, then Boeing could not provide co-located facilities, resulting in loss of operational and economic efficiencies. This would result in substantial loss of economic activity in the St. Louis region and prevent the airport from receiving the development activity and ground rent income associated with the Proposed Action. Traffic would continue to increase in the area, despite the implementation of the Proposed Action. Therefore, under the No Action Alternative, there would be significant, long-term, adverse impacts to the regional economy.

3.12.3.2 Proposed Action

3.12.3.2.1 Socioeconomics

3.12.3.2.1.1Construction

The employment associated with the construction activities would provide temporary benefits to the community from the direct and indirect employment and income from the use of local labor and materials. It is anticipated that the construction of the Proposed Action would require construction workers from the local workforce; there would be no changes to population and housing in the region. The construction would not disrupt or divide the physical arrangement of an established community, cause extensive relocation of community business, and would not provide a substantial change in the community tax base.

During construction there would be a temporary increase in noise and air pollutant emissions. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. Construction activities would incorporate BMPs and control measures to ensure fugitive dust emissions do not remain on surfaces or in the air beyond the property line of origin (Section 3.4.4.2.1). Construction noise could be audible near the sites, but it would be temporary and limited to normal working hours (Section 3.11). There are no residential areas or areas where children congregate within the project area, so there would be no impacts to children's health and safety.

3.12.3.2.1.2Operation

The operation of the Proposed Action would induce direct and indirect economic growth to the St. Louis economy. It is anticipated that the Proposed Action could employ up to 1,500 existing Boeing employees and up to 500 new jobs. However, this number is subject to change. It is assumed that most employees would be local to the area and not require relocation or housing. The Proposed Action would result in significant, long-term, beneficial impacts to the regional economy.

The airport would see an increase in revenue from the ground rent income associated with the project. According to the Boeing and airport lease agreement, Boeing pays an annual rent of $227,111 to the airport (St. Louis Lambert International Airport n.d.), and it is expected this would increase to approximately $2.63 million per year during the first phase of the project, with a potential increase of

approximately $0.3 million during second phase of the Proposed Action. The Brownleigh parcel is located on vacant land owned by the airport. The Northern Tract parcel currently has existing tenants (ATS Jet Center and GoJet Airlines) that would need to be relocated, likely to another location within the airport property, but it is not anticipated this relocation would substantially disrupt any operations. The Proposed Action would have minor, short-term, adverse impacts on two relocated businesses.

Traffic would increase in the region under the Proposed Action. Day-to-day operations would generate approximately 1,700 additional daily trips to the Brownleigh parcel and 400 daily trips to the Northern Tract parcel from the additional employees and deliveries (Table E-3 [Appendix E]). It is expected that most of the additional daily trips would use the existing routes used by Boeing employees. Minor improvements to select intersections including the addition of turn lanes, modified signal timing, and lane restriping would result in all intersections in the study area achieving or maintaining a LOS D or better (Table E-4 [Appendix E]). There would be intermittent (two to four times a month) road closures during the shuttling of aircraft across James S. McDonnell Boulevard between the Brownleigh Tract parcel and the airport over to the Northern Tract parcels. Security measures would be put in place to control vehicular traffic during the towing operations; once the tow operations are complete, the road would re-open to vehicular traffic. An effort would be made to avoid towing operations during high traffic periods. Each tract would have new access points: the Brownleigh Tract would have four access points and the Northern Tract would have two access points that would serve the site. The Proposed Action would not disrupt local traffic patterns or substantially reduce the LOSs serving the airport or surrounding communities. The Proposed Action would not disrupt or divide the physical arrangement of the community because the development of the Brownleigh and Northern Tract parcels is within the airport. The Proposed Action would have a minor, long-term, adverse impacts on local traffic patterns after the implementation of mitigation measures. The project would not disrupt or divide the physical arrangement of the established community.

3.12.3.2.2 Environmental Justice

As described previously in Section 3.12, there are minority and low-income populations within the study area. Construction and operation related effects from noise, air emissions, visual (including light emissions), and traffic or transportation could affect environmental justice populations.

3.12.3.2.2.1Construction

During construction there would be temporary elevated noise levels from the use of construction equipment and trucks during the demolition of existing facilities and building new facilities. As described in Section 3.11, the noise impacts would not result in noticeable impacts at off-airport properties because of the lack of sensitive receptors in direct proximity to the project site.

Construction would result in a temporary increase in air emissions. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. However, construction activities would incorporate BMPs and control measures to ensure that fugitive dust emissions do not remain on surfaces or in the air beyond the property line of origin (Section 3.4.4.2.1).

Therefore, construction activities associated with the Proposed Action would not be expected to cause disproportionate high and adverse human health or environmental effects on minority or low-income populations.

3.12.3.2.2.2Operation

The operations, including aircraft traffic and aircraft engine testing, are not expected to significantly increase compared with existing noise levels. The Hush Houses would abate noise during aircraft engine testing. Additionally, as described in Section 3.11, any noise within the 500-foot noise radius does not include noise-sensitive receptors. Although operations would increase air emissions in the area, the emissions would not exceed NAAQS, conflict with the applicable SIP, or substantially affect air quality. The implementation of the Proposed Action would introduce additional light emissions. Lighting would be

similar to the lighting that is currently used on the airport property and the surrounding developments and would be in compliance with applicable regulations. Lighting would not be directed toward residential areas. Therefore, light emissions would not create a potential for annoyance for surrounding areas or nearby uses.

Therefore, operations associated with the Proposed Action would not be expected to cause disproportionate high and adverse human health or environmental effects on minority or low-income populations. A review of those impact categories that relate to the airport's neighboring communities was conducted. These categories include air quality, noise, compatible land use, light emissions and visual impacts, and socioeconomic impacts. According to the applicable sections in this EA, there are no significant impacts to any of the impact categories previously listed. Therefore, it can be concluded that the Proposed Action would not disproportionately high or adverse impacts to minority or low-income populations within the General Study Area, nor would it result in a disproportionate high and adverse impact to these populations.

3.12.3.2.3 Children's Environmental Health and Safety Risks

Construction and operation of the facility would take place within the airport, which has no residential areas or areas where children congregate. Therefore, there would be no impacts to children's health and safety.

3.12.4 Proposed Mitigation

Local intersection improvements such as the addition of turn lanes, modified signal timing, and lane restriping, as recommended in the Traffic Impact Study prepared for this project, will be constructed.

3.13 Visual Effects (Including Light Emissions)

Visual effects deal broadly with the extent to which the Proposed Action would either produce light emissions that create annoyance or interfere with activities, or contrast with, or detract from, the visual resources and/or the visual character of the existing environment (FAA 2020).

Light emissions include any light that emanates from a light source into the surrounding environment. Glare is a type of light emission that occurs when light is reflected off a surface (for example, window glass, solar panels, or reflective building surfaces) (FAA 2020).

Visual resources refer to the natural and constructed features that give a particular environment its aesthetic qualities. Attributes used to describe the visual resource value of an area include any significant views or vistas, landscape character, perceived aesthetic value, and uniqueness.

Visual character refers to the overall visual makeup of the existing environment (FAA 2020).

3.13.1 Affected Environment

3.13.1.1 Light Emissions

The airport is illuminated by various types of lighting for airfield and landside facilities. Lighting that emanates from the airfield includes runway, apron, and navigational lighting, such as hold position lights, stop-bar lights, and runway and taxiway lights and signage. Airfield lighting is located along taxiways and ramps to provide guidance during periods of low visibility and to assist aircraft movement on the airfield. Aircraft lighting, such as landing lights, position and navigation lights, beacon lights, and vehicle lighting, are other types of light sources on the airfield. Lighted landside facilities include buildings, roadways, and parking facilities. The airport is located in a highly urbanized area, which is made up of other development that is also lighted and contributes to the overall light emissions in the area (St. Louis Lambert International Airport 2022).

The Northern Tract parcel contains existing structures with exterior lighting. The Brownleigh parcel is bordered by existing street lighting. The Gate Gourmet facility and bulk jet fuel storage facility located on the Brownleigh parcel also have exterior lighting.

3.13.1.2 Visual Resources and Visual Character

No visual resources requiring protection under federal, state, or local regulations are located near the Proposed Action areas. The visual character of the Brownleigh and Northern Tract parcels is typical of an airport setting.

Views into the portion of the Brownleigh parcel to be developed include open fields interspersed with wooded areas with varying degrees of tree cover. Much of the parcel contains visible remnants of road networks, curbing, foundations, and other infrastructure associated with the residential area and high school that previously existed onsite. Views out of the Brownleigh parcel include industrial development to the north and west, Interstate 170 to the east, and airport taxiways to the south.

Views into the Northern Tract parcel includes industrial buildings (two of which are listed or eligible for listing on NRHP) which are vacant and in a state of neglect, and poorly maintained paved surfaces. Views out of the Northern Tract parcel include a railroad and industrial development to the north and airfield, taxiways, and industrial development to the east, west, and south.

3.13.2 Thresholds of Significance

3.13.2.1 Light Emissions

FAA Order 1050.1F, Exhibit 4-1, indicates that FAA has not established a significance threshold for light emissions. However, factors to consider include the degree to which the action would have the potential to: create annoyance or interfere with normal activities from light emissions, and to affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resource.

3.13.2.2 Visual Resources and Visual Character

FAA also has not established a significance threshold for visual resources or visual character. Factors to consider include to the extent the action would have the potential to affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources; to contrast with the visual resources or visual character in the study area; and to block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations.

3.13.3 Environmental Consequences

3.13.3.1 No Action

Under the No Action Alternative, the project areas would remain in their current condition. Therefore, no impacts to visual effects would be anticipated.

3.13.3.2 Proposed Action

3.13.3.2.1 Light Emissions

Implementation of the Proposed Action would introduce additional light emissions to the Brownleigh and Northern Tract parcels. Lighting would be provided on and around buildings and on the taxiway connectors. Light emissions would be similar to lighting that is currently used on the airport property and the surrounding developments. Lighting would not be directed toward residential areas, and full cut-off

light fixtures would be used to avoid light glare and comply with Dark Sky considerations. There are no light-sensitive neighboring areas to the Proposed Action site. Lighting for the site would be designed in compliance with St. Louis County Ordinance 1003.169, Lighting Regulations, and FAA lighting requirements. Light emissions from the Proposed Action are not expected to be significant, interfere with normal activities, affect airport operations, or create a potential for annoyance for surrounding areas or nearby uses.

3.13.3.2.2 Visual Resources and Visual Character

The Proposed Action would result in minor, short-term, direct, adverse impacts on visual resources during construction of the facilities. Adverse impacts on visual resources could occur during construction from stockpiles of materials, construction vehicles onsite, and partially constructed buildings. These impacts would be temporary and would end after completion of the construction activities.

The Proposed Action would introduce new visual elements to the project sites, including buildings, hangars, shelters, taxiway connectors, roadways, and parking lots. Following construction, the views would be consistent with the airport setting, and no significant impacts to visual resources and visual character are expected. The demolition of abandoned infrastructure on the Brownleigh parcel and vacant buildings on the Northern Tract parcel would have beneficial effects on the aesthetics of both locations.

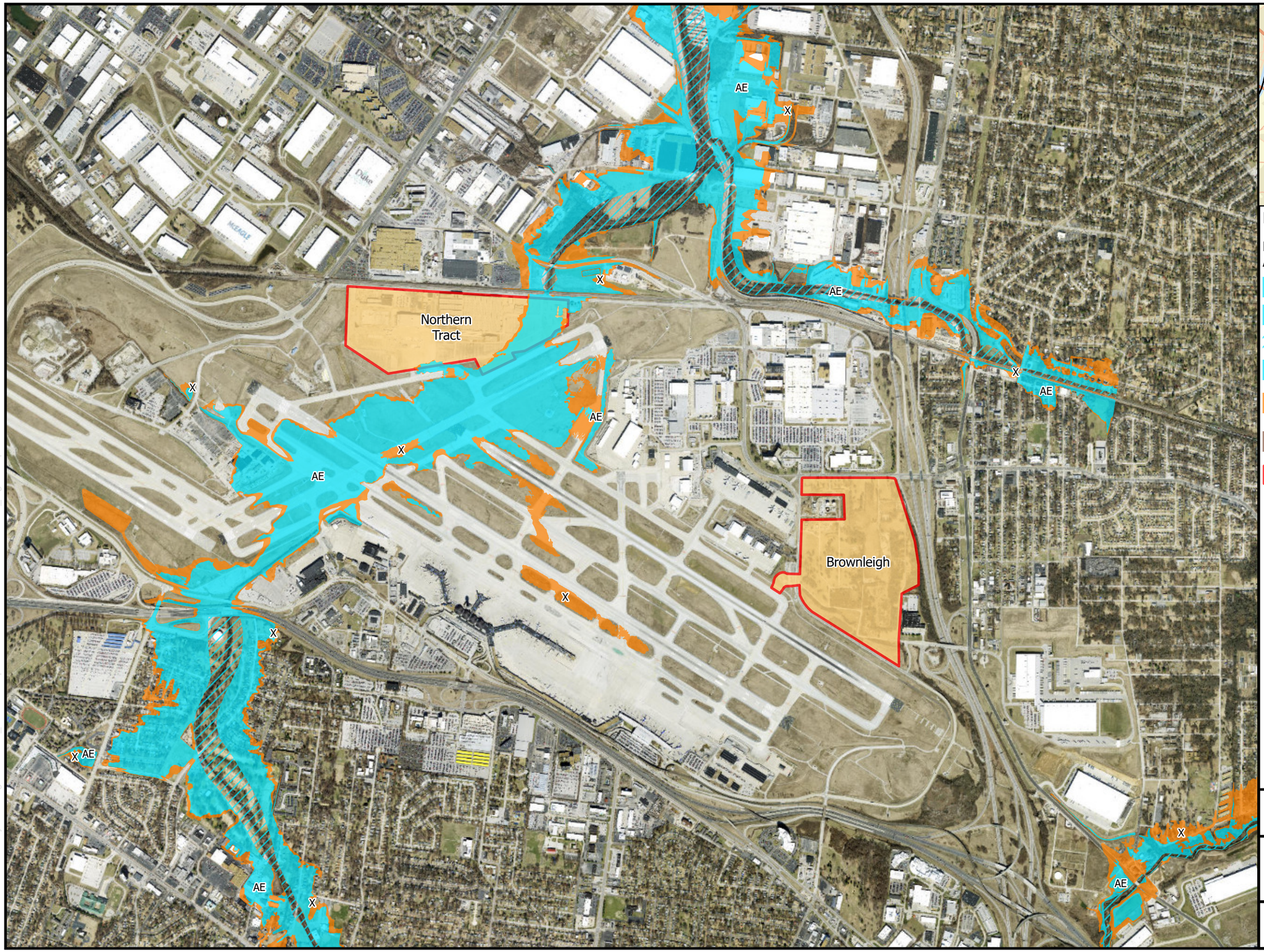
3.14 Water Resources

Water resources include both groundwater and surface water. Groundwater includes subsurface hydrologic resources. Groundwater properties are often described in terms of depth to aquifer or water table, water quality, and surrounding geologic composition. Stormwater flows, defined as runoff from precipitation that are increased by impervious surfaces, may introduce sediments and other contaminants into the water resource environment. Surface water resources include lakes, rivers, streams, and wetlands. These resources can be important to economic, ecological, recreational, and human health resources.

3.14.1 Affected Environment

3.14.1.1 Floodplains

Executive Order 11988, Floodplain Management, and the U.S. Department of Transportation Order 5650.2, Floodplain Management and Protection, require airport development actions to avoid, to the extent possible, the adverse impacts associated with the occupancy and modifications of floodplains. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps 29189C0063K, 29189C0201K, and 29189C0202K indicate that the Northern Tract and Brownleigh parcels are not within a 100- or 500-year floodplain and are in an area with minimal flood hazard (FEMA n.d.). However, a portion of the Northern Tract parcel is located in the Missouri State Emergency Management Agency (SEMA) Preliminary Special Flood Hazard Area for Coldwater Creek (Missouri SEMA n.d.) as shown on Figure 3-7.



LEGEND:

Preliminary Special Flood Hazard Area

- A
- AE
- AE, FLOODWAY
- AH
- X, 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
- X, AREA WITH REDUCED FLOOD RISK DUE TO LEVEE
- Detailed Study Area

N

BASE MAP SOURCE:
USGS USA Topo Map

0 1,000 2,000
FEET

Site Map
Boeing STL Expansion

Figure 3-7
Preliminary Special Flood Hazard Area

DATE: 8/23/2023

Jacobs

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3.14.1.2 Surface Water

MoDNR has authority for NPDES, which regulates stormwater under the *Clean Water Act*. All of the Northern Tract parcel and the western half of the Brownleigh parcel are within the Coldwater Creek drainage subbasin (USGS n.d.). Coldwater Creek flows north and east and discharges into to the Missouri River. Section 303(d) of the *Clean Water Act* requires states to list waterbodies that do not meet water quality standards and designated uses (impaired waters). The downstream section of Coldwater Creek (beginning approximately 7 miles downstream of the airport to the confluence of the Missouri River) is listed as an impaired waterbody for dissolved oxygen according to the 2022 listing and awaiting approval from EPA (MoDNR n.d.d). The east half of the Brownleigh Parcel drains through three stormwater collection pipe system to Maline Creek. Maline Creek flows east and discharges to the Mississippi River. The downstream section of Maline Creek (beginning approximately 8 miles downstream of the airport to the confluence of the Mississippi River) is listed as an impaired waterbody for chloride according to the 2022 listing and awaiting approval from EPA (MoDNR n.d.d). Coldwater Creek and Maline Creek have EPA-approved Total Maximum Daily Load for E. Coli (MoDNR 2023); however, the airport is not considered to contribute to the impairment and the operating permits do not require monitoring of this pollutant.

3.14.1.3 Groundwater

The Proposed Action is located within the Salem Plateau groundwater province (MoDNR 2021b). The main source of groundwater in this province is the Upper and Lower Ozark aquifers. Within St. Louis County, the aquifers are not a sole source, defined by EPA, where at least 50% of the drinking water for its service area and there are no reasonably available alternative drinking water sources should the aquifer become contaminated (EPA 2023a).

While Missouri American Water supplies water to portions of St. Louis County, including the airport, the majority of drinking water for the City of St. Louis is provided by the City of St. Louis Water Division. The Water Division has two water treatment plants that withdraw and treat water from the Missouri and Mississippi Rivers. The Mississippi River intake for the Chain of Rocks Water Treatment Plant is located 5 miles downstream from the confluence of the Missouri and Mississippi Rivers and 12 miles downstream from where Coldwater Creek discharges into the Missouri River. According to the 2022 *Consumer Confidence Report*, the two water treatment plants have never violated a water quality regulation in 118 years of testing (City of St. Louis Water Division 2022). The nearest private water well according to the MoDNR Well Installation Section Drilling Information Map is approximately 1 mile northwest of the Northern Tract parcel (MoDNR n.d.f).

3.14.2 Thresholds of Significance

3.14.2.1 Floodplains

FAA Order 1050.1F, Exhibit 4-1, establishes that significant impacts would occur if the action would cause notable adverse impacts on the natural and beneficial floodplain values.

3.14.2.2 Surface Water

FAA Order 1050.1F, Exhibit 4-1, establishes that significant impacts would occur if the action would exceed water quality standards established by federal, state, local, and tribal regulatory agencies, or contaminate public drinking water supply such that public health may be adversely affected.

3.14.2.3 Groundwater

FAA Order 1050.1F, Exhibit 4-1, establishes that significant impacts would occur if the action would exceed groundwater quality standards established by federal, state, local, and tribal regulatory agencies, or contaminate an aquifer used for public water supply such that public health may be adversely affected.

3.14.3 Environmental Consequences

3.14.3.1 No Action

3.14.3.1.1 Floodplains

Implementation of the No Action Alternative would not result in a change in current conditions. Therefore, no impacts to floodplains would occur.

3.14.3.1.2 Surface Water

Implementation of the No Action Alternative would not result in a change in current conditions. Therefore, no impacts to surface water would occur.

3.14.3.1.3 Groundwater

Implementation of the No Action Alternative would not result in a change in current conditions. Therefore, no impacts to groundwater would occur.

3.14.3.2 Proposed Action

3.14.3.2.1 Floodplains

All structures constructed as part of the Proposed Action that are located within the Northern Tract parcel Preliminary Special Flood Hazard Area for Coldwater Creek would be built higher than the base flood elevation. A floodplain development permit would be obtained from St. Louis County Public Works Department (St. Louis County n.d) before construction if the Preliminary Special Flood Hazard Area becomes adopted. Additionally, increases in stormwater runoff in the project area resulting from increases in impervious areas would be offset by stormwater detention. Therefore, the Proposed Action is not anticipated to cause notable adverse impacts on the natural and beneficial floodplain values and significant impacts to floodplains from construction and operation of the Proposed Action are not anticipated.

3.14.3.2.2 Surface Water

Construction of the Proposed Action would require a Construction SWPPP and a Land Disturbance Permit from MoDNR (MoDNR n.d.c). The SWPPP would use stormwater BMPs to be implemented during construction to prevent impacts to surface water and will be approved before the start of any construction activities. BMPs could include the use of silt fence, vehicle tracking controls, good housekeeping, inspection and maintenance schedules, and training. Therefore, significant impacts to surface water due to construction of the Proposed Action are not anticipated.

Operation of the Proposed Action would be in accordance with NPDES permits issued by MoDNR that require routine inspections and monitoring and reporting of stormwater discharge. The Northern Tract and the Brownleigh parcels are located within the Industrial SWPPP boundary of the airport's NPDES Site-Specific Missouri State Operating Permit MO-0111210 (MoDNR Missouri Clean Water Commission 2022). Adjacent to the airport, Boeing's leased areas currently operate in accordance with NPDES Site-Specific Missouri State Operating Permit MO-0004782 (MoDNR 2021). Both of these permits expire March 31, 2026, and would be updated to include the operation of the Proposed Action. Permit MO-0111210 requires monthly sampling of stormwater before it discharges from the airport to Coldwater Creek at Outfall Number 006 to report any exceedance of chloride. Coldwater Creek was previously listed as an impaired waterbody for chloride but is now recommended for chloride delisting according to the 2022 delisting and awaiting EPA approval (MoDNR n.d.d).

The NPDES permits require Industrial Spill Prevention, Control, and Countermeasures (SPCCs) Plans that use BMPs such as use of collection facilities and proper disposal of waste products, protection of materials from stormwater, good housekeeping practices, inspections, secondary containment, and stormwater detention basin(s) maintenance. Therefore, the Proposed Action is not anticipated to exceed water quality standards established by federal, state, local, and tribal regulatory agencies, or contaminate public drinking water supply such that public health may be adversely affected. Significant impacts to surface water due to operation of the Proposed Action are not anticipated.

3.14.3.2.3 Groundwater

Construction and operation of the Proposed Action would comply the permits and plans discussed for stormwater in Section 3.14.3.2.2, which would also protect groundwater. The Northern Tract parcel currently operates under a Missouri Hazardous Waste Management Facility Part I Permit Number MOD000818963 (MoDNR 2017) because of prior contamination and cleanup activities, as described in Section 3.9.1.11. The permit requires continued groundwater monitoring of the site and additional requirements for any construction such as area-specific HASPs. The Northern Tract parcel has an Environmental Covenant agreement with a Soil Management Plan that limits contact with groundwater and soil during soil disturbance activities that would occur during construction (MoDNR, Boeing, and City of St. Louis 2020). Therefore, the Proposed Action is not anticipated to exceed groundwater quality standards established by federal, state, local, and tribal regulatory agencies, or contaminate an aquifer used for public water supply such that public health may be adversely affected. No significant impacts to groundwater are anticipated during construction and operation of the Proposed Action.

3.14.4 Proposed Mitigation

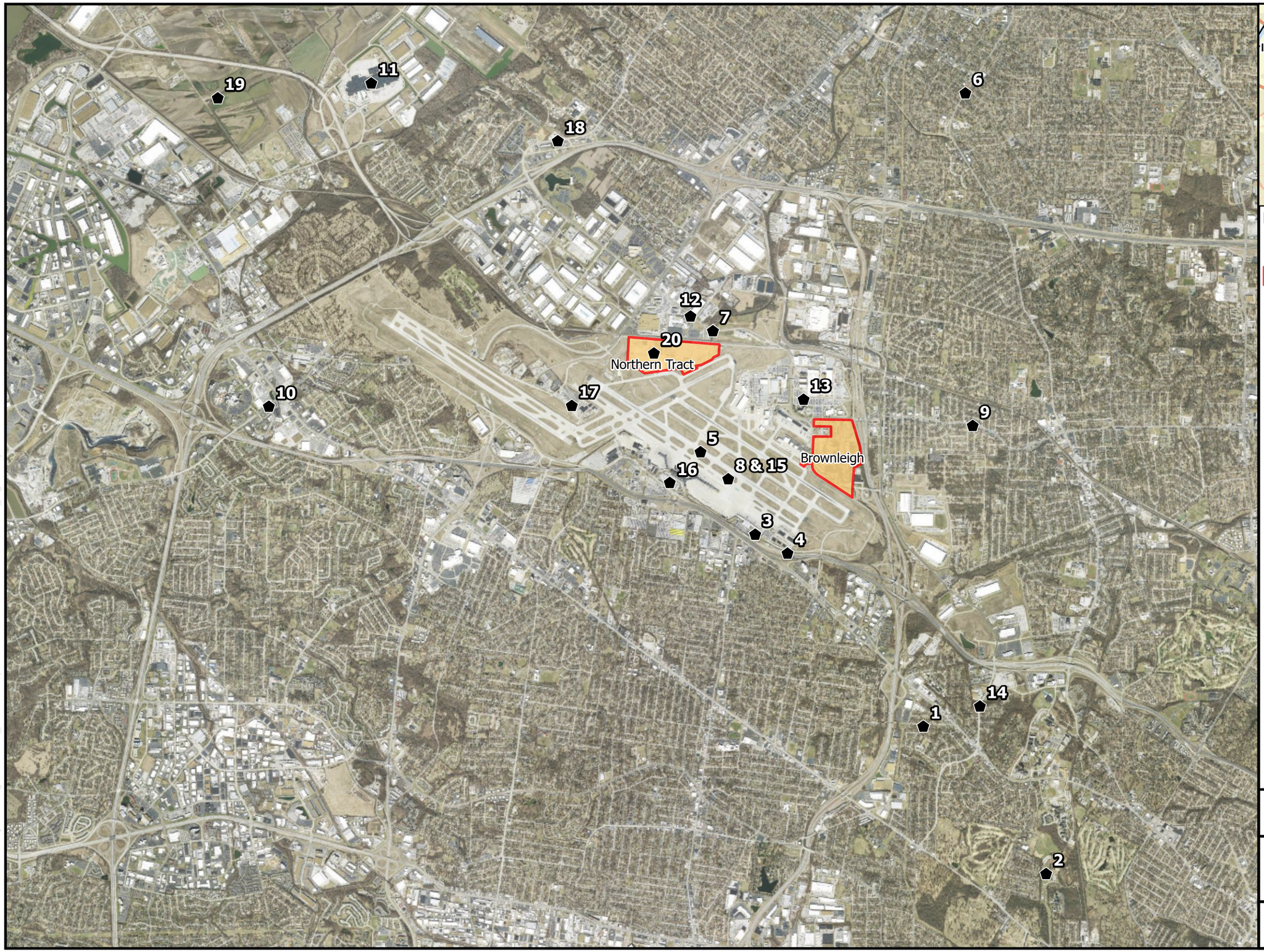
- All structures in the Northern Tract parcel's Preliminary Special Flood Hazard Area would be built higher than the base flood elevation.
- The contractor will obtain a floodplain development permit before construction if required.
- Stormwater detention would be included onsite.
- The contractor would obtain a Construction SWPPP and a Land Disturbance Permit from MoDNR.
- Operation would be in accordance with NPDES permits, including developing and implementing Industrial SPCCs.
- Requirements of the Environmental Covenant and its Soil Management Plan would be implemented to limit contact with soil and groundwater.

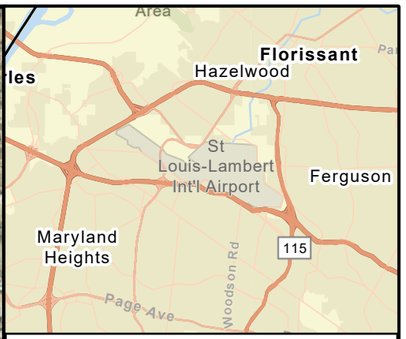
3.15 Cumulative Impacts

Cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, whether federal or nonfederal. Cumulative impacts can result from individually insignificant, but collectively significant, actions taking place over a period of time.

The potential for cumulative impacts on the environment from the Proposed Action was evaluated by reviewing recently completed, ongoing, and planned actions that could affect the same environmental resources as the Proposed Action. Actions considered included construction projects that are underway or are programmed to occur in the near future (Table 3-7). Figure 3-8 shows the approximate location of each action included in Table 3-6. The significance of cumulative impacts was determined by the same thresholds described for each resource in Sections 3.4 through 3.14. For environmental resources that were eliminated from further consideration and where construction and implementation of the Proposed Action would have no environmental impact, there is no potential for an adverse cumulative environmental impact to occur. Therefore, the following discussion of cumulative impacts discusses only

1 those environmental categories where environmental impacts could result from implementation of the
2 Proposed Action.





LEGEND:

- Project Location
- Detailed Study Area

N

BASE MAP SOURCE:
USGS USA Topo Map

0 1,500 3,000 4,500 6,000 7,500
FEET

St. Louis Expansion,
St. Louis County, Missouri

Figure 3-8
Approximate Locations of Past, Present, and Future Actions Shown in Table 3-6

DATE: 8/23/2023

Jacobs

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Table 3-7. Past, Present, and Foreseeable Future Actions

Past Actions (2021 through 2023)	Present Actions (2024)	Future Actions (2025 through 2027)
1. Carson Villa I/I Reduction: MSD Project Clear constructed approximately 3,272 feet of sewer in the Cities of Bel-Ridge and Bel-Nor, and in the Spanish Lake area. This project was completed in June 2021.	**6. Florissant Dunn Sanitary Relief**: MSD Project Clear is constructing approximately 6,170 feet of wastewater sewer in the City of Florissant. Construction is estimated to start in spring 2023 and last for 2 years.	**14. North Hanley Road (F) Resurfacing** – Interstate 70 to Natural Bridge Road. This project provides for the pavement resurfacing of North Hanley Road from Natural Bridge Road to Interstate 70. Construction is expected in early 2025.
2. Park Drive Sanitary Relief: MSD Project Clear is replacing approximately 2,300 feet of sewer in the City of Pagedale near St. Vincent County Park. This project was completed in fall 2021.	**7. James S. McDonnell Boulevard Bridge Number 164 Replacement**: Located 900 feet east of Byasse Drive and 2,900 feet west of Eva Avenue. This project provides for the removal and replacement of Bridge Number 164. Proposed project would include the removal and remediation of contaminated soil in the project area. Construction is expected to start in fall 2023.	**15. Reconstruction of Taxiway C from Taxiway Sierra to Taxiway Golf – Project 2:** The project involves removing and replacing Taxiway C as well as reconfiguring adjacent taxiways according to the desired layout at Taxiway C6 (currently Papa) and between Taxiways Juliet and Golf. Work is scheduled to begin in March 2026 and last through October 2026.
3. New T2 Garage Entrance: The project created an additional entrance lane from Lambert International Boulevard for eastbound traffic and a new Terminal 2 garage entrance. This project was completed in spring 2023.	**8. Reconstruction of Taxiway C from Taxiway Sierra to Taxiway Golf – Project 1:** The project involves removing and replacing Taxiway C as well as reconfiguring adjacent taxiways according to the desired layout between Taxiway C6 (currently Papa) to Taxiway Juliet. Work is scheduled to begin in March 2024 and last through October 2024.	**16. Consolidated Terminal Program**: This project will include building a new 62-gate single terminal on the site of Terminal 1. Construction start date is currently to be determined.
4. Lindbergh International Boulevard Bridge Rehabilitation: Lindbergh International Boulevard Bridge at James S. McDonnell Boulevard and Lambert International Boulevard ramp to Interstate 70 eastbound. This project was completed in summer 2023.	**9. Airport Road Resurfacing**: Interstate 170 to 360 feet west of North Florissant Road. This project will provide pavement resurfacing, curb ramps and sidewalk repairs, and traffic signal upgrades. Construction set to begin August 2023.	**17. West Airfield Program**: This project will include relocation of the airfield maintenance facility, installation of a de-icing pad, and general improvements to the taxiway system. Construction start date is currently to be determined.
5. Reconstruction of Runway 12R-30L from Taxiway Romeo to Taxiway Golf – Project 2: The project involves removing and replacing Runway 12R-30L as well as narrowing its width to 150 feet and reconfiguring adjacent taxiways according to the desired layout. Work began in March 2023 and is scheduled to be completed in November 2023.	**10. McKelvey Road Resurfacing**: Natural Bridge Road to Interstate 270. This project provides for the pavement resurfacing of McKelvey Road from Natural Bridge Road to Interstate 270. Improvements include curb repairs, ADA-compliant curb ramps, sidewalk repairs, accessible pedestrian signals upgrades at traffic signals, and traffic signal replacement. Construction is expected to start in the spring 2024.	**18. Howdershell Road Improvements**: Howdershell Road between Utz Lane and Interstate 270. This project will resurface Howdershell Road and repair and replace curb ramps, existing sidewalk, and traffic signals, ensuring they are ADA compliant. Construction start date is currently to be determined.
	11. Hazelwood Business Park Redevelop St. Louis Mills Mall in Hazelwood into an industrial park.	**19. Bridgeton Industrial Development:** Proposed 500-acre industrial development in Bridgeton, Missouri, approximately 10 minutes from the airport.

Past Actions (2021 through 2023)	Present Actions (2024)	Future Actions (2025 through 2027)
	12. James S. McDonnell Culvert Replacement: Proposed removal and replacement of two culverts. Constructed tentatively expected to begin in fall of 2023.	20. GoJet and ATS Relocation: If Boeing's Phase 2 is determined to be necessary, GoJet and ATS would need to be moved to new facilities elsewhere on airport property. A location has not been determined at this time. The airport, in coordination with FAA, would evaluate available sites to determine compatibility with other airport uses. These sites would be evaluated for potential environmental impacts in a supplemental NEPA evaluation once a decision has been made to implement this portion of the Phase 2 development and suitable sites have been identified.
	13. Boeing airport: Existing Boeing operations including production and testing of a number of military aircraft, and production of composite parts for commercial aircraft.	

Sources: MSD n.d.b; St. Louis Lambert International Airport 2023; St. Louis County n.d.a.

ADA = *Americans with Disabilities Act*

MSD = Metropolitan St. Louis Sewer District

3.15.1 Air Quality

The Proposed Action would combine with other past, present, and future development projects in the area and contribute to cumulative air quality impacts. Emissions from these activities could collectively contribute to NAAQS and GHG emissions. The Proposed Action emissions would be less than CAA general conformity *de minimis* thresholds for criteria pollutants and quantitative reporting thresholds for GHG emissions. Operational air emissions from the Proposed Action would combine incrementally with other projects in the area.

3.15.2 Biological Resources

The Proposed Action would combine with other past, present, and future development projects in the area and contribute to cumulative impacts on biological resources from vegetation and habitat loss. The incremental contribution to other projects would be minor because the development is proposed on previously cleared or developed land with low value to wildlife and vegetation. The geographical separation between the Proposed Action and other construction and development that occurs in the region would limit the potential for adverse cumulative noise impacts on wildlife. With implementation of proposed protection measures, the cumulative impacts to biological resources would be less than significant.

3.15.3 Climate Change

The Proposed Action would combine with other past, present, and future development projects in the area and contribute to cumulative climate change impacts.

3.15.4 Hazardous Materials, Solid Waste, and Pollution Prevention

Construction and demolition projects would combine with other past, present, and future development projects in the area and have the potential for an incremental increase in generation of hazardous wastes. Additionally, operations under the Proposed Action, when combined with existing Boeing activities, could result in an increase in the quantity of hazardous waste generated by Boeing. With proper handling and disposal of hazardous materials and wastes during construction and operation, cumulative impacts to hazardous materials and pollution prevention would be less than significant.

The Proposed Action would contribute to minor, long-term, adverse cumulative impacts on solid waste when added to other construction and demolition projects in the vicinity. However, the construction waste generation would be temporary and would not exceed local capacities of landfills.

3.15.5 Historical, Architectural, Archaeological, and Cultural Resources

Impacts to historic resources are generally site specific and will not combine with impacts from other projects to cause significant impacts. For present and foreseeable future actions, independent of the Proposed Action, an analysis of historic, architectural, archaeological, and cultural resources would be required if there is an undertaking by a federal agency. For present and foreseeable future actions that do not involve an undertaking by a federal agency such as private development off-airport property that is not being done under the direct or indirect jurisdiction of a federal agency or does not require federal financial assistance or a federal permit, license, or approval, the private developer (not the airport or FAA) would be responsible to meet any local or state requirements. Therefore, implementation of the Proposed Action, when combined with other past, present, or reasonably foreseeable future projects, would not result in significant adverse impacts to historic, architectural, archaeological, and cultural resources.

3.15.6 Natural Resources and Energy Supply

The Proposed Action would combine with other past, present, and future development projects in the area and increase the demand on local energy supply, natural materials used in construction, and water use. The increased demand would be within the regional capacity, and no significant cumulative impacts would occur.

3.15.7 Noise and Noise-compatible Land Use

The Proposed Action would combine with other past, present, and future projects in the area and contribute to adverse cumulative effects on the noise environment if the timing of other construction projects in the surrounding area overlap with the timing of the construction of the Proposed Action. Impacts on the noise environment from these construction projects would be temporary and intermittent and would occur during daylight hours and primarily on weekdays. Therefore, cumulative noise impacts would not be significant. No new noise-sensitive land uses (such as residences, public schools, nursing homes, hospitals, libraries, and religious institutions) would be subject to noise levels of DNL 65 dB or greater due to an increase in noise of DNL 1.5 dB or greater due to the Proposed Action. Further, no existing noise-sensitive land uses within the DNL 65 dB would be subject to an increase in noise of DNL 1.5 dB or greater. Therefore, neither significant aircraft noise impacts would occur nor would there be new noncompatible land uses as a result of the Proposed Action. The development and operation of one or more of the past, present, and reasonably foreseeable future actions identified in Table 3-6 would not be expected to result in changes to the noise contours or result in noncompatible land uses. Therefore, it is reasonable to expect implementation of the Proposed Action, when combined with other past, present, or reasonably foreseeable future projects would not result in significant adverse impacts to noise and noise-compatible land uses because there were no noise impacts associated with the Proposed Action.

3.15.8 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

The Proposed Action would combine with other past, present, and future development projects in the area and result in beneficial cumulative effects to economic development in the region. Cumulative impacts would derive from the induced construction employment, wages, and increased sales of construction-related materials, and the employment of up to 2,000 Boeing employees for operation of the new proposed facilities. Temporary construction impacts to traffic from construction vehicles and improvements (mitigations) at the site would cause minor, temporary traffic delays. There would not be significant increases in noise levels or air emission from the implementation of the Proposed Action. These nominal increases could interact with other local area development projects that could result in cumulative impacts to air quality and noise that may affect the surrounding area; however, these cumulative impacts would be negligible.

3.15.9 Visual Effects (Including Light Emissions)

The Proposed Action would combine with other past, present, and future development projects in the area and could contribute to adverse cumulative impacts to visual resources from stockpiles of materials, construction vehicles onsite, and partially constructed buildings. These impacts would be temporary and would end after completion of the construction activities. The interaction of the Proposed Action with other local area development projects could result in increased cumulative light emissions. Given the urban location of the Proposed Action and the already high amount of light emissions at the airport and in the surrounding area, any cumulative increase in light emissions would be negligible.

3.15.10 Water Resources

3.15.10.1 Floodplains

The Proposed Action would combine with other past, present, and future development projects in the area and could contribute to cumulative impacts to water resources. A portion of the Northern Tract parcel is located in the Missouri SEMA Preliminary Special Flood Hazard Area for Coldwater Creek. Impacts to the flood hazard area from the Proposed Action would be limited to the project area. The Proposed Action would be designed and permitted to ensure that the floodplain storage and conveyance capabilities would not decrease. Increased impervious surfaces associated with development have the potential to affect flooding rates. The increase in impervious surface under the Proposed Action would have a less than significant indirect effect on the flood hazard area because the stormwater controls would minimize runoff increase. Future projects at the airport, including the west airfield program, would also be required to confirm floodplain storage and conveyance capabilities would not decrease. No significant cumulative impacts to floodplains would occur.

3.15.10.2 Surface and Groundwater

The Proposed Action would not encroach upon any surface water and would not require the use of groundwater. Impacts from site runoff could interact with other projects and could impact water quality and water resources in the vicinity of the airport. In accordance with the Northern Tract Environmental Covenant agreement, contact with groundwater during ground-disturbing activities would be limited. Appropriate BMPs and stormwater controls would be used to minimize site runoff from reaching nearby surface water and groundwater. Therefore, no significant cumulative impacts to surface water or groundwater would occur.

3.15.11 Cumulative Impacts Conclusion

Under the No Action Alternative, the Proposed Action would not be implemented. The airport would continue to operate and serve aviation demands. Airport development would be subject to review and

approval under NEPA and is not assumed under this alternative. Therefore, the No Action Alternative would not cause cumulative impacts when considered with past, present, and reasonably foreseeable future projects.

The level of cumulative impacts anticipated to occur within these environmental resource categories is not significant due to the types of past, present, and reasonably foreseeable future projects; the extent of the built environment in which they would occur; the lack of certain environmental resources in the area; and the mitigation measures identified for the Proposed Action. Therefore, implementation of the Proposed Action would not result in significant cumulative environmental impacts.

3.16 Summary

This section summarizes the potential environmental consequences of the Proposed Action and No Action Alternative. Table 3-8 compares the potential impacts of the Proposed Action and No Action Alternative on the resources analyzed in this EA.

Table 3-8. Summary of Impact Category Determinations and Protection Measures or Mitigation

Environmental Consequences: Resource	Proposed Action Alternative Impacts	Proposed Action Alternative Protection Measures or Mitigation	No Action Alternative Impacts	No Action Alternative Mitigation
Air Quality	Not significant	Obtain air permits and adhere to permit requirements. Implement BMPs during demolition, construction, and operations.	None	None
Biological Resources	Not significant	Complete presence or absence survey of abandoned structures for tricolored bat before demolition. Tree removal activities would occur during the winter season (November 1 to March 31) after bat pups have fledged. Because of the presence of habitat suitable for endangered bat species, consultation with the local USFWS office will be conducted before cutting trees in the Brownleigh parcel, if not able to complete during winter months. Remove trees during winter season. Conduct nesting bird surveys before any tree or brush clearing activities during the bird breeding season. If active nests are observed, stop-work orders should be put in place and the area around the nest cordoned off until the birds are fully fledged and nest sites are no longer active. Conduct red-headed woodpecker surveys before removal of trees containing cavities. Where feasible, incorporate native species and pollinator-friendly plants into landscaped areas.	None	None
Climate	Not significant	None required	None	None
Department of Transportation Act, Section 4(f)	Not significant	Implement measures established in the MOA	None	None
Hazardous	Not	Adhere to all federal, state, and local laws and	None	None

Environmental Consequences: Resource	Proposed Action Alternative Impacts	Proposed Action Alternative Protection Measures or Mitigation	No Action Alternative Impacts	No Action Alternative Mitigation
Materials, Solid Waste, and Pollution Prevention	significant	regulations that control the use, generation, disposal, and monitoring of hazardous materials and comply with applicable permits. Adhere to Missouri Hazardous Waste Management Facility Part I Permit Number MOD000818963 (MoDNR 2017) and the Environmental Covenant agreement (MoDNR, Boeing, and City of St. Louis 2020) for the Northern Tract parcel. A vapor intrusion mitigation system would be built to prevent intrusion of chemical vapors from existing contaminated groundwater and soil into the Phase 2 paint facility in the Northern Tract parcel. Implement SWPPP, construction site safety plans, and BMPs.		
Historical, Architectural, Archaeological, and Cultural Resources	Not significant	Implement measures established in the MOA Contact SHPO and FAA if resources uncovered during construction.	None	None
Natural Resources and Energy Supply	Not significant	None required	None	None
Noise and Noise-compatible Land Use	Not significant	None required	None	None
Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks	Not significant	Make local intersection improvements, such as the addition of turn lanes, modified signal timing, and lane restriping, as recommended in the Traffic Impact Study.	None	None
Visual Effects (Including Light Emissions)	Not significant	None required	None	None
Floodplains	Not significant	All structures in the Northern Tract parcel's Preliminary Special Flood Hazard Area would be built higher than the base flood elevation. A floodplain development permit would be obtained from St. Louis County Public Works Department before construction if required.	None	None
Surface Water	Not significant	Stormwater detention would be included onsite. A Construction SWPPP and Land Disturbance Permit would be obtained from MoDNR before construction. Operation would be in accordance with NPDES permits, including developing and implementing industrial SPCCs.	None	None

Environmental Consequences: Resource	Proposed Action Alternative Impacts	Proposed Action Alternative Protection Measures or Mitigation	No Action Alternative Impacts	No Action Alternative Mitigation
Groundwater	Not significant	Construction and operation would comply with the permits listed under "Surface Water" row. Adhere to Missouri Hazardous Waste Management Facility Part I Permit Number MOD000818963 (MoDNR 2017) and Environmental Covenant agreement for Northern Tract parcel. Requirements of the Soil Management Plan would be implemented to limit contact with soil and groundwater.	None	None
Cumulative Impacts	Not significant	None required	None	None

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4. Summary of Public Involvement

The NEPA process is designed to inform the public of the potential environmental consequences of the Proposed Action and involve them in the federal decision-making process. The *Intergovernmental Coordination Act* and Executive Order 12372, Intergovernmental Review of Federal Programs, require federal agencies to cooperate with and consider state and local laws when implementing federal actions. Formal notification and opportunities for public participation, as well as informal coordination with government agencies and planners, are incorporated into the EA process. Section 6 of this EA contains a list of the federal, state, and local agencies that were invited to review and comment on the Draft EA. Appendix F includes copies of correspondence, outreach materials, and comment matrices documenting public and Agency responses, including records of consultation for NHPA Section 106 and *Endangered Species Act*.

Early public engagement during the initial environmental evaluation phase included the distribution of scoping letters to the stakeholder list in Section 6 on May 19, 2023. Additionally, the airport mailed 14,109 postcards to reach communities within a 1-mile radius of the airport boundary. The postcards included links to the airport's website and a quick response (QR) code linked to a survey, which included key questions to be answered by the communities. The postcards provided instructions for the public and stakeholders on how to submit comments during the scoping period.

The purpose of the survey was to seek input from the public regarding the Proposed Action's potential effect on the environment. The survey included opportunities for comment on the 15 resource areas included in this EA, as well as a prompt to include any additional information or comments not covered within the 15 resource areas presented. The survey, which was available from May 19, 2023 through June 20, 2023, received a total of 320 comments received from 70 respondents. The five resource areas in which feedback was received were noise and noise-compatible land use, hazardous materials, air quality, pollution prevention, and socioeconomics. Additional detail is included in the survey response summary in Appendix F.

Notification regarding the availability of the Draft EA was posted on the airport's website (https://www.flystl.com/civil-rights/public-notices-and-reports). The website provided instructions for the public and stakeholders on how to submit comments during the public EA review period.

Copies of the Draft EA were made available for the public to review on the airport's website and at the airport administration office, the Berkeley City Hall, and at the following local libraries near the airport:

- St. Louis County Library – Bridgeton Trails Branch:
  3455 McKelvey Road, Bridgeton, MO 63044
- St. Louis County Library – Rock Road Branch:
  10267 St. Charles Rock Road, St. Ann, MO 63074
- St. Louis County Library – Prairie Commons Branch:
  915 Utz Lane, Hazelwood, MO 63042
- Ferguson Municipal Public Library:
  35 N. Florissant Road, Ferguson, MO 63135
- St. Louis County Library – Florissant Valley Branch:
  195 N. New Florissant Road, Florissant, MO 63031
- St. Louis County Library – Parkview Branch:
  8400 Delport Drive, St. Louis, MO 63114
- St. Louis County Library-Natural Bridge Branch:
  7606 Natural Bridge Road, St. Louis, MO 63121

A public meeting will be held on October 17, 2023, at the St. Louis Lambert International Airport's Concourse B. The meeting will include a formal presentation followed by an open-house opportunity to view visual aids and speak with project representatives. Comments received during the public comment period, including during the public meeting, will be considered during preparation of the Final EA.

5. List of Preparers and Qualifications

Name	Education	Years of Experience	Role
Sara Jackson/Jacobs	B.S., Environmental Studies, Virginia Commonwealth University, 1999	23	NEPA Task Manager
Michelle Rau/Jacobs	M.B.A., University of Colorado, 2005 B.S., Ecology, University of Pittsburgh, 1998	25	NEPA Subject Matter Expert; senior technical review
Richard Reaves/Jacobs	Ph.D., Wetland and Wildlife Ecology, Purdue University, 1995 B.S., Wildlife Ecology and Resource Management, University of Wyoming, 1986	30	Senior technical review
Sara Orton/Jacobs	M.S., Preservation Studies, Tulane University, 2000 Associate Degree, Spanish, Universidad de Sevilla, 1991 B.A., Political Science, Miami University, 1988	24	Senior technical review
Betsy Jorgensen/Jacobs	B.S., Biology, Roanoke College, 2004	17	Preparation of EA text
Laura Dreher/Jacobs	B.S., Civil Engineering, Colorado State University, 2001	24	Preparation of EA text and Section 4(f) statement
Julie Philippon/Jacobs	M.S., Airport Development and Management, Florida Institute of Technology, 2014 M.S., Aviation Engineering, Ecole Nationale de l'Aviation Civile, 2014 Associate Degree, Air Traffic Control, Ecole Nationale de l'Aviation Civile, 2008	12	Preparation of EA text; noise modeling
Ursula Rogers/Jacobs	B.S., Biology, Guilford College, 2004	15	Preparation of EA text
Lindsay Kiel/Jacobs	M.A., Anthropology, University of Idaho, 2016 B.A., Anthropology, University of California, Davis, 2012 A.A., Anthropology, Cabrillo College, 2010	9	Preparation of EA text
Emily Gulick/Jacobs	B.A., Environmental Studies, University of Colorado at Boulder, 2016 B.A., Geography, University of Colorado at Boulder, 2016	5	Preparation of EA text
Christina McDonough/ Jacobs	M.E., Environmental Engineering, University of Florida, 1994 B.S.C.E., Civil Engineering, University of Florida, 1992	30	Preparation of EA text
Michelle Neumann/ Jacobs	B.S., Civil Engineering, University of Washington, 2010	11	Preparation of EA text; air quality modeling
Michelle York/Jacobs	B.S., Chemical Engineering, University of Utah, 2000	23	Preparation of EA text; air quality modeling
Samuel Squillante/ Jacobs	M.S., Environmental Science, Miami University, 2000 GIS Certificate, Miami University, 2019	3	GIS analysis; map preparation

A.A. = Associate in Arts

B.A. = Bachelor of Arts

B.E. = Bachelor of Engineering
B.S. = Bachelor of Science
B.S.C.E. = Bachelor of Science in Civil Engineering
M.B.A = Master of Business Administration
M.E. = Master of Engineering
M.S. = Master of Science
Ph.D. = Doctor of Philosophy

6. List of Agencies, Tribes, and Persons Consulted

Technical Advisory Committee

- FAA:
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  - ACE – Mark Schenkelberg (mark.schenkelberg@faa.gov)
  - St. Louis Lambert International Airport ATCT – James McGhee (james.m.mcghee@faa.gov)
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  - Bridgeton – Mayor Terry Briggs (mayor@bridgetonmo.com)
  - Woodson Terrace – Douglas Zaiz, City Administrator (dzaiz@woodsonterrace.net)
  - St. John – City Manager Robert Connell (rconnell@cityofstjohn.org)

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  Niobrara NE 68760
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  Quapaw, OK 74363-0765
- Mr. William Tarrant, THPO
  Seneca-Cayuga Nation
  P.O. Box 453220
  Grove, OK 74345

7. References

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Appendix A
Airport Sponsor Letter

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT®

September 13, 2023

Todd M. Madison, P.E.
Airports Capacity Program Manager and Missouri Planner
FAA Central Region Airports Division, ACE-630
901 Locust, Room 634
Kansas City, MO 64106-2325

Re: Boeing Site Development for Aircraft Assembly and Flight Testing

Dear Mr. Madison,

The City of St. Louis assures that, per 49 U.S.C. §47107(a)(10), appropriate action, including requests to controlling municipalities regarding the adoption of zoning laws, has been or will be taken, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the St. Louis Lambert International Airport ® to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. This applies to both existing and planned land uses.

More specifically, while the City of St. Louis owns the land upon which the St. Louis Lambert International Airport® sits and operates, it does not have the jurisdiction to unilaterally change zoning laws or other administrative functions related to land use. However, the City of St. Louis has done everything reasonable to meet the above referenced requirements, including a Part 150 Study and acquisition of noise land to render surrounding land use compatible with airport operations. The City of St. Louis continues to work with surrounding municipalities and property owners to remove obstructions to airspace, limit hazardous wildlife, and implement zoning changes where possible. However, the City of St. Louis may only request such zoning changes, and has no power to implement or affect zoning in these municipalities. Despite this, the City of St. Louis has and will continue to protect the St. Louis Lambert International Airport ® from incompatible land use in other ways.

Sincerely,

Gerald A. Beckmann
Airport Deputy Director, Planning & Development

Appendix B
Air Quality Analysis Supporting Data, Emissions Calculations, and Results

Regulatory Standards and Thresholds

Table B-1. National and State of Missouri Ambient Air Quality Standards

Criteria Pollutant	NAAQS (Averaging Period)[a]
CO	35 ppm (1-hour)
	9 ppm (8-hour)
NO_2	0.100 ppm (1-hour)
	0.053 ppm (annual arithmetic mean)
O_3	0.070 ppm (8-hour)
$PM_{2.5}$	12 µg/m^3 (annual arithmetic mean)
	35 µg/m^3 (24-hour)[b]
PM_{10}	150 µg/m^3 (24-hour)
SO_2	0.5 ppm (3-hour, secondary standard)
	0.075 ppm (1-hour)[b]
Pb	0.15 µg/m^3 (rolling 3-month average)
H_2S (State only)	0.03 ppm (42 µg/m^3) (0.5-hour)[c]
	0.05 ppm (70 µg/m^3) (0.5-hour)[d]
H_2SO_4 (State only)	30 µg/m^3 (1-hour)[e]
	10 µg/m^3 (24-hour)[f]

Sources: EPA 2023b; MoDNR 2022a.

[a] National standards, other than O_3, particulate matter, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration greater than 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, is equal to or less than the standard. For NO_2, the 1-hour standard is achieved if the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each monitor in an area does not exceed 0.100 ppm (100 ppb). The Pb standard is not to be exceeded.

[b] To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

[c] Not to be exceeded more than two times in any 5 consecutive days.

[d] Not to be exceeded more than two times per year.

[e] Not to be exceeded more than once in any 2 consecutive days.

[f] Not to be exceeded more than once in any 90 consecutive days.

µg/m^3 = microgram(s) per cubic meter

H_2S = hydrogen sulfide

H_2SO4 = sulfuric acid

NAAQS = National Ambient Air Quality Standards

NO_2 = nitrogen dioxide

O_3 = ozone

Pb = lead

$PM_{2.5}$ = particulate matter equal to or less than 2.5 microns in diameter

PM_{10} = particulate matter equal to or less than 10 microns in diameter

ppb = part(s) per billion by volume

ppm = part(s) per million by volume

SO_2 = sulfur dioxide

Table B-2. General Conformity *de minimis* Thresholds Applicable to the Proposed Action

Pollutant	Area Attainment Status	General Conformity *de minimis* Threshold (tpy)
O_3 (calculated as emissions of the precursor pollutants, VOC or NO_X).	Moderate Nonattainment	
VOC		100
NO_X		100

Source: 40 CFR 93.153(b)(1).

NO_x = oxides of nitrogen

O_3 = ozone

tpy = ton(s) per year

VOC = volatile organic compound

Emission Sources

Emission sources reported under the *National Environmental Policy Act of 1969* include sources from both construction and operational activities. Stationary, operational sources are subject to permitting by Missouri Department of Natural Resources (MoDNR) and not subject to the General Conformity Rule. All other sources are subject to the General Conformity Rule. The following tables summarize the emissions from construction activities, mobile operational activities subject to the General Conformity Rule, and stationary operational activities subject to permitting by MoDNR. Table B-6 summarizes all emissions subject to the General Conformity Rule, for both construction and operational activities.

Construction Emissions

Emissions from construction activities are transitory and will end when construction is complete. These emissions include tailpipe emissions from construction equipment, delivery vehicles for concrete and building supplies, and construction workers' personal vehicles used for commuting to the work sites. Fugitive dust emissions from disturbing the ground, loading debris, unloading landscaping and construction materials, and traffic on unpaved roads are also included. Tail pipe emissions are calculated using MOtor Vehicle Emission Simulator 3 (MOVES3) and fugitive dust emissions were calculated using emission methodologies in U.S. Environmental Protection Agency's (EPA's) AP-42.

Table B-3. Estimated Annual Emissions for Construction and Demolition Activities

Year	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
2024	0.20	63.23	5.88	3.33	18.65	2.73
2025[a]	0.24	85.36	7.34	4.87	24.22	3.66
2026	0.08	31.00	2.51	1.69	8.48	1.38
2027[b]	0	0	0	0	0	0
2028	0.19	68.98	5.44	3.83	24.31	3.65
2029	0.16	59.25	4.52	3.36	22.26	3.33

[a] 2025 is the peak year for construction emissions for Use in General Conformity Applicability Evaluation in Table 3-1.

[b] No construction is expected to occur in 2027.

Note: Estimated emissions are presented in units of tons per year.

CO = carbon monoxide

SO_2 = sulfur dioxide

$PM_{2.5}$ = particulate matter equal to or less than 2.5 microns in diameter

PM_{10} = particulate matter equal to or less than 10 microns in diameter

Operational Emissions

Emissions from operational activities will increase as facilities become operational and level off to steady state when facilities are used at design capacity. Sources subject to permitting are not subject to general conformity. Permitted sources include painting, boilers and heaters, fire pumps and standby generators. General Conformity sources include tailpipe emissions from aircraft and ground support equipment, nonroad equipment and employees' personal vehicles used for commuting to the facilities. Tail pipe emissions are calculated using MOVES3 for personal vehicles, Federal Aviation Administration's AEDT Version 3e for aircraft and ground support equipment and U.S. Air Force Civil Engineer Center Mobile Guide for nonroad equipment.

Table B-4. Proposed Action Operational Emissions Subject to General Conformity

Emission Source	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
Aircraft Operations and Associated GSE	0.06	0.47	2.46	0.15	0.01	0.01
Aircraft Testing	0.00	0.01	0.11	0.01	0.00	0.00
Nonroad Equipment Operations	0.31	8.04	0.86	0.02	0.02	0.02
Employee Commute Vehicle Trips and Deliveries	1.96	30.38	1.22	0.03	0.38	0.10
Subtotal Emissions for Use in General Conformity Applicability Evaluation in Table B-6	*2.33*	*38.90*	*4.65*	*0.20*	*0.41*	*0.13*

Note: Emissions upon project completion are presented in units of tons per year.

Table B-5. Proposed Action Potential To Emit Emissions Subject to Permitting

Phase(s)	Emission Source	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
Phase 1 and 2 (Maximum Expected at Full Buildout)[a]	Phase 1 – Painting and Assembly[a]	28.68	0	0	0	0.09	0.09
	Phase 2 – Painting and Assembly[a]	39.63	0	0	0	0.12	0.12
	Boilers and Heaters[a]	8.73	70.17	31.76	0.95	6.07	6.07
	Fire Pumps[a]	1.50	1.31	1.50	0.00	0.07	0.07
	Standby Generators[b]	1.98	1.08	1.98	0.00	0.06	0.06
Permitting *de minimis* Levels/Federal Significance Levels per project[c], [d], [e]		40	100	40	40	15	10

[a] Source: Donaghey, Kris, Boeing Air Quality Specialist. 2023 Personal Communication (email) with Moha Parikh, Jacobs. July 31.

[b] Source: Donaghey, Kris, Boeing, Air Quality Specialist. 2023. Personal Communication (email) with Moha Parikh, Jacobs. Aug 7.

[c] Source: MoDNR. 2020b. General Guidance for Air Construction Permits. The Permitting Process. https://dnr.mo.gov/sites/dnr/files/vfc/2021/03/main/The%20Permitting%20Process.pdf

[d] Source: MoDNR. 2011. Permit Applicability Determination for Criteria Air Pollutants. https://dnr.mo.gov/document-search/permit-applicability-determination-criteria-air-pollutants

[e] Source: Federal Regulations Incorporated by Reference in 10 CSR 10-6.060 Sections 1.4.A and B: PSD Significance Thresholds for Major Modifications: Title 40 Chapter I Subchapter C Part 52 Subpart A § 52.21 (b)23(i) and Nonattainment Area NSR Significance Thresholds for Major Modifications: Title 40 Chapter I Subchapter C Part 51 Subpart I § 51.165 (x)(A)

Note: Emissions upon project completion are presented in units of tons per year.

GSE = ground support equipment

MoDNR = Missouri Department of Natural Resources & St. Louis County Department of Public Health, Environmental Services Division, Air Pollution Control

NSR = new source review

Table B-6. Estimated Annual Emissions for Operational Activities Subject to General Conformity

Year	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
2024	0.61	9.79	0.56	0.01	0.09	0.02
2025	0.88	13.98	0.76	0.01	0.13	0.04
2026	1.09	18.77	1.73	0.06	0.17	0.05
2027	1.59	27.38	3.54	0.15	0.25	0.08
2028	1.86	32.55	4.52	0.19	0.30	0.10
2029	2.22	37.67	4.67	0.20	0.38	0.12
2030[a]	2.33	38.90	4.65	0.20	0.41	0.13

[a] 2030 is the peak year and steady state for operational emissions for Use in General Conformity Applicability Evaluation in Table 3-1. A breakdown of emissions during 2030 by source type is found in Table B-4.

Note: Estimated emissions are presented in units of tons per year.

Emissions by Source Type

Table B-7. Annual Emissions for Construction Equipment (Construction Emissions)

Year	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
2024	0.15	0.73	2.20	0.00	0.13	0.13
2025	0.17	0.84	2.76	0.00	0.15	0.15
2026	0.06	0.27	1.01	0.00	0.05	0.05
2027[a]	-	-	-	-	-	-
2028	0.12	0.56	2.42	0.00	0.11	0.10
2029	0.10	0.44	2.11	0.00	0.08	0.08

[a] No construction is expected to occur in 2027.

Note: Estimated emissions are presented in units of tons per year.

Table B-8. Annual Emissions for Construction Deliveries (Construction Emissions)

Year	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
2024	0.01	0.03	0.05	0.00	0.00	0.00
2025	0.01	0.03	0.05	0.00	0.00	0.00
2026	0.00	0.01	0.02	0.00	0.00	0.00
2027[a]	-	-	-	-	-	-
2028	0.01	0.03	0.05	0.00	0.00	0.00
2029	0.01	0.03	0.04	0.00	0.00	0.00

[a] No construction is expected to occur in 2027.

Note: Estimated emissions are presented in units of tons per year.

Table B-9. Annual Emissions for Construction Commutes (Construction Emissions)

Year	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
2024	3.33	62.47	3.63	0.05	0.57	0.15
2025	4.87	84.49	4.54	0.06	0.79	0.21
2026	1.69	30.72	1.48	0.02	0.31	0.08
2027[a]	-	-	-	-	-	-
2028	3.82	68.39	2.98	0.06	0.75	0.19
2029	3.36	58.79	2.37	0.05	0.69	0.17

[a] No construction is expected to occur in 2027.

Note: Estimated emissions are presented in units of tons per year.

Table B-10. Annual Emissions for Fugitive Dust (Construction Emissions)

Year	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
2024	N/A	N/A	N/A	N/A	17.95	2.45
2025	N/A	N/A	N/A	N/A	23.28	3.30
2026	N/A	N/A	N/A	N/A	8.12	1.26
2027[a]	-	-	-	-	-	-
2028	N/A	N/A	N/A	N/A	23.45	3.35
2029	N/A	N/A	N/A	N/A	21.49	3.07

[a] No construction is expected to occur in 2027.

Notes:

Estimated emissions are presented in units of tons per year.

Emissions on from unpaved roads assumed 75% control due to watering. All other sources are uncontrolled.

- = no activity that year

N/A = source type does not emit GHGs

Table B-11. Annual Emissions for Aircraft Operations and GSE (Operational Emissions)

Year	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
2026	0.01	0.12	0.61	0.04	0.00	0.00
2027	0.04	0.35	1.84	0.11	0.01	0.01
2028	0.06	0.47	2.46	0.15	0.01	0.01
2029	0.06	0.47	2.46	0.15	0.01	0.01
Steady State	0.06	0.47	2.46	0.15	0.01	0.01

Note: Estimated emissions are presented in units of tons per year.

GSE = Ground Support Equipment, i.e., carts, lifts and generators.

Table B-12. Annual Emissions for Aircraft Testing (Operational Emissions)

Year	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
2026	0.00	0.00	0.03	0.00	0.00	0.00
2027	0.00	0.01	0.08	0.01	0.00	0.00
2028	0.00	0.01	0.11	0.01	0.00	0.00
2029	0.00	0.01	0.11	0.01	0.00	0.00
Steady State	0.00	0.01	0.11	0.01	0.00	0.00

Notes:

Estimated emissions are presented in units of tons per year.

Aircraft Testing includes hush house tests, stump runs, and ground runs.

Table B-13. Annual Emissions for Nonroad Equipment (Operational Emissions)

Year	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
2026	0.10	2.68	0.29	0.01	0.01	0.01
2027	0.20	5.36	0.58	0.01	0.01	0.01
2028	0.31	8.04	0.86	0.02	0.02	0.02
2029	0.31	8.04	0.86	0.02	0.02	0.02
Steady State	0.31	8.04	0.86	0.02	0.02	0.02

Notes:

Estimated emissions are presented in units of tons per year.

Nonroad equipment includes aircraft tows and forklifts.

Table B-14. Annual Emissions for Employee Commutes (Operational Emissions)

Year	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
2024	0.61	9.79	0.56	0.01	0.09	0.02
2025	0.88	13.98	0.76	0.01	0.13	0.04
2026	0.97	15.96	0.80	0.01	0.16	0.04
2027	1.34	21.65	1.04	0.02	0.23	0.06
2028	1.49	24.02	1.09	0.02	0.27	0.07
2029	1.85	29.15	1.24	0.02	0.35	0.09
2030	1.96	30.38	1.22	0.03	0.38	0.10
Steady State	1.96	30.38	1.22	0.03	0.38	0.10

Note: Estimated emissions are presented in units of tons per year.

Construction Equipment Counts

Phase	Construction Equipment Name	Number of Equipment	Number of Days per Phase per Equipment	Hours per Day per Equipment	Total Hours	2024	2025	2026	2027	2028	2029	Estimated HP	Load Factor[a]	Fuel Type
Phase 1 Brownleigh Location	Excavator Large	8	90	8	5760	3003	2757	0	0	0	0	115	59%	Diesel
	Excavator Small	4	120	8	3840	2002	1838	0	0	0	0	48	59%	Diesel
	Loader	4	90	8	2880	1502	1378	0	0	0	0	171	21%	Diesel
	Grader	4	30	8	960	501	459	0	0	0	0	173	59%	Diesel
	Water truck	4	90	8	2880	1502	1378	0	0	0	0	360	59%	Diesel
	Fork Lift	8	120	8	7680	4005	3675	0	0	0	0	74	59%	Diesel
	Earth Mover	4	30	8	960	501	459	0	0	0	0	265	59%	Diesel
	Dozer	4	30	8	960	501	459	0	0	0	0	140	59%	Diesel
	Generators 15KW	6	180	10	10800	5631	5169	0	0	0	0	20	68%	Gasoline
	Cranes Large	4	90	10	3600	1877	1723	0	0	0	0	523	43%	Diesel
	Cranes Small	2	30	10	600	313	287	0	0	0	0	44	43%	Diesel
	Concrete Pump Trucks	4	30	8	960	501	459	0	0	0	0	173	59%	Diesel
	Paving Machines	2	10	8	160	83	77	0	0	0	0	120	59%	Diesel
	JLGs (Aerial Lift)	15	180	8	21600	11263	10337	0	0	0	0	49	21%	Diesel
Phase 1 Northern Location	Excavator Large	6	90	8	4320	497	1993	1830	0	0	0	115	59%	Diesel
	Excavator Small	4	90	8	2880	331	1329	1220	0	0	0	48	59%	Diesel
	Loader	4	90	8	2880	331	1329	1220	0	0	0	171	21%	Diesel
	Grader	2	30	8	480	55	221	203	0	0	0	173	59%	Diesel
	Water truck	4	90	8	2880	331	1329	1220	0	0	0	360	59%	Diesel
	Fork Lift	6	120	8	5760	663	2658	2439	0	0	0	74	59%	Diesel
	Earth Mover	2	30	8	480	55	221	203	0	0	0	265	59%	Diesel
	Dozer	4	30	8	960	110	443	407	0	0	0	140	59%	Diesel
	Generators 15KW	4	180	10	7200	828	3322	3049	0	0	0	20	68%	Gasoline
	Cranes Large	2	90	10	1800	207	831	762	0	0	0	523	43%	Diesel
	Cranes Small	2	30	10	600	69	277	254	0	0	0	44	43%	Diesel
	Concrete Pump Trucks	4	30	8	960	110	443	407	0	0	0	173	59%	Diesel
	Paving Machines	1	5	8	40	5	18	17	0	0	0	120	59%	Diesel
	JLGs	10	190	8	15200	1749	7014	6437	0	0	0	49	21%	Diesel

Construction Equipment Counts

Phase	Construction Equipment Name	Number of Equipment	Number of Days per Phase per Equipment	Hours per Day per Equipment	Total Hours	2024	2025	2026	2027	2028	2029	Estimated HP	Load Factor[a]	Fuel Type
Phase 2 Brownleigh Location	Excavator Large	6	90	8	4320	0	0	0	0	2253	2067	115	59%	Diesel
	Excavator Small	4	120	8	3840	0	0	0	0	2002	1838	48	59%	Diesel
	Loader	4	90	8	2880	0	0	0	0	1502	1378	171	21%	Diesel
	Grader	3	30	8	720	0	0	0	0	375	345	173	59%	Diesel
	Water truck	4	90	8	2880	0	0	0	0	1502	1378	360	59%	Diesel
	Fork Lift	8	120	8	7680	0	0	0	0	4005	3675	74	59%	Diesel
	Earth Mover	4	30	8	960	0	0	0	0	501	459	265	59%	Diesel
	Dozer	3	30	8	720	0	0	0	0	375	345	140	59%	Diesel
	Generators 15KW	6	180	10	10800	0	0	0	0	5631	5169	20	68%	Gasoline
	Cranes Large	4	90	10	3600	0	0	0	0	1877	1723	523	43%	Diesel
	Cranes Small	2	30	10	600	0	0	0	0	313	287	44	43%	Diesel
	Concrete Pump Trucks	4	30	8	960	0	0	0	0	501	459	173	59%	Diesel
	Paving Machines	2	10	8	160	0	0	0	0	83	77	120	59%	Diesel
	JLGs	10	180	8	14400	0	0	0	0	7509	6891	49	21%	Diesel
Phase 2 Northern Tract Location	Excavator Large	6	90	8	4320	0	0	0	0	2253	2067	115	59%	Diesel
	Excavator Small	4	90	8	2880	0	0	0	0	1502	1378	48	59%	Diesel
	Loader	4	90	8	2880	0	0	0	0	1502	1378	171	21%	Diesel
	Grader	2	30	8	480	0	0	0	0	250	230	173	59%	Diesel
	Water truck	4	90	8	2880	0	0	0	0	1502	1378	360	59%	Diesel
	Fork Lift	6	120	8	5760	0	0	0	0	3003	2757	74	59%	Diesel
	Earth Mover	2	30	8	480	0	0	0	0	250	230	265	59%	Diesel
	Dozer	4	30	8	960	0	0	0	0	501	459	140	59%	Diesel
	Generators 15KW	4	180	10	7200	0	0	0	0	3754	3446	20	68%	Gasoline
	Cranes Large	2	90	10	1800	0	0	0	0	939	861	523	43%	Diesel
	Cranes Small	2	30	10	600	0	0	0	0	313	287	44	43%	Diesel
	Concrete Pump Trucks	4	30	8	960	0	0	0	0	501	459	173	59%	Diesel
	Paving Machines	1	5	8	40	0	0	0	0	21	19	120	59%	Diesel
	JLGs	10	190	8	15200	0	0	0	0	7926	7274	49	21%	Diesel

[a] Representative Load Factors from AFCEC, 2022. *Air Emissions Guide for USAF Mobile Sources.* June. https://www.aqhelp.com/Documents/2022%20Mobile%20Guide%20-%20FINAL.pdf

Note: Counts were obtained from Pat Linne, Jacobs in an email dated 05/26/2023. Source indicates all diesel engines are U.S. Environmental Protection Agency (EPA) Tier 4 standard.

HP = horsepower

KW = kilowatt(s)

Construction Delivery Counts

Phase	Vehicle Type	Number of Round Trips per Day	Miles per Round Trip	Number of Days per Phase	% on Unpaved Road	VMT 2024	VMT 2025	VMT 2026	VMT 2027	VMT 2028	VMT 2029	Total
Phase 1 Brownleigh Location	Delivery trucks	20	30	180	1.4%	56348	51652	0	0	0	0	108000
	Asphalt Delivery	10	20	10	4.8%	1043	957	0	0	0	0	2000
	Concrete trucks	100	30	39	1.4%	61043	55957	0	0	0	0	117000
Phase 1 Northern Tract Location	Delivery trucks	15	30	160	1.4%	8308	33231	30462	0	0	0	72000
	Asphalt Delivery	10	20	5	4.8%	115	462	423	0	0	0	1000
	Concrete trucks	75	30	20	3.2%	5192	20769	19038	0	0	0	45000
Phase 2 Brownleigh Location	Delivery trucks	20	30	160	2.2%	0	0	0	0	50087	45913	96000
	Concrete trucks	100	30	27	2.2%	0	0	0	0	42261	38739	81000
	Asphalt Delivery	10	20	10	4.8%	0	0	0	0	1043	957	2000
Phase 2 Northern Tract Location	Delivery trucks	15	30	160	1.9%	0	0	0	0	37565	34435	72000
	Concrete trucks	75	30	21	0.9%	0	0	0	0	24652	22598	47250
	Asphalt Delivery	10	20	5	4.8%	0	0	0	0	522	478	1000

Note: Counts were obtained from Pat Linne, Jacobs in an email dated 05/26/2023

VMT = vehicle mile(s) traveled

Construction Commute Counts

Phase	Commutes per Day	Vehicle Type	Percent of Fleet Characterization	Number of Round Trips per Day	Miles per Round Trip	Number of Days per Phase	VMT 2024	VMT 2025	VMT 2026	VMT 2027	VMT 2028	VMT 2029	Total
Phase 1 Brownleigh Location	850	Motorcycle	3.4%	29	60	600	542,817	497,583	0	0	0	0	1,040,400
		Passenger Car	49.5%	421	60	600	7,909,169	7,250,071	0	0	0	0	15,159,240
		Passenger Truck	47.1%	400	60	600	7,513,231	6,887,129	0	0	0	0	14,400,360
Phase 1 Northern Tract Location	600	Motorcycle	3.4%	20	60	678	95,754	383,018	351,100	0	0	0	829,872
		Passenger Car	49.5%	297	60	678	1,395,199	5,580,795	5,115,729	0	0	0	12,091,723
		Passenger Truck	47.1%	282	60	678	1,325,354	5,301,418	4,859,633	0	0	0	11,486,405
Phase 2 Brownleigh Location	750	Motorcycle	3.4%	26	60	600	0	0	0	0	478,957	439,043	918,000
		Passenger Car	49.5%	372	60	600	0	0	0	0	6,978,678	6,397,122	13,375,800
		Passenger Truck	47.1%	353	60	600	0	0	0	0	6,629,322	6,076,878	12,706,200
Phase 2 Northern Tract Location	600	Motorcycle	3.4%	20	60	600	0	0	0	0	383,165	351,235	734,400
		Passenger Car	49.5%	297	60	600	0	0	0	0	5,582,943	5,117,697	10,700,640
		Passenger Truck	47.1%	282	60	600	0	0	0	0	5,303,457	4,861,503	10,164,960

Note: Counts were obtained from Pat Linne, Jacobs in an email dated 05/26/2023.

VMT = vehicle mile(s) traveled

Fugitive Dust Counts

Construction Details

Activity	Units	Quantity
Area Graded (total)[a]	acres	200
Amount of soil excavation (Brownleigh)[b]	cubic yards	611,125
Amount of soil exported[b]	cubic yards	balanced
Amount of soil imported[b]	cubic yards	balanced
Demolition (Brownleigh road and concrete)[c]	cubic yards	52,465
Demolition (Brownleigh gravel)[c]	cubic yards	28,981
Demolition (Northern Tract road and concrete)[c]	cubic yards	62,561
Demolition (Northern Tract gravel)[c]	cubic yards	27,730
Demolition (Northern Buildings)[d]	cubic yards	1,597,926
New asphalt paving[b]	acres	25.3

[a] Spreadsheet from Pirayeh Long, Jacobs via email dated 6/21/2023

[b] Email from Sinan Alpaslan, David Mason dated 06/28/2023

[c] Email from Sinan Alpaslan, David Mason dated 05/17/2023

[d] Email from Rick Yaw, Jacobs dated 06/23/2023

Demolished Buildings (Northern Tract)[a]

Name	Area (square feet)	Height (feet)	Volume (cubic feet)
McDonnell Douglas Building 1	66,000	30	1,980,000
McDonnell Douglas Building 2 (Low Bay)	450,000	40	18,000,000
McDonnell Douglas Building 2 (High Bay)	259,600	70	18,172,000
McDonnell Douglas Building 3	16,000	27	432,000
McDonnell Douglas Building 48	51000	40	2,040,000
GoJet Airlines facility Building 42	42000	60	2,520,000
Total (cubic feet)			**43,144,000**

[a] Email from Rick Yaw, Jacobs dated 06/23/2023

Material Densities

Material	Density (pounds per cubic foot)	Density (tons per cubic yard)
Concrete	145	1.958
Gravel	96	1.296
Buildings	36.25	0.489

Note: Estimated based on ACAM version 5.0.18b Model defaults.

Volume by Year

Demolition Material to be Removed	2024	2025	2026
Concrete	34,591	53,966	26,468
Gravel	18,320	26,659	11,732
Buildings	184,376	737,504	676,046
Total	**237,288**	**818,129**	**714,246**

Notes:

All demolition assumed to be in Phase 1.

Volume is presented in cubic yards.

Mass By Year (tons)

Demolition Material to Be Removed	2024	2025	2026
Concrete	67,713	105,639	51,812
Gravel	23,743	34,550	15,205
Buildings	90,229	360,916	330,840
Total	**181,685**	**501,105**	**397,856**

Notes:

All demolition assumed to be in Phase 1.

Mass is presented in tons.

Aircraft Activity Counts

Year	Aircraft	Annual Flights	Landing or Take Off	Low-flight Pattern[a]	Total Traffic Patterns
2026	F-15	30	30	30	60
2027	F-15	90	90	90	180
2028	F-15	120	120	120	240
2029	F-15	120	120	120	240

[a] Low-flight pattern is also known as "touch and go."

Note: This information was estimated based on guidance from Jeff Turk, IPI/Boeing during a telemeeting on 06/23/2023.

Aircraft Testing Counts

Year	Aircraft	Hush House Tests Annual Count	Stump Runs Annual Count	Ground Runs Annual Count
2026	F-15	18	24	48
2027	F-15	54	72	144
2028	F-15	72	96	192
2029	F-15	72	96	192

Note: This information was estimated based on guidance from Jeff Turk, IPI/Boeing during a telemeeting on 06/23/2023.

Nonroad Equipment Counts

Year	Nonroad Equipment Name	Distance (miles)	Speed (mph)	Number of Equipment	Days per Month	Hours per Day per Equipment	Total Hours per Year	HP	Load Factor
2026	Pettibone Mercury Tow	7	7	1	2	1	24	135	80%
	Forklift (Diesel)			1	7	3	264	55	30%
	Forklift (CNG)			2	7	3	528	54	30%
	Forklift (Gasoline)			2	7	3	528	54	30%
2027	Pettibone Mercury Tow	7	7	1	4	1	48	135	80%
	Forklift (Diesel)			1	15	3	528	55	30%
	Forklift (CNG)			2	15	3	1056	54	30%
	Forklift (Gasoline)			2	15	3	1056	54	30%
2028	Pettibone Mercury Tow	7	7	1	6	1	72	135	80%
	Forklift (Diesel)			1	22	3	792	55	30%
	Forklift (CNG)			2	22	3	1584	54	30%
	Forklift (Gasoline)			2	22	3	1584	54	30%
Steady State Year	Pettibone Mercury Tow	7	7	1	6	1	72	135	80%
	Forklift (Diesel)			1	22	3	792	55	30%
	Forklift (CNG)			2	22	3	1584	54	30%
	Forklift (Gasoline)			2	22	3	1584	54	30%

Note: This information was estimated based on guidance from Jeff Turk, IPI/Boeing during a telemeeting on 06/23/2023.

GSE = ground support equipment

HP = horsepower

mph = mile(s) per hour

Employee Commute and Delivery Counts

Type	Vehicle Type	Percent of Fleet Characterization	VMT 2024	VMT 2025	VMT 2026	VMT 2027	VMT 2028	VMT 2029	VMT 2030
Employee	Motorcycle	3.4%	93,301	140,588	173,385	246,835	289,360	371,942	408,000
	Passenger Car	49.5%	1,359,449	2,048,453	2,526,318	3,596,538	4,216,149	5,419,418	5,944,800
	Passenger Truck	47.1%	1,291,394	1,945,907	2,399,849	3,416,493	4,005,086	5,148,119	5,647,200
Delivery	Passenger Car	25.0%	1,220	1,838	2,267	3,228	3,784	4,864	5,335
	Box Truck	75.0%	3,660	5,515	6,802	9,683	11,351	14,591	16,005
Total			**2,749,025**	**4,142,301**	**5,108,621**	**7,272,777**	**8,525,729**	**10,958,933**	**12,021,340**

Note: Counts were obtained from Pat Linne, Jacobs in an email dated 05/26/2023.

VMT = vehicle mile(s) traveled

Power Usage Projections

Year	Megawatt-Hour Power Usage Projection
2024	15163
2025	22848
2026	28177
2027	40113
2028	47022
2029	55876
2030	65327

Note: Power usage was obtained from Harry Ferris, Jacobs in an email dated 07/05/2023.

Appendix C
Biological Evaluation and USFWS Concurrence Letter

Biological Evaluation

Revision No: Final

St. Louis Lambert International Airport

Boeing Site Development
May 10, 2023

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Acronyms and Abbreviations

BE	Biological Evaluation
Boeing	The Boeing Company
EPA	U.S. Environmental Protection Agency
ESA	*Endangered Species Act*
FAA	Federal Aviation Administration
IPaC	Information, Planning, and Conservation
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
STL	St. Louis Lambert International Airport
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WOTUS	waters of the United States

1. Introduction

Jacobs prepared this Biological Evaluation (BE) to support development of an environmental assessment being prepared to evaluate the impacts of construction and operation of new facilities for The Boeing Company (Boeing) on the 110-acre Brownleigh site and the 75-acre Northern Tract site within and adjacent to the St. Louis Lambert International Airport (STL). Brownleigh, located within the Berkeley municipality in St. Louis County, and Northern Tract, located in unincorporated St. Louis County (Figure 1), are respectively located at latitude 38°44′46.26″N and longitude -90°20′28.99′W and latitude 38°45′25.33″N and longitude -90°22′5.98″W. Jacobs developed this BE based on review of remote data and information obtained during a site visit conducted from March 13 through 15, 2023. Appendix A contains a photograph log documenting conditions observed during the site visit.

The purpose of this BE is to provide Boeing with site-specific information regarding the potential effects of the project on federally listed threatened or endangered species, or species proposed for listing, or designated and/or proposed critical habitat, in compliance with Section 7(a)(2) of the *Endangered Species Act* (ESA). Jacobs prepared this BE according to the U.S. Fish and Wildlife Service (USFWS) requirements outlined in *Guidance for Preparing a Biological Assessment* (USFWS n.d.a). Appendix B includes federally listed species for reference. Appendix C includes state-listed species for reference, but these species do not influence the Section 7 findings.

2. Project Area

The Brownleigh site covers approximately 110 acres within the Berkeley municipality in St. Louis County near STL. The site is bounded by James S. McConnell Boulevard to the west and south, Airport Road to the north, and Interstate 170 to the east. Originally a residential subdivision, development of the site began during the 1940s. STL began purchasing parcels in the 1980s as part of a noise mitigation program and purchased all parcels by the early 2000s. STL demolished aboveground structures within the community as the parcels were acquired. The Brownleigh site retains some remnants of the former community via the road network, stormwater structures, former foundations, and other remnants left after the site was razed. Today, the site is largely overgrown with vegetative communities reclaiming much of the area.

The Northern Tract site is in unincorporated St. Louis County, occupying approximately 75 acres directly north of STL. Banshee Road bounds the site to the north, whereas STL bounds the rest of the site. Current tenants of the site include Airport Terminal Services and GoJet Airlines, and current building plans will use approximately 60 acres of the eastern half of the site for development. The site is entirely built out and unvegetated, and a large, abandoned structure approximately 19 acres in size occupies the proposed development site on the eastern half of the site.

2.1 Soils

According to the Natural Resources Conservation Service (NRCS) soils maps, three soil types occur within the selected properties: Urban land-Harvester complex, Menfro-Urban land complex, and Urban land upland soils. Urban land-Harvester complex (2 to 9% slopes) occurs throughout the Brownleigh site (96% of soil composition) and in a small portion of the Northern Tract site (7% of soil composition); it is characterized as a moderately well-drained silt loam to clay loam that is not considered hydric (NRCS 2019). Menfro-Urban land complex soils (5 to 9% slopes) occur throughout the remainder of the Brownleigh site (4% of soil composition), occupying a small sliver of the far eastern portion of the site. These soils are characterized as non-hydric, well-drained silt loam to silty clay loams (NRCS 2019). The majority of the Northern Tract site (93% of soil composition) is made up of Urban land upland soils (0 to 5% slopes), which have been highly altered or obscured by urban works or structures in a largely built-up environment and may be significantly changed by human-transported or human-altered materials (USDA 2019). Appendix D provides U.S. Department of Agriculture NRCS Soil Resource Reports.

2.2 Ecological Communities

Habitat within the Brownleigh site typically includes open fields interspersed with varying degrees of tree cover. Forested areas within the site consisted primarily of hardwood species including American sycamore (*Platanus occidentalis*), sweetgum (*Liquidambar styraciflua*), northern red oak (*Quercus rubra*), water oak (*Quercus nigra*), black cherry (*Prunus serotina*), red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), eastern black walnut (*Juglans nigra*), tulip tree (*Liriodendron tulipifera*), eastern cottonwood (*Populus deltoides*), sugarberry (*Celtis laevigata*), hickories (*Carya spp.*), and ash trees (*Fraxinus spp.*). Softwood species within the site were relatively sparse in comparison and consisted of shortleaf pine (*Pinus echinata*) and eastern white pine (*Pinus strobus*). The understory was relatively sparse and mostly devoid of shrub species, except for scattered eastern red cedar (*Juniperus virginiana*), various saplings of canopy species, and large monocultures of non-native bush honeysuckles (*Lonicera spp.*). Herbaceous species consisted of cluster fescue (*Festuca paradoxa*), henbit (*Lamium amplexicaule*), foxtails (*Setaria spp.*), broomsedges (*Andropgon spp.*), and goldenrods (*Solidago spp.*).

Observations of wildlife species within the Brownleigh site were common, particularly among avian species. Jacobs observed the following during the March 13 to 15, 2023, site surveys: mourning dove (*Zenaida macroura*), cedar waxwing (*Bombycilla cedrorum*), northern cardinal (*Cardinalis cardinalis*), American robin (*Turdus migratorius*), brown-headed cowbird (*Molothrus ater*), common grackle (*Quiscalus quiscula*), red-winged blackbird (*Agelaius phoeniceus*), white-throated sparrow (*Zonotrichia albicollis*), red fox sparrow (*Passerella iliaca iliaca*), dark-eyed junco (*Junco hyemalis*), house finch

(*Haemorhous mexicanus*), northern mockingbird (*Mimus polyglottos*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhynchos*), downy woodpecker (*Dryobates pubescens*), red-bellied woodpecker (*Melanerpes carolinus*), northern flicker (*Colaptes auratus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and killdeer (*Charadrius vociferus*). The only visually observed mammalian species during the survey event were the eastern cottontail (*Sylvilagus floridanus*) and eastern gray squirrel (*Sciurus carolinensis*); however, Jacobs observed tracks and droppings of other mammalian species, including white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), and Virginia opossum (*Didelphis virginiana*). Numerous small mammal (rodent) burrows and nests were also present throughout the site.

The Northern Tract site is fully built out and devoid of vegetative communities. Sightings of wildlife species during the March 13 to 15, 2023, survey events were limited to introduced avian species that commonly occur in developed or urban environments, including European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), and rock pigeon (*Columba livia*).

2.3 Surface Waters and Wetlands

Aquatic resources include streams, wetlands, and open-water features (for example, lakes, ponds, and reservoirs) regulated by federal, state, and local agencies. The U.S. Army Corps of Engineers (USACE) regulates jurisdictional waters of the United States (WOTUS) under Section 404 of the *Clean Water Act*. On April 12, 2023, The U.S. District Court for the District of North Dakota issued an order preliminary enjoining the 2023 "Revised definition 'waters of the United States'" rule. In light of the preliminary injunctions the agencies are interpreting "waters of the United States consistent with the pre-2015 regulatory regime in the 26 affected states, which includes Missouri, until further notice. USACE asserts jurisdiction over the following waters:

- *traditional navigable waters (TNWs)*
- *wetlands adjacent to TNWs*
- *non-navigable tributaries of TNWs that are relatively permanent waters (RPWs) where the tributaries typically flow year-round or have continuous flow at least seasonally (i.e, typically 3 months)*
- *wetlands that directly abut (i.e., have a continuous surface connection to) such tributaries (U.S. Environmental Protection Agency [EPA] and USACE, 2008)*

USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW:

- *non-navigable tributaries that are not relatively permanent*
- *wetlands adjacent to non-navigable tributaries that are not relatively permanent*
- *wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary (EPA and USACE, 2008)*

A "significant nexus" is determined through analysis of "the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream TNWs" (EPA and USACE, 2008).

USACE will decide jurisdiction over isolated (i.e., non-adjacent wetlands and waters based on a fact specific analysis to determine whether impacts to those wetlands or waters affect interstate commerce.

According to the USFWS wetlands resource mapper, no surface water resources or wetlands occur on either the Brownleigh or Northern Tract site (USFWS n.d.c). A site visit conducted by qualified biologists on March 13 through 15, 2023, confirmed that no areas exhibiting positive indicators of hydrophytic vegetation, hydric soils, or hydrology occur on either site.

The USFWS National Wetlands Inventory Data were reviewed in the analysis of the properties (Appendix E). The nearest recorded resources are the headwaters to Coldwater Creek just north of the Northern Tract site above Banshee Road and two palustrine forested wetlands approximately 1,555 and 2,345 linear feet northeast of the Northern Tract site (Figure 1) (USFWS n.d.c). The site visit confirmed that these drainage features are the most proximate to the Northern Tract site, with no waterbody features or conveyances observed within the Northern Tract site. No waterbody features or conveyances were identified on the Brownleigh site, and the USFWS National Wetlands Inventory Data did not indicate any surface water or wetland features within the immediate vicinity of the site.

3. Listed Species and Potential Adverse Effects

This section describes federally listed and proposed listed species and evaluates the potential for adverse effects on each species.

3.1 Listed and Proposed Listed Species

The ESA was enacted to protect critically imperiled species from extinction as a consequence of growth and development, with the purposes of preventing extinction and recovering species to the point where the law's protections are no longer needed. Administration of the ESA is under the guidance of USFWS and the National Marine Fisheries Service (NMFS). USFWS is responsible for terrestrial, freshwater, and catadromous species, whereas NMFS is responsible for marine and anadromous species. Federally endangered and threatened species administration and consultation in Missouri is conducted through the USFWS Columbia Ecological Services Field Office in Columbia, Missouri.

The USFWS Information, Planning, and Conservation (IPaC) System website (USFWS n.d.b), USFWS Environmental Conservation Online System, and the Missouri Department of Conservation indicate that 15 federally listed species (Table 3-1) have the potential to occur on the Brownleigh and Northern Tract properties (Appendix B). Four species were determined to potentially be adversely affected by development of the proposed sites, including the Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), tricolored bat (*Perimyotis subflavus*), and the monarch butterfly (*Danaus plexippus*). Because there is no suitable habitat on either site for gray bat (*Myotis grisescens*), rufa red knot (*Calidris canutus rufa*), decurrent false aster (*Boltonia decurrens*), eastern prairie white-fringed orchid (*Platanthera leucophaea*), western prairie white-fringed orchid (*Platanthera praeclara*), and Mead's milkweed (*Asclepias meadii*), there would be no effect to these species. Because there is no aquatic habitat on either site, a determination of no effect is made for five listed aquatic animal species: pallid sturgeon (*Scaphirhynchus albus*), eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), pink mucket (*Lampsilis abrupta*), scaleshell (*Leptodea leptodon*), and spectaclecase (*Cumberlandia monodonta*).

Table 3-1. Listed and Proposed Species with Potential to Occur on the Sites

Common Name	Scientific Name	Federal Status	Habitat	Effects Determination
Mammals				
Gray Bat	*Myotis grisescens*	E	Obligate cave-dweller, both for hibernating and summer roosting. Does not use abandoned structures similar to other bats. Forages over water and in surrounding riparian habitats.	No Effect
Indiana Bat	*Myotis sodalis*	E	Hibernates predominantly in limestone caves. Summer roosts include under the bark of large trees, and summer habitats consist of wooded or semi-wooded areas often along streams. Foraging habitats include riparian zones, upland forests, ponds, and fields.	May Affect, Not Likely to Adversely Affect
Northern Long-eared Bat	*Myotis septentrionalis*	E	Generally associated with old-growth forest, relying on intact interior forest with low edge-to-interior ratios. Forages within forests, along forest edges, over clearings, and occasionally over water. Hibernation primarily in caves and other suitable structures.	May Affect, Not Likely to Adversely Affect

Common Name	Scientific Name	Federal Status	Habitat	Effects Determination
Tricolored Bat	*Perimyotis subflavus*	UR/PE	Associated with forested landscapes (including perimeters) where they forage near trees and along waterways. Roosts may include mature stands or buffer zones near perennial streams, including dead or live tree foliage, tree cavities, caves, mines, rock crevices, and human-made structures. Sometimes roosts in open sites not tolerated by other bat species. Hibernation sites are often caves, mines, or cave-like tunnels, as well as box culverts under highways and dams.	May Affect, Not Likely to Adversely Affect
Birds				
Rufa Red Knot	*Calidris canutus rufa*	T	Occasionally appears at interior locations in eastern North America, where it frequents shorelines of large lakes and freshwater marshes.	No Effect
Fish				
Pallid Sturgeon	*Scaphirhynchus albus*	E	Typically occupies large, turbid, free-flowing riverine habitat, occurring in strong current over firm gravel or sandy substrate. Tends to select main channel habitats and main channel areas with islands or sandbars.	No Effect
Amphibians				
Eastern Hellbender	*Cryptobranchus alleganiensis alleganiensis*	E	Occupies rocky, clear creeks and rivers, usually with large shelter rocks. Typically avoids water warmer than 20°C. Often found in areas with large, irregularly shaped, and intermittent rocks and swiftly moving water, and tends to avoid wider, slow-moving waters with muddy banks or slab rock bottoms.	No Effect
Mollusks				
Pink Mucket	*Lampsilis abrupta*	E	A large river species associated with fast-flowing waters, although it has been able to survive and reproduce in impoundments with river-lake conditions but never standing pools of water. Found in strong currents with rocky or boulder substrates with depths up to 1 meter. May also inhabit deeper waters with slower currents and gravel substrates.	No Effect
Scaleshell	*Leptodea leptodon*	E	Occurs in riffles with moderate to high gradients in creeks to large rivers. Typically associated with riffles, relatively strong currents, and substrate of mud, sand, assemblages of gravel, cobble, and boulder. Currently restricted to rivers with relatively good water quality in stretches with stable channels.	No Effect

Common Name	Scientific Name	Federal Status	Habitat	Effects Determination
Spectaclecase	*Cumberlandia monodonta*	E	Habitat specialist occurring in large rivers, most often inhabiting riverine microhabitats sheltered from the main force of current. Occurs in substrates from mud and sand to gravel, cobble, and boulders in relatively shallow riffles and shoals with slow to swift current; also reported in tree stumps, root masses, and rooted aquatic vegetation. Seldom, if ever, moves, except to burrow deeper in substrate.	No Effect
Insects				
Monarch Butterfly	*Danaus plexippus*	UR	Habitat is highly variable, and a wide variety of flowering plants are used throughout migration and breeding, including *Coreopsis*, *Viburnum*, *Phlox*, *Solidago*, *Symphyotrichum*, *Eurybia*, *Liatris*, and *Echinacea*. Egg laying and larval feeding occurs only on milkweed (*Asclepias*).	May Affect, Not Likely to Adversely Affect
Plants				
Decurrent False Aster	*Boltonia decurrens*	T	Colonizes periodically disturbed riverine moist soil habitats. Successful sites are characterized by moist, sandy soil and regular disturbance, preferably periodic flooding, which maintains open areas with high light levels. Now primarily restricted to disturbed lowland areas, old fields, and roadsides where it appears to be dependent on human activities (mowing and cultivation).	No Effect
Eastern Prairie White-fringed Orchid	*Platanthera leucophaea*	T	Occupies mesic to wet prairies and wet sedge meadows. Peripheral habitat includes sedge-sphagnum bog mats around neutral pH kettle lakes, and fallow agricultural fields. Wet ditches and railroad rights-of-way also serve as refugia.	No Effect
Mead's Milkweed	*Asclepias meadii*	T	Occupies mesic to dry tallgrass and upland prairies with sandstone or chert bedrock, prairie hay meadows, railroad rights-of-way, prairie remnants, virgin mesic silt loam prairies, and igneous glades.	No Effect
Western Prairie White-fringed Orchid	*Platanthera praeclara*	T	Commonly found in full sun on moist to wet calcareous tallgrass prairies and sedge meadows (many flooded for 1 to 2 weeks per year). Most often grows in relatively undisturbed grassland but can also occur in moderately disturbed sites such as roadside ditches.	No Effect

°C = degree(s) Celsius

E = endangered

PE = potentially endangered

T = threatened

UR = under review

Jacobs performed a survey of the 110-acre Brownleigh site and 75-acre Northern Tract site from March 13 through 15, 2023, to assess site conditions and determine presence or absence of listed or proposed species and their suitable habitat. Jacobs conducted the protected species assessments by observations; Jacobs did not perform species-specific or habitat-specific protocol surveys. Jacobs walked the entire area within the survey boundary to determine dominant vegetation species and overall habitat structure, and for significant observations such as obvious nests, dens, and suitable wildlife habitat. Jacobs paid particular attention to areas that might provide suitable habitat for the listed species.

Suitable habitat for multiple listed species was observed within the Brownleigh site (Table 3-1). Forested areas within the Brownleigh site may provide summer refugia for the listed bat species that might be impacted by development of the Brownleigh site; tricolored bats may also use abandoned structures within the Northern Tract site. Suitable feeding habitat for monarch butterflies may be present within unmaintained brushy areas during spring and fall migrations if nectaring plant species occur, and suitable breeding habitat may occur if milkweeds (*Asclepias spp.*) occur. No remnant fruiting structures of milkweeds were observed during site surveys.

3.2 Designated Critical Habitat

The USFWS IPaC System website (USFWS n.d.b) indicates that no federally designated critical habitat is on or adjacent to the Brownleigh or Northern Tract properties (Appendix B). Therefore, no destruction or adverse modification of critical habitat would result. Based on this information, no further coordination with USFWS is required regarding critical habitat.

3.3 General and Species-specific Protection Measures

This section provides general and species-specific protection measures that will be implemented to minimize potential effects to natural resources.

3.3.1 General Protection Measures

The following general environmental measures and best management practices are commonly used on construction sites and will be implemented during work on the site. These practices minimize the potential for direct and indirect effects to onsite and offsite natural resources and may be incidentally beneficial to listed species. The measures and practices include the following:

- Dust control measures will be in place during construction. These control measures could include the application of water to areas of bare soil to reduce dust and particles in the air.
- Before construction activity begins, onsite construction personnel will be briefed by the construction manager regarding best management practices for this area.
- The construction contractor will demarcate the project boundaries and keep within those boundaries, creating the smallest area footprint possible.
- Garbage and construction debris will be managed to avoid attracting nuisance wildlife. At the end of every workday, the work site will be policed and cleaned accordingly. Refuse will be removed from the site or stored in appropriate containers until it is removed. This measure will also aid in removing any possible food sources from predators of the desert tortoise to the area.
- Soil erosion and sediment control devices will be used and maintained throughout construction.
- A Soil Erosion and Sedimentation Control Plan will be prepared; applicable stormwater permits and plans, such as the National Pollutant Discharge Elimination System permit and a Stormwater Pollution Prevention Plan, will be obtained.
- Stormwater will be conveyed through oil/water separators to basins for infiltration and evaporation.

3.3.2 Species-specific Protection Measures

Species-specific protection measures and best management practices will be required during clearing activities because listed species may occur on the properties. These practices include the following avoidance and minimization measures:

- Presence or absence survey of abandoned structures for tricolored bat will be completed before demolition.
- Tree removal activities should occur during the winter season (November 1 to March 31) after bat pups have fledged. Because of the presence of habitat suitable for endangered bat species, it is also recommended that consultation with the local USFWS office be conducted before cutting trees in this site.
- Native bird species and their nests are protected under the *Federal Migratory Bird Treaty Act*, which prohibits taking (including killing, capturing, selling, trading, and transporting) protected migratory bird species without prior authorization by USFWS. Under this act, it is illegal to destroy a nest that has eggs or chicks in it or if there are young birds that are still dependent on the nest for survival. Nesting bird surveys should be conducted before any tree- or brush-clearing activities take place. If active nests are observed, stop-work orders should be put in place and the area around the nest cordoned off until the birds are fully fledged and nest sites are no longer active.
- As a candidate species, the monarch butterfly is not yet listed or proposed to be listed; therefore, consultation with USFWS is not required. However, USFWS recommends taking advantage of any opportunity to conserve the species, and, if unmowed, brushy areas within the sites of occurrence can be maintained, it would benefit the species to do so.

4. Conclusions

Based on the information contained in this BE, the Federal Aviation Administration (FAA) determines that these actions **may affect,** but are **not likely to adversely affect**, the Indiana bat, northern long-eared bat, tricolored bat, and monarch butterfly. A finding of **no effect** is made for listed aquatic species, including the pallid sturgeon, eastern hellbender, pink mucket, scaleshell, and spectaclecase, and for other species that have no habitat in the project area, including the gray bat, rufa red knot, decurrent false aster, eastern prairie white-fringed orchid, western prairie white-fringed orchid, and Mead's milkweed. Further, the FAA determines that these actions would be mitigated on listed species with implementation of species-specific protection measures and best management practices specified in Section 3.3.2. There would be **no adverse modification** of critical habitat because there is no designated critical habitat on either site. In accordance with the Section 7 consultation process, further consultation with USFWS will be required due to potential impacts on federally listed species. If any threatened or endangered species are found alive, dead, injured, or hibernating within the project area, the [insert agency/POC] must be notified immediately at [insert number].

5. References

Natural Resources Conservation Service (NRCS). 2019. *Web Soil Survey*. http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm.

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U.S. Fish and Wildlife Service (USFWS). n.d.a. *ESA Section 7 Consultation*. Accessed March 8, 2023. http://www.fws.gov/midwest/endangered/section7/ba_guide.html.

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Figure

LEGEND:

Project Area Boundary

N

BASE MAP SOURCE:
USGS USA Topo Map

0 1,000 2,000 3,000
FEET

Site Map
Biological Evaluation
Boeing STL Expansion

Figure 1
Airport Location

DATE: 5/5/2023

Jacobs

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Appendix A
Photograph Log

Appendix A Photograph Log

Photolog

Photograph 1: General view of open field habitat with scattered trees within the Brownleigh site

Photograph 2: General view of potential bat habitat within the Brownleigh site

Photograph 3: General view of dense honeysuckle and open land near construction facility within the Brownleigh site

Photograph 4: View of a small, forested patch in the northern portion of the Brownleigh site

Photograph 5: View of dead tree as potential bat habitat within the Brownleigh site

Photograph 6: General view of a road that intersects the Brownleigh site

Photograph 7: View of the southwestern portion of Brownleigh site adjacent to the airport

Photograph 8: General view of crowded vegetation occurring within the Brownleigh site

Photograph 9: Erosional slope found within the Brownleigh site

Photograph 10: General view of available habitat within the Brownleigh site

Photograph 11: View of potential bat habitat (abandoned building with broken windows and other outside connections) within the Northern Tract site

Photograph 12: General view of a building and concrete pad at the Northern Tract site

Appendix B
U.S. Fish and Wildlife Service – Federally Listed Species List

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

St. Louis County, Missouri

Local office

Missouri Ecological Services Field Office

(573) 234-2132
(573) 234-2181

101 Park Deville Drive

Suite A
Columbia, MO 65203-0057

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Gray Bat Myotis grisescens Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat Myotis sodalis Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5949	Endangered
Tricolored Bat Perimyotis subflavus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Decurrent False Aster Boltonia decurrens Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7705	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) 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.	Breeds Oct 15 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Kentucky Warbler *Oporornis formosus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure.

To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in

offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

St. Louis County, Missouri

Local office

Missouri Ecological Services Field Office

(573) 234-2132
(573) 234-2181

101 Park Deville Drive

Suite A
Columbia, MO 65203-0057

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Gray Bat Myotis grisescens Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat Myotis sodalis Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat Perimyotis subflavus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS

Decurrent False Aster Boltonia decurrens Threatened

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7705

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date

range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover Pluvialis dominica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) 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.	Breeds Oct 15 to Aug 31
Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prothonotary Warbler Protonotaria citrea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

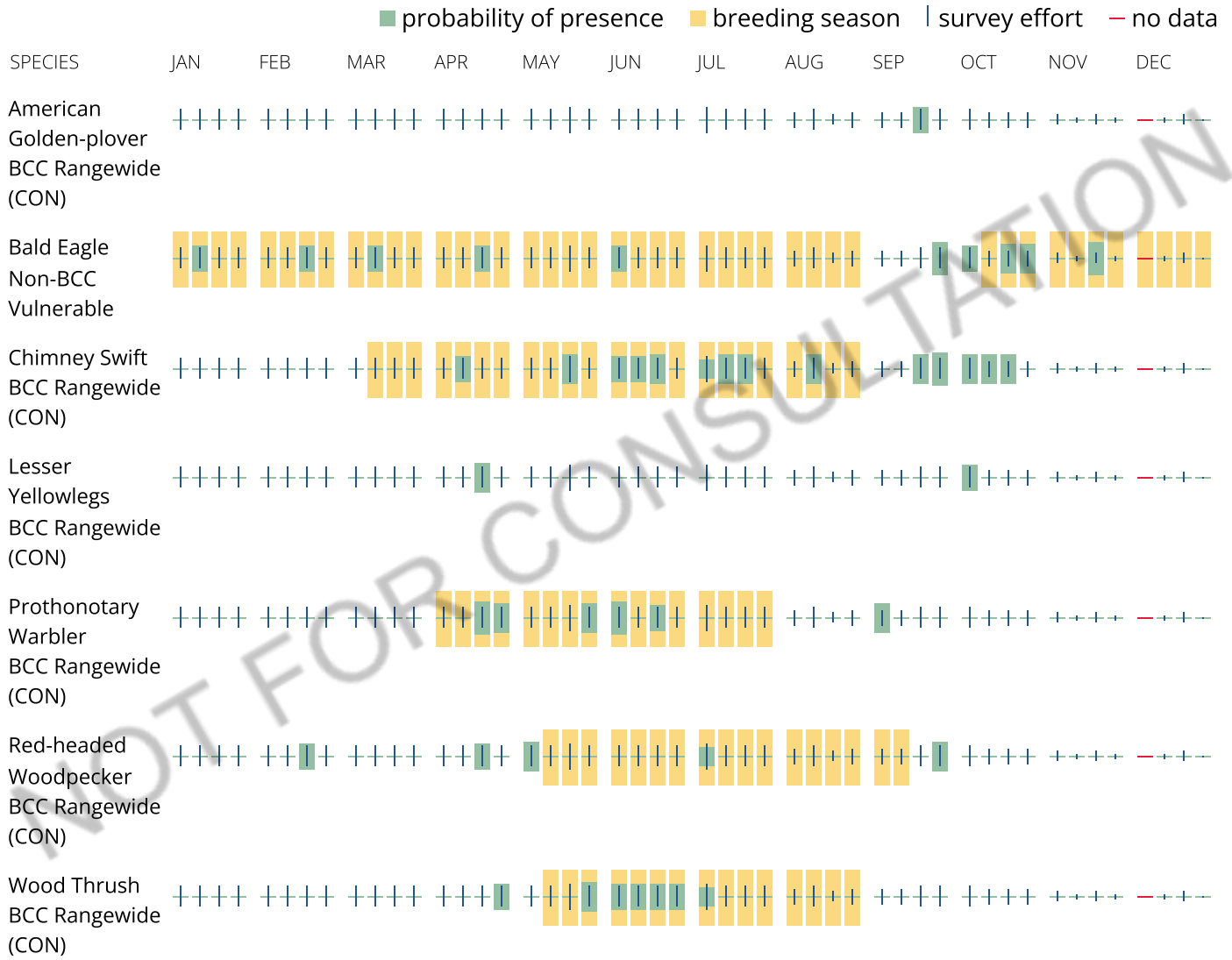
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

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Data precautions

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Appendix C
Missouri Department of Conservation and U.S. Fish and Wildlife Service – State-listed Species List

Common Name	Scientific Name	State Status	Habitat	Effects Determination[a]
Mammals				
Eastern Spotted Skunk	*Spilogale putorius*	E	Prefers forested areas and habitats with significant cover. Seems to require some form of cover such as brushy field borders, fence rows, and heavily vegetated gullies between dens and foraging sites. Occupies dens excavated by other species, often under brushpiles, in hollow logs or trees, under rock crevices, or in abandoned structures.	Potential Displacement and Loss of Habitat
Birds				
Bachman's Sparrow	*Puecae aestivalis*	E	Found in dense, layered ground vegetation and open mid-stories with scattered shrubs and saplings, including young clearcuts, grassy areas, oak-scrub, and powerline cuts.	Potential Displacement and Loss of Habitat
Northern Harrier	*Circus hudsonius*	E	Usually seen over prairies, marshes, and agricultural fields, favoring large, undisturbed tracts with thick, low vegetation. Midwestern populations tend to breed in wetlands.	Unlikely to Affect
Fish				
Flathead Chub	*Platygobio gracilis*	E	Occupies turbid flowing waters in main channels of small to large rivers. May also be found in pools of small creeks with clear water, little current, and coarse gravel or bedrock bottom.	No Effect
Lake Sturgeon	*Acipenser fulvescens*	E	Primarily inhabits the bottom of large, clean, freshwater rivers and lakes with preferred substrate of firm sand, gravel, or rock. In rivers, preferred habitat is deep mid-river areas and pools between 4 to 9 meters deep. Habitat in the Missouri River is characterized by river channels developed in deep deposits of gravel, sand, and silt.	No Effect
Mollusks				
Ebonsyshell	*Reginaia ebenus*	E	Inhabits large rivers, preferring swift water and stable sandy or gravel shoals. Coarse sand and gravel substrate provides the most suitable habitat, though the species may also be found over sand, silt, and mud. Often occurs in currents in 10 to 15 feet of water.	No Effect
Elephant-ear	*Elliptio crassidens*	E	Inhabits large rivers with muddy sand, sand, and rocky substrates in moderate current.	No Effect
Sheepnose	*Plethobasus cyphus*	E	Often associated with riffles and gravel or cobble substrate, but often reported from deep water (greater than 2 meters) with slight to swift currents and mud, sand, or gravel bottoms. Considered a medium to large river species.	No Effect
Snuffbox	*Epioblasma triquetra*	E	Found in riffles of small to medium creeks, in large rivers, and in shoals and wave-washed shores of lakes. Adults are typically buried deep in substrate except when breeding.	No Effect

Common Name	Scientific Name	State Status	Habitat	Effects Determination[a]
Plants				
Running Buffalo Clover	*Trifolium stoloniferum*	E	Occurs in mesic woodlands in partial to filtered sunlight, with patterns of moderate periodic disturbance for a prolonged period, such as mowing, trampling, or grazing. Most often found in regions underlain with limestone or other calcareous bedrock, but not exclusively. Also reported from a variety of disturbed woodland habitats, grazed woodlots, mowed paths, logging roads, and steep, weedy ravines.	Unlikely to Affect

[a] Determinations are for the Brownleigh site only; the Tract 1 South site did not have suitable habitat for any state-listed species.

E= Endangered
T= Threatened

Appendix D
U.S. Department of Agriculture Natural Resources Conservation Services Soil Resource Reports

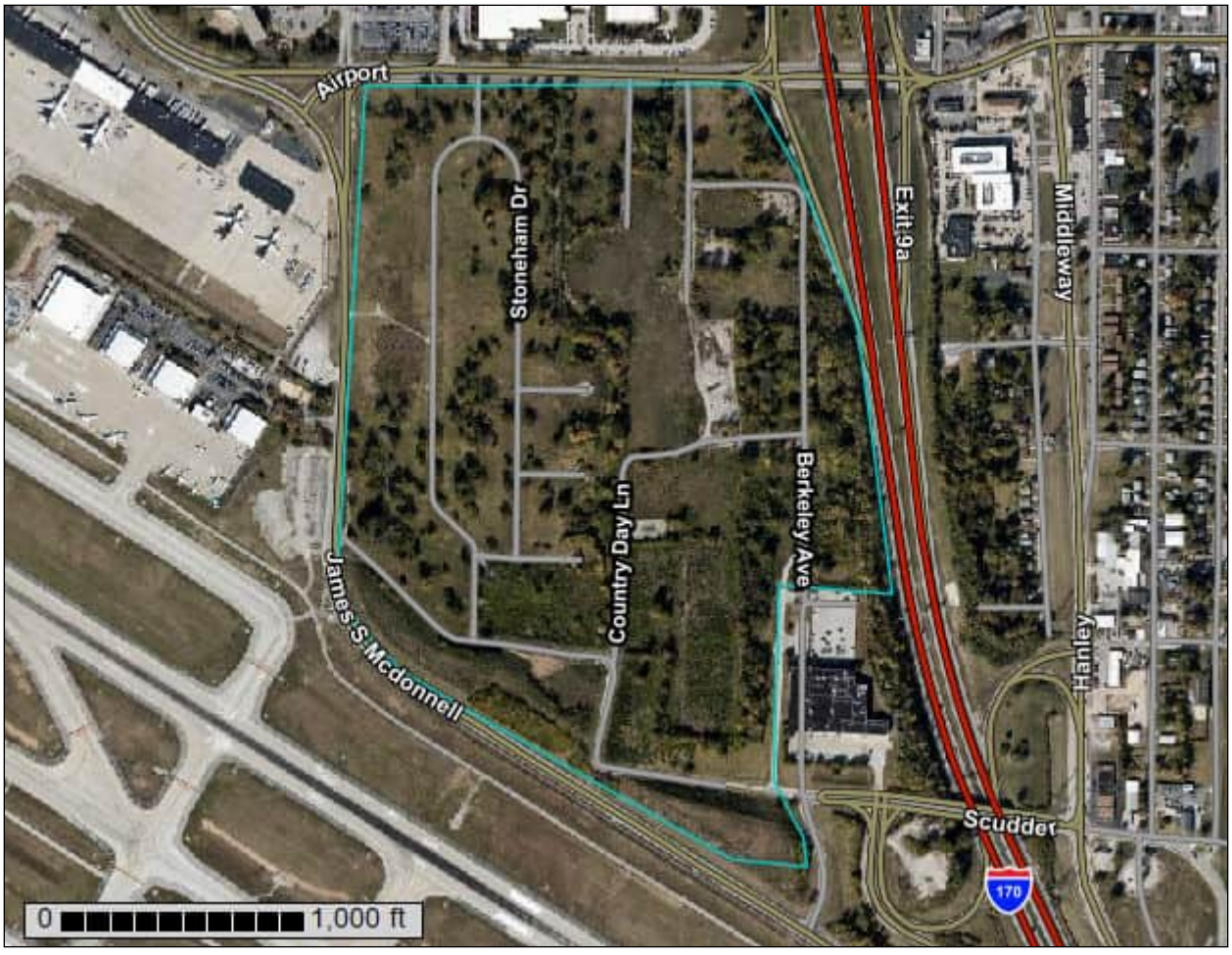
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for St. Louis County and St. Louis City, Missouri



March 14, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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Soil Map

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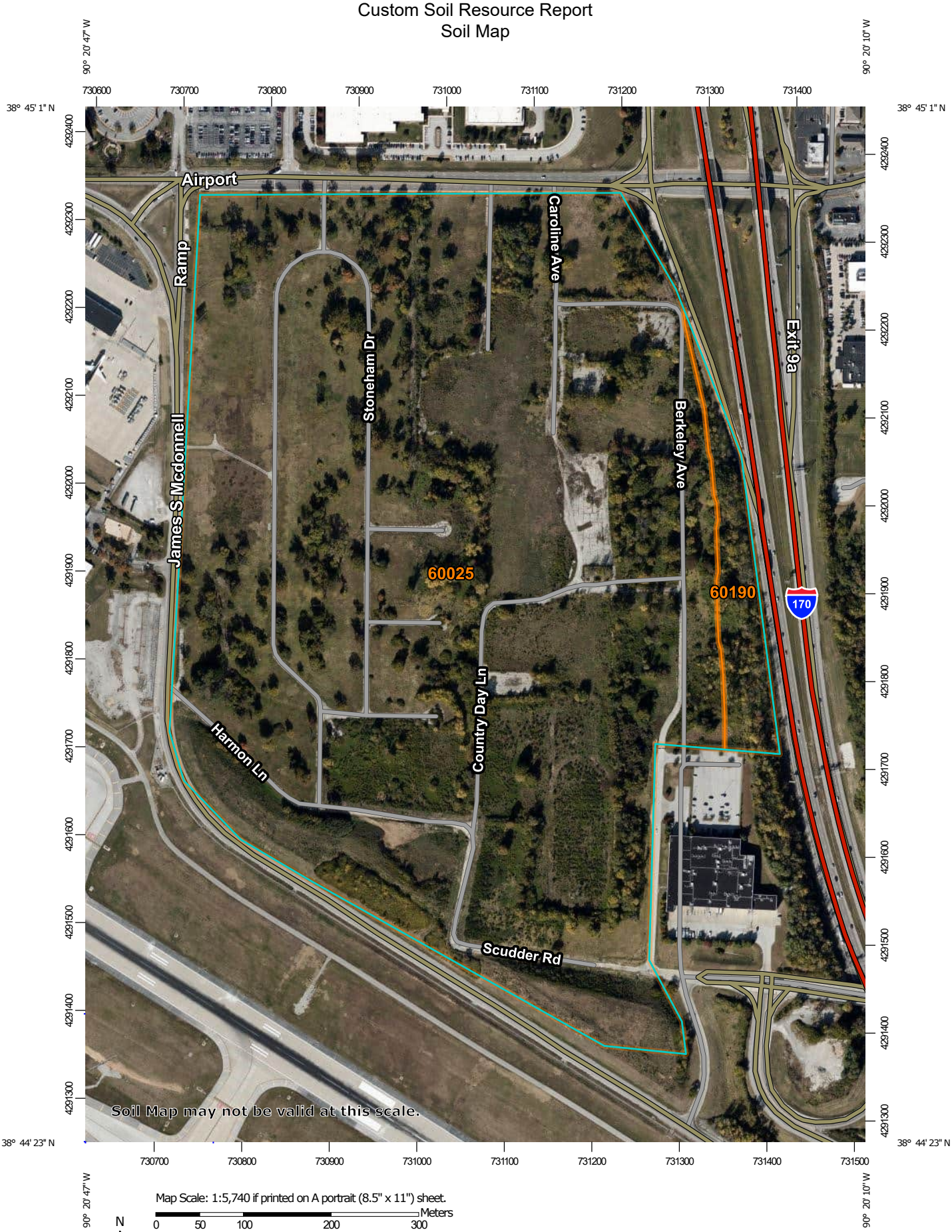
Custom Soil Resource Report
Soil Map



Map Scale: 1:5,740 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: St. Louis County and St. Louis City, Missouri
Survey Area Data: Version 23, Sep 7, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 17, 2018—Oct 24, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
60025	Urban land-Harvester complex, 2 to 9 percent slopes	121.3	96.3%
60190	Menfro-Urban land complex, 5 to 9 percent slopes	4.7	3.7%
Totals for Area of Interest		**126.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

St. Louis County and St. Louis City, Missouri

60025—Urban land-Harvester complex, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2qp0t
Elevation: 310 to 1,020 feet
Mean annual precipitation: 37 to 47 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 184 to 228 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 55 percent
Harvester and similar soils: 40 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Harvester

Setting

Landform: Hillslopes, interfluves
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Loess

Typical profile

C1 - 0 to 7 inches: silt loam
C2 - 7 to 31 inches: silty clay loam
C3 - 31 to 80 inches: clay loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 30 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C
Ecological site: F115XB061MO - Anthropic Deep Loess Upland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Minor Components

Winfield

Percent of map unit: 5 percent
Landform: Hillslopes, ridges
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F115XB003MO - Deep Loess Protected Backslope Forest, F115XB043MO - Deep Loess Exposed Backslope Woodland
Hydric soil rating: No

60190—Menfro-Urban land complex, 5 to 9 percent slopes

Map Unit Setting

National map unit symbol: 128rk
Elevation: 400 to 980 feet
Mean annual precipitation: 31 to 43 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 160 to 190 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Menfro and similar soils: 55 percent
Urban land: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Menfro

Setting

Landform: Hillslopes, ridges
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess

Typical profile

Ap - 0 to 6 inches: silt loam
Bt1 - 6 to 11 inches: silt loam
Bt2 - 11 to 34 inches: silty clay loam
Bt3 - 34 to 60 inches: silt loam

Properties and qualities

Slope: 5 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 12.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F115XB001MO - Deep Loess Upland Woodland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Harvester

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F115XB061MO - Anthropic Deep Loess Upland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for St. Louis County and St. Louis City, Missouri

March 14, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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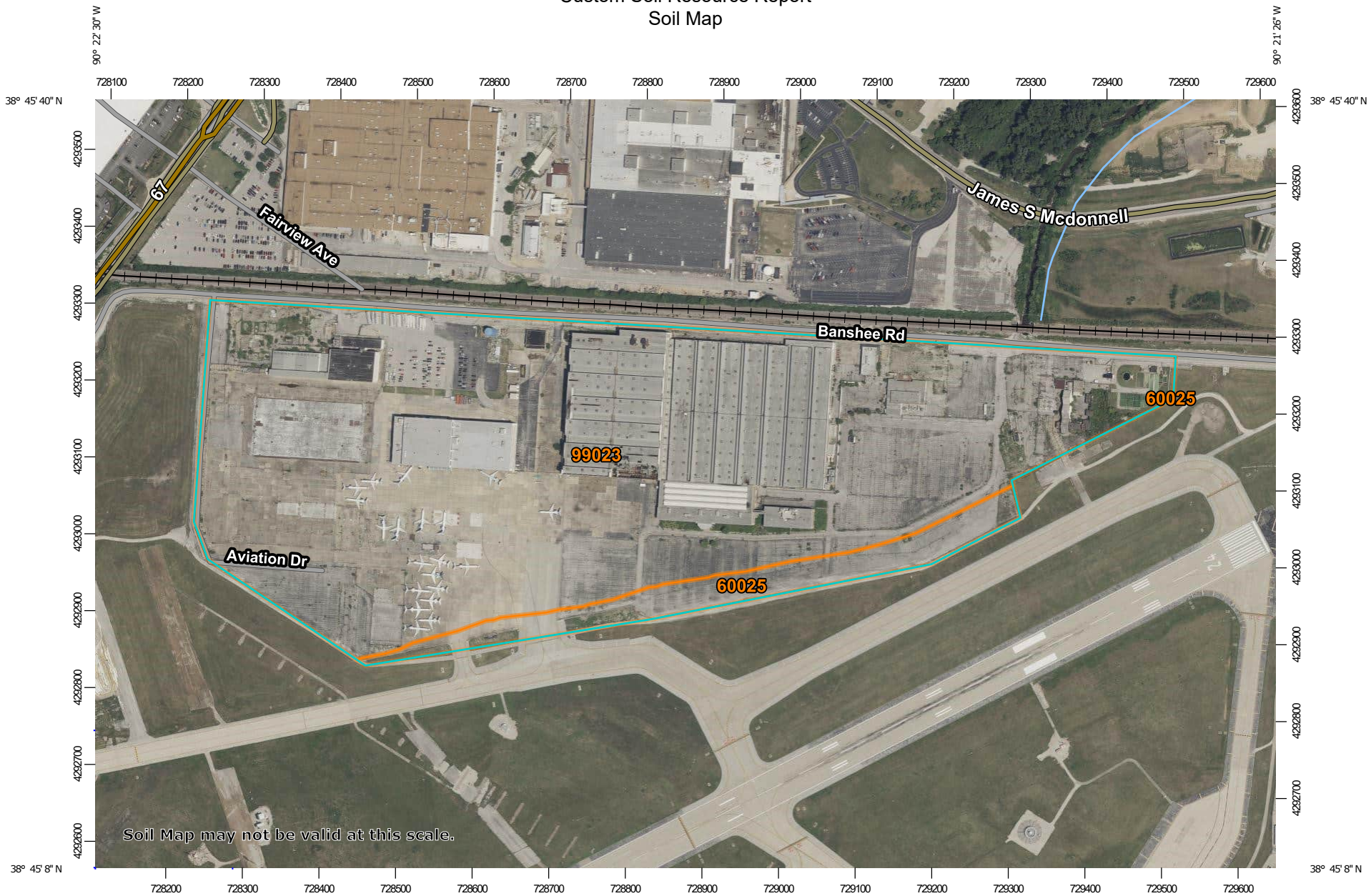
90° 22' 30" W
90° 21' 26" W
38° 45' 40" N
38° 45' 8" N
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729500
729600
4293600
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4293400
4293300
4293200
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4293000
4292900
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67
Fairview Ave
James S Mcdonnell
Banshee Rd
Aviation Dr
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Soil Map may not be valid at this scale.
Map Scale: 1:7,050 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
100
200
400
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Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

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- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: St. Louis County and St. Louis City, Missouri
Survey Area Data: Version 23, Sep 7, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 22, 2022—Aug 25, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
60025	Urban land-Harvester complex, 2 to 9 percent slopes	7.6	7.3%
99023	Urban land, upland, 0 to 5 percent slopes	95.9	92.7%
Totals for Area of Interest		**103.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

St. Louis County and St. Louis City, Missouri

60025—Urban land-Harvester complex, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2qp0t
Elevation: 310 to 1,020 feet
Mean annual precipitation: 37 to 47 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 184 to 228 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 55 percent
Harvester and similar soils: 40 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Harvester

Setting

Landform: Hillslopes, interfluves
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Loess

Typical profile

C1 - 0 to 7 inches: silt loam
C2 - 7 to 31 inches: silty clay loam
C3 - 31 to 80 inches: clay loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 30 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C
Ecological site: F115XB061MO - Anthropic Deep Loess Upland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Minor Components

Winfield
Percent of map unit: 5 percent
Landform: Hillslopes, ridges
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F115XB003MO - Deep Loess Protected Backslope Forest, F115XB043MO - Deep Loess Exposed Backslope Woodland
Hydric soil rating: No

99023—Urban land, upland, 0 to 5 percent slopes

Map Unit Setting
National map unit symbol: 128qs
Mean annual precipitation: 36 to 43 inches
Farmland classification: Not prime farmland

Map Unit Composition
Urban land: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting
Landform: Hills

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

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Appendix E
U.S. Fish and Wildlife Service National Wetlands Inventory

U.S. Fish and Wildlife Service
National Wetlands Inventory

Brownleigh

March 14, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

U.S. Fish and Wildlife Service
National Wetlands Inventory

Northern Tract

March 14, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

From: Roberts, Andy <andy_roberts@fws.gov>
Sent: Tuesday, May 23, 2023 11:14 AM
To: Jackson, Sara <Sara.Jackson1@jacobs.com>
Cc: Murphy (US), Andrew <andrew.murphy4@boeing.com>; Tener, Scott (FAA) <scott.tener@faa.gov>; Beckmann, Gerald A. <GABeckmann@flystl.com>; Weber, John S <John_S_Weber@fws.gov>
Subject: Re: [EXTERNAL] Request for Informal Section 7 Consultation - Boeing Site Development Project at STL

Dear Ms. Jackson,

The U.S. Fish and Wildlife Service has reviewed your May 11, 2023, email and enclosures requesting consultation on the proposed site development project in St. Louis County, Missouri and submits these comments pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544).

Based on the information the Service concurs with your determination that the proposed work is not likely to adversely affect federally listed species. Should the scope, timing, or manner of activity change, please contact this office.

Thank you for the opportunity to review the proposed project.

Sincerely,

Andy Roberts

From: Jackson, Sara <Sara.Jackson1@jacobs.com>
Sent: Thursday, May 11, 2023 11:57 AM
To: Roberts, Andy <andy_roberts@fws.gov>
Cc: Murphy (US), Andrew andrew.murphy4@boeing.com>; Tener, Scott (FAA) <scott.tener@faa.gov>; Beckmann, Gerald A. <GABeckmann@flystl.com>
Subject: [EXTERNAL] Request for Informal Section 7 Consultation - Boeing Site Development Project at STL

Good afternoon, Mr. Roberts –
Jacobs Engineering (Jacobs), on behalf of the Federal Aviation Administration (FAA), would like to initiate informal Section 7 consultation for a Boeing site development project at St. Louis Lambert International Airport (STL). Per the email chain below, we are submitting this request to you in Vona Kuczynska's absence.

The following agencies/groups and associated points of contact are involved in this effort:
Lead Federal Agency: FAA (Scott Tener)
Action Sponsor: STL (Jerry Beckmann)
Partner: Boeing (Andy Murphy)
Consultant: Jacobs (Sara Jackson)

Under this proposed project, Boeing would lease two parcels of land from STL and redevelop the land for aircraft assembly and testing purposes. Both sites, the Northern Tract and Brownleigh, are previously developed. The Northern Tract is almost completely paved and contains several buildings. The Brownleigh site was a former neighborhood that was purchased by STL and all structures were demolished; the area is vegetated. Full descriptions of the sites and the proposed activities are included in the attachments to this email, which include:

1. IPaC consultation packages for each site
2. A Biological Evaluation prepared in support of this consultation effort and a NEPA evaluation that is underway

Please confirm receipt of this email and its three attachments. We respectfully request your response within 30 days.

Thank you for your assistance. Please let me know if you have any questions or need supplemental information.

Sincerely,
Sara Jackson

Sara Jackson, PMP, REM, REPA, CEA | Jacobs | Sr. Environmental Scientist
O: 407.903.5128 | M: 321.890.3648 | sara.jackson1@jacobs.com
200 S. Orange Avenue Suite 900 | Orlando, FL 32801 | USA

Appendix D
Section 4(f) Statement

Section 4(f) Statement
St. Louis Lambert International Airport
Site Development for Aircraft Assembly and Flight Testing

Revision no: Draft

Boeing

St. Louis Lambert International Airport
September 2023

Contents

Tables

Figures

Acronyms and Abbreviations

Acronym	Definition
§	Sections
ACHP	Advisory Council on Historic Preservation
the airport	St. Louis Lambert International Airport
ALP	Airport Layout Plan
ATS	Airport Terminal Services
Boeing	The Boeing Company
CFR	*Code of Federal Regulations*
CUP	Central Utility Plan
DOT	Department of Transportation
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
ft^2	square feet
FTA	Federal Transit Administration
HUD	Housing and Urban Development
LWCF	Land and Water Conservation Fund
MOA	Memorandum of Agreement
MRO	maintenance, repair, overhaul
NHPA	*National Historic Preservation Act*
NRHP	National Register of Historic Places
RCS	Radar Cross Section
SCIF	Sensitive Compartmented Information Facilities
SHPO	State Historic Preservation Office
STL	St. Louis Lambert International Airport
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture

If using a screen reader, you may need to adjust your default settings.

1. Introduction

Section 4(f) of the U.S. Department of Transportation (DOT) Act of 1966 protects significant publicly owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites that are listed or eligible for listing on the National Register of Historic Places. Although it is now codified as 49 U.S. Code (U.S.C.) Section 303, the regulation is still referred to as Section 4(f). Section 4(f) provides that the Secretary of Transportation may approve a transportation program or project requiring the use of publicly owned land from a public park, recreation area, or wildlife or waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance, only if there is no feasible and prudent alternative to using that land and the program or project includes all possible planning to minimize harm resulting from the use.

The Federal Aviation Administration (FAA) refers to a stand-alone Section 4(f) evaluation as a Section 4(f) Statement. This draft Section 4(f) Statement addresses the proposed project to allow St. Louis Lambert International Airport's (the airport's or STL's) partner, the Boeing Company (Boeing), develop airport property in support of defense-related aircraft assembly and testing operations (Proposed Action) at the airport in St. Louis County, St. Louis, Missouri. The airport is a commercial service airport owned by the City of St. Louis and daily operations at the airport are managed by the St. Louis Airport Authority. Implementation of the Proposed Action would result in the physical use of Section 4(f) properties.

This draft Section 4(f) Statement provides the required documentation to demonstrate that there is no feasible and prudent alternative that would avoid the use of Section 4(f) properties, and that the project includes all possible planning to minimize harm resulting from its use.

2. Description of the Proposed Action

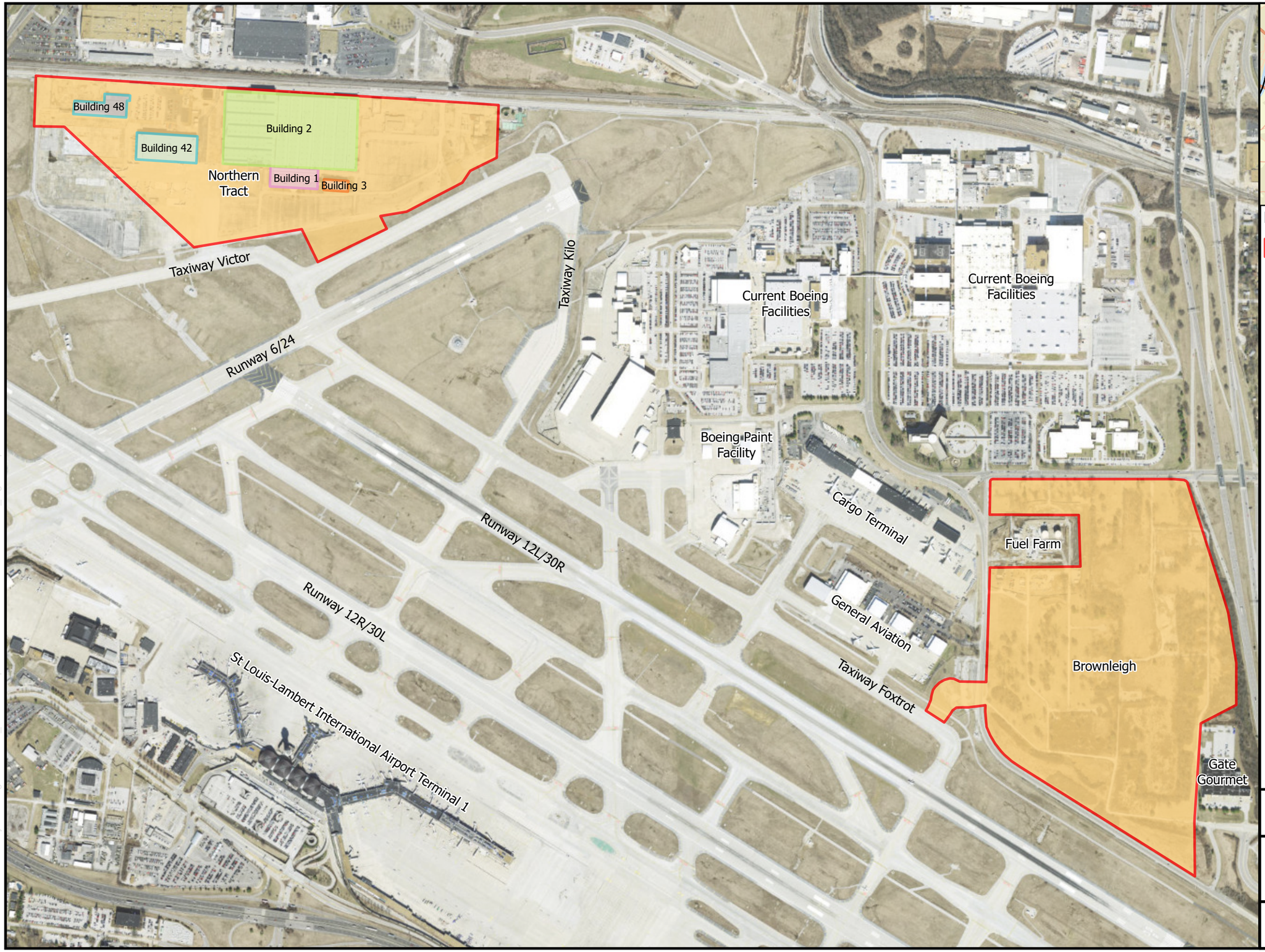
The airport's partner, Boeing, proposes to lease land from the airport to support construction and operation for U.S. defense-related aircraft production and testing.

Figure 2-1 depicts tracts of land at the airport evaluated for development (Berry Hill/Golf Course parcels, Northern Tract parcel, Air Cargo Facility, and Brownleigh parcel). Aircraft flight testing, evaluation, and product delivery require a parcel with direct access between the proposed hangar and associated facilities to the existing taxiways and runways at the airport. Flight testing is proposed to take place in similar airspace away from the airport that is used by legacy programs originating from the airport.

Figure 2-1. Tracts of Land Evaluated for Development at St. Louis Lambert International Airport

Source: Boeing 2023.

Under the Proposed Action Alternative, the airport's partner, Boeing, would lease two parcels, the 75-acre Northern Tract and 110-acre Brownleigh, from the airport to support construction and operation of Boeing's Assembly and Testing Campus (Figure 2-2).



LEGEND:

Detailed Study Area

N

BASE MAP SOURCE:
USGS USA Topo Map

0 1,000
FEET

Site Map
Boeing STL Expansion

Figure 2-2
Proposed Action Alternative

DATE: 8/23/2023

Jacobs

\\dc1vs01\GISProj\B\Boeing\D36888301_StLouis\MapFiles\NaturalResources+EA\Proj\EA_Figures.aprx

Phases 1 and 2, as designed on Brownleigh and Northern Tract, include a total of 2,612,000 square feet (ft^2) of building construction, would have approximately 2,096 occupants, and would result in 165 to 185 acres of land development. The target occupancy is January 2026 for Phase 1 on Brownleigh parcel, January 2027 for Phase 1 on Northern Tract parcel, and January 2029 for Phase 2 on both parcels.

The Phase 1 planned construction on Brownleigh are as follows:

- Approximately 979,000-ft^2 Assembly Building
- Approximately 82,000-ft^2 Central Utility Plant (CUP)
- Taxiway to connect Taxiway Foxtrot to the Brownleigh parcel

The Phase 1 planned construction on Northern Tract is as follows:

- Approximately 191,500-ft^2 Hangar
- Approximately 94,550-ft^2 Radar Cross Section (RCS) Range Building
- Approximately 58,000- ft^2 CUP
- Approximately 25,000-ft^2, Open-air Aircraft Shelters (Launch and Recovery Structures)
- Approximately 14,500-ft^2 Hush House
- Approximately 15,600-ft^2 Maintenance Building
- Approximately 15,200-ft^2 Fuel Calibration Building
- Approximately 11,800-ft^2 Fire Department Satellite Building
- Several small support or storage structures (each under 10,000 ft^2)
- Taxiways to connect Taxiway Victor to the Northern Tract parcel

The Phase 2 planned construction on Brownleigh is as follows:

- Approximately 720,000-ft^2 Assembly Building

The Phase 2 planned construction on Northern Tract is as follows:

- Approximately 75,700-ft^2 Hangar addition
- Approximately 205,000-ft^2 Paint Building
- Approximately 12,500-ft^2 additional Open-air Aircraft Shelters (Launch and Recovery Structures)
- Approximately 13,300-ft^2 additional Hush House
- Approximately 12,000-ft^2 additional Fuel Calibration Building

A test fit assessment evaluated a layout based on initial design requirements. That potential layout passed the test fit and would have sufficient functionality, would strengthen compatibility with adjacent facilities, would increase operations efficiency, and would increase future flexibility. Additional capabilities and design requirements were added after charettes and design reviews resulting in a larger Assembly Building and RCS as well as adding a Fire Department Satellite Building and CUP. This concurrent approach on these parcels meets the current design requirements and would still have sufficient functionality, would strengthen compatibility with adjacent facilities, would increase operations efficiency, and would increase future flexibility.

Both parcels would be connected to the airfield taxiways via taxiway connectors. One taxiway connector would link the Brownleigh parcel to Taxiway Foxtrot. Another two taxiway connectors would link the Northern Tract parcel to Taxiway Victor. The western and southern edges of the Northern Tract lie within the Runway 12L runway protection zone and underneath the Runway 12L approach and departure surfaces. Runway 6-24 is southeast of the Northern Tract parcel. The proposed towpath avoids the Runway 6-24 high-energy zones.

To construct the Phase 1 facilities, Boeing would demolish functionally obsolete buildings and structures on the parcels, clear vegetation, and level the ground as needed to create a pad-ready environment for the campus. Northern Tract facilities that would need to be demolished include the McDonnell Douglas complex (Building 1, Building 2, Building 3, Building 48, and associated structures) and asphalt surface parking.

The McDonnell Douglas complex buildings have been unoccupied and disconnected from utilities for more than 20 years and have been damaged by storms in recent years. Efforts to bring new tenants to the buildings using state tax credits and other incentives have not been successful. Additionally, the security level of the Boeing programs requires a structure to meet Intelligence Community Directive Number 705 standards, and the existing structures do not meet that standard. The buildings were purpose built for hands-on assembly line construction methods for the small planes that the Curtiss-Wright Aeroplane Factory produced during World War II. The buildings do not meet the needs of a modern aeronautical manufacturing tenant for internal configuration because of numerous internal columns, 20-foot-tall ceiling trusses, and a limited floor load (basements under majority of footprints).

Boeing would demolish Building 42 and asphalt surface parking as part of the implementation of Phase 2. Existing tenants of Building 42 (Airport Terminal Services [ATS] Jet Center and GoJet Airlines) would need to be relocated to new or existing facilities on airport property.

The Brownleigh parcel is currently vacant with the exception of a bulk fuel storage facility and Gate Gourmet facility, which would both remain in the Brownleigh area for future use.

Roads, parking areas, and other infrastructure would be created within the parcels during both phases. Parcels would be secured with new perimeter fencing, guardhouses, and badge access, similar to other Boeing facilities in the area.

Aircraft would be assembled on Brownleigh and then be towed across James S. McDonnell Boulevard into a secure holding area ("sally-port") with gated access to the Air Operations Area. Security measures would be put into place to control vehicular traffic during the towing operations; once the towing operations are complete, the road would re-open to vehicular traffic. From there, the airport's Air Traffic Control tower would approve access to the Air Operations Area, and the towed aircraft would proceed to the Northern Tract, avoiding the Runway 6-24 high-energy zones. Under Phase 1, these towing operations are anticipated to occur between two and four times per month. Under Phase 2, towing would increase to four to six times per month. Efforts would be made to avoid towing operations during high-traffic periods.

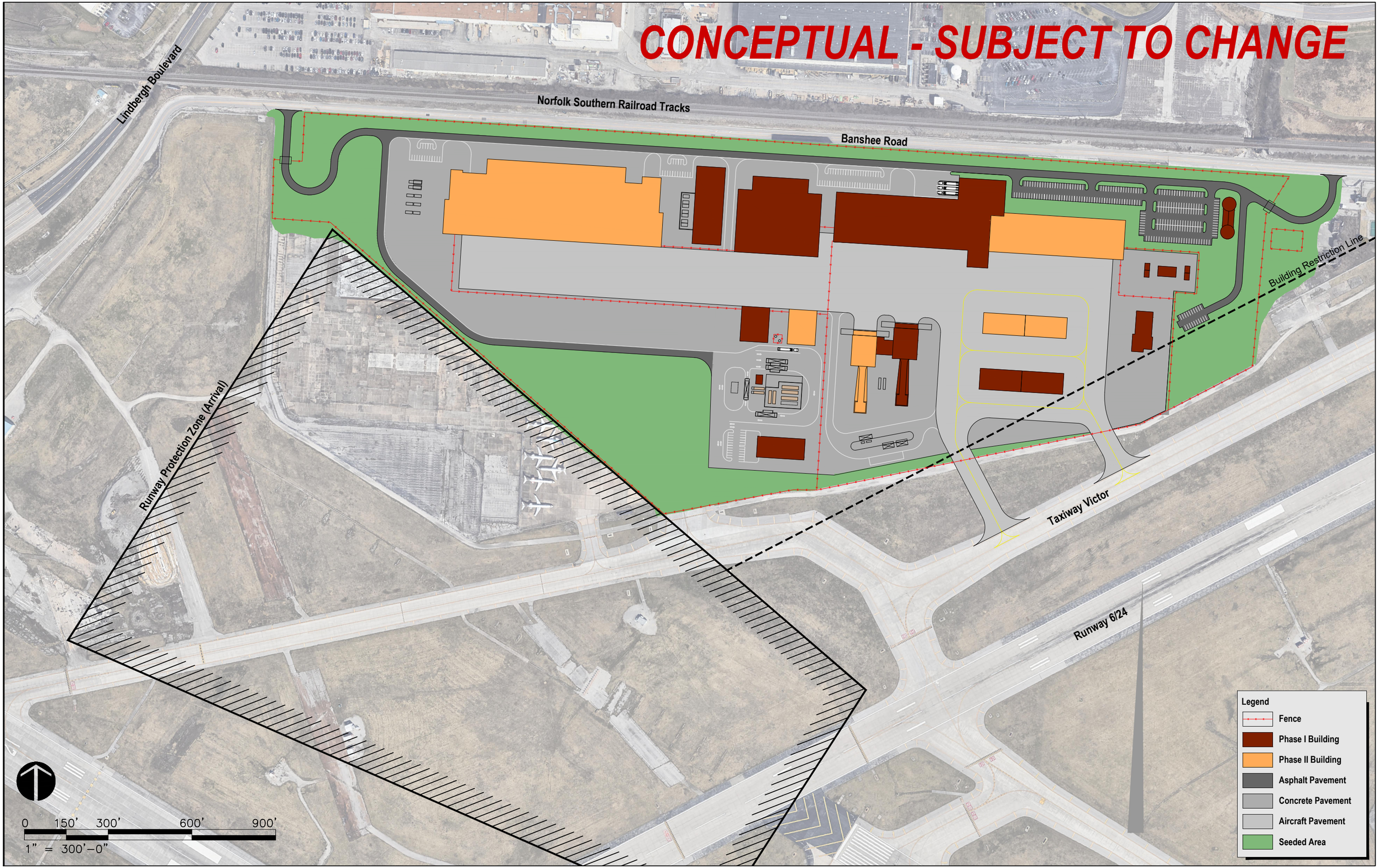
The Northern Tract parcel would contain the flight ramp structures, and the aircraft would move between the Hangar, Fuel Calibration Building, RCS, Hush House, and open-air shelters, as needed.

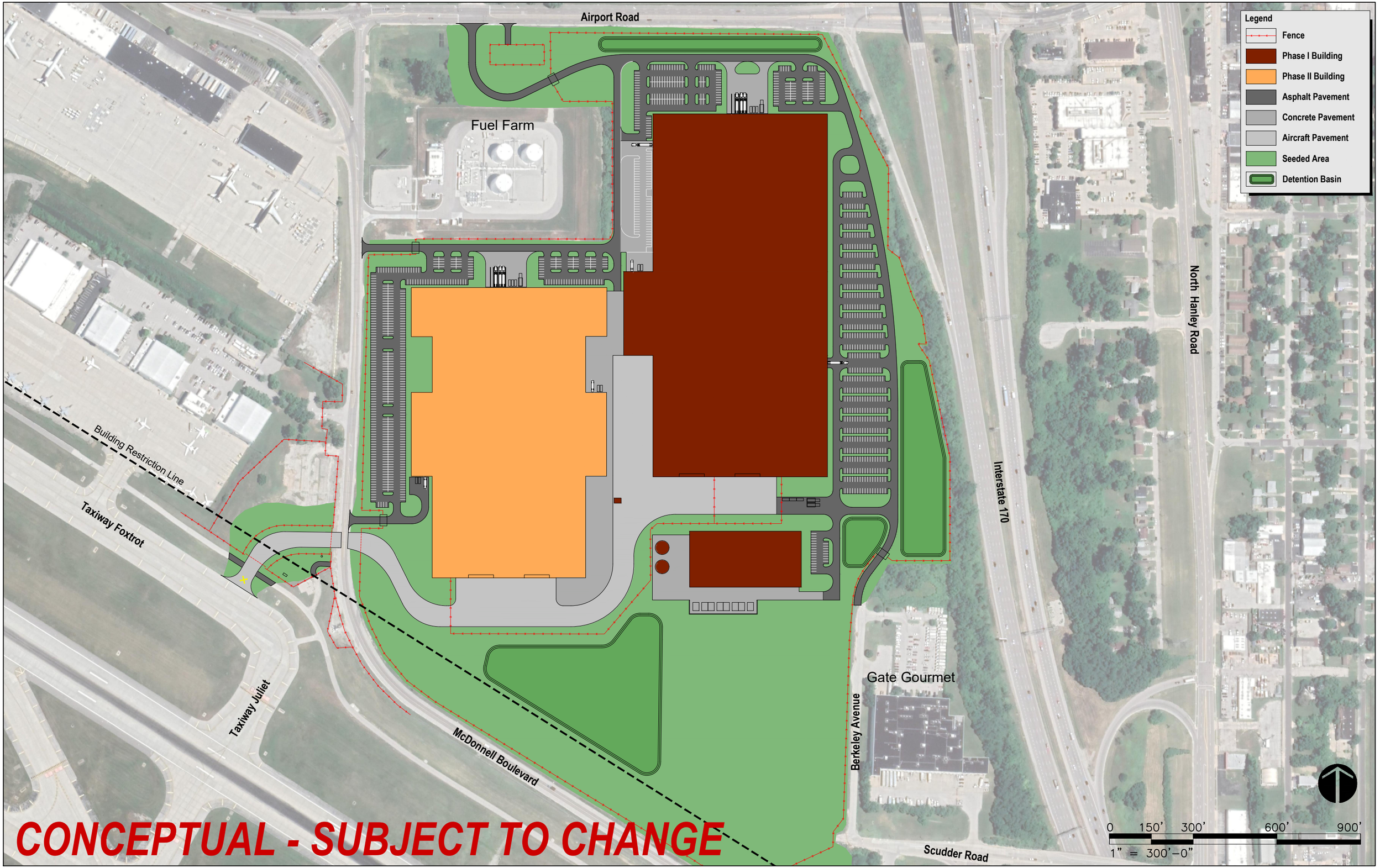
Aircraft operations are primarily the production acceptance of new-build aircraft and the U.S. Government acceptance of those aircraft at the factory. Boeing operates the aircraft built here in accordance with contractual requirements levied by their government customers to verify the aircraft meets the specifications and requirements set by these customers. For these contracts, the aircraft would be operated under Public Use rules with military airworthiness oversight. These activities, which would be supported by the Proposed Action continue the long-established, industry-standard processes for the acceptance of aircraft delivered to government customers. Flight testing would generally occur at the same rate and locations where current Boeing test flights are occurring today. There are currently 44 Boeing test flights per month (2 per day for 22 days a month) for all programs from the airport.

If Phase 2 is implemented, the parcels would generally have the same function and operations as Phase 1. Frequency of the movement from Brownleigh would increase as a result of the second Assembly Building coming online. Boeing anticipates towing operations between four and six times a month.

The precise design, footprint, and location of all projects are in the early planning stages. Figures 2-3 and 2-4 provide a conceptual layout for each parcel; however, this may change during the design process.

CONCEPTUAL - SUBJECT TO CHANGE




Airport Road
Fuel Farm
Legend
Fence
Phase I Building
Phase II Building
Asphalt Pavement
Concrete Pavement
Aircraft Pavement
Seeded Area
Detention Basin
North Hanley Road
Interstate 170
Building Restriction Line
Taxiway Foxtrot
Taxiway Juliet
McDonnell Boulevard
Gate Gourmet
Berkeley Avenue
Scudder Road
0 150’ 300’ 600’ 900’
1” = 300’–0”
CONCEPTUAL - SUBJECT TO CHANGE

3. Purpose and Need

The FAA *Reauthorization Act of 2018* requires that FAA ensure the safe and efficient use of airport properties and monitor the value of federal investments at airports. The purpose of the Proposed Action Alternative is to improve aircraft assembly capabilities at the airport and to allow Boeing additional airfield access for aircraft flight testing. The Proposed Action needs to occur to allow for the development of currently underused airport property, support regional economic development, and provide facilities necessary to support national defense objectives. FAA's major Federal action is the approval of a change to the airport's Airport Layout Plan (ALP).

4. Description of the Section 4(f) Properties

This section summarizes the historic properties that are protected under Section 4(f). The Section 4(f) properties are mapped on Figure 4-1. Information relating to the nature and location of archaeological sites is considered private and confidential and not for public disclosure in accordance with Section 304 of the *National Historic Preservation Act* (NHPA; 54 U.S.C. § 307103); 36 *Code of Federal Regulations* (CFR) Part 800.6(a)(5) of the Advisory Council on Historic Preservation's (ACHP's) rules implementing Sections 106 and 110 of NHPA; and Section 9(a) of the *Archaeological Resource Protection Act* (54 U.S.C. § 100707).

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Of the Section 4(f) properties shown on Figure 4-1, two historic properties would experience a physical use. The location of one archaeological site is unknown but the potential for physical use exists, as described herein. Constructive use and *de minimis* use of Section 4(f) properties are not anticipated.

4.1 Curtiss-Wright Aeroplane Factory

The Curtiss-Wright Aeroplane Factory (16000586), referred to as the McDonnell Douglas complex (5250 Banshee Road), is within the Northern Tract parcel, owned by the airport, and is a historic property listed in the National Register of Historic Places (NRHP) in 2016. It was listed as significant under Criterion A for its association with the military and industry, with a period of significance from 1940 to 1946. The property contains one contributing building composed of four sections and two contributing structures, a parking lot and an aeroplane apron. Although it is one building with connected sections (referred to as Sections A, B, C, and F in the NRHP nomination), this evaluation uses the building numbers provided by Boeing. Building 1 (Section A) was the administrative building, Building 2 (Sections B and C) was the factory, and Building 3 (Section F) was the engineering annex.

For this project, the property and its contributing resources were re-evaluated for NRHP eligibility. The complex was designed in the Modern style by master architect Albert Kahn (1869 to 1942), and the re-evaluation found it to be significant for its architectural characteristics and for its representation of the work of a master architect. The FAA determined the property eligible for listing in the NRHP under Criterion C, as the embodiment of a distinctive period in architecture and the representative work of a master architect. The Missouri State Historic Preservation Office (SHPO) concurred in a letter dated June 20, 2023. The findings of the 2016 nomination remain unchanged, including the period of significance and historic property boundary. The complex is significant under both Criterion A and Criterion C.

The Curtis-Wright Aeroplane Factory is mapped on Figure 4-1, which shows its contributing resources. Photos of the property are provided as Figures 4-2 through 4-6.

Figure 4-2. Curtiss-Wright Aeroplane Factory, Building Section B, looking east

Figure 4-3. Curtiss-Wright Aeroplane Factory, Building Section A, Section B (background), and Section C, looking west

Figure 4-4. Curtiss-Wright Aeroplane Factory, Building Section A, looking north

Figure 4-5. Curtiss-Wright Aeroplane Factory, Building Section A and Section B (center), looking north

Figure 4-6. Curtiss-Wright Aeroplane Factory, Building 3, Segment F, looking north

Under Phase 1 activities for the Proposed Action, Boeing would demolish all of the contributing resources and associated facilities of the Curtiss-Wright Aeroplane Factory, resulting in an adverse effect under Section 106 of NHPA and a Section 4(f) use of the historic property.

4.2 Building 42

Building 42 is part of the airport property within the Northern Tract parcel and is privately used as the GoJet maintenance, repair, overhaul (MRO) base and the ATS Jet Center fixed base operator. Built in 1951, Building 42 is a mid-20th-century industrial building with Modern architectural design elements similar to the Curtiss-Wright Aeroplane Factory (16000586). The building retains original features, such as the metal sash curtain wall windows, wooden doors, and metal sash hangar doors with multi-pane windows, typical of the early 1950s.

McDonnell Douglas constructed the building during a period of expanded operation that occurred in the postwar years. No master architect or engineer associated with the building was uncovered through research. The building is a representative property type constructed for the aerospace industry during the mid-20th century. The building was constructed outside of the period of significance for the Curtiss-Wright Aeroplane Factory property and does not contribute to that property.

The building retains sufficient historic integrity of association, design, materials, workmanship, location, and feeling with some diminishment in integrity of setting to reflect its architectural significance as a representative example of mid-century industrial design. Therefore, FAA determined Building 42 individually eligible for listing in the NRHP under Criterion C as an example of mid-20th-century aerospace architecture As part of the May 2023 Missouri SHPO submittal, Missouri SHPO's response in June 2023 did not include any comments on Building 42. Because the federal agency found the property eligible and the Missouri SHPO did not object, the property is considered eligible for listing in the NRHP under Criterion C.

Building 42 is mapped on Figure 4-1. Photos of the building are provided as Figures 4-7 through 4-9.

Figure 4-7. Building 42, looking northwest

Figure 4-8. Building 42, looking west

Figure 4-9. Building 42, looking northwest

Under Phase 2 activities for the Proposed Action, Boeing would demolish Building 42, resulting in an adverse effect under Section 106 of the NHPA and a Section 4(f) use of the historic property.

4.3 Archaeological Site 23SL354

Section 4(f) applies to archaeological sites that are listed on or eligible for the NRHP and that warrant preservation in place. Within the Brownleigh parcel, a single archaeological site was identified during the records search conducted for the project. The site, 23SL354, is a pre-contact (prehistoric) lithic scatter of Archaic temporal affiliation and is unevaluated for NRHP eligibility. Originally reported in 1979, the site location is ambiguous, and it is therefore unknown if the Proposed Action will impact this archaeological site. Because ground-disturbing activities would occur within the Brownleigh parcel from the proposed construction activities, monitoring during construction is recommended. If subsurface cultural deposits are found during construction, additional archaeological investigations would be done to determine the nature and extent of the deposits within the project footprint. If archaeological materials are identified during the monitoring, if project plans change, or additional parcels are added further consultation with Missouri SHPO would occur under Section 106 of the NHPA. If the site was found to be in the project footprint and determined eligible for the NRHP, a Section 4(f) evaluation would be required at that time.

5. Alternatives Analysis

5.1 Feasibility and Prudent Analysis

This section provides the analysis to determine if there are any feasible and prudent alternatives that would completely avoid the use of the Section 4(f) resources described in Section 4.0. Procedural requirements for complying with Section 4(f) are set forth in DOT Order 5610.1C. The FAA's desk reference to FAA Order 1050.1F, Environmental Impacts: Policies and Procedures provides the FAA with guidance on how the FAA should undertake Section 4(f) evaluations. This guidance is based on Federal Highway Administration (FHWA)/Federal Transit Administration (FTA) regulations in 23 CFR Part 774 and FHWA guidance (for example, Section 4(f) Policy Paper, 77 Federal Register 42802). These requirements are not binding on the FAA; however, the FAA may use them as guidance to the extent relevant to aviation projects.

According to the FHWA/FTA regulation at 23 CFR Section (§) 774.17:

1. A feasible and prudent alternative is one that avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. In assessing the importance of protecting the Section 4(f) property, it is appropriate to consider the relative value of the property [that is, some Section 4(f) properties are worthy of a greater degree of protection than others].
2. An alternative is not feasible if it cannot be built as a matter of sound engineering judgment.
3. An alternative is not prudent if it:
    i. Compromises a project to such a degree that it is unreasonable to proceed with the project in view of its stated Purpose and Need (that is, the alternative does not address the Purpose and Need of the project).
    ii. Results in unacceptable safety or operational problems.
    iii. Causes, after reasonable mitigation, the following:
        A. Severe social, economic, or environmental impacts
        B. Severe disruption to established communities
        C. Severe or disproportionate impacts to minority or low-income populations
        D. Severe impacts to environmental resources protected under other federal statutes
    iv. Results in additional construction, maintenance, or operational costs of an extraordinary magnitude.
    v. Causes other unique problems or unusual factors.
    vi. Involves multiple factors above that, although individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

A preliminary review of various avoidance alternatives was conducted. The review included:

- Use of another airport for aircraft assembly and testing
- No Action Alternative
- Action Alternative 3: Brownleigh Parcel and Existing Northern Air Cargo Facility Parcel

The use of another airport would not meet the project's Purpose and Need because the use of a different airport would not improve aircraft assembly capabilities at the airport. Boeing currently has facilities at the airport and moving the aircraft assembly and testing activities to another airport would increase operation costs for Boeing substantially to the point that the project would be unlikely to occur. For these reasons, the use of another airport was not considered a prudent avoidance alternative.

Other alternatives were developed that did meet the Purpose and Need. However, only the No Action Alternative and Action Alternative 3 – Brownleigh Parcel and Existing Northern Air Cargo Facility Parcel, would completely avoid the use of a Section 4(f) resource. Therefore, the alternatives that would involve the use of a Section 4(f) resource are described in more detail in the Least Overall Harm Analysis (Section 5.2).

5.1.1 No Action Alternative

Description: Under the No Action Alternative, the construction and demolition activities would not occur, and Boeing would be unable to develop national defense aircraft assembly and testing at the airport.

Feasible and Prudent Evaluation:

- The No Action Alternative would continue Boeing's operations as they are today; therefore, this alternative would be feasible.
- The No Action Alternative would avoid the physical use of Section 4(f) resources because Boeing would make no changes to their existing operations.
- The No Action Alternative would not meet the need of the project to allow for the development of currently underused airport property, support regional economic development, and provide facilities necessary to support national defense requirements at the airport.
- The No Action Alternative could result in Boeing moving their operations elsewhere because the airport is unable to provide the necessary facilities for its national defense assembly and testing needs. This could result in unacceptable operational problems for Boeing because it would be unable to co-locate its current facilities with those needed for national defense aircraft assembly and testing (23 CFR § 774.17, factor ii) and it would increase the costs for Boeing substantially to the point that the project would be unlikely to occur. Additionally, if Boeing were to move elsewhere in order to be able to avoid operational problems, it could cause severe economic impacts to the St. Louis area (23 CFR § 774.17, factor iii).

Summary: The No Action Alternative is feasible but is not prudent per 23 CFR § 774.17 because it would not meet the project's Purpose and Need.

5.1.2 Action Alternative 3: Brownleigh Parcel and Existing Northern Air Cargo Facility

Description: Under Action Alternative 3, Boeing's testing and assembly campus would be constructed on the Brownleigh parcel and the existing Northern Air Cargo Facility parcel.

Feasible and Prudent Evaluation:

- There is sufficient space at the Brownleigh and Northern Air Cargo Facility parcels for Boeing to construct their testing and assembly campus, and runway access for testing can be provided; therefore, this alternative would be feasible.
- Action Alternative 3 would avoid the physical use of historic Section 4(f) resources, as none were identified on these parcels. However, archaeological site 23SL354 is located on the Brownleigh parcel. The location of this unevaluated site remains ambiguous, therefore it is unknown if Action Alternative 3 would impact it. There is a potential for artifact discovery during construction monitoring, which could lead to additional historic property(s) impacted by construction. If that were to happen, additional Section 106 consultation and possible Section 4(f) evaluation would have to be conducted. Therefore, Action Alternative 3 may not be an avoidance alternative and determining whether it is an avoidance alternative cannot occur until construction.
- Action Alternative 3 would meet the need of the project to allow for the development of currently underused airport property, support regional economic development, and provide facilities necessary to support national defense requirements at the airport.

- Action Alternative 3 would require the relocation of FedEx, UPS, and Amazon Air (Prime), the primary tenants at the Northern Air Cargo Facility. Air cargo services must be maintained at the airport so these tenants could not be relocated until a replacement facility at a new location at the airport has been selected, designed, and constructed. The relocation of these tenants would result in extraordinary construction costs (23 CFR § 774.17, factor iv) and would result in substantial delays in the construction of the Boeing testing and assembly campus such that the required implementation schedule could not be met and the project could no longer proceed (23 CFR § 774.17, factor i). Additionally, depending on where these facilities could be constructed, there is a possibility that the only option available would result in use of a Section 4(f) resource.

Summary: Action Alternative 3 may be an avoidance alternative. Additionally, it is feasible but is not prudent per 23 CFR § 774.17.

5.1.3 Summary of Avoidance Alternatives

The No Action Alternative and Action Alternative 3 are both considered feasible but are not prudent per 23 CFR § 774.17. There are no feasible and prudent alternatives that completely avoid the use of Section 4(f) resources.

5.2 Least Overall Harm Analysis

The Section 4(f) regulation states that, if there is no feasible and prudent alternative that avoids use of Section 4(f) properties, FAA "may approve only the alternative that causes the least overall harm in light of the statute's preservation purpose." In determining the alternative that causes the least overall harm, the following factors must be balanced (23 CFR § 774.3):

i. The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property).

ii. The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection.

iii. The relative significance of each Section 4(f) property.

iv. The views of the official(s) with jurisdiction over each Section 4(f) property.

v. The degree to which each alternative meets the Purpose and Need for the project.

vi. After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f).

vii. Substantial differences in costs among the alternatives.

Three alternatives were considered for the project: the Proposed Action Alternative (Brownleigh and Northern Tract Parcels – Concurrent Development), Action Alternative 1 (Berry Hill/Golf Course Parcels), and Action Alternative 2 (Brownleigh and Northern Tract Parcels – Sequential Development – Northern Tract Parcel only for Phase 2).

5.2.1 Proposed Action Alternative: Brownleigh and Northern Tract Parcels (Concurrent Development)

Description: Under the Proposed Action Alternative, the airport's partner, Boeing, would lease two parcels, the 75-acre Northern Tract and 110-acre Brownleigh, from the airport to support construction and operation of Boeing's Assembly and Testing Campus. Phases 1 and 2, as designed on Brownleigh and Northern Tract, include a total of 2,612,000 ft^2 of building construction, would have approximately 2,096 occupants, and would result in 165 to 185 acres of land development. Facilities that would be constructed include assembly buildings, CUPs, taxiway connections, a hangar and hangar addition, an RCS-range building, open-air aircraft shelters, hush houses, maintenance building, fuel calibration buildings, fire department satellite building, support/storage structures, and a paint hangar. Roads, parking areas, and

other infrastructure would be created within the parcels during both phases. Parcels would be secured with new perimeter fencing, guardhouses, and badge access, similar to other Boeing facilities in the area.

To construct the Phase 1 facilities, Boeing would demolish functionally obsolete buildings and structures on the parcels, clear vegetation, and level the ground as needed to create a pad-ready environment for the campus. Northern Tract facilities that would need to be demolished include the McDonnell Douglas complex (Building 1, Building 2, Building 3, Building 48, and associated structures) and asphalt surface parking.

Boeing would demolish Building 42 and asphalt surface parking as part of the implementation of Phase 2. Existing tenants of Building 42 (ATS Jet Center and GoJet Airlines) would need to be relocated to new or existing facilities on airport property. The airport, in coordination with FAA, would evaluate available sites to determine compatibility with other airport uses in a future *National Environmental Policy Act of 1969* process.

Least Overall Harm Evaluation:

- The Proposed Action best meets the project Purpose and Need by developing the currently underused Brownleigh and Northern Tracts parcels and providing the facilities necessary to support national defense requirements.
- The Proposed Action would result in a physical use of a Section 4(f) resource with the total demolition of the NRHP-listed Curtiss-Wright Aeroplane Factory contributing buildings and associated facilities and NRHP-eligible Building 42. All of the existing structures on the Northern Tract would need to be demolished in order to allow Boeing to construct their Assembly and Testing Campus. The demolition of these sites would constitute an adverse effect to eligible or listed historic properties under Section 106 and a physical use of Section 4(f) resources.
- Reuse of the existing historic buildings and structures that compose the Curtiss-Wright Aeroplane Factory was considered but it was determined that reuse would result in design challenges that could not be entirely overcome. The functionally obsolete existing buildings have been unoccupied and disconnected from utilities for more than 20 years and damaged by storms in recent years, resulting in flooding (over 6 feet of standing water) and roof and external structure damage. Efforts by the airport to bring new tenants to the buildings using state tax credits and other incentives have not been successful. The security level of the Boeing programs requires that the Proposed Action facilities meet Intelligence Community Directive Number 705 standards, and the existing buildings do not meet those standards. The directive requires that Sensitive Compartmented Information Facilities (SCIFs) be designed such that perimeter walls, windows, doors, ceiling, and floor act as a physical barrier to forced, covert, and surreptitious entry. There are limitations on allowable facility design that include how the walls, floors, and ceilings all attach to one another in a manner that essentially forms a 6-sided box with radio frequency shielding that is tied and grounded. Additional acoustic protections and access control would also be required. The existing buildings were purpose built for hands-on assembly line construction methods for the small planes that the Curtiss-Wright Aeroplane Factory produced during World War II. The buildings do not meet the internal configuration needs of a modern aeronautical manufacturing tenant because of numerous internal structural support columns, 20-foot-tall ceiling trusses (35-foot clearance is required), and a limited floor load (because of basements under the majority of the building footprints). The cost to renovate and reuse the historic properties to meet SCIF security standards and design requirements would cost an estimated $600 million, which is substantially higher than the cost to demolish the historic structures and construct a new facility (estimated $200 million).
- The SHPO has been consulted regarding the proposed project and concurs there are no mitigation measures under this alternative that would avoid the physical use of Section 4(f) resources.
- Based on Boeing's site sizing, taxiway connection needs, and schedule requirements, the Brownleigh and Northern Tract parcels (Concurrent Development) has been selected as the option that best meets the Purpose and Need compared to the other alternatives; therefore, it has been selected as the Proposed Action Alternative.

5.2.2 Action Alternative 1: Berry Hill/Golf Course Parcels

Description: Action Alternative 1 would involve constructing Boeing's Assembly and Testing Campus on two parcels, the Berry Hill and Golf Course parcels during Phase 1 and Phase 2. The location of the Berry Hill/Golf Course parcels is shown on Figure 2-1.

The Berry Hill/Golf Course parcels are at the western end of the airport with limited vehicular access. They are also furthest from the existing Boeing facilities, requiring long tow operations to reach these existing facilities. The parcels slope into a large stormwater runoff pit, which creates challenges in grading the site and would result in substantial earthwork. Additionally, the airfield runoff would have to be diverted to a new location if the site was developed, and there is no known suitable location.

Large areas of the parcels closest to the runway are unusable because of mandatory height restrictions in areas with navigable airspace (14 CFR Part 77). The test fit assessment evaluated a layout using initial design requirements. This initial review found the taller assembly, radar testing, and hangar structures would create substantial layout challenges and result in additional site development costs as more of the parcels would need to be developed.

The center of the parcels contains the municipal Berry Hill/Golf Course, which is owned and maintained by the City of Bridgeton, and was funded using a Land and Water Conservation Fund (LWCF) grant (LWCF, 2023). The golf course would also be considered a Section 4(f) resource.

Least Overall Harm Evaluation:

- Action Alternative 1 partially meets the project Purpose and Need because it would develop the currently underused Berry Hill/Golf Course parcels and would provide the facilities necessary to support national defense requirements. However, Action Alternative 1 would result in severe constructability challenges because of the existing site topography and 14 CFR Part 77 glidepath restrictions. Large areas of the parcel closest to the runway are unusable for development due to mandatory height restrictions in areas with navigable airspace, resulting in constructability issues and schedule delays that reduce the degree to which Action Alternative 1 is able meet the project's Purpose and Need.
- The Proposed Action would not require the demolition of the historic properties on the Northern Tract parcel. However, it would result in the physical use of the municipal Berry Hill/Golf Course, a recreational Section 4(f) resource owned and maintained for public use by the City of Bridgeton. Action Alternative 1 would require total demolition of all of the existing structures and site features on the Berry Hill/Golf Course parcels. The demolition of the Berry Hill/Golf Course would constitute a physical use of a Section 4(f) resource.
- There are no mitigation measures under this alternative that would avoid the physical use of the recreational Section 4(f) resource.
- Section 6(f) of the LWCF Act (16 U.S.C. Section 4601 et. seq.) (36 CFR Part 59) provides funds for buying or developing public use recreational lands through grants to local and state governments. Section 6(f)(3) prevents conversion of lands purchased or developed with LWCF funds to non-recreation uses, unless the Secretary of the Department of the Interior, through the National Park Service, approves the conversion. The regulations state that a Section 6(f) resource must be continually maintained in public recreation use unless the Secretary of the Department of the Interior, through the National Park Service, approves substitution property of reasonably equivalent usefulness and location and of at least equal fair market value. The Berry Hill/Golf Course was funded through LWCF grants and is considered a Section 6(f) resource. Relocation of the Berry Hill/Golf Course to a comparable location within the City of Bridgeton would be challenging and time-consuming given the limited available options for relocation, resulting in construction delays for the project and additional cost.
- Other potential environmental impacts at the site would include the removal of bat roosting habitat. Construction activities are prohibited when bat species are present (April 1 through October 31), which would threaten Boeing's ability to complete the project within the required schedule. Additionally,

there would be permanent impacts to the streams located on the Berry Hill parcel, requiring additional mitigation.

- No specific cost estimate was prepared for Action Alternative 1; however, it is assumed that Action Alternative 1 would cost substantially more than the Proposed Action because Action Alternative 1 would require mitigation for stream impacts as well as the relocation of the airfield runoff and the Berry Hill/Golf Course to new locations, both of which would be costly and time-consuming.

5.2.3 Action Alternative 2: Brownleigh and Northern Tract Parcels (Sequential Development – Northern Tract Parcel only for Phase 2)

Description: Throughout the planning process, different approaches using the Brownleigh and Northern Tract parcels were studied. Action Alternative 2, similar to the Proposed Action Alternative, uses the Northern Tract and Brownleigh to support construction and operation of Boeing's Assembly and Testing Campus, but Phase 1 construction would only occur on Brownleigh, and Phase 2 construction would occur on Brownleigh and the Northern Tract. Sequential phasing in Action Alternative 2 would require James S. McDonnell Boulevard to be permanently closed to accommodate the flight ramp from the Brownleigh parcel and to create the necessary access to the airfield.

Least Overall Harm Evaluation:

- The Proposed Action meets the project Purpose and Need because it would develop currently underused Brownleigh and Northern Tracts parcels, and would provide the facilities necessary to support national defense requirements. However, a sequential approach to construction would not meet the facility design requirements, resulting in a decreased functionality of the Assembly and Testing Campus that reduces the degree to which Action Alternative 2 meets the project's Purpose and Need.
- The Proposed Action would result in a physical use of a Section 4(f) resource with the total demolition of the NRHP-listed Curtiss-Wright Aeroplane Factory contributing buildings and associated facilities and NRHP-eligible Building 42. As described for the Proposed Action, all of the existing buildings and structures on the Northern Tract would have to be demolished in order to allow Boeing to construct their Assembly and Testing Campus. The demolition of these sites would constitute an adverse effect to historic properties under Section 106 and a physical use of Section 4(f) resources.
- There are no mitigation measures under this alternative that would avoid the physical use of Section 4(f) resources.
- Other potential environmental impacts at the site include the permanent closure of James S. McDonnell Boulevard. Although traffic could be rerouted to other local roadways, long-term residual impacts to local traffic patterns would be expected and the closure could affect access to general aviation facilities and impact area automobile and truck traffic.

5.3 Least Overall Harm Summary

The Proposed Action Alternative: Brownleigh and Northern Tract Parcels (Concurrent Development) has been identified as the alternative that best meets the project's Purpose and Need, results in the best alternative from a constructability and cost standpoint, and that causes the least overall harm. The least overall harm analysis is summarized, by alternative, in Table 5-1.

Table 5-1. Last Overall Harm Analysis Summary

Criteria	Proposed Action Alternative: Brownleigh and Northern Tract Parcels (Concurrent Development)	Action Alternative 1: Berry Hill/Golf Course Parcels	Action Alternative 2 Brownleigh and Northern Tract Parcels (Sequential Development)
Meets the Purpose and Need for the project?	Yes	Yes, however, failure to meet alternatives screening criteria reduces how well this alternative satisfies the Purpose and Need	Yes, however, failure to satisfy design requirements reduces how well this alternative satisfies the Purpose and Need
Ability to Mitigate adverse impacts to each Section 4(f) property	Yes, mitigation through the implementation of a Memorandum of Agreement (MOA) would be completed.	Limited. The Berry Hill/Golf Course would have to be relocated within the City of Bridgeton. It is unknown if there are suitable sites for a replacement recreation facility to be constructed. Section 6(f) coordination would have to occur regarding relocation options for the golf course.	Yes, mitigation through the implementation of an MOA would be completed.
Relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection	Equal	Equal, assuming a sufficient location for the relocation of the Berry Hill/Golf Course could be found.	Equal
Relative significance of each Section 4(f) property	Equal	Presumed equal. The City of Bridgeton (as the official with jurisdiction) was not consulted about the potential impacts of the Berry Hill/Golf Course.	Equal
Views of the official(s) with jurisdiction over each Section 4(f) property	Equal, acknowledged the adverse effect due to the demolition of Section 4(f) resources	Unknown. The City of Bridgeton was not consulted about the potential impacts to the Berry Hill/Golf Course because of the severe costs and constructability challenges associated with this alternative.	Equal, acknowledged adverse effect due to the demolition of Section 4(f) resources
After reasonable mitigation, the magnitude of any remaining adverse impacts to resources not protected by Section 4(f)	Temporary disruptions to traffic would occur when aircraft are towed from the assembly areas to the taxiways for testing (anticipated to occur between two to four times per month).	Several streams would be removed to accommodate the construction of this alternative. Permanent removal of bat roosting habitat onsite. Section 6(f) impacts would occur due to relocation of Berry Hill/Golf Course.	Long-term impacts to local traffic patterns would occur with the permanent closure of James S. McDonnell Boulevard. Although traffic could be rerouted to other local roadways, residual impacts to local traffic patterns would be expected and the closure could affect access to general aviation facilities and impact area automobile and truck traffic.

Criteria	Proposed Action Alternative: Brownleigh and Northern Tract Parcels (Concurrent Development)	Action Alternative 1: Berry Hill/Golf Course Parcels	Action Alternative 2 Brownleigh and Northern Tract Parcels (Sequential Development)
Substantial differences in costs among the alternatives	Equal.	Cost estimate not developed; would be substantially higher than other alternatives due to the relocation and construction of a new airfield stormwater runoff facility and relocation of the golf course pursuant to Section 6(f) requirements.	Equal.
Alternative with the least overall harm?	Yes. Two Section 4(f) resources would be demolished; however, this alternative would avoid Section 4(f)/6(f) impacts to the golf course, is less costly than other alternatives, and best meets the Purpose and Need by satisfying all design requirements.	No. One Section 4(f)/6(f) resource would be demolished requiring costly and challenging relocation of the golf course, bat roosting habitat and several streams will have to be removed likely resulting in higher costs, and the alternative does not fully meet the screening criteria reducing how well it satisfies the Purpose and Need.	No. The same Section 4(f) resources would be demolished as the Proposed Action; however, this alternative would require permanent closure of James S. McDonnell Boulevard, which would result in impacts to local traffic patterns, and the alternative does not meet the design requirements causing decreased functionality that reduces the degree to which it satisfies the Purpose and Need.

6. Mitigation

After thorough review of the identified alternatives, it was determined that there would be no feasible and prudent alternative that would meet the project's Purpose and Need and avoid the use Section 4(f) properties. The Preferred Alternative has the least overall harm of those alternatives that meet the Purpose and Need, but has a physical use of two historic Section 4(f) properties: Curtiss-Wright Aeroplane Factory and Building 42. If the Section 4(f) evaluation concludes there are no feasible and prudent alternatives to the use of Section 4(f) resource, it must also document that the project includes all possible planning to minimize harm or mitigate the Section 4(f) resource. As defined in 23 CFR 774.17, all possible planning means that all reasonable measures to minimize harm or mitigate adverse impacts must be included in the project.

Because the project requires the complete demolition of both historic properties, there are no measures to minimize harm to them. The FAA is consulting with the airport and the Missouri SHPO to develop an MOA under Section 106 of the NHPA, which will stipulate mitigation measures for the adverse effects.

Proposed mitigation measures in the MOA to resolve the adverse effects are as follows:

A. PHOTOGRAPHIC RECORD

Prior to the demolition of the existing Curtiss-Wright Aeroplane Factory and Building 42, Boeing will create a photographic record, 15 to 20 images of each of the facilities, in accordance with the National Register Photo Policy Standards. The SHPO will be consulted on the selection of images to be printed for archival purposes.

B. WEBSITE HISTORY

Boeing, in consultation with STL, the FAA, and SHPO, will create a website on the history of the Curtiss-Wright Aeroplane Factory and Building 42 using historical information from the Cultural Resources Report. The website will include historical, recordation photos and drone footage of the facilities. The website will be hosted by STL.

C. PERMANENT DISPLAY

Boeing, in consultation with STL, the FAA, and the SHPO, will create a permanent display inside the airport terminal building illustrating the history of the Curtiss-Wright Aeroplane Factory and Building 42 with text and images of the facilities, possible salvaged items that can be displayed, images of the original plans for the construction of the facilities, and a QR code leading people to the website.

D. ARCHAEOLOGICAL MONITORING

Boeing will contract with a Project archaeologist to provide construction archaeological monitoring during ground disturbing activities at the Brownleigh site.

7. Coordination with Agencies with Jurisdiction over the Section 4(f) Resource

As a part of the Section 4(f) requirements, the FAA is responsible for soliciting and considering the comments of the Department of Interior and, where appropriate, U.S. Department of Agriculture (USDA), or U.S. Department of Housing and Urban Development (HUD), as well as the appropriate official(s) with jurisdiction over the Section 4(f) property. The Proposed Action does not include the use of a national forest or land holding under the jurisdiction of the U.S. Forest Service; therefore, the USDA does not have jurisdiction over the identified Section 4(f) resource. In addition, because the Section 4(f) resource is building owned and operated by the City of St. Louis, HUD should have no interest in this Section 4(f) resource.

Because the properties that would be used under Section 4(f) are historic properties, the Missouri SHPO is the official with jurisdiction for these two properties. The FAA initiated consultation under Section 106 of the NHPA with the Missouri SHPO in May 2023. After the Missouri SHPO concurred with the Adverse Effect finding, FAA contacted the ACHP to ask if they want to participate in resolving the adverse effect. In response, in July 2023, the ACHP declined the invitation to consult. The ACHP requested the FAA to file the final Section 106 agreement document, developed in consultation with the Missouri SHPO and any other consulting parties with the ACHP at the conclusion of the consultation process. The filing of the Agreement and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the NHPA.

The following provides the date and summary of the coordination. Copies of the coordination documents are provided in the Draft Environmental Assessment.

- Initiated the Section 106 consultation process in May 2023 via letter to Missouri SHPO.
- Submitted the Cultural Resources Technical Report with eligibility determinations and an Adverse Effect finding in May 2023.
- Missouri SHPO concurred via letter in June 2023, that they concurred with the Adverse Effect finding.
- Upon Missouri SHPO concurrence, FAA notified the ACHP in June 2023 of the Adverse Effect finding and asked if they wanted to participate in the development of an MOA to address the adverse effect.
- ACHP responded in July 2023 declining the invitation to consult and requesting an executed copy of the MOA.

8. Section 4(f) Statement Conclusion

There are no alternatives that meet the Purpose and Need, are both prudent and feasible, and completely avoid the use of Section 4(f) resources. The Proposed Action has been identified as the alternative that causes the least overall harm. The FAA is consulting with the airport, Boeing, and the Missouri SHPO to develop an MOA under Section 106 of the NHPA that will stipulate the mitigation measures required.

The mitigation measures would be a requirement of the Proposed Action and would address the Section 4(f) requirement that the project minimize adverse impacts when there is a use of a Section 4(f) resource. FAA's final determination is withheld until after this draft statement has been circulated to the appropriate agencies and all issues have been appropriately evaluated.

9. References

Land and Water Conservation Fund (LWCF). 2023. Past Projects Mapping: St. Louis. Accessed June 23, 2023.

Appendix E
Socioeconomics, Environmental Justice, and Traffic Analysis

Figure E-1. Primary Access Roads to St. Louis Lambert International Airport

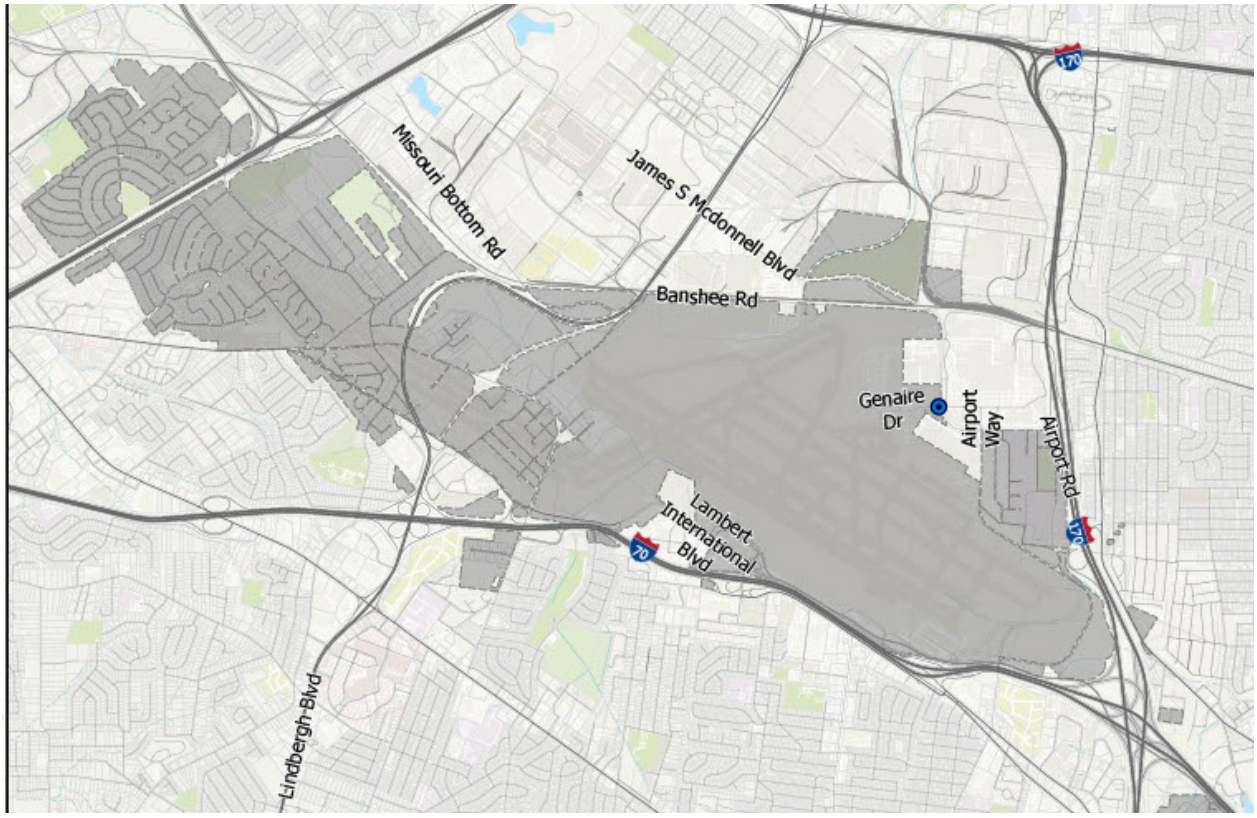


Figure E-2. Census Block Groups in the Study Area

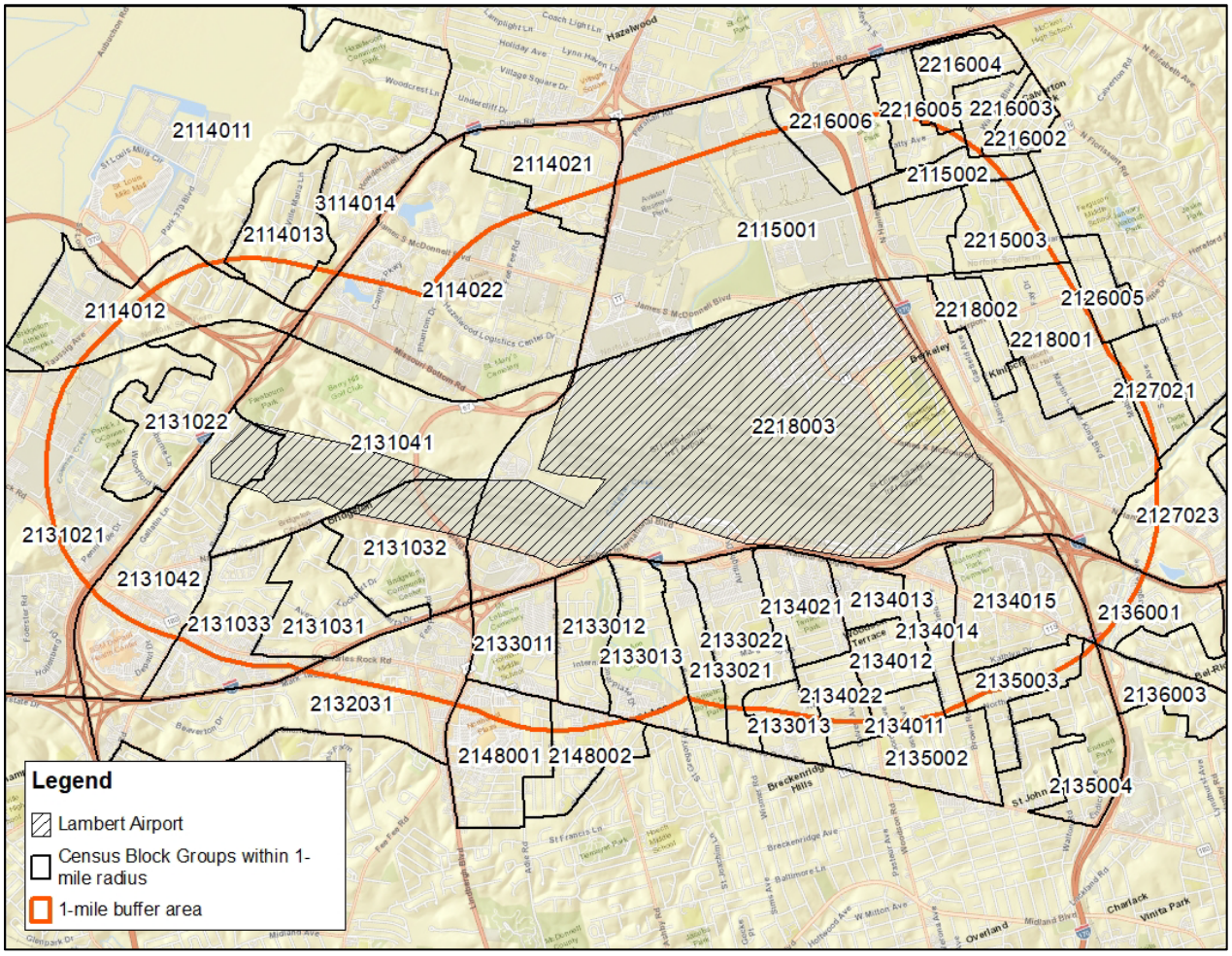


Figure E-3. Children's Facilities around St. Louis Lambert International Airport

Table E-1. Average Annual Daily Traffic within the Study Area (2022)

Street	Location	Number of Lanes	Average Annual Daily Traffic
James S. McDonnell Boulevard	South of Airport Road	2	3,181
James S. McDonnell Boulevard	From Airport Road to Banshee Road	4	16, 793
James S. McDonnell Boulevard	From Banshee Road to US 67 (Lindbergh Boulevard)	4	13, 586
Airport Road	From James S. McDonnell Boulevard to Hanley Road	4	13,902
Banshee Road	From US 67 (Lindbergh Boulevard) to James S. McDonnell Boulevard	2	6,746
Missouri Bottom Road	From US 67 (Lindbergh Boulevard) to Interstate 270	4	7,465
US 67 (Lindbergh Boulevard)	From James S. McDonnell Boulevard to Interstate 270	6	23,172

Source: Jacobs 2023.

Source: American Community Survey 2016-2020.

Table E-2. Estimated Daily Trips under the Proposed Action

Site (Phase)	Peak (a.m.) Enter	Peak (a.m.) Exit	Peak (a.m.) Trip Ends	Peak (p.m.) Enter	Peak (p.m.) Exit	Peak (p.m.) Trip Ends	Daily Trips Enter	Daily Trips Exit	Daily Trips Trip Ends
Brownleigh (Phase 1)	437	162	599	264	364	628	1,760	1,760	3,520
Northern Tract (Phase 1)	188	70	258	112	154	266	770	770	1,540
Total Trips (Phase 1)	626	231	857	375	518	894	2,530	2,530	5,060
Brownleigh (Phase 2)	333	123	456	200	276	476	1,345	1,345	2,690
Northern Tract (Phase 2)	150	56	206	88	122	210	619	619	1239
Total Trips (Phase 2)	483	179	662	288	398	687	1,964	1,964	3,929
Total	**1,109**	**410**	**1,520**	**664**	**917**	**1,580**	**4,494**	**4,494**	**8,989**

Table E-3. Intersection Measures of Effectiveness - Existing (2023), No Build (2030 and 2050), and Proposed Action (2030 and 2050)

Intersection Location	Approach	2023 Existing Traffic				2030 Background (No Build) Traffic				2030 Total (No Build + Proposed Action) Traffic				2050 Background (No Build) Traffic				2050 (No Build + Proposed Action) Traffic			
		Peak (a.m.) Delay (sec/veh)	Peak (a.m.) LOS	Peak (p.m.) Delay (sec/veh)	Peak (p.m.) LOS	Peak (a.m.) Delay (sec/veh)	Peak (a.m.) LOS	Peak (p.m.) Delay (sec/veh)	Peak (p.m.) LOS	Peak (a.m.) Delay (sec/veh)	Peak (a.m.) LOS	Peak (p.m.) Delay (sec/veh)	Peak (p.m.) LOS	Peak (a.m.) Delay (sec/veh)	Peak (a.m.) LOS	Peak (p.m.) Delay (sec/veh)	Peak (p.m.) LOS	Peak (a.m.) Delay (sec/veh)	Peak (a.m.) LOS	Peak (p.m.) Delay (sec/veh)	Peak (p.m.) LOS
(1) Airport Road (North) and James S. McDonnell Boulevard (signalized)	Northbound	28.6	C	31	C	35	D	34.6	C	35.1	D	34.4	C	33.8	C	36.2	D	33.8	C	38.2	D
	Southbound	31.8	C	30.3	C	39.9	D	37	D	39.9	D	48.7	D	37.3	D	38.2	D	37.3	D	52.7	D
	Northeastbound	5.2	A	8.6	A	4.1	A	8.3	A	5.2	A	9	A	5.7	A	15.6	B	6.9	A	17.6	B
	Westbound	13.9	B	7	A	15.2	B	6.5	A	31.2	C	8.9	A	126.6^	F^	10.2	B	182.2^	F^	15.1	B
	Overall Intersection	13.6	B	12.2	B	14.9	B	12.7	B	24	C	13	B	94.4^	F^	17.8	B	123.6^	F^	20.2	C
(2) Airport Road (South) and James S. McDonnell Boulevard (signalized)	Southwestbound	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
	Eastbound	2.3	A	4.6	A	2.4	A	5.8	A	3.7	A	14.8	B	3.3	A	28	C	5.2	A	101.4^	F^
	Westbound	9.5	A	9.3	A	10.5	B	12.9	B	13.8	B	14.6	B	11	B	13.3	B	14	B	15.2	B
	Overall Intersection	3.7	A	4.9	A	4.1	A	6.3	A	5	A	14.8	B	4.9	A	27	C	6.5	A	91.4^	F^
(3) Airport Road and Boeing Gate 100 (signalized)	Northbound	-	-	-	-	-	-	-	-	19.2	B	463^	F^	-	-	-	-	19.2	B	635.5^	F^
	Southbound	39.8	D	125.9^	F^	38	D	30.7	C	37.2	D	206^	F^	39	D	56.3^	E^	35.8	D	358.4^	F^
	Eastbound	4.8	A	5.8	A	5.2	A	11.4	B	18.8	B	20	C	9.7	A	20.7	C	22.7	C	36.6	D
	Westbound	19.4	B	14.1	B	9.7	A	15.2	B	789.3^	F^	24.9	C	13.8	B	19.3	B	1288.8^	F^	32.2	C
	Overall Intersection	17	B	51.2	D	9.1	A	19.1	B	586.3^	F^	192.7^	F^	13.7	B	33.5	C	961.7^	F^	257^	F^
(4) Airport Road and I-170 Southbound Ramps (signalized)	Southbound	6.2	A	17.6	A	7	A	42.5	D	5.3	A	21.5	C	9.8	A	53	D	7.5	A	38.4	D
	Eastbound	20.4	C	22.4	C	22.2	C	26.8	C	20.7	C	90.4^	F^	23	C	124.3^	F^	19	A	200.8^	F^
	Westbound	3.2	A	8.1	A	3.9	A	34.4	C	3.9	A	121^	F^	5.8	A	149.3^	F^	7.1	A	241.9^	F^
	Overall Intersection	5.9	A	17.9	B	6.8	A	30.1	C	6.2	A	92.4^	F^	8.7	A	126.8^	F^	8.6	A	199.2^	F^
(5) Airport Road and I-170 Northbound Ramps (signalized)	Northbound	13.8	B	18.4	B	22.2	C	37	C	27.1	C	42.9	D	34	C	262.9^	F^	88.5^	F^	461.9^	F^
	Eastbound	9.1	A	5.9	A	24.8	C	16.5	B	39.2	D	78^	F^	46.9	D	117.7^	F^	71.8^	E^	291.7^	F^
	Westbound	17.8	B	15	B	24.5	C	32.5	C	36.7	D	35	D	39.4	D	29.4	C	78.6^	E^	34.5	D
	Overall Intersection	14.7	B	13	B	23.3	C	28.5	C	31	C	54.9	D	37.1	D	136.6^	F^	83.9^	F^	259.9^	F^
(6) Airport Road and Hanley Road (signalized)	Northbound	20.2	C	25.6	C	22.2	C	28.6	C	21.8	C	34.2	C	27.1	C	34.5	C	26.6	C	63.5^	E^
	Southbound	20.5	C	23.2	C	22.9	C	25.1	C	23.7	C	26.9	C	28.7	C	38.1	D	29	C	35.6	D
	Eastbound	15.3	B	19.9	B	15.3	B	21.7	C	15.5	B	21.8	C	16.3	B	32.1	C	16.6	B	33.8	C
	Westbound	16.7	B	18.9	B	16.9	B	20.1	C	17.1	B	20.2	C	19.2	B	25.1	C	19.6	B	26.2	C
	Overall Intersection	17.4	B	21.1	C	18.1	B	22.9	C	18.4	B	25	C	20.9	C	31.2	C	21.2	C	38.3	D
(7) Scudder Road and I-170 Southbound Ramps (unsignalized)	Northbound	9.6	A	11.6	B	10	A	12.7	B	56.4^	F^	40.6^	E^	10.9	B	18.4	C	125.3^	F^	138.6^	F^
	Southbound	10.4	B	12.6	B	10.7	B	13.7	B	16.4	C	17.6	C	12.2	B	18.4	C	19.9	C	25.7	D
	Eastbound	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
	Westbound	3.9	A	4.4	A	3.9	A	4.5	A	1.1	A	3.7	A	3.9	A	4.6	A	1.4	A	4.2	A
	Overall Intersection	5.2	A	4	A	5.3	A	4.3	A	17	C	5.2	A	5.6	A	5.3	A	37.4^	E^	16.7	C

Intersection Location	Approach	2023 Existing Traffic				2030 Background (No Build) Traffic				2030 Total (No Build + Proposed Action) Traffic				2050 Background (No Build) Traffic				2050 (No Build + Proposed Action) Traffic			
(8) Scudder Road and Hanley Road (signalized)	Northbound	4.8	A	8	A	6.2	A	9.9	A	6.4	A	17.9	B	7.5	A	14.4	B	7.7	A	25.4	C
	Southbound	0.6	A	0.6	A	3	A	5.5	A	3.2	A	11.4	B	3.6	A	8.1	A	3.8	A	15.7	B
	Eastbound	49.4	D	42.1	D	35.5	D	32.4	C	36.9	D	27.1	C	35.4	D	32.4	C	37	D	27.3	C
	Westbound	46.7	D	39.9	D	33.5	C	30.3	C	35.1	D	19.6	B	33.1	C	29	C	34.8	C	18.2	B
	Overall Intersection	15.1	B	16.9	B	12.8	B	15.8	B	14.1	B	19.5	B	13.4	B	18.1	B	14.5	B	22.6	C
(9) Hanley Road and I-170 Northbound Exit (signalized)	Northbound	6.6	A	8.9	A	2.1	A	2.1	A	1.8	A	2.2	A	2.4	A	2.6	A	2.1	A	2.8	A
	Southbound	1.3	A	1.4	A	2.1	A	2	A	1.9	A	1.9	A	2.5	A	2.4	A	2.2	A	2.3	A
	Eastbound	48.9	D	49.1	D	24.2	C	32.2	C	29.4	C	33.8	C	24.4	C	32.5	C	29.8	C	36.2	D
	Overall Intersection	8.5	A	8.5	A	4.5	A	4	A	4.8	A	3.8	A	4.9	A	4.5	A	5.1	A	4.5	A
(10) Berkeley Avenue and James S. McDonnell Boulevard (unsignalized)	Southbound	10.3	B	12.9	B	10.8	B	14.5	B	13.5	B	22.7	C	12.6	B	25.4	D	17.3	C	84.9^	F^
	Eastbound	1.3	A	3.4	A	1.4	A	3.5	A	4.8	A	3.8	A	1.4	A	3.7	A	4.3	A	3.9	A
	Westbound	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
	Overall Intersection	3.3	A	4.7	A	3.5	A	5.2	A	4.6	A	10.6	B	4	A	8.1	A	5.4	A	33.6	D
(11) James S. McDonnell Boulevard and Genaire Drive (signalized)	Northbound	2.3	A	3.4	A	2.6	A	4.2	A	3.4	A	5	A	4.1	A	6.2	A	7.2	A	7.6	A
	Southbound	1.6	A	3.7	A	1.7	A	4.6	A	2.1	A	5.1	A	2	A	7.2	A	2.5	A	8.3	A
	Eastbound	30.6	C	27.3	C	29.6	C	23.6	C	29.6	C	24.2	C	28.2	C	23	C	28.2	C	23	C
	Overall Intersection	2.5	A	6.8	A	2.8	A	7	A	3.2	A	6.9	A	3.9	A	9	A	5.8	A	9.6	A
(12) James S. McDonnell Boulevard and Boeing Gate 64 (signalized)	Northbound	10.7	B	33.3	C	28.4	C	53	D	29.4	C	62.2^	E^	46.1	D	139.2^	F^	50.7	D	169.5^	F^
	Southbound	12.2	B	17.5	B	11.8	B	19.8	B	14.6	B	21.1	C	27	C	28	C	35.9	D	28.5	C
	Eastbound	46.5	D	76.8^	F^	54	D	68.8^	E^	55.8^	E^	83.4^	F^	57.3^	E^	109.7^	F^	57.4^	E^	141.2^	F^
	Westbound	43.6	D	51.8	D	36.3	D	47.7	D	38.3	D	64.1^	E^	36.8	D	115.7^	F^	38.3	D	173.7^	F^
	Overall Intersection	13.3	B	41.2	D	19.5	B	44.9	D	21.1	C	53.6	D	35	C	96.8^	F^	41.7	D	125.8^	F^
(13) James S. McDonnell Boulevard and Banshee Road (signalized)	Northwest Thru	0.2	A	2.7	A	0.2	A	4.4	A	1	A	5.2	A	0.5	A	19.4	B	2.7	A	20.1	C
	Southeast Thru	7.3	A	5.3	A	10.1	B	11	B	14.3	B	13.8	B	20.9	B	42.9	D	27.3	C	55^	E^
	Eastbound	26.4	C	24.1	C	27.2	C	18	B	26.5	C	16.5	B	23.7	C	7	A	31.2	C	7.5	A
	Overall Intersection	12.4	B	5.1	A	13.5	B	7.1	A	13.8	B	8.3	A	15.5	B	24.1	C	20.8	C	26.6	C
(14) James S. McDonnell Boulevard and Eva Avenue (unsignalized)	Southbound	14	B	14.7	B	17.3	C	18.4	C	24.4	C	38.3	E	78.9^	F^	87.2^	F^	915.6^	F^	476.3^	F^
	Eastbound	2.5	A	1.5	A	2.8	A	1.8	A	2.5	A	2.1	A	4	A	2.6	A	4.6	A	4	A
	Westbound	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
	Overall Intersection	2.3	A	2.2	A	2.7	A	2.7	A	2.8	A	3.9	A	7.5	A	10.6	B	52.9^	E^	44.1^	E^
(15) Lindbergh Boulevard and Missouri Bottom Road (signalized)	Northbound	18	B	15.2	B	20.8	C	19.4	B	26.3	C	25.4	C	31.8	C	27	C	44.7	D	42.1	D
	Southbound	20.7	C	19.4	B	23.8	C	24.3	C	30.8	C	32.6	C	47.6	D	38.5	D	58^	E^	61.9^	E^
	Eastbound	25.4	C	25.3	C	26.9	C	35	D	32	C	41.9	D	52.5	D	45.5	D	78.3^	E^	49.6	D
	Westbound	17.9	B	26	C	19.1	B	24.9	C	18.9	B	28.7	C	25.1	C	71.6^	E^	24.5	C	90.3^	F^
	Overall Intersection	20.6	C	20.3	C	23.1	C	23.4	C	28.9	C	29.5	C	41.8	D	44.9	D	56.7^	E^	64.8^	E^
(16) Banshee Road and Missouri Bottom Road (unsignalized)	Northbound	9.3	A	22.5	C	9.5	A	40.6^	E^	9.6	A	>100^	F^	9.9	A	>100^	F^	10	B	>100^	F^
	Southbound	8.7	A	10.2	B	8.7	A	10.8	B	8.7	A	13.3	B	8.8	A	13.7	B	8.9	A	21	C
	Eastbound	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A

Intersection Location	Approach	2023 Existing Traffic				2030 Background (No Build) Traffic				2030 Total (No Build + Proposed Action) Traffic				2050 Background (No Build) Traffic				2050 (No Build + Proposed Action) Traffic			
	Overall Intersection	8.8	A	11.5	B	8.9	A	14	B	8.9	A	>100^	F^	9.1	A	>100^	F^	9.2	A	>100^	F^
(17) James S. McDonnell Boulevard and Lindbergh Boulevard (signalized)	Northbound	20.1	C	24.9	C	22.8	C	30.4	C	28.1	C	45.4	D	29.6	C	57.9^	E^	35.6	D	74.3^	E^
	Southbound	20.1	C	24.6	C	23	C	29.5	C	27.5	C	40	D	29.6	C	44.1	D	36.1	D	67.2^	E^
	Eastbound	20.4	C	25.8	C	21.2	C	28.6	C	21.5	C	30	C	28.9	C	42.4	D	33	C	58.1^	E^
	Westbound	20.2	C	26.8	C	20.7	C	29.8	C	19.4	B	33.3	C	27.1	C	77.5^	E^	27.2	C	76.5^	E^
	Overall Intersection	20.2	C	25.6	C	21.9	C	29.7	C	23.7	C	37.3	D	28.8	C	58.8^	E^	33	C	71.1^	E^
(18) Scudder Road and Berkeley Avenue (unsignalized)	Northbound	9.1	A	9.8	A	9.2	A	10.1	B	71.3^	F^	68^	F^	9.7	A	11.5	B	143^	F^	227.7^	F^
	Eastbound	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
	Westbound	6.6	A	7.1	A	6.7	A	7.2	A	1.1	A	6.1	A	6.8	A	7.5	A	1.4	A	7.8	A
	Overall Intersection	6.4	A	6.8	A	6.5	A	6.9	A	16.7	C	11.9	B	6.7	A	7.7	A	33.3^	E^	44.5^	E^
(18A) Scudder Road and Access D / Berkeley Avenue (unsignalized)[a]	Southbound	-	-	-	-	-	-	-	-	18.2	C	25.1	D	-	-	-	-	18.8	C	30.5	D
	Eastbound	-	-	-	-	-	-	-	-	0.1	A	0.1	A	-	-	-	-	0.1	A	0.1	A
	Westbound	-	-	-	-	-	-	-	-	0.1	A	0.1	A	-	-	-	-	0.1	A	0.1	A
	Overall Intersection	-	-	-	-	-	-	-	-	0.5	A	2	A	-	-	-	-	0.7	A	3.4	A
(19) James S. McDonnell Boulevard and Fuel Farm Driveway (unsignalized)	Northbound	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
	Southbound	0.3	A	0.1	A	0.3	A	0.1	A	0.2	A	0.1	A	0.3	A	0.1	A	0.2	A	0.1	A
	Westbound	9.3	A	9.2	A	9.5	A	9.4	A	9.6	A	10.1	B	10.1	B	9.9	A	10.2	B	10.7	B
	Overall Intersection	0.4	A	0.2	A	0.4	A	0.2	A	0.3	A	0.2	A	0.4	A	0.2	A	0.3	A	0.2	A
(20) James S. McDonnell Boulevard and Signature Driveway (unsignalized)	Northbound	0.6	A	0.2	A	0.6	A	0.2	A	0.5	A	0.1	A	0.6	A	0.2	A	0.6	A	0.2	A
	Southbound	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
	Eastbound	9.6	A	10	A	9.9	A	10.4	B	10.8	B	11	B	10.7	B	11.7	B	11.8	B	12.5	B
	Overall Intersection	0.6	A	0.4	A	0.6	A	0.4	A	0.5	A	0.3	A	0.7	A	0.4	A	0.6	A	0.4	A
(21) James S. McDonnell Boulevard and GKN Aerospace Entrance (signalized)	Northbound	32.6	C	28	C	50.9	D	41.3	D	51.4	D	43.4	D	51.4	D	40	D	52.3	D	43	D
	Eastbound	1.6	A	2.9	A	1.2	A	2.7	A	1.5	A	2.7	A	1.5	A	3.5	A	2	A	3.6	A
	Westbound	1.5	A	3.1	A	1.1	A	2.9	A	1.1	A	3.5	A	1.3	A	3.9	A	1.3	A	4.9	A
	Overall Intersection	1.7	A	5.4	A	1.3	A	6.5	A	1.5	A	6.1	A	1.6	A	7.2	A	1.8	A	7.4	A
(22) James S. McDonnell Boulevard and Boeing Gate 31 (signalized)	Northbound	29	C	31.6	C	36.7	D	45.1	C	36.7	D	46.3	D	36.7	D	44.4	D	36.7	D	44.4	D
	Southbound	30.5	C	47.3	D	36.7	D	41.9	D	36.7	D	127.7^	F^	37.9	D	324.6^	F^	37.9	D	437.4^	F^
	Eastbound	4.8	A	13.5	B	5.2	A	17.6	B	6.7	A	14.9	B	9.5	A	26.1	C	13.5	B	27.7	C
	Westbound	4.3	A	16.8	B	4.6	A	23	C	4.7	A	26.5	C	7.6	A	97.5^	F^	7.9	A	192.5^	F^
	Overall Intersection	5.4	A	18.7	B	6	A	23.4	C	6.8	A	30.2	C	9.7	A	90.7^	F^	12.2	B	155.2^	F^
(25) Banshee Road and Access 1A (unsignalized)[a]	Northbound	-	-	-	-	-	-	-	-	18.3	C	39^	E^	-	-	-	-	24.8	C	125^	F^
	Eastbound	-	-	-	-	-	-	-	-	0.1	A	0.1	A	-	-	-	-	0.1	A	0.1	A
	Westbound	-	-	-	-	-	-	-	-	5.7	A	0.2	A	-	-	-	-	5.8	A	0.2	A
	Overall Intersection	-	-	-	-	-	-	-	-	1.7	A	11.3	B	-	-	-	-	1.7	A	28.2	C

[a]Intersection does not currently exist, it would be added as part of Proposed Action.

Note: Red text marked with ^ denotes intersections with LOS below LOS D.

- = There are no results for the existing condition (that is, movement does not exist in the current condition but will be added to the future condition).

> = greater than
I-170 = Interstate 170
LOS = level of service
sec/veh = second(s) per vehicle

Table E-4. Intersection Measures of Effectiveness - Proposed Action with Mitigation (2030)

Intersection Location	Approach	2030 Total Traffic with Recommendations			
		Peak (a.m.) Delay (sec/veh)	Peak (a.m.) LOS	Peak (p.m.) Delay (sec/veh)	Peak (p.m.) LOS
(1) Airport Road (North) and James S. McDonnell Boulevard (signalized)	Northbound	14	B	0.1	A
	Southbound	58.6^	E^	46.7	D
	Northeastbound	2.9	A	4.3	A
	Westbound	11.4	B	4.2	A
	Overall Intersection	9.7	A	7.2	A
(3) Airport Road and Boeing Gate 100 (signalized)	Northbound	10	A	19.6	B
	Southbound	55.7^	E^	68.9^	E^
	Eastbound	19.9	B	34.1	C
	Westbound	27.6	C	25.5	C
	Overall Intersection	25.9	C	35.7	D
(4) Airport Road and I-170 Southbound Entrance Ramp (signalized)	Southbound	5.4	A	17.3	B
	Eastbound	16.3	B	18.9	B
	Westbound	2.8	A	11.8	B
	Overall Intersection	5.1	A	17.2	B
(5) Airport Road and I-170 Northbound Exit Ramp (signalized)	Northbound	31.3	C	11.2	B
	Eastbound	13	B	7.2	A
	Westbound	55.4^	E^	41.1	D
	Overall Intersection	36.4	D	18.9	B
(7) Scudder Road and I-170 Southbound Exit (unsignalized)	Northbound	23.4	C	34.8	D
	Southbound	16.5	C	17.9	C
	Eastbound	0.1	A	0.1	A
	Westbound	1.1	A	3.7	A
	Overall Intersection	7.5	A	4.6	A

Intersection Location	Approach	2030 Total Traffic with Recommendations			
(16) Banshee Road and Missouri Bottom Road (unsignalized)	Northbound	23.7	C	16.3	C
	Eastbound	0.1	A	0.1	A
	Westbound	1.4	A	0.1	A
	Overall Intersection	1.3	A	1.2	A
(18) Scudder Road and Berkeley Avenue (unsignalized)	Northbound	27	D	24.6	C
	Eastbound	0.1	A	0.1	A
	Westbound	1.3	A	6.6	A
	Overall Intersection	6.9	A	5.2	A
(18A) Scudder Road and Access D / Berkeley Avenue (unsignalized)	Southbound	18.9	C	15.3	C
	Eastbound	0.1	A	0.1	A
	Westbound	0.1	A	0.1	A
	Overall Intersection	0.5	A	1.2	A
(25) Banshee Road and Access 1A (unsignalized)	Northbound	16.4	C	37.7^	E^
	Eastbound	0.1	A	0.1	A
	Westbound	5.7	A	0.2	A
	Overall Intersection	1.6	A	10.9	B

Note: Red text marked with ^ denotes intersections with LOS below LOS D.

I-170 = Interstate 170

LOS = level of service

sec/veh = second(s) per vehicle

Appendix F
Public and Agency Coordination and Consultation

Public Coordination

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT

Public and Agency Engagement Letter

May 19, 2023

RE: St. Louis Lambert International Airport
Environmental Evaluation for Site Development for
Aircraft Assembly and Flight Testing

St. Louis Lambert International Airport (STL) is partnering with Boeing and the Federal Aviation Administration (FAA) to prepare an environmental evaluation pursuant to the National Environmental Policy Act (NEPA) for the proposed expansion to the airport facilities to support defense-related aircraft assembly and flight testing. The evaluation will assess the potential environmental consequences of the Proposed Action.

Under the Proposed Action, Boeing would expand its current footprint by leasing two parcels on airport property, the Brownleigh site and the Northern Tract (Figure 1). Construction would include an assembly building, a hangar building, a fuel calibration building, a hush house, open-air aircraft shelters, a radar cross section test facility, a maintenance building, a fire house, and several small support structures. The second phase (to be determined based on future need) would include a paint facility, expansion of the hangar building, and an additional assembly facility, fuel calibration building, hush house, and open-air aircraft shelter. Conceptual designs, which are subject to change, are attached (Figures 2 and 3). To construct the facilities, Boeing would demolish existing obsolete structures, and grade the ground surface as needed to create a pad-ready environment for the campus. Additionally, new taxiway connections would be created to allow access to the airfield from the Brownleigh and Northern Tract sites to taxiways Foxtrot and Victor. A No Action Alternative will be included in the analysis.

STL invites your comments and concerns regarding the Proposed Action. Identification of issues early in the environmental process allows us to focus our analysis on issues identified in the development stage and, if practicable, identify alternatives to minimize environmental impacts. The Draft environmental evaluation is anticipated to be available for review in the fall 2023.

STL requests comments be provided no later than June 20, 2023 to ensure sufficient time to consider your input in the preparation of the environmental evaluation. Please provide information or comments to:

Jason Christians, STL Airport Assistant Director – Engineering
St. Louis Lambert International Airport
PO Box 10212
St. Louis, MO 63145-0212
Email: jachristians@flystl.com

Or

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT

Scott Tener, FAA Environmental Protection Specialist
901 Locust Street, Room 364
Kansas City, MO 64106
Email: scott.tener@faa.gov

Thank you in advance for your assistance in this matter. Please feel free to contact me at 314-551-5008 with any questions you may have.

Sincerely,

Jason A. Christians, PE

Enclosures:

Figures

LEGEND:

Project Area Boundary

N

BASE MAP SOURCE:
USGS USA Topo Map

0 1,000 2,000 3,000
FEET

Site Map
Biological Evaluation
Boeing STL Expansion

Figure 1
Airport Location

DATE: 5/5/2023

Jacobs

\\dc1vs01\GISProj\B\Boeing\D3688301_StLouis\MapFiles\NaturalResources\Pro\NaturalResourcesFigure.aprx

Figure 2 - Northern Tract Site

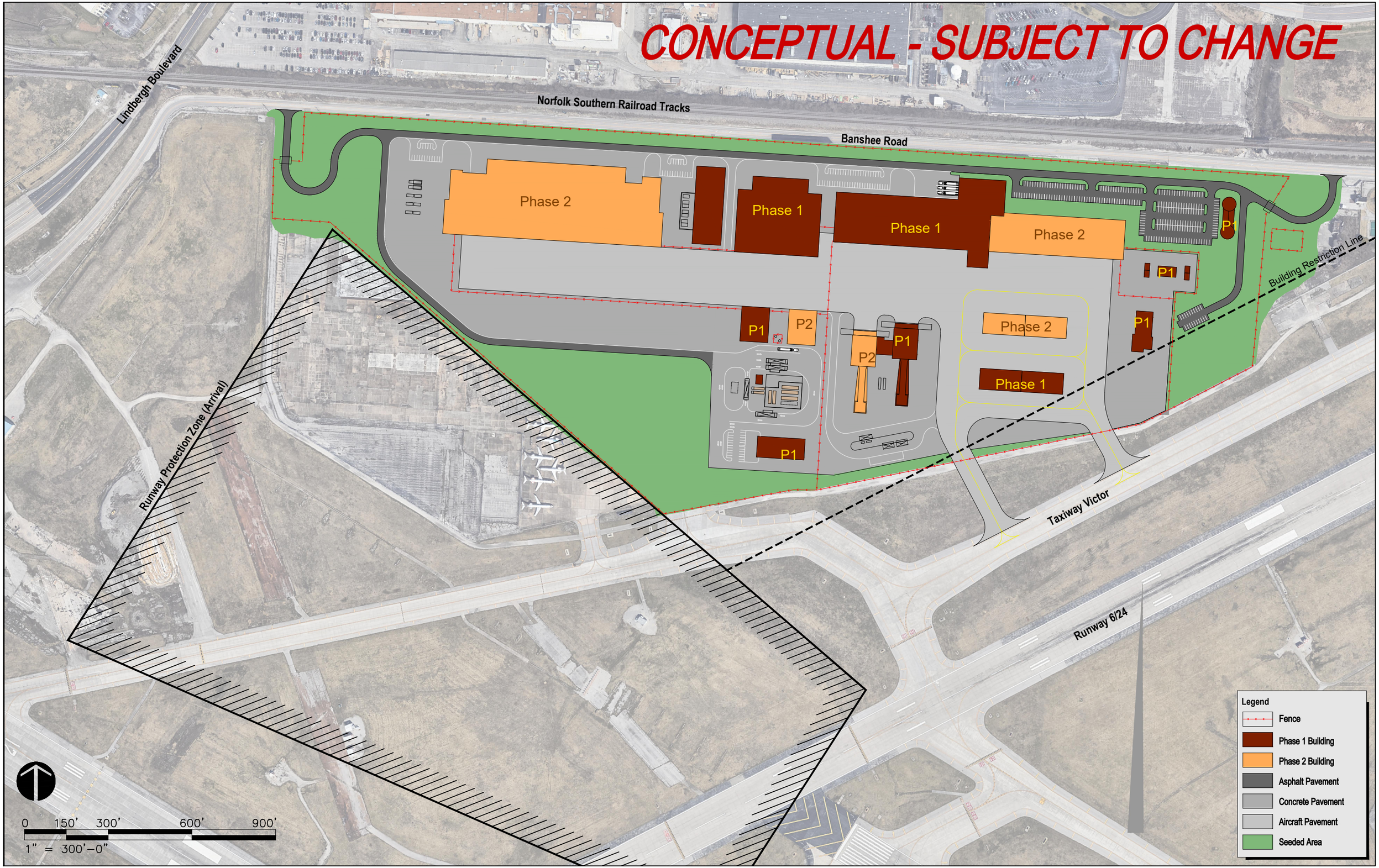
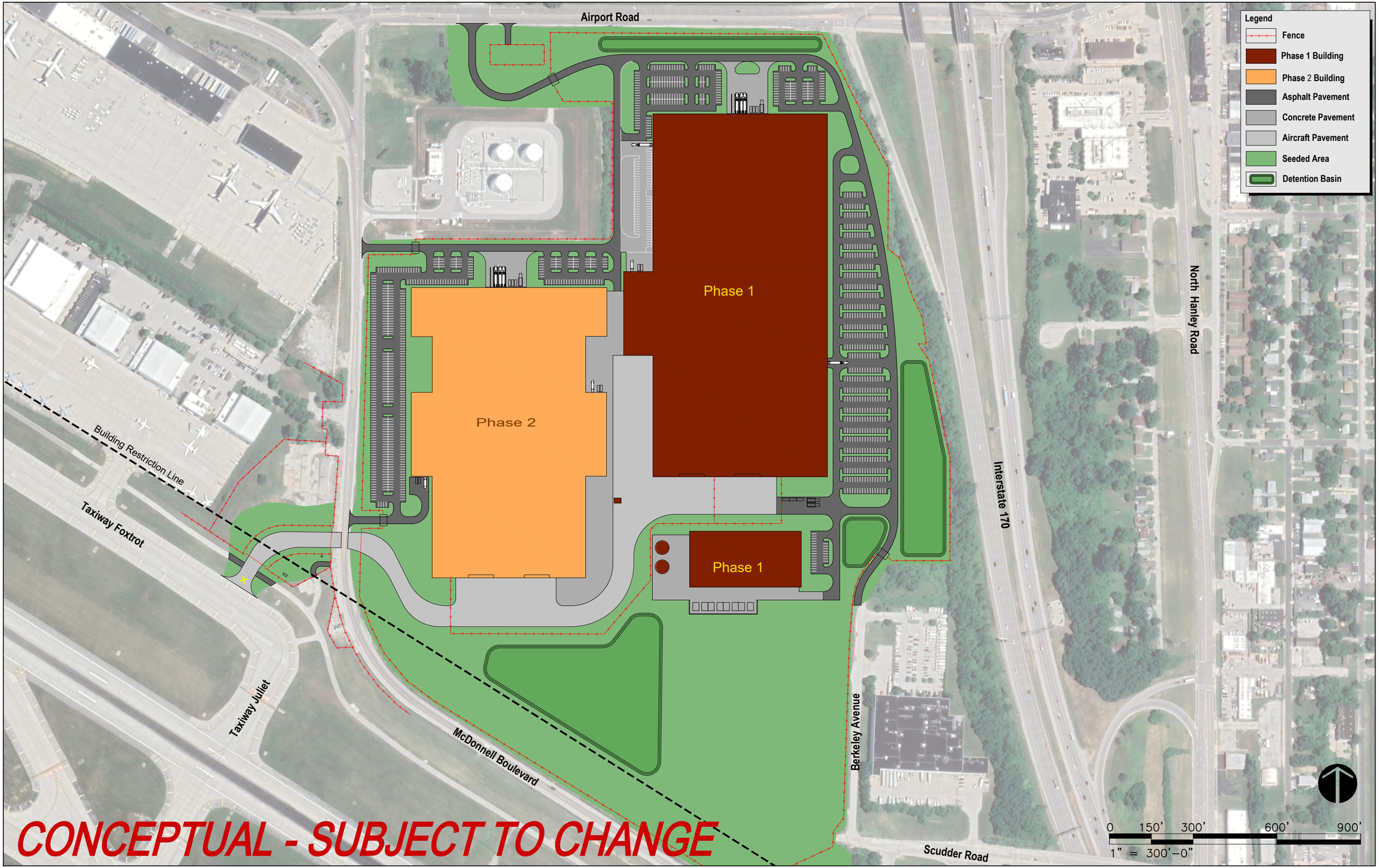


Figure 3: Brownleigh Site



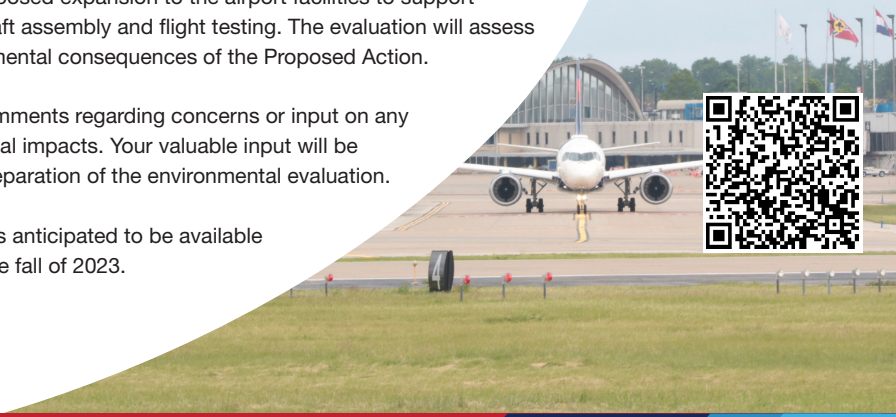
STL welcomes your comments!

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT®

STL is partnering with Boeing and the Federal Aviation Administration (FAA) to prepare an environmental evaluation pursuant to the National Environmental Policy Act for the proposed expansion to the airport facilities to support defense-related aircraft assembly and flight testing. The evaluation will assess the potential environmental consequences of the Proposed Action.

STL invites public comments regarding concerns or input on any potential environmental impacts. Your valuable input will be considered during preparation of the environmental evaluation.

The Draft evaluation is anticipated to be available for public review in the fall of 2023.



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Please provide your comments by June 20, 2023 using one of the options below:

- Scan the QR code to access the online form or go to https://www.surveymonkey.com/r/5SYGVPJ
- Contact: Jason Christians, STL Airport Assistant Director - Engineering by email at jachristians@flystl.com or regular mail at Jason Christians, St. Louis Lambert International Airport, PO Box 10212, St. Louis, MO 63145-0212
- Contact Scott Tener, FAA Environmental Protection Specialist by email at scott.tener@faa.gov or regular mail at Scott Tener, Federal Aviation Administration, 901 Locust Street, Room 364, Kansas City, MO 64106

1**********AUTO**SCH 5-DIGIT 63028

Occupant
11140 Saint Charles Rock Rd
Saint Ann MO 63074-1000

Executive Summary

Results of Public Survey on Airport Site Development for Aircraft Assembly and Flight Testing

Boeing/FAA/STL

August 2023

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT®

Contents

Definitions

Air Quality - the measure of the condition of the air expressed in terms of ambient pollutant concentrations and their temporal and spatial distribution.

Airport - St. Louis Lambert International Airport

Biological Resources – fish, wildlife, plants, and their respective habitats

Boeing - The Boeing Company

Children's environmental health and safety - risks to health or to safety that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to.

Climate - the long-term pattern of weather in a particular area.

Energy supply – the use of natural resources for the generation of energy (such as coal for electricity; natural gas for heating; and fuel for aircraft, commercial space launch vehicles, or other ground vehicles).

Environmental justice - 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.

Hazardous materials - any substance or material that has been determined to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce. The term hazardous materials includes both hazardous wastes and hazardous substances, as well as petroleum and natural gas substances and materials.

Historic or cultural – sites, properties, and physical resources relating past and present expressions of human culture and history in the physical environment which are considered important to a culture or community.

Land use - the human use of land for economic and cultural activities (e.g., agricultural, residential, industrial, mining, and recreational uses) that are practiced at a given place.

Natural resources – renewable and non-renewable resources including water, wood, coal, liquid fuels, etc. used for production of energy.

Noise and noise compatible land use - Noise is considered unwanted sound that can disturb routine activities (e.g., sleep, conversation, student learning) and can cause annoyance. The compatibility of existing and planned land uses is determined in relation to the level of noise a proposed project would generate.

Pollution prevention - a practice that reduces, eliminates, or prevents pollution at its source before it is created.

QR - Quick Response

Socioeconomics - a term used to describe aspects of a project that are either social or economic in nature, or a combination of the two.

Solid waste – garbage, refuse, or other discarded material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities.

Definitions (cont.)

STL - St. Louis Lambert International Airport

Visual effects – changes to light emissions or changes to features that contrast with, or detract from, the existing visual landscape.

Water resources - surface water, groundwater, floodplains, and wetlands.

Introduction

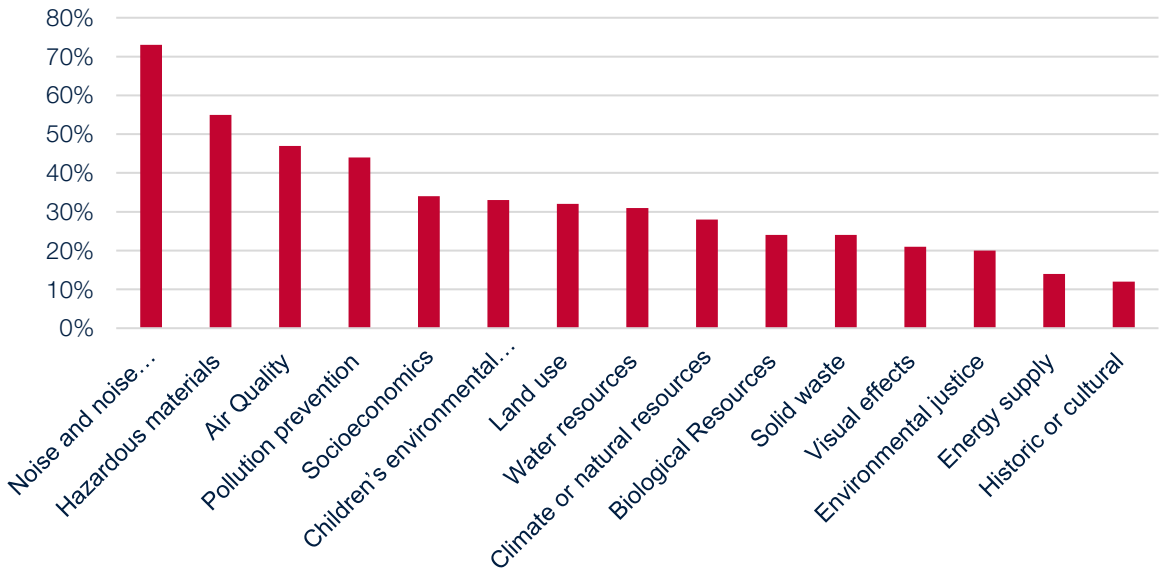
The St. Louis Lambert International Airport (hereafter referred to as STL or the Airport) proposes to sponsor The Boeing Company (Boeing), the Airport's partner, in developing STL property that supports defense aircraft assembly and testing operations (the Proposed Action). An environmental evaluation is being prepared to analyze the potential environmental effects of this Proposed Action, which includes Boeing leasing parcels of land from the Airport and then constructing aircraft assembly buildings, associated supporting buildings, and flight ramps, as well as performing aircraft testing once assembled. As part of this effort, STL solicited input on the Proposed Action in the early planning stages from neighboring communities and stakeholders.

The survey was posted on STL's website and available to all interested parties. This outreach also included mailing 14,109 postcards to addresses within a 1-mile radius of the Airport. The postcards included a summary of the Proposed Action, a quick response (QR) code linked to a survey, a link to the STL website, and points of contact for the Proposed Action.

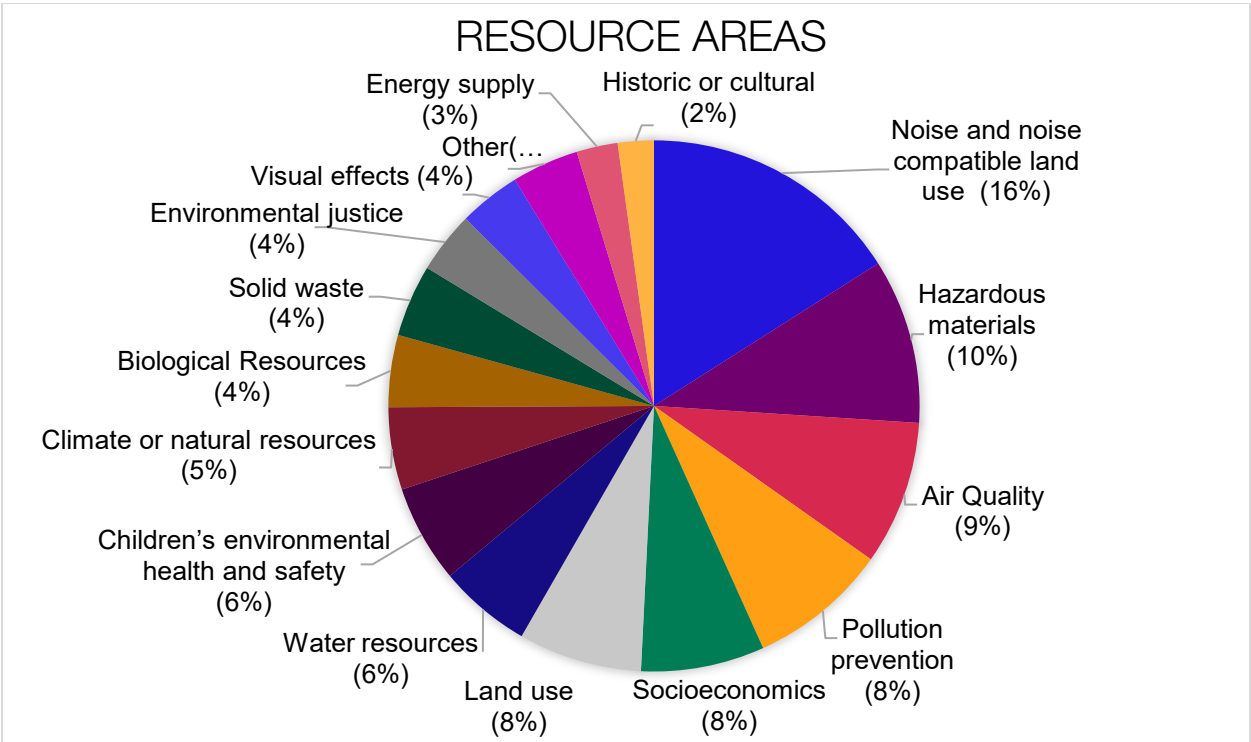
The purpose of the survey was to seek input from the public regarding the Proposed Action's potential effect on the environment. The survey included opportunities for comment on 15 resource areas, as well as a prompt to include any additional information or comments not covered within the 15 resource areas presented. Name and email addresses were also optional input fields.

The survey was available from May 19, 2023, through June 20, 2023. A total of 320 comments were received from 70 respondents. The responses were composed of 309 comments received via the survey, plus an additional 11 submitted via email to the points of contact designated on the postcard. The email comments are included within the responses provided in the summary according to the appropriate resource area. Within the written comments provided in the survey, some comments contained input regarding resource areas not applicable to the questions asked. For example, some comments in the air quality section referred to potential noise impacts. Comments unrelated to the questions were included in the tally for the resource area to which the respondent commented; however, the content of the comment is summarized within the appropriate resource summary to which the comment applies. Each section makes note of instances where this occurs.

The following graphic represents respondents who answered "yes" to having comments for each of the 15 resources areas included in the survey. Only two resource areas (noise and hazardous materials) elicited comments from more than 50% of the respondents.



The following chart provides a breakdown of the 320 comments received by resource area. The five resource areas receiving the most comments included the following: noise and noise compatible use, hazardous materials, air quality, pollution prevention, and socioeconomics.



Response Summary

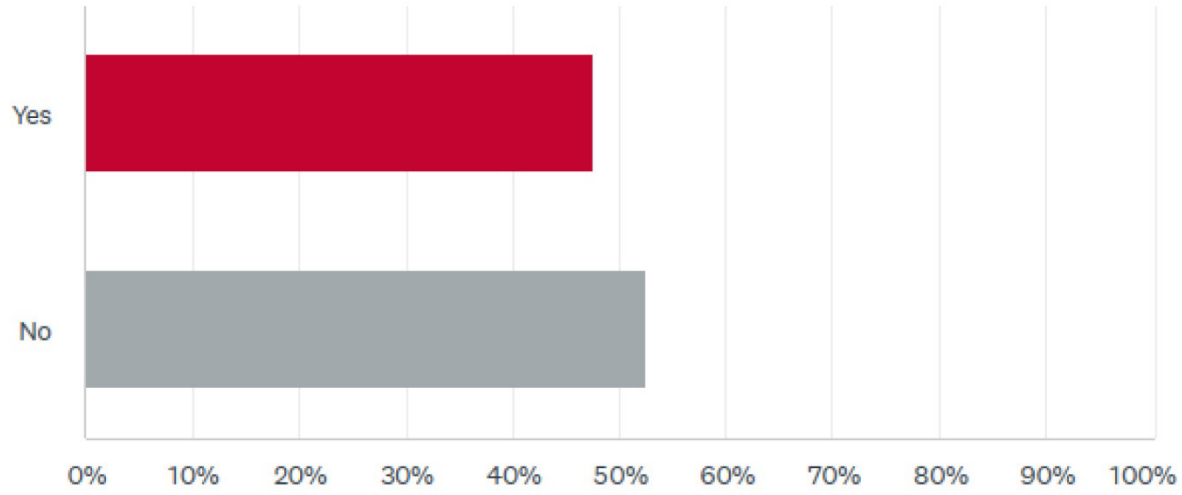
2.1 Question 1: Name

Total: 64 responders (56 through the survey + 8 by email)

2.2 Question 2: Email

Total: 64 responders (56 through the survey + 8 by email)

2.3 Question 3: Do you have any Air Quality comments about this project?



Yes: 47%

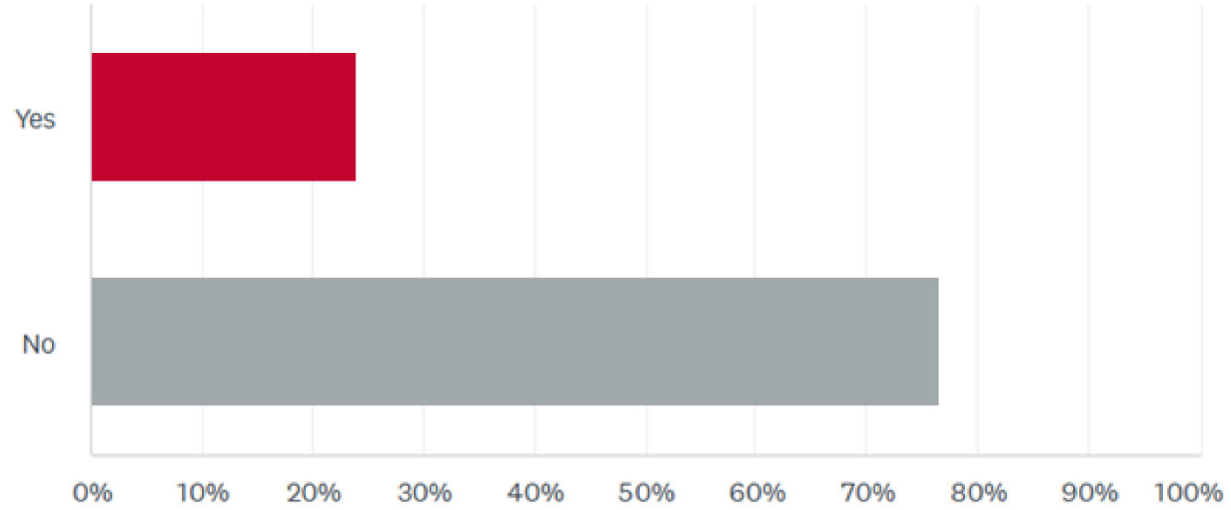
No: 53%

Responders: 59 responded to the question, of which 28 included a written comment

Responses to this question generally referred to the potential for impact on air quality as a result of any additional air traffic, as well as whether there is increased risk of disease and respiratory conditions as a result of the Proposed Action. Commenters inquired about the distance of the jet engine testing to nearby residential areas and whether there were plans for air quality control measures. A note was also made about being able to smell jet fuel in the area.

Although this question was related to air quality, the potential for noise pollution was also cross-referenced by commenters. The content of these comments is captured within the noise summary.

2.4 Question 4: Do you have any Biological Resources comments about this project?



Yes: 24%

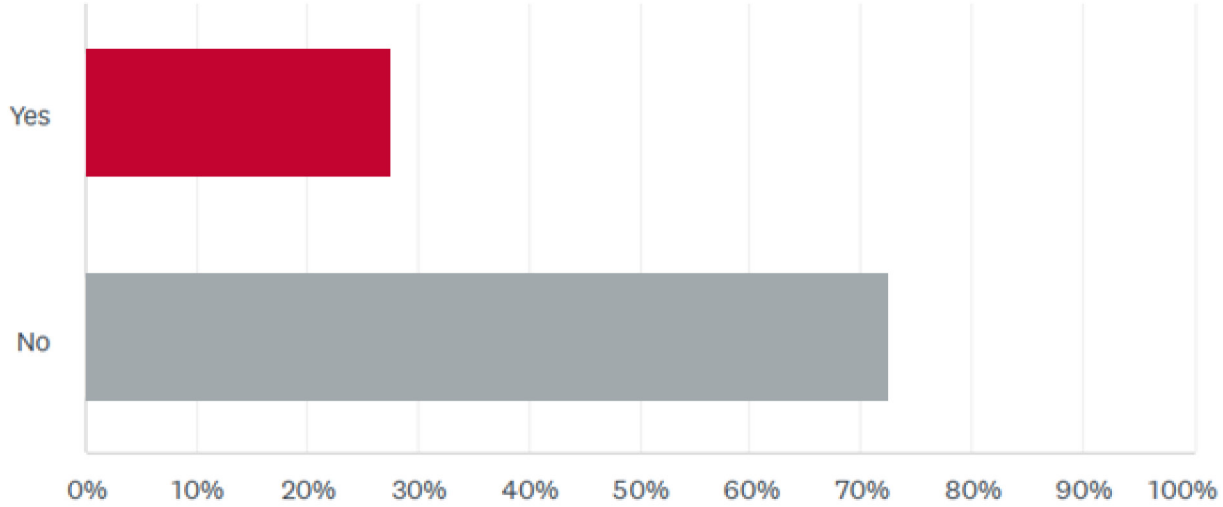
No: 76%

Responders: 59 responded to the question, of which 12 included a written comment

Comments received expressed concern for loss of flora and fauna because of reduction in habitat.

Although this question was related to biological resources, the majority of the comments were focused on other resource areas including noise, air quality, hazardous materials, and health and safety. The content of these comments is included within the corresponding resource summary.

2.5 Question 5: Do you have any Climate or natural resources comments about this project?



Yes: 28%

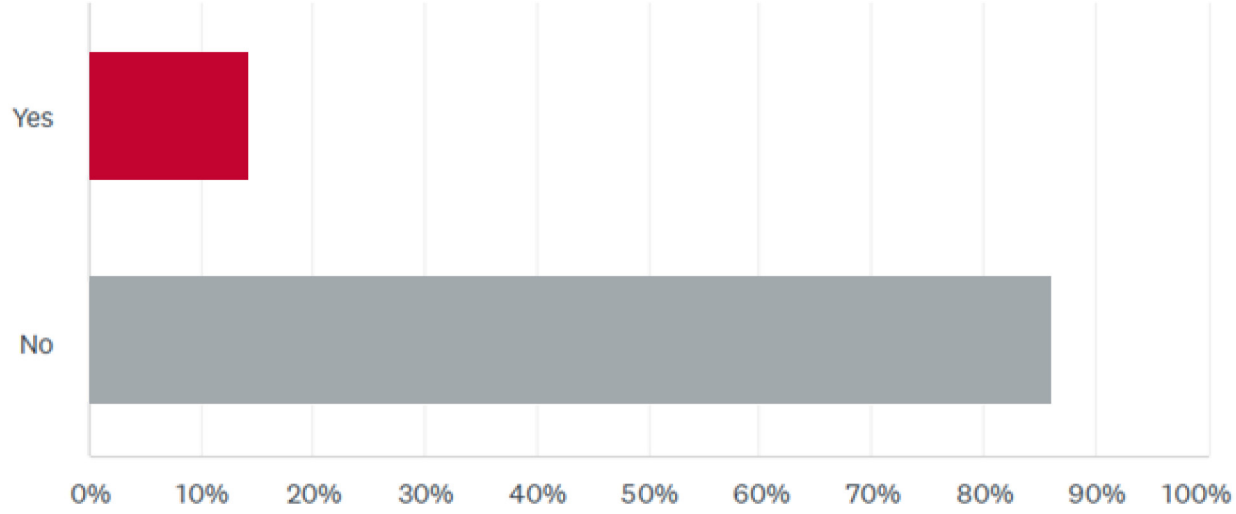
No: 72%

Responders: 58 responded to the question, of which 16 included a written comment

Comments generally inquired if there would be climate impacts as a result of the Proposed Action.

Although this question was related to climate and natural resources, the majority of the comments included in this section pertained to other resource areas such as noise, hazardous materials, water resources, and biological resources. The content of these comments is included within the corresponding resource summary.

2.6 Question 6: Do you have any Energy supply comments about this project?



Yes: 14%

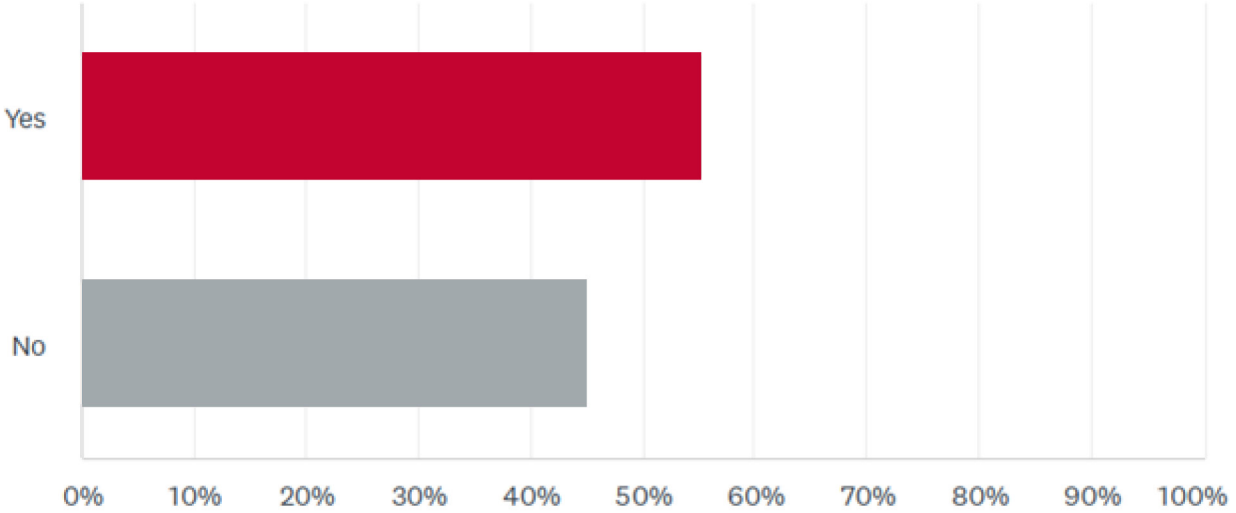
No: 86%

Responders: 57 responded to this question, of which 7 included a comment

Comments inquired if there would be potential for impacts to utility supply and cost.

Although this question was related to energy, there was a comment about the potential expansion of carbon footprint. The content of this comment is included in the climate summary.

2.7 Question 7: Do you have any Hazardous materials comments about this project?



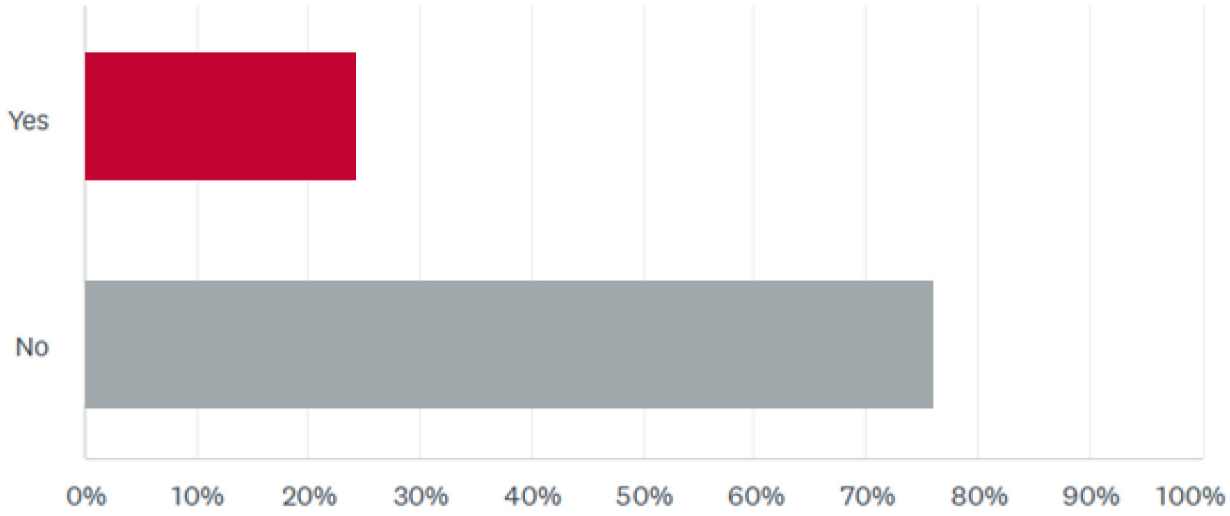
Yes: 55%

No: 45%

Responders: 58 responded to the question, of which 32 provided a written comment

Comments received focused primarily on the potential for hazardous materials and wastes that would impact the environment, particularly the potential for impacts to neighboring communities. There were inquiries about what types of hazardous materials would be used and how they would be managed to prevent releases. Of particular note, many commentors expressed concern over the potential to add to existing contamination within Coldwater Creek.

2.8 Question 8: Do you have any Solid waste comments about this project?



Yes: 24%

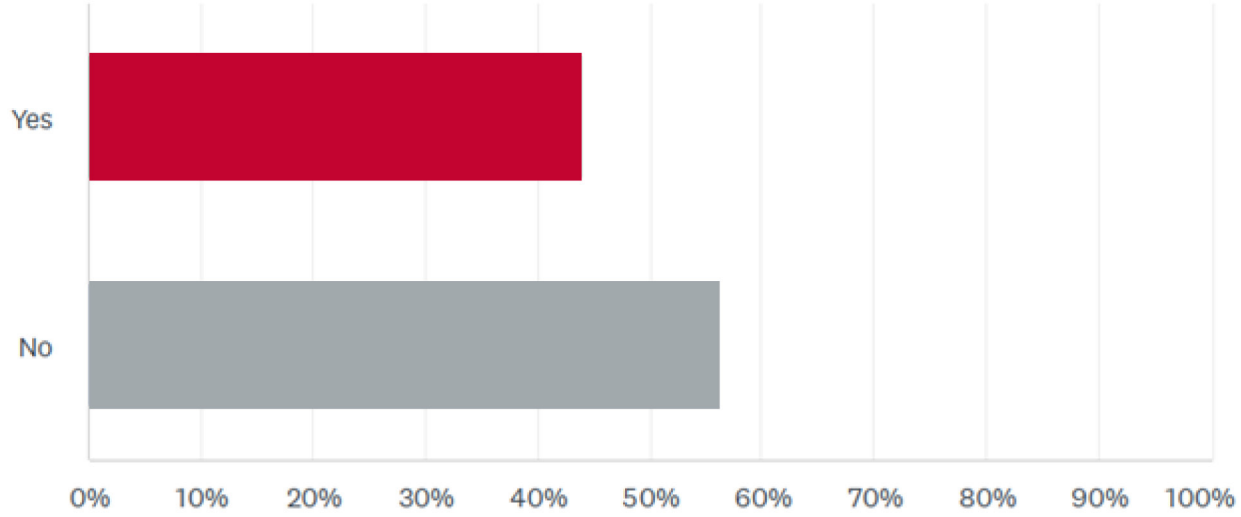
No: 76%

Responders: 58 responded, of which 14 provided written comments

Comments were primarily focused on what types and quantities of solid waste would be generated, where they would be disposed, and if recycling and reuse programs would be implemented to reduce waste.

Although this question was related to solid waste, there were comments that expressed concern over radiation from Coldwater Creek and health concerns related to landfill disposal. The content of these comments is included in the hazardous materials and pollution prevention resource summaries.

2.9 Question 9: Do you have any Pollution prevention comments about this project?



Yes: 44%

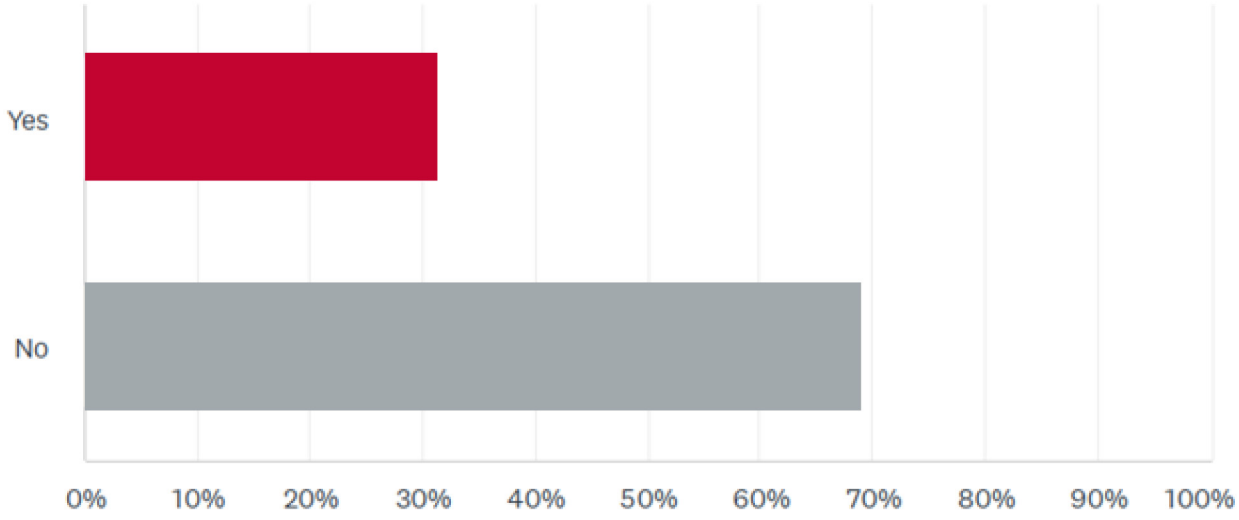
No: 56%

Responders: 58 responded, of which 26 provided a written comment

Many comments requested information about what type of contamination could occur because of the Proposed Action, concerns about existing contamination in the area, and the procedures for managing materials so that pollution does not impact neighboring communities.

Although this question was related to pollution prevention, several comments referenced other topics and resource areas such as noise, air quality, and health. The content of these comments is included in the corresponding resource summary.

2.10 Question 10: Do you have any Water resources comments about this project?



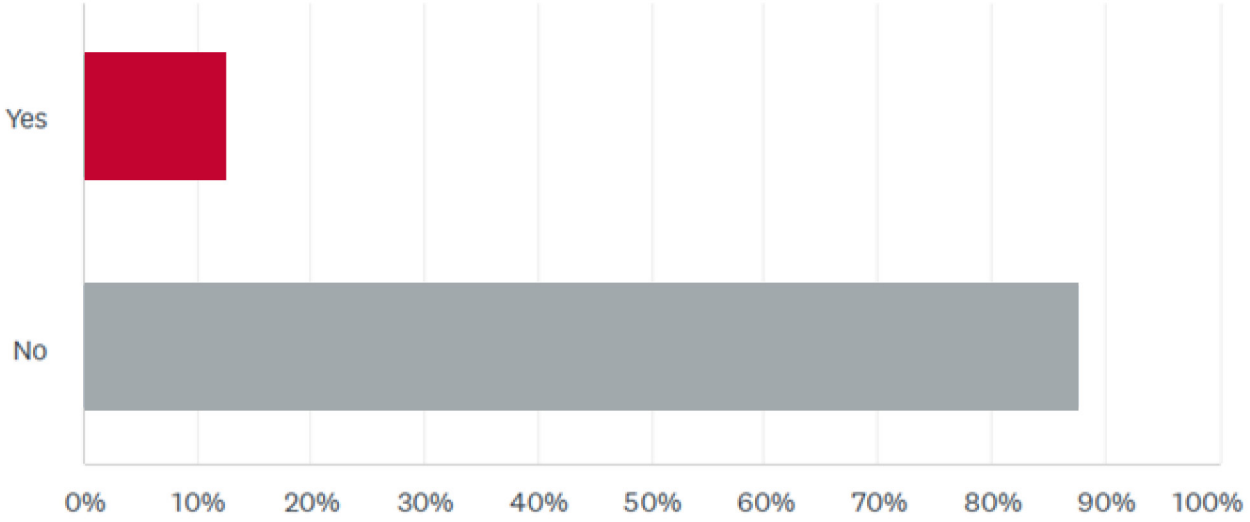
Yes: 31%

No: 69%

Responders: 58 responded, of which 18 provided a written comment

Many comments referenced the existing contamination in Coldwater Creek and concern that the Proposed Action may add to it. Commenters also raised questions on whether the Proposed Action would affect water quality, supply, or pressure in surrounding communities.

2.11 Question 11: Do you have any Historic or cultural comments about this project?



Yes: 12%

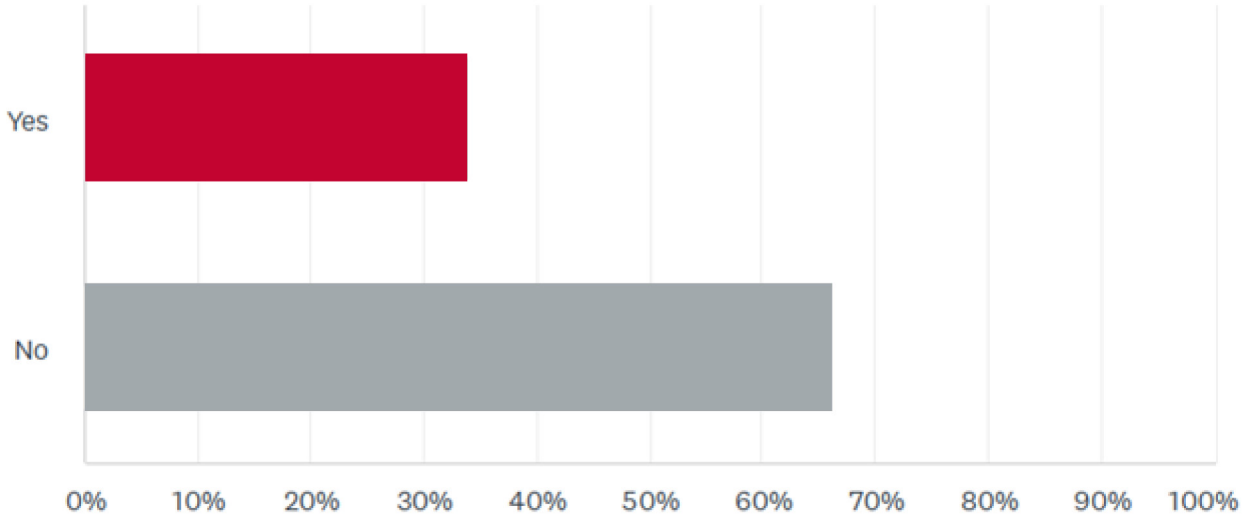
No: 88%

Responders: 57 responded, of which 7 provided a written comment

Two written comments included input on cultural or historic resources. The commenters expressed concern for damage to historic homes near the airport and requested any burial grounds or buildings be preserved.

Although this question was related to historic or cultural resources, comments included other resource areas including socioeconomics and pollution prevention. The content of these comments is included in the corresponding resource summary.

2.12 Question 12: Do you have any Socioeconomics comments about this project?



Yes: 34%

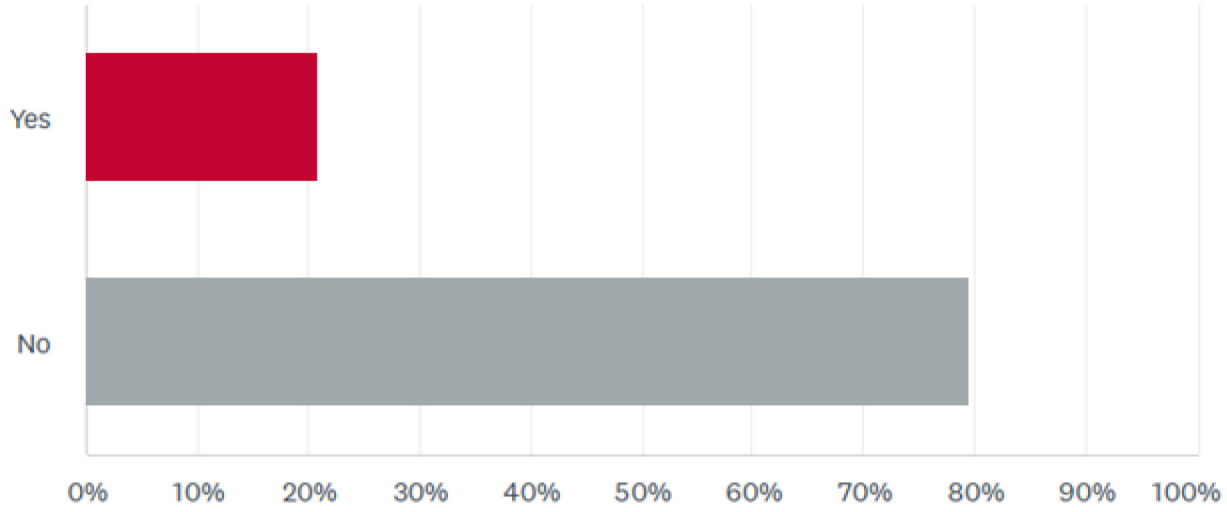
No: 66%

Responders: 60 responded, of which 19 provided a written comment

Concerns about the potential impact to home values were raised, as well as an inquiry regarding the number of jobs created by the Proposed Action.

Although this question was related to socioeconomics, there were a number of comments related to environmental justice. Some commenters requested that the Proposed Action consider environmental justice issues including suggestions for inclusion of underrepresented groups as part of the workforce and concern for encroachment and impacts to marginalized communities. The content of these comments is included in the environmental justice summary.

2.13 Question 13: Do you have any Environmental justice comments about this project?



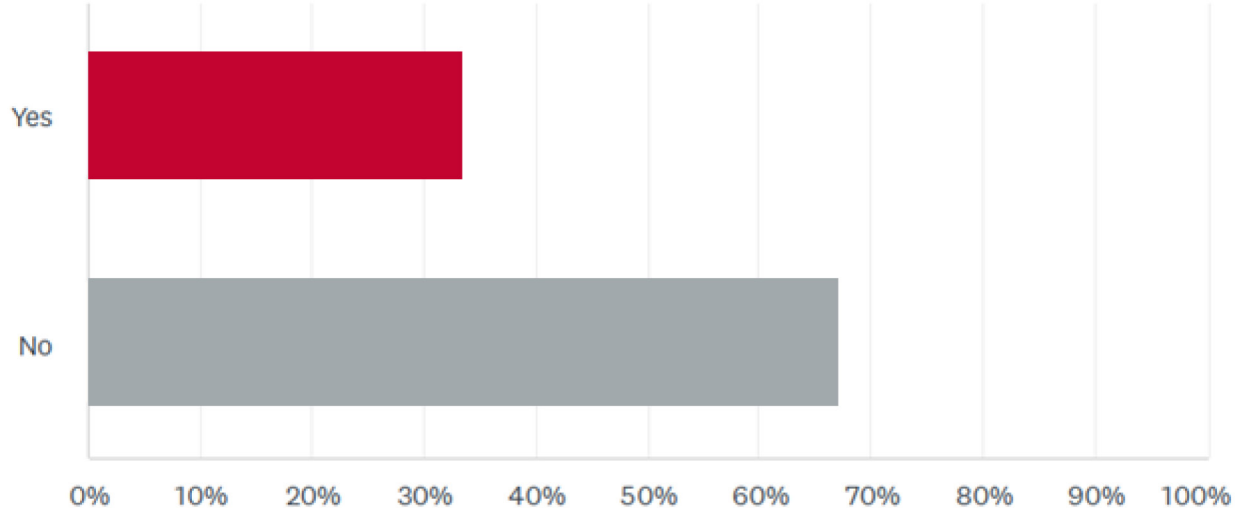
Yes: 21%

No: 79%

Responders: 58 responded, of which 12 provided a written comment

Comments were generally focused around resource areas with overlapping content such as the potential for noise impacts, safety in nearby communities, air pollution, and property values. Concern was expressed that this project may not be proposed in a more affluent neighborhood.

2.14 Question 14: Do you have any Children's environmental health and safety comments about this project?



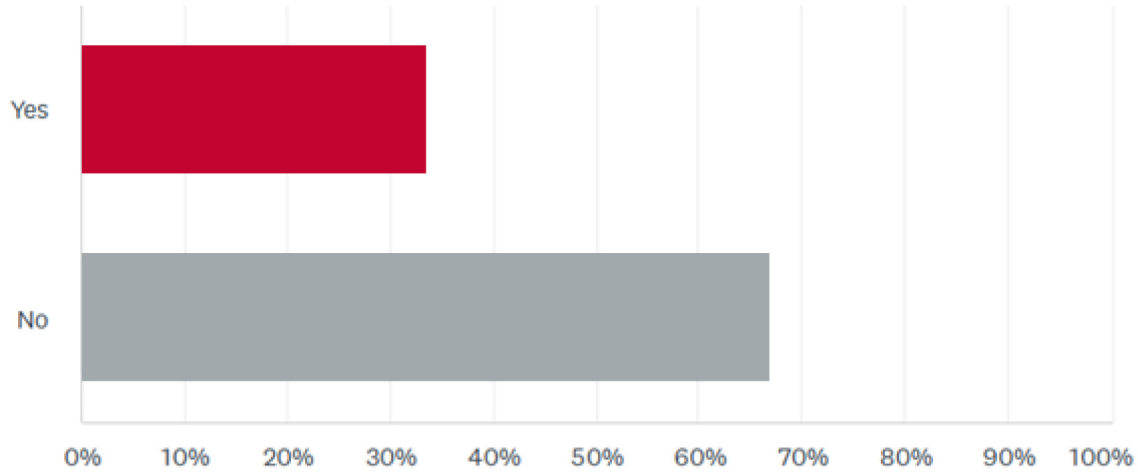
Yes: 33%

No: 67%

Responders: 57 responded, of which 18 provided a written comment

Comments indicated concern for potential impacts to children's health and safety, particularly regarding noise exposure, air quality, and water quality. Concern was also expressed regarding the potential for impacts to fertility. Additionally, one comment indicated concern that the project could make the area a target for terrorist activity.

2.15 Question 15: Do you have any Land use comments about this project?



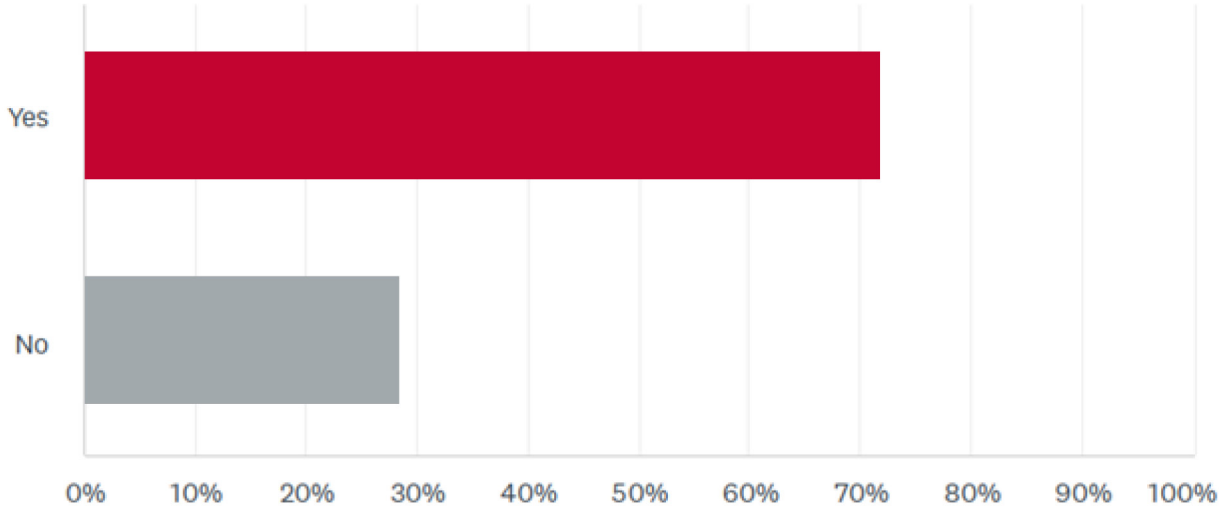
Yes: 32%

No: 68%

Responders: 60 responded, of which 16 provided a written comment

Comments included questions about whether the airport would be purchasing private property, how the Proposed Action would affect property values, and if traffic conditions would be impacted.

2.16 Question 16: Do you have any Noise and noise compatible land use comments about this project?



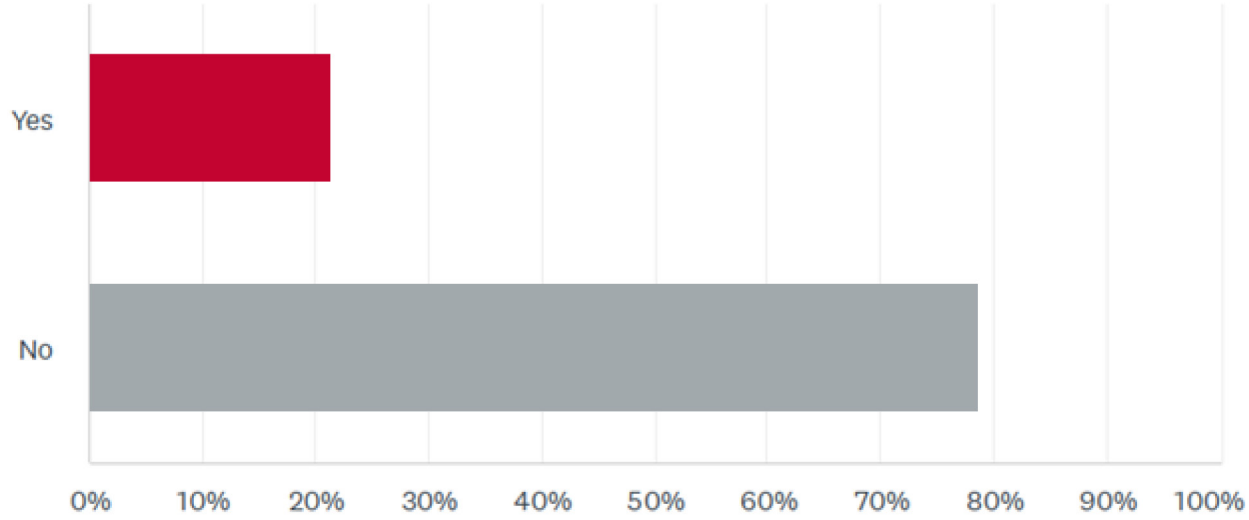
Yes: 73%

No: 27%

Responders: 64 responded, of which 43 provided a written comment

Comments generally focused on concerns for increased noise resulting from the proposed aircraft testing, including inquiries if the airport planned to provide soundproofing. Comments requested information on the frequency of test flights.

2.17 Question 17: Do you have any Visual effects comments about this project?



Yes: 21%

No: 79%

Responders: 56 responded, of which 12 provided a written comment

Comments included questions about what the buildings and overall site would look like once constructed and where the new buildings would be located. One commenter expressed the desire to see existing buildings on Banshee be demolished because of their deteriorated condition.

Although this question was related to visual resources, comments about noise were also included. The content of those comments is included in the noise summary.

2.18 Question 18: Do you have any Other feedback about this proposed project that are not listed above? If so, highlight the specific area and provide any specific response, if desired.

A total of 19 additional comments were provided. Commenters provided concerns regarding traffic and transportation in the area, requests for additional project information, questions about potential for increases in taxes, and comments about existing land use and previous property acquisitions. Some comments expressed support for the Proposed Action, while others expressed disapproval.

Written Comments Summary

Written comments were varied across resource areas. Comments ranged from questions about impacts, to suggestions of things to consider, to expressions of support or opposition to the overall project. This section includes keywords included in comments received and a sample of comments representing the variety found within the responses.

"Will there be any homes removed from this area?"

"So so so excited to see this future expansion!"

"To be honest, I love living where I live. It is really cool to see the fighter jets taking off when they do. I would not want that to be going on all day and night though."

"Will testing be completed over residential areas?"

"We heavily use Airflight and I-70 interchange. Need to make sure this is not affected."

"Think outside the box. Don't select the mist(sic) conservative or cheapest designs. Look at new designers, concepts that will look to the future, be aesthetically pleasing and environmentally friendly."

"Will more jets be flying over my house?"

"I believe this would be a big help to the continued prosperity of Saint Louis!"

"It is awesome to be able to see some of the most impressive engineering achievements of our time."

"Concerned about increased noise and air pollution."

"What changes in flight patterns will the use of these new facilities generate? I live in Bridgeton, 3 miles from the airport, and rarely hear aircraft noise now. Will that change?"

"How will surrounding residential properties be impacted?"

"Work schedule should be during normal work day hours and none in the evenings or at night."

"Ensure James S. McDonnell Blvd. continues to connect Airport Rd. by the Boeing Building w/ Air Cargo Rd. over by Terminal 2."

"Will this cause any roadways to be closed and traffic to be rerouted?"

"How many jobs can be created from this addition and is it going to be sustainable?"

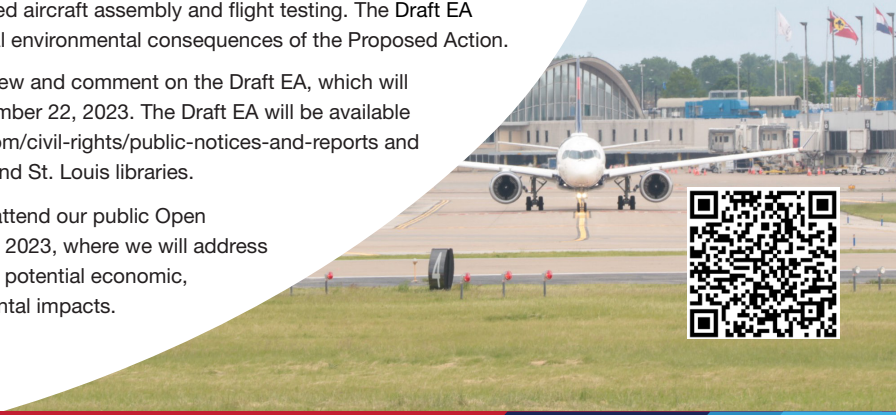
STL welcomes your comments!

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT®

STL, in partnership with Boeing and the Federal Aviation Administration (FAA), prepared a Draft Environmental Assessment (EA) pursuant to the National Environmental Policy Act for the proposed expansion to the airport facilities to support defense-related aircraft assembly and flight testing. The Draft EA evaluated the potential environmental consequences of the Proposed Action.

We welcome your review and comment on the Draft EA, which will be available on September 22, 2023. The Draft EA will be available online at www.flystl.com/civil-rights/public-notices-and-reports and at Berkeley City Hall and St. Louis libraries.

We also invite you to attend our public Open House on October 17, 2023, where we will address the Proposed Action's potential economic, social, and environmental impacts.



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Please provide your comments on the Draft EA by October 26, 2023 using one of the options below:

- Scan the QR code to access the online comment form
- Attend the public Open House on October 17, 2023 at STL's Terminal 1, Concourse B from 4-7 p.m.
- Contact: Jason Christians, STL Airport Assistant Director - Engineering by email at jachristians@flystl.com or regular mail at Jason Christians, St. Louis Lambert International Airport, PO Box 10212, St. Louis, MO 63145-0212
- Contact: Scott Tener, FAA Environmental Protection Specialist by email at scott.tener@faa.gov or regular mail at Scott Tener, Federal Aviation Administration, 901 Locust Street, Room 364, Kansas City, MO 64106

<<Sequence>><<Endorsement Line>>
<<Full Name>>
<<Address Line 1>>
<<City State ZIP Code>>

Agency Coordination and Consultation

U.S. Department
Of Transportation

**Federal Aviation
Administration**

Central Region
Iowa, Kansas
Missouri, Nebraska

901 Locust
Kansas City, Missouri 64106-2325

May 23, 2023

DNR/SHPO
Attn: Review & Compliance
1659 E. Elm Street
Jefferson City, MO 65101

Boeing Site Development
Initiation of Section 106 Consultation and Request for Comment
St. Louis Lambert International Airport
St. Louis, St. Louis County, Missouri

The Federal Aviation Administration (FAA), as the lead federal agency, is preparing an environmental evaluation in accordance with the National Environmental Policy Act (NEPA) (United States Code [U.S.C.] Title 42, Sections 4321 et seq.). The Project is an undertaking subject to Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations (36 CFR Part 800) (Section 106). The purpose of this letter is to initiate Section 106 consultation for the Project, provide the results of historic property identification efforts, and notify your office of our finding of effect.

Proposed Project

St. Louis Lambert International Airport (STL) is proposing to lease two locations, referred to as Northern Tract and Brownleigh, to the Boeing Company (Boeing) for the construction of an aircraft assembly building and an associated flight ramp, hereafter referred to as the Project (Figure 1).

Aircraft would be assembled at the Brownleigh location and then towed to the Northern Tract location for flight testing. The aircraft would be towed across McDonnell Boulevard and across the airport's operations area, approximately 2 to 4 times per month. The Project would likely use existing access routes, though changes in egress to the locations may also occur. Both locations would be secure with new perimeter fencing and guardhouses similar to other facilities in the Project vicinity. Test flights would occur as needed throughout the various stages of development and before the customer taking delivery of the aircraft. The second phase, if implemented, would generally have the same function and operations except the frequency of operations would roughly double because of the second assembly building coming online.

To accommodate Boeing's building requirements, the Project proposes to demolish extant buildings within the Northern Tract, including the McDonnell Douglas complex, GoJet Airlines facility, and associated buildings and structures and construct new flight ramp structures, hangar, fuel calibration, radar cross section, hush house, and open-air shelters, as needed (Figure 2). The Brownleigh location is primarily vacant with the exception of the Gate Gourmet building (built in 2003) and a fuel farm (built in 2020) (Figure 3). Ground-disturbing activities would occur within both the Northern Tract

and Brownleigh locations from the proposed demolition and construction activities. Existing ground coverage, such as asphalt, concrete, landscape, and soils, would be removed, and fill and grading activities would likely occur.

Phase I: After the locations are cleared and prepared for construction, the first phase of development would commence (Figures 6 and 7). The first phase of proposed construction within a 75-acre portion of the Northern Tract would include:

- +/- 185,000-square-foot (SF) hangar building
- +/- 80,000-SF radar cross-section test facility
- +/- 25,000-SF open-air aircraft shelters
- +/- 20,000-SF hush house
- +/- 20,000-SF maintenance building
- +/- 15,000-SF fuel calibration building
- +/- 10,000-SF fire house
- Several small support or storage structures (each less than 10,000 SF)

The first phase of proposed construction within a 110-acre portion of the Brownleigh location would include a +/- 880,000-SF building.

Phase II: If implemented, the second phase is anticipated to require additional buildings and structures, or additions to the first phase buildings and structures for the Northern Tract and Brownleigh locations. The second phase of proposed construction on the Northern Tract location is anticipated to include:

- +/- 150,000 SF Hangar addition
- +/- 200,000 SF Paint Hangar
- +/- 25,000 SF additional open-air aircraft shelters
- +/- 20,000 SF additional Hush House
- +/- 15,000 SF additional Fuel Calibration Building

The second phase of proposed construction on the Brownleigh location is anticipated to include a +/- 660,000-SF Assembly Building.

Area of Potential Effect

The APE consists of two discontiguous areas within the Northern Tract and Brownleigh locations where ground-disturbing activities may occur and the surrounding area where foreseeable visual changes may be perceivable (Figure 4). The APE considers direct effects that may occur at the same time and place with no intervening cause (whether auditory, physical, or visual) and indirect effects that may occur later in time or be farther removed in distance but are still reasonably foreseeable. The Project footprint, which includes all ground-disturbing activities, will occur within a 75-acre portion of the Northern Tract, and 110-acre portion of the Brownleigh Tract. A small buffer was applied to the Project footprint to take into account the potential for changes within the viewshed. Therefore, the total APE is 256 acres (103.2 hectares), including the 117-acre (47.2-hectare) Northern Tract location and 139-acre (56-hectare) Brownleigh location. The APE is shown in the attached report.

The APE does not extend beyond the immediate Project vicinity because of the proposed scale and commercial and industrial nature of the existing setting and separation from residential and sensitive resources by existing visual buffers. Above-ground changes would not be substantially different from the current height, use, or appearance of the extant architectural resources on the Northern Tract and Brownleigh locations. The proposed construction and use would be compatible with the present condition of STL and other industrial and commercial resources.

The APE within the Northern Tract location is bounded to the west of Aviation Drive, to the north by Banshee Road, and to the south by the STL airfield, and extends to the east of a wastewater facility. The APE within the Brownleigh location is bounded to the west and south of James S. McDonnell Boulevard, to the north by Airport Road, and to the east by I-170. The APE does not extend between the Northern Tract and Brownleigh locations because the existing STL airfield infrastructure is not anticipated to be affected by the proposed Project.

Identification of Historic Properties

A cultural resources literature review was completed for the proposed 256-acre (103.2-hectare) APE and 1-mile (1.6-kilometer) study area in March 2023, and a preliminary architectural survey was completed the week of March 13, 2023. The Missouri Department of Natural Resources (DNR) GIS Archaeology Viewer and Architectural inventory was reviewed to identify historic properties within the APE and a 1-mile (1.6-kilometer) radial study area. The records review revealed one NRHP-listed property (Curtiss-Wright Aeroplane Factory [16000586]) in the APE in the Northern Tract, and one archaeological site (23SL354) intersects with the APE in Brownleigh. An additional 29 archaeological resources and 3 architectural resources were identified within the study area. The records review also revealed that 22 previously reported cultural resource surveys have been identified within the study area, of which 3 have been conducted within the APE. A total of 16 historic properties are identified within the study area that are listed or eligible for listing in the NRHP. Of the 16 historic properties, 4 architectural resources and 12 archaeological resources are identified within the study area. See Figure 5.

In the Northern Tract, the McDonnell Douglas complex, historically known as the Curtiss-Wright Aeroplane Factory (16000586), was listed in the NRHP in 2016 under Criterion A for its significance with industry and military practices relative to the U.S. Army and Air Force's preparation and participation during World War II from 1940 to 1946. In addition to the previously identified historic property, additional investigation recommended that the 2016 NRHP nomination remains valid, and that the historic property also qualify for listing in the NRHP under Criterion C for architecture. No changes are recommended to the period of significance or historic property boundary.

During the architectural survey and subsequent NRHP evaluation, an additional building, Building 42, was identified as eligible for listing in the NRHP. Building 42 is located to the west of the McDonnell Douglas complex, is part of the STL property, and is privately used as the GoJet Airline facility. The attached report recommends Building 42 eligible for listing in the NRHP under Criterion C as an example of mid-20th-century aerospace architecture. This building retains sufficient historic integrity of association, design, materials, workmanship, location, and feeling with some diminishment in integrity of setting to reflect its architectural significance as a representative example of mid-century industrial design. Both the NRHP-listed Curtiss-Wright Aeroplane Factory (16000586) and the newly recommended NRHP-eligible Building 42 would be demolished as part of this Project.

Further review of previously identified archaeological sites and historical mapping indicate a moderate probability of both prehistoric and historic archaeological deposits in the APE. Within the Brownleigh location, one prehistoric site (23SL354) was found to be coincident with the APE. Originally reported in 1979, the site location remains ambiguous and has not been evaluated for listing in the NRHP. Because ground-disturbing activities would occur within the Brownleigh location from the proposed construction activities, archaeological monitoring is recommended during ground-disturbing activities within the Brownleigh location.

A literature search and a survey for architectural resources were completed. The resulting report of findings, *Literature Search and Architectural Resources Results for Boeing Site Development at the*

St. Louis Lambert International Airport Expansion, St. Louis County, Missouri, is attached for your review and comment.

Assessment of Effects

Based on the proposed demolition of the Curtiss-Wright Aeroplane Factory and Building 42, the Project would have an Adverse Effect to historic properties within the APE.

Request for Section 106 Concurrence

We request your review and comments on the attached report in accordance with Section 106. We request SHPO's concurrence on the NRHP eligibility recommendation of Building 42, on the archeological monitoring recommendation, and on the finding of Adverse Effect finding. Please provide concurrence and/or comments within 30 calendar days of receipt of this letter.

Because of the anticipated Adverse Effect from the Project, consultation is requested to resolve the Adverse Effect and an agreement document prepared. FAA welcomes an opportunity to discuss the undertaking with you and other consulting parties throughout the Section 106 process. Questions and correspondence can be directed to me at scott.tener@faa.gov or 816-329-2639.

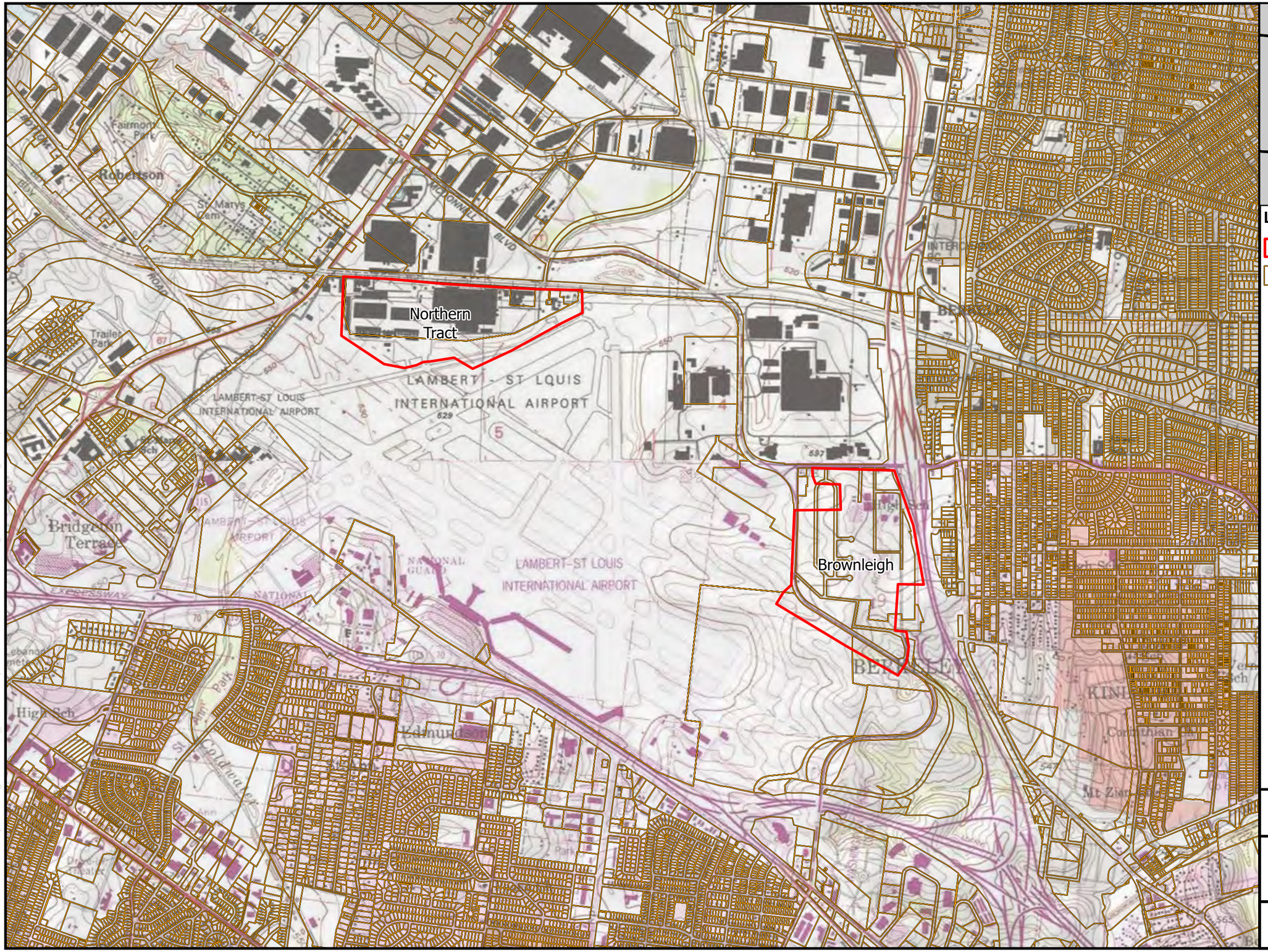
Sincerely,

Scott Tener
Lead Environmental Specialist
Federal Aviation Administration, Central Region Office of Airports

Encl: *Literature Search and Architectural Resources Results for Boeing Site Development at the St. Louis Lambert International Airport Expansion, St. Louis County, Missouri*, May 12, 2023

cc: Jerry Beckmann, St. Louis Airport Authority (GABeckmann@flystl.com)
Jennifer Kuchinski, WSP (Jennifer.Kuchinski@wsp.com)
John Van Woensel, WSP (John.VanWoensel@wsp.com)
Andrew Murphy, Boeing (andrew.murphy4@boeing.com)
Sara Jackson, Jacobs (Sara.Jackson1@jacobs.com)
Karen Robinson, Clerk, City of Bridgeton (krobinson@bridgetonmo.com)
Nathan Mai-Lombardo, City Manager, City of Berkeley (nathan@ci.berkeley.mo.us)
Patrick Mulcahy, Director of Economic Development, City of Florissant (pmulcahy@florissantmo.com)
Joe McDavid, President, Florissant Valley Historical Society (florissantvalleyhs@gmail.com)
Gina Seibe, President, Historic Florissant, Inc. (historicflo@aol.com)
Esley Hamilton, Parks Historian, St. Louis County Landmarks (EHamilton@stlouisco.com)

NOTE: Figure 5 has been removed from the Enclosures because the locations of archaeological sites are protected information.



LEGEND:

- Area of Potential Effects
- Parcel Boundary

N

BASE MAP SOURCE:
USGS USA Topo Map

0 1,000 2,000
FEET

St. Louis Expansion,
St. Louis County, Missouri

FIGURE 1
PROJECT LOCATION

DATE: 4/28/2023

Jacobs

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LEGEND:

- Area of Potential Effects
- Parcel Boundary
- Building 1
- Building 2
- Building 3
- Building 42
- Nonextant Building 45
- Building 48

N

BASE MAP SOURCE:
Esri World Imagery

0 250 500
FEET

St. Louis Expansion, St. Louis County, Missouri

FIGURE 2
NORTHERN TRACT

DATE: 4/28/2023

Jacobs

LEGEND:

- Area of Potential Effects
- Parcel Boundary

N

BASE MAP SOURCE:
Esri World Imagery

0 250 500
FEET

St. Louis Expansion,
St. Louis County, Missouri

FIGURE 3
BROWNLEIGH

DATE: 4/28/2023

Jacobs

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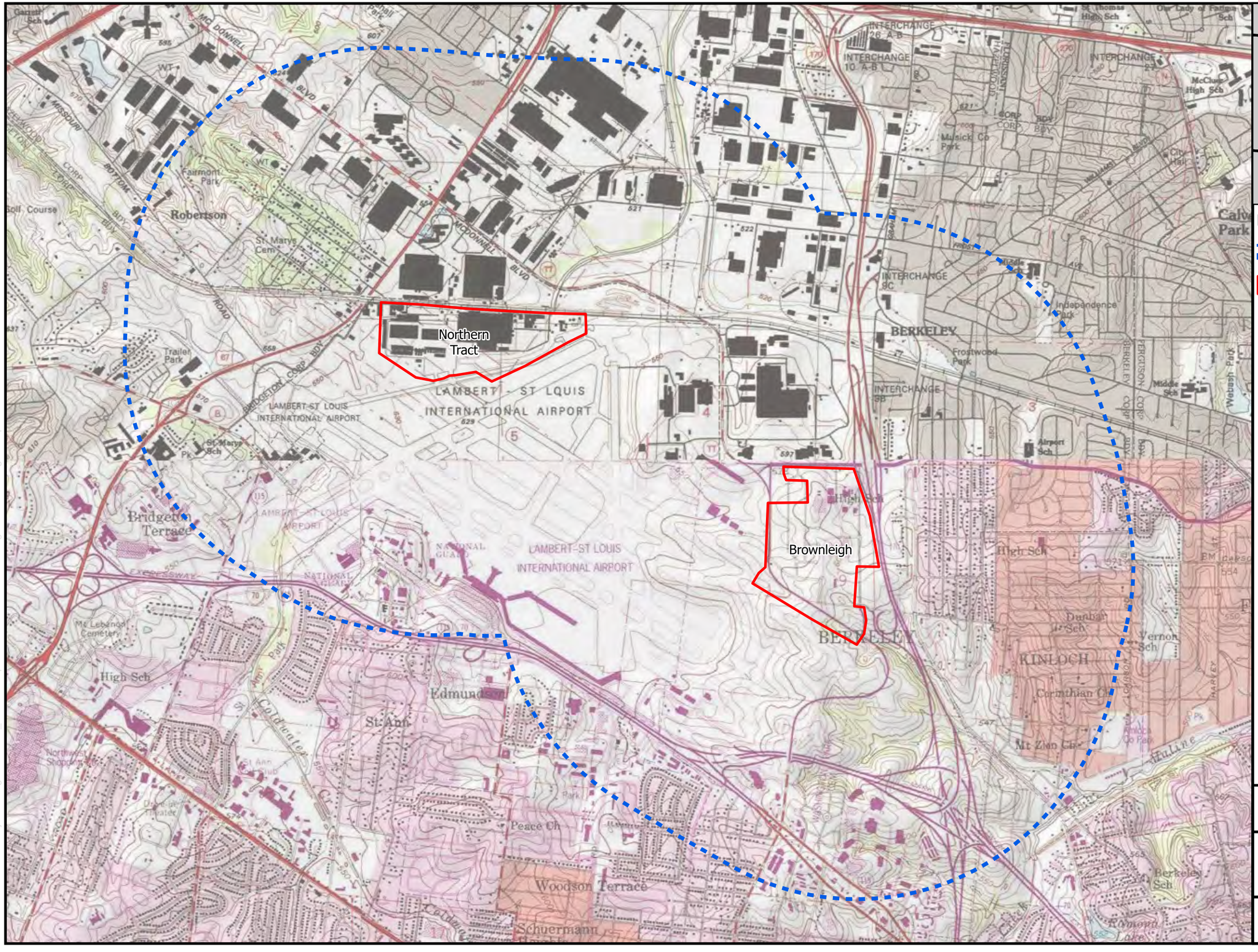

LEGEND:

- 1-Mile Study Area
- Area of Potential Effects

N

BASE MAP SOURCE:
USGS USA Topo Map

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FEET

St. Louis Expansion,
St. Louis County, Missouri

FIGURE 4
AREA OF POTENTIAL EFFECTS

DATE: 4/28/2023

Jacobs

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Figure 6 - Northern Tract Site

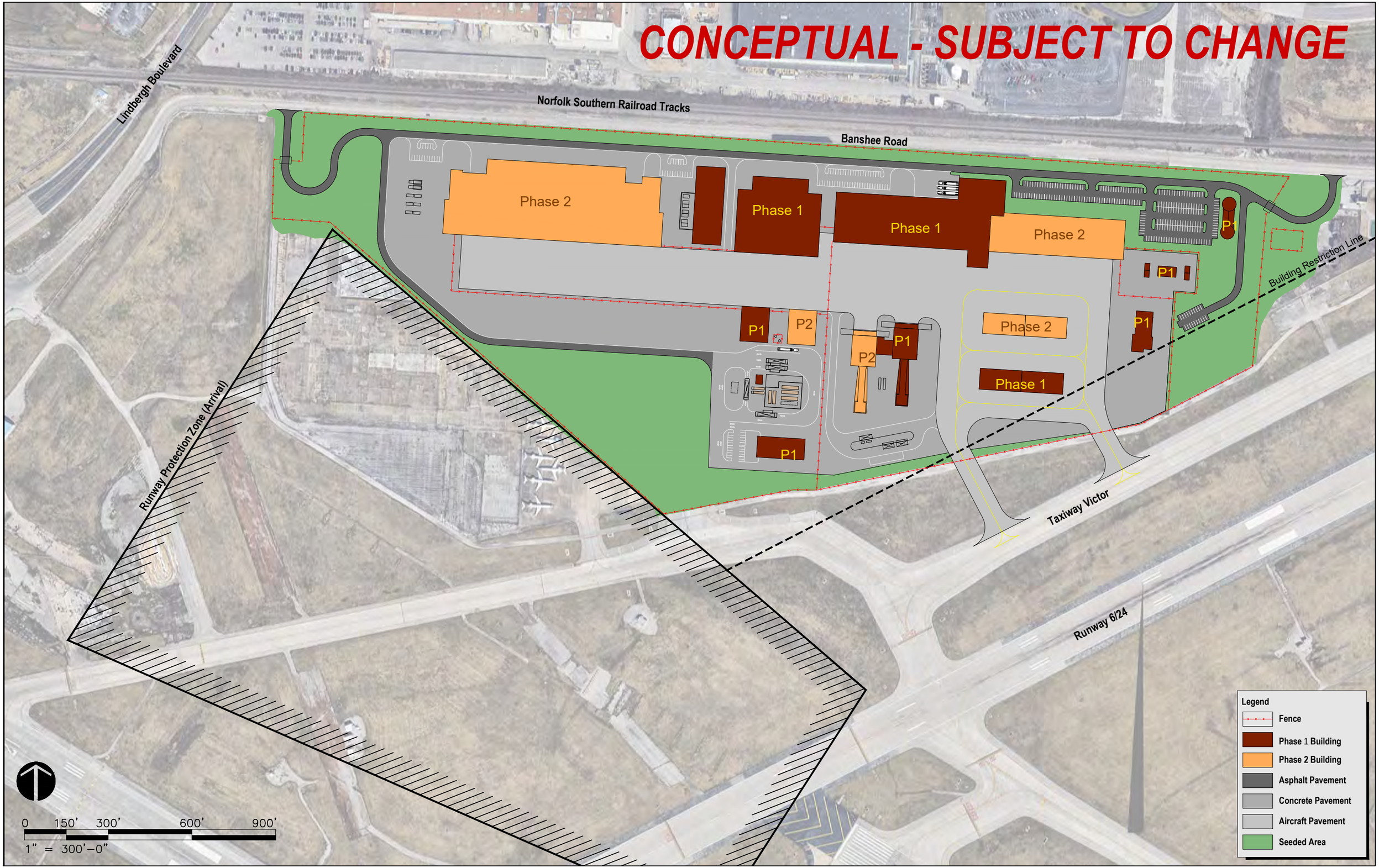
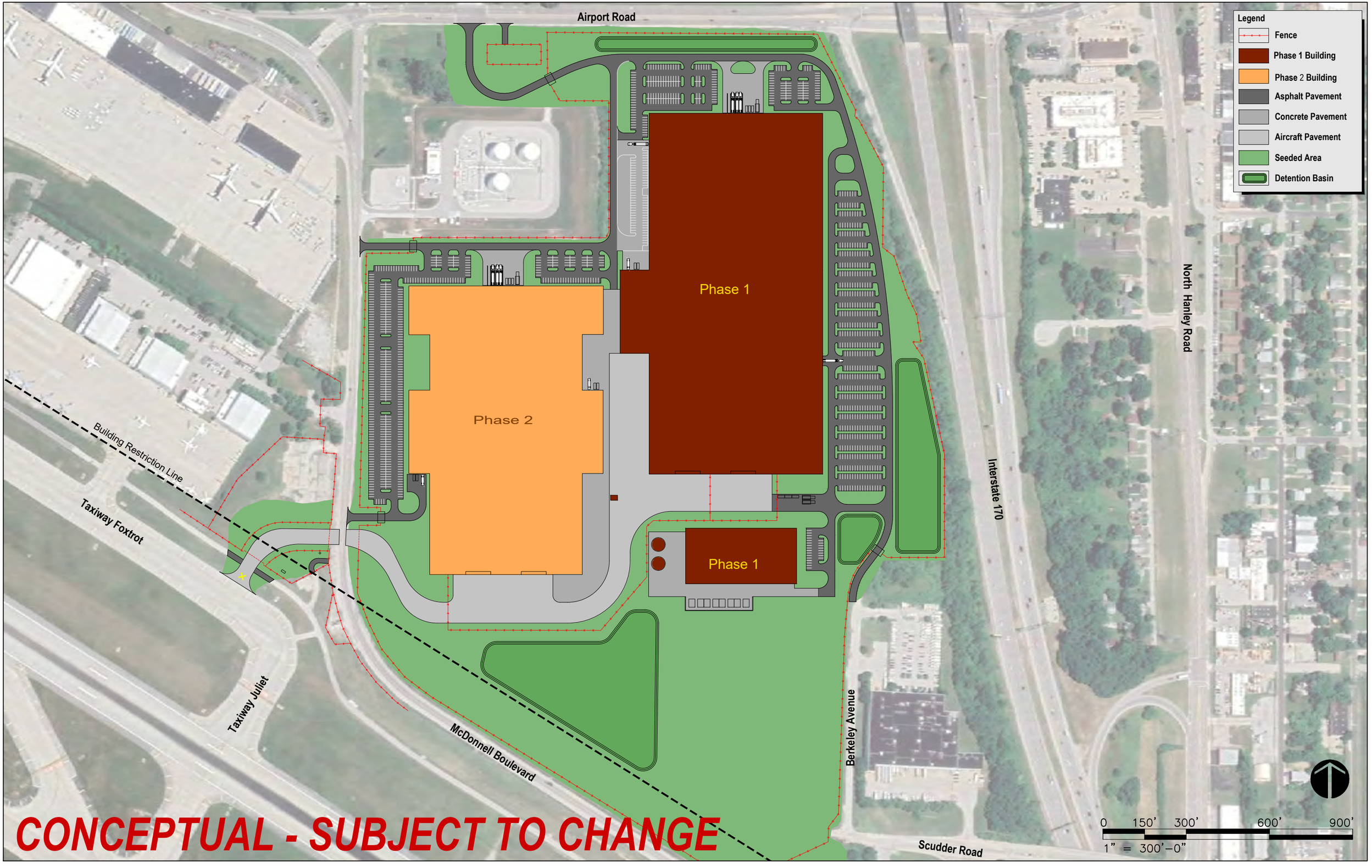


Figure 7: Brownleigh Site



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

June 20, 2023

Jacobs
Attn: Sara Orton
1001 Highlands Plaza Drive W, Suite 400
St. Louis, MO 63110

Re: **SHPO Project Number: 127-SL-23** – Boeing Site Development at the St. Louis Lambert International Airport, Demolition of Listed Curtiss-Wright Aeroplane Factory, St. Louis County, Missouri (FAA)

Dear Sara Orton:

Thank you for submitting information to the State Historic Preservation Office (SHPO) regarding the above-referenced project for review pursuant to Section 106 of the National Historic Preservation Act, P.L. 89-665, as amended (NHPA), and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of historic properties.

We have reviewed the information regarding the above-referenced project and have included our comments on the following page(s). Please retain this documentation as evidence of consultation with the Missouri SHPO under Section 106 of the NHPA. SHPO concurrence does not complete the Section 106 process as federal agencies will need to conduct consultation with all interested parties. **Please be advised that, if the current project area or scope of work changes, such as a borrow area being added, or cultural materials are encountered during construction, appropriate information must be provided to this office for further review and comment.**

If you have questions please contact the SHPO at (573) 751-7858 or call/email Amy Rubingh, (573) 751-4589, amy.rubingh@dnr.mo.gov. If additional information is required please submit the information via email to MOSection106@dnr.mo.gov.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Brian Stith
Deputy Director Division of State Parks and
Deputy Missouri State Historic Preservation Officer

CC: Scott Tener, FAA
Sara Jackson, Jacobs
Gerald A Beckmann, Deputy Director, St. Louis Lambert Airport
Andy Murphy, STL Site Planning Mgr., Boeing

SHPO Project Number: 127-SL-23 – Boeing Site Development at the St. Louis Lambert International Airport, Demolition of Listed Curtiss-Wright Aeroplane Factory, St. Louis County, Missouri (FAA)

COMMENTS:

We have reviewed the information provided concerning the above referenced project. Based on the information provided the project consists of the demolition of the Curtiss-Wright Aeroplane Factory at 5250 Banshee Road, St. Louis which is listed in the National Register of Historic Places. Therefore, we concur with your determination that the proposed project will have an **adverse effect** on historic properties. A Memorandum of Agreement (MOA) that outlines the steps needed to mitigate the adverse effect for this project will need to be drafted. Final stipulations in the MOA should be determined in consultation with the Federal Aviation Administration (FAA), our office, the Advisory Council on Historic Preservation (ACHP), if participating, and any other interested parties.

The FAA should forward the necessary adequate documentation as described to the ACHP at e106@achp.gov. Pending receipt of the Council's decision on whether it will participate in consultation, no action shall be taken which would foreclose Council consideration of alternatives to avoid or satisfactorily mitigate any adverse effect on the property in question. Please be sure to copy us on any correspondence to the ACHP.

SHPO Reviewer: Amy Rubingh, (573) 751-4589, amy.rubingh@dnr.mo.gov

U.S. Department
of Transportation
**Federal Aviation
Administration**

Central Region
Iowa, Kansas,
Missouri, Nebraska

901 Locust
Kansas City, Missouri 64106
(816) 329-2600

May 24, 2023

CERTIFIED MAIL

<NAME> [See Attached List]
<ADDRESS>

Boeing Site Development
Section 106 Consultation
St. Louis Lambert International Airport
St. Louis, St. Louis County, Missouri

Dear <NAME>:

An environmental evaluation is being prepared for a proposed undertaking at the St. Louis Lambert International Airport (Airport) subject to the National Environmental Policy Act (NEPA). In conjunction with the NEPA process, the Federal Aviation Administration (FAA) intends to complete Section 106 of the National Historic Preservation Act (NHPA), as implemented through 36 CFR 800. The intent of this letter is to request your input on properties of cultural or religious significance that may be affected by the proposed project and invite you to participate in the Section 106 consultation process.

Proposed Project

St. Louis Lambert International Airport (STL) is proposing to lease two locations, referred to as Northern Tract and Brownleigh, to the Boeing Company (Boeing) for the construction of an aircraft assembly building and an associated flight ramp, hereafter referred to as the Project (Figure 1).

Aircraft would be assembled at the Brownleigh location and then towed to the Northern Tract location for flight testing. The aircraft would be towed across McDonnell Boulevard and across the airport's operations area, approximately 2 to 4 times per month. The Project would likely use existing access routes, though changes in egress to the locations may also occur. Both locations would be secure with new perimeter fencing and guardhouses similar to other facilities in the Project vicinity. Test flights would occur as needed throughout the various stages of development and before the customer taking delivery of the aircraft. The second phase, if implemented, would generally have the same function and operations except the frequency of operations would roughly double because of the second assembly building coming online.

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Phase I: After the locations are cleared and prepared for construction, the first phase of development would commence (Figures 6 and 7). The first phase of proposed construction within a 75-acre portion of the Northern Tract would include:

- +/- 185,000-square-foot (SF) hangar building
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The first phase of proposed construction within a 110-acre portion of the Brownleigh location would include a +/- 880,000-SF building.

Phase II: If implemented, the second phase is anticipated to require additional buildings and structures, or additions to the first phase buildings and structures for the Northern Tract and Brownleigh locations. The second phase of proposed construction on the Northern Tract location is anticipated to include:

- +/- 150,000 SF Hangar addition
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The second phase of proposed construction on the Brownleigh location is anticipated to include a +/- 660,000-SF Assembly Building.

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The APE does not extend beyond the immediate Project vicinity because of the proposed scale and commercial and industrial nature of the existing setting and separation from residential and sensitive resources by existing visual buffers. Above-ground changes would not be substantially different from the current height, use, or appearance of the extant architectural resources on the Northern Tract and Brownleigh locations. The proposed construction and use would be compatible with the present condition of STL and other industrial and commercial resources.

The APE within the Northern Tract location is bounded to the west of Aviation Drive, to the north by Banshee Road, and to the south by the STL airfield, and extends to the east of a wastewater facility. The APE within the Brownleigh location is bounded to the west and south of James S. McDonnell Boulevard, to the north by Airport Road, and to the east by I-170. The APE does not extend between the Northern Tract and Brownleigh locations because the existing STL airfield infrastructure is not anticipated to be affected by the proposed Project.

Identification of Historic Properties

A cultural resources literature review was completed for the proposed 256-acre (103.2-hectare) APE and 1-mile (1.6-kilometer) study area in March 2023, and a preliminary architectural survey was completed the week of March 13, 2023. The Missouri Department of Natural Resources (DNR) GIS Archaeology Viewer and Architectural inventory was reviewed to identify historic properties within the APE and a 1-mile (1.6-kilometer) radial study area. The records review revealed one NRHP-listed property (Curtiss-Wright Aeroplane Factory [16000586]) in the APE in the Northern Tract, and one archaeological site (23SL354) intersects with the APE in Brownleigh. An additional 29 archaeological resources and 3 architectural resources were identified within the study area. The records review also revealed that 22 previously reported cultural resource surveys have been identified within the study area, of which 3 have been conducted within the APE. A total of 16 historic properties are identified within the study area that are listed or eligible for listing in the NRHP. Of the 16 historic properties, 4 architectural resources and 12 archaeological resources are identified within the study area. See Figure 5.

In the Northern Tract, the McDonnell Douglas complex, historically known as the Curtiss-Wright Aeroplane Factory (16000586), was listed in the NRHP in 2016 under Criterion A for its significance with industry and military practices relative to the U.S. Army and Air Force's preparation and participation during World War II from 1940 to 1946. In addition to the previously identified historic property, additional investigation recommended that the 2016 NRHP nomination remains valid, and that the historic property also qualify for listing in the NRHP under Criterion C for architecture. No changes are recommended to the period of significance or historic property boundary.

During the architectural survey and subsequent NRHP evaluation, an additional building, Building 42, was identified as eligible for listing in the NRHP. Building 42 is located to the west of the McDonnell Douglas complex, is part of the STL property, and is privately used as the GoJet Airline facility. The attached report recommends Building 42 eligible for listing in the NRHP under Criterion C as an example of mid-20th-century aerospace architecture. This building retains sufficient historic integrity of association, design, materials, workmanship, location, and feeling with some diminishment in integrity of setting to reflect its architectural significance as a representative example of mid-century industrial design. Both the NRHP-listed Curtiss-Wright Aeroplane Factory (16000586) and the newly recommended NRHP-eligible Building 42 would be demolished as part of this Project.

Further review of previously identified archaeological sites and historical mapping indicate a moderate probability of both prehistoric and historic archaeological deposits in the APE. Within the Brownleigh location, one prehistoric site (23SL354) was found to be coincident with the APE. Originally reported in 1979, the site location remains ambiguous and has not been evaluated for listing in the NRHP. Because ground-disturbing activities would occur within the Brownleigh location from the proposed construction activities, archaeological monitoring is recommended during ground-disturbing activities within the Brownleigh location.

A literature search and a survey for architectural resources were completed. The resulting report of findings, *Literature Search and Architectural Resources Results for Boeing Site Development at the St. Louis Lambert International Airport Expansion, St. Louis County, Missouri*, is attached.

The FAA is the lead federal agency for the NEPA document. Jim Johnson, Director, FAA Central Region Airports Division, will be making the final FAA decision on the environmental determination.

To help in our preparation of the environmental evaluation, we would appreciate your input (via mail or e-mail) within thirty (30) days. If you have questions or require additional information, please contact me at 816-329-2639 or scott.tener@faa.gov.

Sincerely,

Scott Tener
Environmental Specialist

Encl: *Literature Search and Architectural Resources Results for Boeing Site Development at the St. Louis Lambert International Airport Expansion, St. Louis County, Missouri*, May 12, 2023

Tribal Coordination – Environmental Evaluation 5/24/2023
Boeing Site Development
St. Louis Lambert International Airport, St. Louis, St. Louis County, Missouri

This website is recommended by ACHP: https://egis.hud.gov/TDAT/

Contact	Delivered	Response Returned	Action Requested
Mr. Bobby Komardley, Chairman Apache Tribe of Oklahoma PO Box 1330 Anadarko, OK 73005	5/30/23	7/7/23-No Response	Cert Mail#70220410000331736481
Mr. Paul Barton, THPO Eastern Shawnee Tribe of Oklahoma 12705 South 705 Road Wyandotte, OK 74370	5/30/23	7/7/23-No Response	Cert Mail#70220410000331736498
Ms. Amy Scott Cultural Preservation Department Iowa Tribe of Oklahoma 335588 E 750 Road Perkins, OK 74059	5/30/23	7/7/23-No Response	Cert Mail#70220410000331736504
Ms. Crystal Douglas, THPO Kaw Nation P.O. Box 50 Kaw City, OK 74641	5/27/23	7/7/23-No Response	Cert Mail#70220410000331736511
Ms. Nellie Cadue Director, Land Department Kickapoo Tribe in Kansas 1107 Goldfinch Rd Horton, KS 66439	5/30/23	7/7/23-No Response	Cert Mail#70220410000331736528
Ms. Diane Hunter, THPO Miami Tribe of Oklahoma P.O. Box 1326 Miami, OK 74355	Email: 5/25/23	7/7/23-No Response	dhunter@miamination.com
Mr. Thomas Parker, THPO Omaha Tribe of Nebraska P.O. Box 368 Macy, NE 68039	5/30/23	7/7/23-No Response	Cert Mail#70220410000331736535
Dr. Andrea Hunter, THPO Osage Nation 627 Grandview Avenue Pawhuska, OK 74056	Email: 5/25/23	7/7/23-No Response	S106@osagenation-nsn.gov

Mr. Craig Harper, Chief Peoria Tribe of Indians of Oklahoma PO Box 1527 Miami, OK 74355	5/31/23	7/7/23-No Response	Cert Mail#70220410000331736542
Mr. Shannon Wright, THPO Ponca Tribe of Nebraska PO BOX 288 Niobrara NE 68760	5/31/23	7/7/23-No Response	Cert Mail#70220410000331736559
Mr. Everett Bandy, THPO Quapaw Tribe of Indians PO Box 765 Quapaw, OK 74363-0765	5/30/23	5/31/23-Request copies of all SHPO correspondence for this project. 7/10/23-forwarded SHPO 7/27/23-forwarded ACHP correspondence	Cert Mail#70220410000331736566
Mr. William Tarrant, THPO Seneca-Cayuga Nation PO Box 453220 Grove, OK 74345	6/1/23	7/7/23-No Response	Cert Mail#70220410000331736573

QUAPAW NATION

P.O. Box 765
Quapaw, OK 74363-0765

(918) 542-185
FAX (918) 542-469

May 31, 2023

ATTN: Scott Tener
US Department of Transportation
Federal Aviation Administration
901 Locust
Kansas City, MO 64106

Re: St. Louis Lambert International Airport in St. Louis County, MO.

Dear Mr. Tener,

The Quapaw Nation Historic Preservation Program (QNHPP) has received notification of the proposed project listed as the St. Louis Lambert International Airport in St. Louis County, MO. The Quapaw Nation has a vital interest in protecting its historic and ancestral cultural resources. The Quapaw Nation requests copies of all SHPO correspondence which has been received for this project.

In accordance with the National Historic Preservation Act, (NHPA) [16 U.S C. 470 §§ 470-470w-6] 1966, undertakings subject to the review process are referred to in S101 (d) (6) (A), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

Should you have any questions or need any additional information, please feel free to contact Jared McCormick at jared.mccormick@quapawnation.com, please copy section106@quapawnation.com to ensure additional information requests are reviewed in a timely manner. Thank you for consulting with the Quapaw Nation on this matter.

Sincerely,

Jared McCormick

On behalf of
-Everett Bandy
Preservation Officer/ QNHPP Director
Quapaw Nation
P.O. Box 765
Quapaw, OK 74363
(w) 918-238-3100
(f) 918-674-2456

Tener, Scott (FAA)

From: Burgundy Fletcher <bfletcher@peoriatribe.com>
Sent: Tuesday, August 15, 2023 2:28 PM
To: Tener, Scott (FAA)
Subject: 106 response
Attachments: Boeing Site Development St Louis International Airport.docx

Please see the attached 106 response.

Thank you.

Burgundy Fletcher
Historic Preservation Specialist
Peoria Tribe of Oklahoma
Office 918.544.9234 | Fax 918.540.2528
bfletcher@peoriatribe.com

PEORIA TRIBE
CULTURAL PRESERVATION

Via email: scott.tener@faa.gov

August 14, 2023

Scott Tener
U.S. DOT Federal Aviation Administration
901 Locust
Kansas City, MO 64106

RE: Boeing Site Development, St. Louis Lambert International Airport, St. Louis, MO

Dear Scott Tener:

The Peoria Tribe offers no objection to the above-referenced project at this time. However, given the Peoria Tribe's deep and enduring relationship to its historic lands and cultural property within present-day Missouri, if any human remains or Native American cultural items falling under the Native American Graves Protection and Repatriation Act (NAGPRA) or archaeological evidence is discovered during any phase of this project, the Peoria Tribe requests immediate consultation with the entity of jurisdiction for the location of discovery. In such a case, please contact me at (918) 544-9234 or by email at bfletcher@peoriatribe.com to initiate consultation.

The Peoria Tribe accepts your invitation to serve as a consulting party to the proposed project. In my capacity as Historic Preservation Specialist, I am the point of contact for all Section 106 consultations.

Respectfully,

Burgundy Fletcher

Burgundy Fletcher
Historic Preservation Specialist

Tener, Scott (FAA)

From: Luke Morris <luke.morris@osagenation-nsn.gov>
Sent: Wednesday, August 16, 2023 4:29 PM
To: Tener, Scott (FAA)
Subject: RE: Preliminary Draft MOA - Boeing Site Development at St. Louis International Airport

Mr. Tener,

After review of the draft MOA, Dr. Andrea Hunter, THPO/Director of Osage Nation Historic Preservation Office, is requesting that Osage Nation be a signatory.

I will prioritize any received emails about the MOA to ensure the participation of ONHPO.

Thank you for consulting Osage Nation on this matter.

Respectfully,

Luke Morris
Archaeologist, MA
Osage Nation Historic Preservation Office
627 Grandview Avenue,
Pawhuska, OK 74056
Office: (918) 287-5328

Starting October 1, 2022 the Osage Nation Historic Preservation Office is changing the project notification process. **All project notifications and reports must be emailed to s106@osagenation-nsn.gov** Include the Lead Agency, Project Name, and Project Number on the subject line.

From: Tener, Scott (FAA) <scott.tener@faa.gov>
Sent: Tuesday, August 15, 2023 9:51 AM
To: Luke Morris <luke.morris@osagenation-nsn.gov>
Cc: S106 <S106@osagenation-nsn.gov>
Subject: Preliminary Draft MOA - Boeing Site Development at St. Louis International Airport

Luke,

Please find attached a preliminary Draft MOA for the Boeing Site Development. Please let me know if you would like to be a signatory or a concurring party to the agreement. We anticipate publishing the draft MOA for public comment around mid-September.

Please let me know if you have any questions,

Scott Tener
Environmental Program Manager

FAA Central Region Airports Division
901 Locust St., Room 364
Kansas City, Missouri 64106-2325
T 816.329.2639 | F 816.329.2611
http://www.faa.gov/airports/central/

Tener, Scott (FAA)

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Scott Tener
Environmental Program Manager

FAA Central Region Airports Division
901 Locust St., Room 364
Kansas City, Missouri 64106-2325
T 816.329.2639 | F 816.329.2611
http://www.faa.gov/airports/central/

Tener, Scott (FAA)

From: Burgundy Fletcher <bfletcher@peoriatribe.com>
Sent: Thursday, August 31, 2023 8:38 AM
To: Tener, Scott (FAA); Jared McCormick; Luke Morris
Subject: RE: [External] Email Preliminary Draft MOA - Boeing Site Development at St. Louis International Airport, Missouri

Hello Scott,

The Peoria would like to be an invited concurring party to the MOA.

Thank you for checking.

Burgundy Fletcher
Historic Preservation Specialist
Peoria Tribe of Oklahoma
Office 918.544.9234 | Fax 918.540.2528
bfletcher@peoriatribe.com

PEORIA TRIBE
CULTURAL PRESERVATION

From: Tener, Scott (FAA) <scott.tener@faa.gov>
Sent: Monday, August 28, 2023 9:57 AM
To: Jared McCormick <jared.mccormick@quapawnation.com>; Luke Morris <luke.morris@osagenation-nsn.gov>; Burgundy Fletcher <bfletcher@peoriatribe.com>
Subject: [External] Email Preliminary Draft MOA - Boeing Site Development at St. Louis International Airport, Missouri

Jared, Luke, and Burgundy,

Since each of you have requested consultation on the Boeing Site Development project at the St. Louis Lambert International Airport, I thought that I would loop you all in on the consultation status versus individual emails.

1. The attached MOA is with the Missouri SHPO, St. Louis Airport Authority (STLAA), and Boeing for review. I have received comments back from the SHPO and Boeing. All agree with the proposed mitigation as outlined in the MOA, comments are regarding relatively minor revisions to wording.
2. The Osage Nation has requested to be a signatory and is currently reviewing the MOA.
3. The Quapaw Nation is reviewing the MOA and considering their extent of project involvement.
4. The Peoria Tribe does not wish to be a signatory or concurring party to the MOA…correct? However, they have requested to be consulted if any human remains or Native American cultural items falling under NAGPRA or archaeological evidence is discovered during any phase of this project.

If you have any revisions to the MOA, please let me know. We are planning to publish the draft MOA and draft Environmental Assessment for public comment on September 15. I will be away from the office for the entire week prior to this, so I would need any revisions by September 4th to make sure they get incorporated.

I appreciate everyone's involvement with this project. Please let me know if you have any questions,

Scott Tener
Environmental Program Manager

FAA Central Region Airports Division
901 Locust St., Room 364
Kansas City, Missouri 64106-2325
T 816.329.2639 | F 816.329.2611
http://www.faa.gov/airports/central/

DRAFT

MEMORANDUM OF AGREEMENT

AMONG
THE FEDERAL AVIATION ADMINISTRATION,
MISSOURI STATE HISTORIC PRESERVATION OFFICER,
CITY OF ST. LOUIS AIRPORT AUTHORITY, THE OSAGE NATION, AND
THE BOEING COMPANY

IMPLEMENTING
SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT FOR
THE PROPOSED BOEING SITE DEVELOPMENT PROJECT

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
ST. LOUIS, ST. LOUIS COUNTY, MISSOURI

WHEREAS, as part of the Section 106 of the National Historic Preservation Act (NHPA) consultation process, this Memorandum of Agreement (MOA) was developed, pursuant to 36 CFR 800.6(c), to govern the resolution of adverse effects on historic properties associated with the proposed Undertaking, as described below, and fulfillment of the signatories' responsibilities under Section 106; and

WHEREAS, the Federal Aviation Administration (FAA) and the Missouri State Historic Preservation Officer (SHPO) are Signatories to this MOA due to the nature of their legal responsibility under the NHPA; and

WHEREAS, the FAA is the lead Federal agency for compliance with Section 106 and has approval authority for the proposed undertaking pursuant to 49 U.S.C. §§ 40103 and 47107, approval of the Airport Layout Plan for the St. Louis Lambert International Airport (Airport); and

WHEREAS, an Environmental Assessment (EA) was prepared in accordance with requirements set forth in the National Environmental Policy Act (NEPA) of 1969, as amended. Title 36 CFR Section 800.8, the regulations implementing Section 106 of the NHPA, encourages Federal agencies to integrate the Section 106 and NEPA processes; and

WHEREAS, The Boeing Company (Boeing) proposes the following developments (Undertaking) at the Airport:

- Boeing would lease two parcels, the 75-acre Northern Tract and 110-acre Brownleigh, from the Airport to support construction and operation of Boeing's Assembly and Testing Campus **(Figure 4 and 5)**
- Demolish existing structures, clear vegetation, and grade the parcels
- Phases 1 and 2 in total (contingent on future government contract awards) would construct 2,612,000-ft^2 of buildings:
    - Phase 1 Brownleigh (occupancy January 2026):
        - Approximately 979,000-ft^2 Assembly Building
        - Approximately 82,000-ft^2 CUP
        - Taxiway to connect Taxiway Foxtrot into the parcel
    - Phase 1 Northern Tract (occupancy January 2027):
        - Approximately 191,500-ft^2 Hangar
        - Approximately 94,550-ft^2 RCS Range Building
        - Approximately 58,000-ft^2 CUP
        - Approximately 25,000-ft^2, Open-air Aircraft Shelters
        - Approximately 14,500-ft^2 Hush House
        - Approximately 15,600-ft^2 Maintenance Building
        - Approximately 15,200-ft^2 Fuel Calibration Building
        - Approximately 11,800-ft^2 Fire Department Satellite Building
        - Several small support or storage structures (each under 10,000 ft^2)
        - Taxiways to connect Taxiway Victor to the parcel
    - Phase 2 Brownleigh (occupancy January 2029):
        - Approximately 720,000-ft^2 Assembly Building
    - Phase 2 Northern Tract (occupancy January 2029):
        - Approximately 75,700-ft^2 Hangar addition
        - Approximately 205,000-ft^2 Paint Building
        - Approximately 12,500-ft^2 additional Open-air Aircraft Shelters
        - Approximately 13,300-ft^2 additional Hush House
        - Approximately 12,000-ft^2 additional Fuel Calibration Building; and

WHEREAS, the FAA defined the project's Area of Potential Effects (APE) in accordance with 36 CFR 800.16(d), for direct effects and indirect effects (**Figures 1, 2 and 3**) and the SHPO concurred; and

WHEREAS, the FAA has determined, and the SHPO has concurred, that the Curtiss-Wright Aeroplane Factory [16000586] (Buildings 2 in Figure 2), including the administrative building, annex, and factory portions, and associated structures, taxi area and parking lot (all together known as the Aeroplane Factory), was listed in the National Register of Historic Places (NRHP) in 2016 under Criteria A for Events associated with World War II and additionally qualifies for listing under Criterion C for Architecture; and

WHEREAS, the FAA has determined, and the SHPO has concurred, that Building #42 (on Figure 2) is eligible for listing on the NRHP, under Criterion C for Architecture; and

WHEREAS, the FAA has determined and the SHPO has concurred that the proposed Undertaking will have an adverse effect on the Aeroplane Factory and Building #42 and the

FAA has consulted with the SHPO pursuant to 36 CFR part 800 of the regulations implementing Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108); and

WHEREAS, the FAA has determined that there are no alternatives that completely avoid or minimize the adverse effect to the Aeroplane Factory and Building #42 due to current and future aeronautical needs; and

WHEREAS, one prehistoric site (23SL354) is within the Brownleigh APE; however, the prehistoric site location has not been evaluated for listing in the NRHP. Because ground-disturbing activities would occur within the APE from the proposed construction activities, archaeological monitoring is requested by the Osage Nation during all ground-disturbing activities; and

WHEREAS, the FAA has provided opportunity for the Apache Tribe of Oklahoma, Eastern Shawnee Tribe of Oklahoma, Iowa Tribe of Oklahoma, Kaw Nation, Kickapoo Tribe in Kansas, Miami Tribe of Oklahoma, Omaha Tribe of Nebraska, Osage Nation, Peoria Tribe of Indians of Oklahoma, Ponca Tribe of Nebraska, Quapaw Tribe of Indians, and Seneca-Cayuga Nation to consult on the proposed Undertaking's potential to affect properties with religious and cultural significance; and

WHEREAS, the FAA recognizes that the Tribes possess the knowledge, experience, and oral tradition to identify and evaluate historic properties of traditional, religious, and cultural importance; and

WHEREAS, The Osage Nation has accepted the invitation to participate in the consultation and has been invited to be an Invited Signatory to this MOA; and

WHEREAS, the Peoria Tribe of Indians of Oklahoma, and the Quapaw Nation have accepted the invitation to participate in the consultation and have been invited to be Concurring Parties to this MOA; and

WHEREAS, the Osage Nation requested to be a signatory to this MOA; and

WHEREAS, the City of St. Louis Airport Authority (STLAA) and The Boeing Company (Boeing) have accepted the invitation to participate as Invited Signatories to this MOA; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), FAA has consulted with the Advisory Council on Historic Preservation (ACHP), has provided the required documentation to ACHP, and has invited the ACHP to participate in this MOA; the ACHP via letter to FAA dated July 26, 2023 chose not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

WHEREAS, the public was afforded the opportunity to review and comment on the proposed Undertaking's alternatives and scope of environmental issues to be addressed. Notices of the opportunities to comment on the Draft EA, Draft MOA, and the Draft Section 4(f) Statement were published in the XYZ newspaper, the STLAA's website, available at Berkeley City Hall, STLAA administration office, surrounding libraries, and were sent to governmental agencies and

other parties who expressed interest in commenting on the proposed project. These documents were released for public review and open to comment from DATE to DATE; and

WHEREAS, the FAA has considered the views of the consulting parties and has reviewed the comments received by the close of the comment period for the Draft EA, Draft MOA, and Draft Section 4(f) Statement and will provide responses in the Final EA; and

WHEREAS, the FAA shall submit an executed copy of this MOA and supporting documentation, pursuant to 36 CFR 800.11(f), to the ACHP prior to approving the proposed Undertaking; and

NOW, THEREFORE, the FAA and the SHPO (Signatories); and The Osage Nation, STLAA, and Boeing (Invited Signatories); are parties to this MOA, agree that the proposed Undertaking shall be carried out in accordance with the following stipulations in order to resolve the adverse effect of the proposed Undertaking within the entire area of potential effects, including both areas anticipating construction activities.

STIPULATIONS

If the FAA issues a determination approving the proposed Undertaking as described in the Environmental Assessment, the FAA, in coordination with the SHPO, The Osage Nation, STLAA, and Boeing shall ensure that the following mitigation measures are implemented to the extent the Undertaking is carried out by Boeing, as each phase of the Undertaking is contingent on future Government contract awards:

I. APPLICABILITY

This MOA establishes procedures for consultation and coordination among the FAA, the SHPO, The Osage Nation, STLAA, and Boeing for compliance with Section 106 of the NHPA regarding the proposed Undertaking. This MOA also establishes the mitigation measures that must be completed to resolve the adverse effects of the proposed Undertaking.

Completion of the procedures and mitigation measures in this MOA resolves the adverse effects associated with the proposed Undertaking and satisfies FAA's Section 106 responsibilities with respect to the proposed Undertaking to the extent they are carried out by Boeing.

II. ROLES AND RESPONSIBILITIES

A. The Director of the FAA Central Region, Airports Division is the federal agency official responsible for compliance with this MOA.
B. The FAA shall ensure that its personnel or individuals carrying out historic preservation compliance work on its behalf meet the Secretary of the Interior's

Professional Qualification Standards (36 CFR Part 61) and have the knowledge to assess the resources within the proposed Undertaking's APE with a minimum of two years' experience conducting fieldwork in Missouri. The Osage Nation will be consulted on the selection of the contractor prior to any formalized agreements between Boeing and the proposed archaeological firm.

C. The FAA remains responsible for determinations of NRHP eligibility and effect. The FAA may not delegate consultation for findings and determinations to professional services consultants.

III. ATTACHMENTS TO THE MOA

A. Attachment 1: Figures 1 through 5 showing the Location, Area of Potential Effect, and the proposed Undertaking
B. Attachment 2: Points of Contact

IV. COMMUNICATION

A. Project correspondence related to compliance with the stipulations in this MOA shall be submitted to the FAA, SHPO, The Osage Nation, STLAA, and Boeing concurrently.
B. The FAA, SHPO, The Osage Nation, STLAA, and Boeing shall each designate a consultation representative. The points of contact for each is provided in **Attachment 2**. Changes to the consultation representatives shall be provided to the FAA, SHPO, The Osage Nation, STLAA, and Boeing within fifteen (15) calendar days of such change.

V. MITIGATION MEASURES

In recognition of the demolition of the NRHP listed Curtiss-Wright Aeroplane Factory and NRHP eligible Building #42, along with the possibility of buried archaeological resources, the mitigation measures listed below fully resolve the adverse effects of the proposed Undertaking, dependent on encountering previously unreported discoveries during construction activities, which require additional evaluation by SHPO and The Osage Nation before commencement of halted work.

A. <u>PHOTOGRAPHIC RECORD AND DRONE VIDEO</u>
   i. Prior to the demolition of the existing Curtiss-Wright Aeroplane Factory and Building #42, Boeing shall create a drone video of the exterior of each building and create a photographic record of the existing Curtiss-Wright Aeroplane Factory and Building #42.
   ii. The photographs shall be in accordance with the National Register Photo Policy Standards.
   iii. Photographs and video shall be taken with a high-resolution digital camera, should be clear, well-composed, and provide an accurate visual representation of the property and its significant features. They must illustrate the qualities discussed in the description and NRHP statement of significance. Photographs

and video should show historically significant features and, with assistance from the STLAA, any alterations that have affected the property's historic integrity. Photographs and video should show the principal facades and the setting in which the property is located. Additions, alterations, intrusions, and dependencies should appear in the photographs and video. Include views of interiors, outbuildings, landscaping, or unusual features if they contribute to the significance of the property.

iv. Boeing shall submit the initial photographs to the SHPO for review. Boeing shall consult with the SHPO on the selection of 15-20 photographs of each of the facilities to be printed for archival purposes. The SHPO shall provide final approval within thirty (30) calendar days of submittal of the photographs.

v. Within thirty (30) calendar days following final approval of the photographs to be archived by the SHPO, Boeing shall provide an archival CD with drone video, original TIFF photographic images, photo key, and map documenting the location and direction of each photograph. In addition, Boeing shall print one set of images as 8 inches by 10 inches black and white photographs on photo paper. The final photo submissions shall include the photographs labeled on the back. The final printed photographs shall be submitted to the SHPO.

vi. The STLAA and the SHPO shall be the repository for this information.

vii. The drone video and photographic record may be submitted in advance of the remaining mitigation measures.

viii. After the SHPO provides written notification accepting the physical copies of the images, which notice shall occur within seven (7) days of receipt, demolition of the existing Curtiss-Wright Aeroplane Factory and Building #42 can proceed.

B. WEBSITE HISTORY

i. Boeing and STLAA, in partnership, shall design a website that conveys the history of the Curtiss-Wright Aeroplane Factory and Building #42.

ii. Boeing and STLAA shall provide website content, which shall include historical information and images of both facilities, for example; information from cultural resources reports, NRHP listing, current and historic images, recordation photos, drone footage, etc.

iii. Boeing and STLAA shall consult with the FAA and SHPO on the website and FAA and SHPO will provide final approval within thirty (30) calendar days of submittal of the website's design and content.

iv. The history website shall be created, hosted, and maintained by the STLAA and linked to the flystl.com website for a minimum of ten (10) years.

v. The demolition of the existing Curtiss-Wright Aeroplane Factory and Building #42 can proceed prior to completion of the Website History stipulation.

C. PHYSICAL DISPLAY

i. Boeing and STLAA, in partnership, shall design a physical display inside the airport terminal building that illustrates the history of the Curtiss-Wright

Aeroplane Factory and Building #42. STLAA will construct and install the display.

ii. The display's content shall include history, current and historic images, a selection of images of available original plans for construction of the facilities, and salvaged items from either facility that represents the history of the buildings and are reasonable and appropriate to display, if any are identified by Boeing.

iii. The display shall also include a QR code leading people to the history website.

iv. STLAA shall consult with the FAA and SHPO on the display. FAA and SHPO will provide final approval within thirty (30) calendar days of submittal of the display's design and content.

v. The STLAA shall install the permanent display within twelve (12) months after the demolition of the Curtiss-Wright Aeroplane Factory and Building #42 and shall remain on exhibit in the terminal building for a minimum of ten (10) years.

vi. STLAA shall provide a final report to the FAA and SHPO including display text and content and photographs of the placement of the display in the airport terminal building to complete this stipulation.

vii. The demolition of the existing Curtiss-Wright Aeroplane Factory and Building #42 can proceed prior to completion of the Physical Display stipulation.

D. ARCHAEOLOGICAL MONITORING

i. Boeing shall provide archaeological monitoring for all ground disturbing activities within the APE.

ii. Boeing shall contract with a Project Archaeologist meeting the Secretary of the Interior's Professional Qualification Standards (36 CFR Part 61), in addition to a minimum of two years' experience working in the state of Missouri, to provide construction archaeological monitoring. The Osage Nation will be consulted on the selection of the contractor prior to any formalized agreements between Boeing and the proposed archaeological firm.

iii. Boeing, in coordination with the Project Archaeologist, shall create an Archaeological Monitoring Plan. The plan shall include, at a minimum; project description, monitoring approach, maps, schedule, construction personnel training (as detailed below), and monitoring documentation.

iv. Boeing shall consult with The Osage Nation, STLAA, FAA, and SHPO on the Archaeological Monitoring Plan and will receive comment within fifteen (15) calendar days of submittal of the final plan.

v. The FAA shall forward the finalized Archaeological Monitoring Plan to STLAA, The Osage Nation, and SHPO.

vi. Prior to the start of ground disturbing activities, the Project Archaeologist shall provide training to construction personnel who will be directly involved in soil disturbing activity regarding the identification of archaeological resources and actions to be taken if an inadvertent discovery is found.

vii. The Project Archaeologist shall be on-site for all ground disturbing activities and actively observe soil as disturbances occur to ensure no cultural resources are present. Due to the varying nature of archaeological deposits in the ground, the archaeologist will continuously assess soil being exposed by the work, located in a safe adjacent position that is close enough to identify artifacts when exposed. If two locations need to conduct ground disturbing activities at the same time, one of the locations will need to halt work and wait for the archaeologist to be onsite. No disturbances will be conducted if an archaeologist is not actively observing the work and assessing the soil for archaeological deposits.

viii. The Project Archaeologist shall complete daily monitoring reports for all ground disturbing activities. When completed each day, the report will be sent to the FAA, SHPO, and STLAA. The FAA will immediately forward the document to The Osage Nation. If issues or concerns are noted, further consultation will be expediently conducted between FAA and The Osage Nation.

ix. At the end of each week of ground disturbing activities, the Project Archaeologist shall summarize the daily monitoring and submit a report within five (5) business days along with the daily reports to the FAA, SHPO, and STLAA. The FAA shall promptly forward the summary reports to The Osage Nation.

x. Within thirty (30) calendar days of the end of ground disturbing activities from Phase 1, the Project Archaeologist shall provide a monitoring closure report to the FAA, SHPO, and STLAA. The FAA shall promptly forward the closure report to The Osage Nation. The Osage Nation, STLAA, FAA, and SHPO shall provide review and comment of the report within thirty (30) calendar days of submittal.

xi. Within thirty (30) calendar days of the end of ground disturbing activities from Phase 2, the Project archaeologist shall provide another monitoring closure project report to the FAA, SHPO, and STLAA. The FAA shall promptly forward the closure report to The Osage Nation. The Osage Nation, STLAA, FAA, and SHPO shall provide review and comment of the report within thirty (30) calendar days of submittal.

xii. If discovery of archaeological resources are found outside previously reported boundaries, or previously unrecorded discoveries are made, soil disturbance activities with fifty (50) feet shall be stopped and the STLAA, FAA, The Osage Nation, and SHPO shall be contacted for further consultation. The FAA shall notify interested tribes for further consultation. See Section VII. POST-REVIEW DISCOVERIES.

VI. REPORTING AND MONITORING

A. Boeing shall provide an annual report beginning one (1) year after the execution date of this MOA to the STLAA, FAA, The Osage Nation, and SHPO summarizing the progress made toward completion of each stipulation.

B. Once all stipulations of this MOA are fulfilled, within sixty (60) calendar days after each Phase 1 and Phase 2, Boeing shall provide the STLAA, FAA, The Osage Nation, and SHPO with a brief written report of its completion of the stipulations as outlined.

C. Should the STLAA, FAA, The Osage Nation, or the SHPO be unsatisfied with Boeing's progress in meeting the stipulations of this MOA, the STLAA, FAA, The Osage Nation, and the SHPO shall consult with Boeing to address the problem(s) according to Stipulation VIII, DISPUTE RESOLUTION.

VII. POST-REVIEW DISCOVERIES

The proposed Undertaking is not anticipated to significantly effect archaeological resources; however, archaeological monitoring during construction ground disturbing activities is required.

A. ARCHAEOLOGICAL MONITORING

i. In the event that there is a discovery of (i) archaeological material, (ii) historic properties, or (iii) unanticipated effects on historic properties during construction, soil disturbance activities and/or work within fifty (50) feet of the findings shall stop immediately and the selected contractor shall contact the STLAA.

ii. The STLAA shall coordinate with the FAA, The Osage Nation, and SHPO and soil disturbance activities would not resume without verbal and/or written authorization.

iii. No further soil disturbance activities within fifty (50) feet of the discovery shall proceed until the requirements of 36 CFR § 800.13 have been satisfied, as applicable, including consultation with federally recognized tribes that may attach traditional cultural and religious significance to the discovered property.

B. HUMAN REMAINS

In the event of an inadvertent discovery of human remains, even if such remains are in fragmentary form, STLAA and Boeing shall ensure the following occurs.

i. Any Boeing employee, contractor, subcontractor, or other individual who knows or has reason to know that he or she has inadvertently discovered human remains, funerary objects, sacred objects, or objects of cultural patrimony during construction or maintenance activities must provide immediate telephone notification of the inadvertent discovery to the STLAA Primary Contact, see Attachment 2, Points of Contact.

ii. Boeing, in coordination with STLAA, shall immediately notify local law enforcement in accordance with Missouri Revised Statute §194.406 by telephone of the discovery of unmarked human remains. Local law enforcement will investigate the human remains and contact the Medical Examiner Office.

iii. The Boeing, in coordination with STLAA, shall ensure that all work is immediately stopped within a fifty (50) feet radius buffer zone around the point of discovery. Boeing, incoordination with STLAA, shall assume responsibility for implementing additional measures, as appropriate, to protect the discovery from looting and vandalism until the requirements of the Missouri unmarked human burial law (Missouri Revised Statute §§194.400-410) have been completed, but must not remove or otherwise disturb any human remains or other items in the immediate vicinity of the discovery. Natural material will be used to cover the remains from exposure and plain view.

iv. The STLAA shall notify the FAA, and the FAA shall notify the SHPO and the Tribes by telephone and email within twenty-four (24) hours of the discovery of human remains, funerary objects, sacred objects, items of cultural patrimony, or burial furniture and inform them of the steps already taken to address the discovery. See Attachment 2, Points of Contact, for Tribal POC information.

v. Other than for crime scene investigation, no excavation, examination, photographs, or analysis of human remains shall be conducted by the STLAA, FAA, or any other professional without first consulting with the Tribes. Upon discovery of human remains suspected of being Native American, the STLAA and FAA shall consult with the Tribes and SHPO to determine how to treat the remains per Missouri Revised Statute §§194.400-410.

    1. Should unforeseen, unusual circumstances arise, law enforcement may request that photographs be taken of Native American remains in the case of a looting crime scene. These photographs will, however, be taken only after consultation and with the claimant Tribes. After conclusion of the criminal case, all photographs of human remains will be turned over to The Osage Nation for destruction.
    2. The Osage Nation and claimant Tribes shall be given the opportunity to visit the location and be provided an on-site orientation of the location where the human remains were discovered prior to any further disturbance or excavation in the location. Any adjustments to the buffer zone area will be made in consultation with claimant Tribes and SHPO.
    3. The SHPO will consult with The Osage Nation and claimant Tribes regarding any proposed treatment and final disposition of the human remains and/or funerary objects. It is the preference of The Osage Nation that, wherever possible, burials are left in place and any further project activities avoid the burial with an appropriate buffer area, to be determined by The Osage Nation and claimant Tribes on a case by case basis.
    4. FAA, STLAA, Boeing, and/or its contractors shall carry out any mitigation plan approved by The Osage Nation, claimant Tribes, and the SHPO, should the inadvertent discovery require removal.

5. Should the inadvertent discovery require removal, The Osage Nation and claimant Tribes will consult directly with the SHPO regarding specific handling, curation, and repatriation of any human remains and funerary objects.
6. The construction contractor may resume construction activities in the area of the discovery upon receipt of written authorization from SHPO.

vi. If, after a determination by a qualified physical anthropologist, forensic scientist, or other experts in consultation with SHPO, Tribes, and other consulting parties, the human remains are not Native American then FAA, in consultation with the SHPO shall determine how to treat the remains per Missouri Revised Statute §§194.400-410.

VIII. DISPUTE RESOLUTION

Should any Signatory or Invited Signatory to this MOA object to any actions carried out or proposed with respect to the implementation of this MOA, they should notify the FAA, and the FAA shall consult with the objecting party to resolve the objection. FAA shall notify the other signatories to this MOA of the objection and invite their views and recommendations as needed to resolve the objection. If the FAA determines that such objection cannot be resolved, the FAA shall:

A. Forward all documentation relevant to the dispute, including the FAA's proposed resolution, to the ACHP. The ACHP shall provide the FAA with its advice on the resolution of the objection within thirty (30) calendar days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the FAA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. The FAA shall then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) calendar day period, the FAA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the FAA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the signatories and the ACHP, and provide the signatories and the ACHP with a copy of such written response.

C. FAA may then proceed according to its decision. The signatories remain responsible for carrying out all the other actions subject to the terms of this MOA that are not the subject of the dispute.

IX. AMENDMENT

Any signatory to this agreement may propose to the other signatories that this MOA be amended, whereupon the signatories shall consult in accordance with 36 CFR Part 800.6(c)(7) to consider such an amendment. Any such amendment proposed

shall be adopted immediately upon the written concurrence of the signatories. Upon adoption, the FAA shall file the amendment with the ACHP.

X. TERMINATION

A. If any Signatory or Invited Signatory to this MOA determines that its terms will not, or cannot be carried out, that Signatory or Invited Signatory shall immediately consult with the other Signatories or Invited Signatories to attempt to develop an amendment per Stipulation IX, AMENDMENT. If within forty-five (45) calendar days (or another time period agreed to by all Signatories or Invited Signatories) an amendment cannot be reached, any Signatory or Invited Signatory may terminate the MOA upon written notification to the other Signatories or Invited Signatories.

B. Once the MOA is terminated and prior to work continuing on the proposed Undertaking, FAA must either (a) execute another MOA or agreement with different terms pursuant to 36 CFR §800.6 or (b) take into account and respond to the comments of the ACHP under 36 CFR §800.7. FAA shall notify the Signatories or Invited Signatories as to the course of action it shall pursue. The FAA shall undertake its obligations pursuant to applicable statutes, regulations, and Orders.

XI. EFFECTIVE DATE AND DURATION

A. This MOA will be effective on the date the last Signatory or Invited Signatory signs the MOA.

B. This MOA will expire if its terms are not carried out within six (6) years from the Effective Date.

C. Four (4) years after execution, if the project has not begun, and prior to expiration of the MOA, the Signatories or Invited Signatories shall consult to re-evaluate the terms of the MOA and, if needed, terminate or begin consultation for an extension in accordance with Stipulation IX, AMENDMENT.

XII. ELECTRONIC SIGNATURES

Each party agrees a person may execute this document by electronic symbol or process attached to or logically associated with the document, with an intent to sign the document and by a method that must include a feature to verify the identity of the signer and the authenticity of the document, commonly referred to as verified electronic signature. Each party further agrees to accept in-person signature with ink for such party who agrees, but does not wish to or have access to adequate technology to sign electronically.

XIII. COUNTERPARTS

This document may be signed in two or more counterparts, each of which shall be deemed an original for all purposes, and all of which when taken together shall be considered one and the same agreement.

EXECUTION of this Memorandum of Agreement by the FAA, SHPO, The Osage Nation, STLAA, and Boeing and the implementation of its terms, evidences that the FAA has taken

into account the effects of this proposed Undertaking on historic properties and afforded the ACHP an opportunity to comment. The Signatories and Invited Signatories to this MOA represent that they have the authority to sign for and bind the entities on behalf of whom they sign.

[Remainder of page left blank]

MEMORANDUM OF AGREEMENT

AMONG
THE FEDERAL AVIATION ADMINISTRATION,
MISSOURI STATE HISTORIC PRESERVATION OFFICER,
CITY OF ST. LOUIS AIRPORT AUTHORITY, THE OSAGE NATION, AND
THE BOEING COMPANY

IMPLEMENTING
SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT FOR
THE PROPOSED BOEING SITE DEVELOPMENT PROJECT

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
ST. LOUIS, ST. LOUIS COUNTY, MISSOURI

Signatory: Federal Aviation Administration

By: _____ Date: _____

Jim Johnson, Director, Central Region, Airports Division ACE-600

MEMORANDUM OF AGREEMENT

AMONG
THE FEDERAL AVIATION ADMINISTRATION,
MISSOURI STATE HISTORIC PRESERVATION OFFICER,
CITY OF ST. LOUIS AIRPORT AUTHORITY, THE OSAGE NATION, AND
THE BOEING COMPANY

IMPLEMENTING
SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT FOR
THE PROPOSED BOEING SITE DEVELOPMENT PROJECT

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
ST. LOUIS, ST. LOUIS COUNTY, MISSOURI

Signatory: Missouri State Historic Preservation Officer

By: Date:

Brian Stith, Deputy Director, Division of State Parks and Deputy State Historic Preservation Officer

MEMORANDUM OF AGREEMENT

AMONG
THE FEDERAL AVIATION ADMINISTRATION,
MISSOURI STATE HISTORIC PRESERVATION OFFICER,
CITY OF ST. LOUIS AIRPORT AUTHORITY, THE OSAGE NATION, AND
THE BOEING COMPANY

IMPLEMENTING
SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT FOR
THE PROPOSED BOEING SITE DEVELOPMENT PROJECT

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
ST. LOUIS, ST. LOUIS COUNTY, MISSOURI

Invited Signatory: The City of St. Louis, Missouri, Operating St. Louis Lambert International Airport, St. Louis Lambert International Airport

The foregoing Agreement was approved by the Airport Commission at its meeting on _____, 2023.

By:

_____
Airport Director Date

The foregoing Agreement was approved by the Board of Estimate and Apportionment at its meeting on _____, 2023.

By:

_____
Secretary, Board of Estimate & Apportionment Date

APPROVED AS TO FORM ONLY:

_____
City Counselor Date

COUNTERSIGNED:

_____
Comptroller Date

ATTESTED:

_____
Register Date

MEMORANDUM OF AGREEMENT

AMONG
THE FEDERAL AVIATION ADMINISTRATION,
MISSOURI STATE HISTORIC PRESERVATION OFFICER,
CITY OF ST. LOUIS AIRPORT AUTHORITY, THE OSAGE NATION, AND
THE BOEING COMPANY

IMPLEMENTING
SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT FOR
THE PROPOSED BOEING SITE DEVELOPMENT PROJECT

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
ST. LOUIS, ST. LOUIS COUNTY, MISSOURI

Invited Signatory: The Osage Nation

By: _____ Date: _____

Geoffrey M. Standing Bear, Principal Chief

MEMORANDUM OF AGREEMENT

AMONG
THE FEDERAL AVIATION ADMINISTRATION,
MISSOURI STATE HISTORIC PRESERVATION OFFICER,
CITY OF ST. LOUIS AIRPORT AUTHORITY, THE OSAGE NATION, AND
THE BOEING COMPANY

IMPLEMENTING
SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT FOR
THE PROPOSED BOEING SITE DEVELOPMENT PROJECT

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
ST. LOUIS, ST. LOUIS COUNTY, MISSOURI

Invited Signatory: The Boeing Company

By: Date:

Charles Woods, Vice President of Program Management, Boeing Defense, Space, and Security

MEMORANDUM OF AGREEMENT

AMONG
THE FEDERAL AVIATION ADMINISTRATION,
MISSOURI STATE HISTORIC PRESERVATION OFFICER,
CITY OF ST. LOUIS AIRPORT AUTHORITY, THE OSAGE NATION, AND
THE BOEING COMPANY

IMPLEMENTING
SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT FOR
THE PROPOSED BOEING SITE DEVELOPMENT PROJECT

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
ST. LOUIS, ST. LOUIS COUNTY, MISSOURI

Concurring Party: Peoria Tribe of Oklahoma

By: Date:

Chief Craig Harper, Peoria Tribe of Indians of Oklahoma

MEMORANDUM OF AGREEMENT

AMONG
THE FEDERAL AVIATION ADMINISTRATION,
MISSOURI STATE HISTORIC PRESERVATION OFFICER,
CITY OF ST. LOUIS AIRPORT AUTHORITY, THE OSAGE NATION, AND
THE BOEING COMPANY

IMPLEMENTING
SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT FOR
THE PROPOSED BOEING SITE DEVELOPMENT PROJECT

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
ST. LOUIS, ST. LOUIS COUNTY, MISSOURI

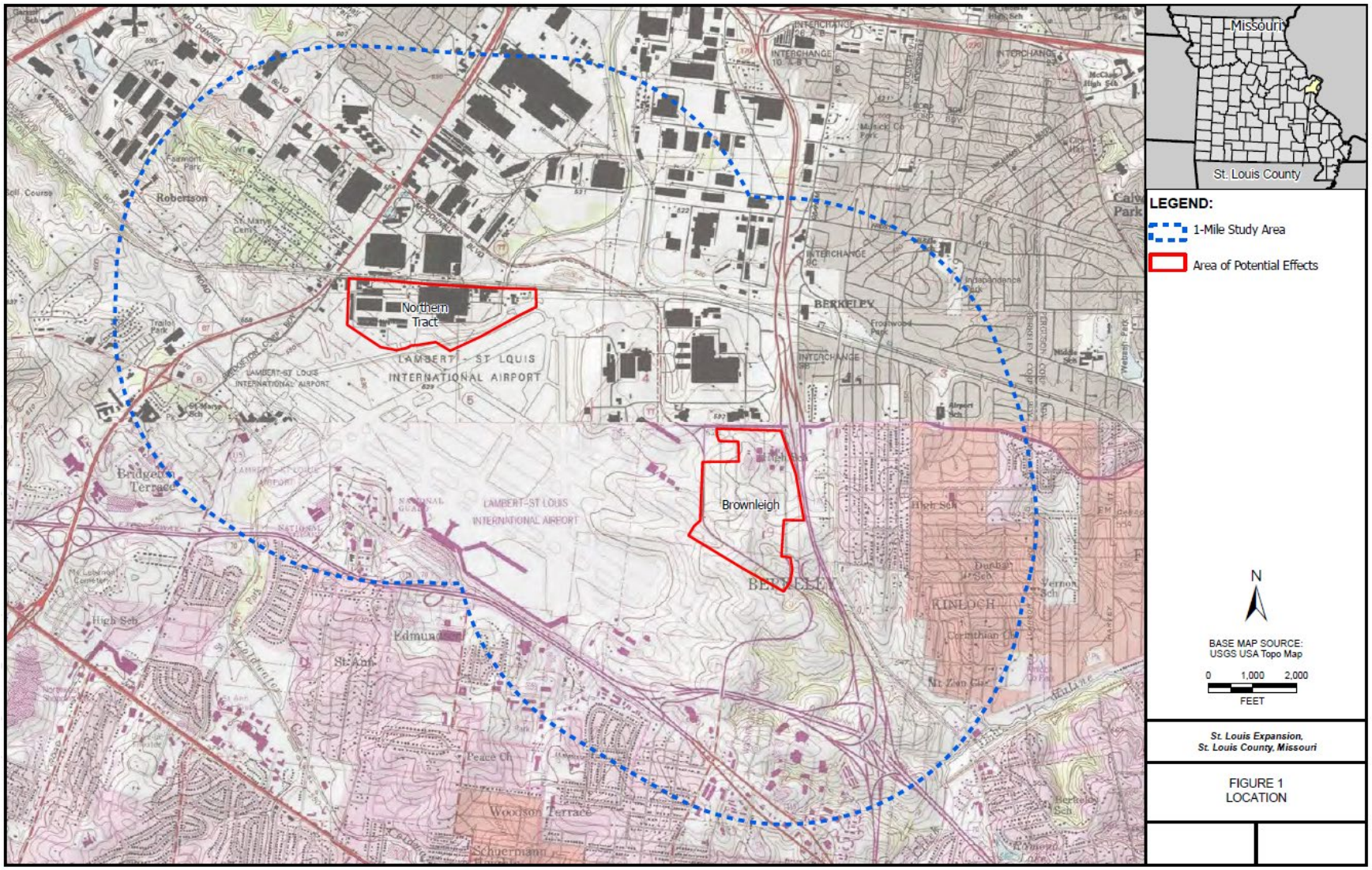
Concurring Party: Quapaw Nation

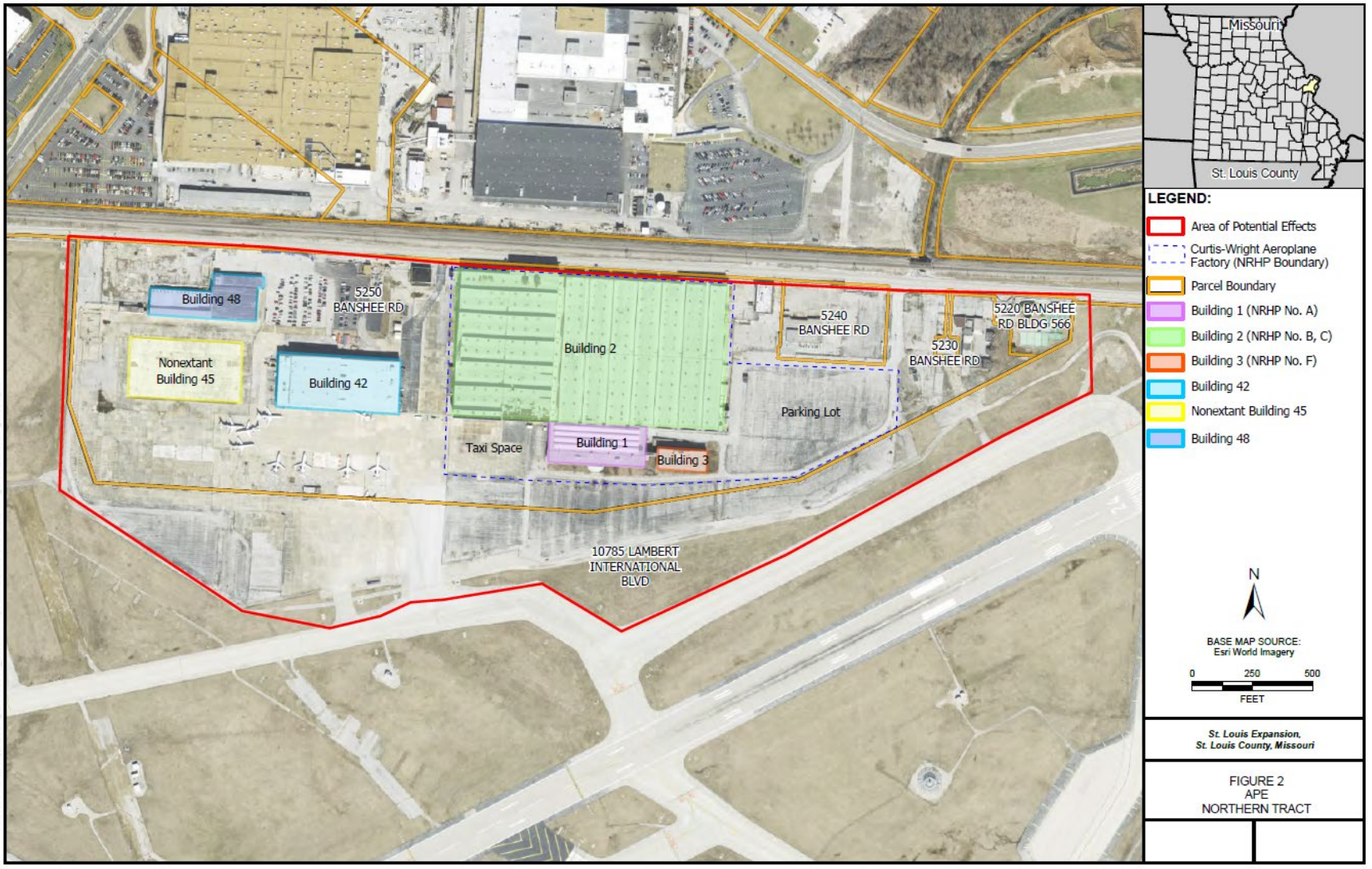
By: Date:

NAME, TITLE, ORG

Attachment 1:

FIGURE 1 - LOCATION and VICINITY MAP
FIGURE 2 - APE NORTHERN TRACT
FIGURE 3 - APE BROWNLEIGH
FIGURE 4 - PROJECT MAP NORTHERN TRACT
FIGURE 5 - PROJECT MAP BROWNLEIGH


Missouri
St. Louis County
LEGEND:
1-Mile Study Area
Area of Potential Effects
Northern Tract
Brownleigh
LAMBERT - ST LOUIS INTERNATIONAL AIRPORT
BERKELEY
RIVERVIEW
Robertson
Bridgeton Terrace
Edmundson
St. Ann
Peace Ch
Woodson Terrace
Schuermann
N
BASE MAP SOURCE:
USGS USA Topo Map
0 1,000 2,000
FEET
St. Louis Expansion,
St. Louis County, Missouri
FIGURE 1
LOCATION


Missouri
St. Louis County
LEGEND:
Area of Potential Effects
Curtis-Wright Aeroplane Factory (NRHP Boundary)
Parcel Boundary
Building 1 (NRHP No. A)
Building 2 (NRHP No. B, C)
Building 3 (NRHP No. F)
Building 42
Nonextant Building 45
Building 48
Building 48
5250 BANSHEE RD
Nonextant Building 45
Building 42
Building 2
5240 BANSHEE RD
5220 BANSHEE RD BLDG 566
5230 BANSHEE RD
Parking Lot
Taxi Space
Building 1
Building 3
10785 LAMBERT INTERNATIONAL BLVD
N
BASE MAP SOURCE: Esri World Imagery
0 250 500
FEET
St. Louis Expansion, St. Louis County, Missouri
FIGURE 2
APE
NORTHERN TRACT


Missouri
St. Louis County
LEGEND:
Area of Potential Effects
Parcel Boundary
Brownleigh
N
BASE MAP SOURCE:
Esri World Imagery
0
250
500
FEET
St. Louis Expansion,
St. Louis County, Missouri
FIGURE 3
APE
BROWNLEIGH

Figure 4: Project Map - Northern Tract

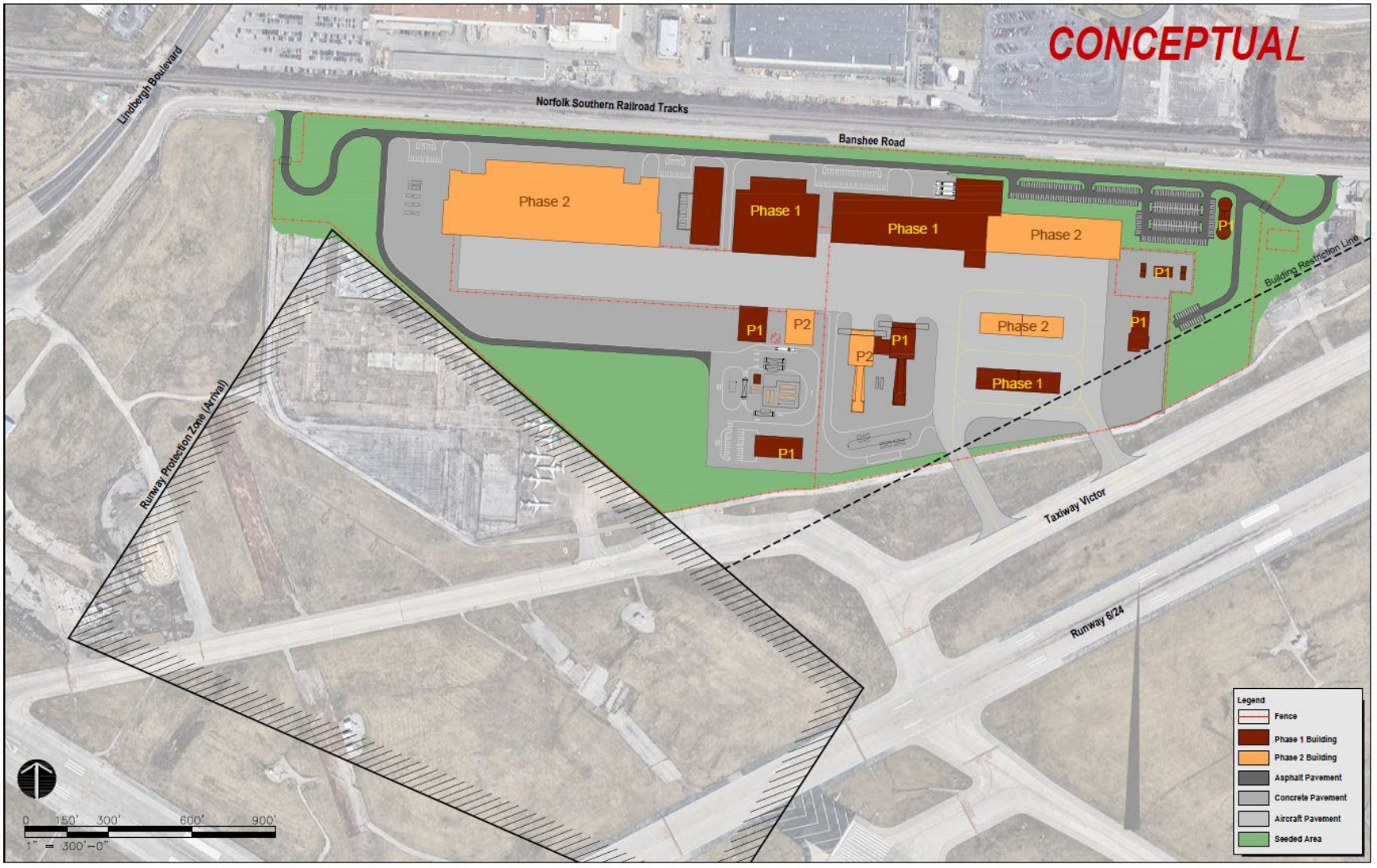
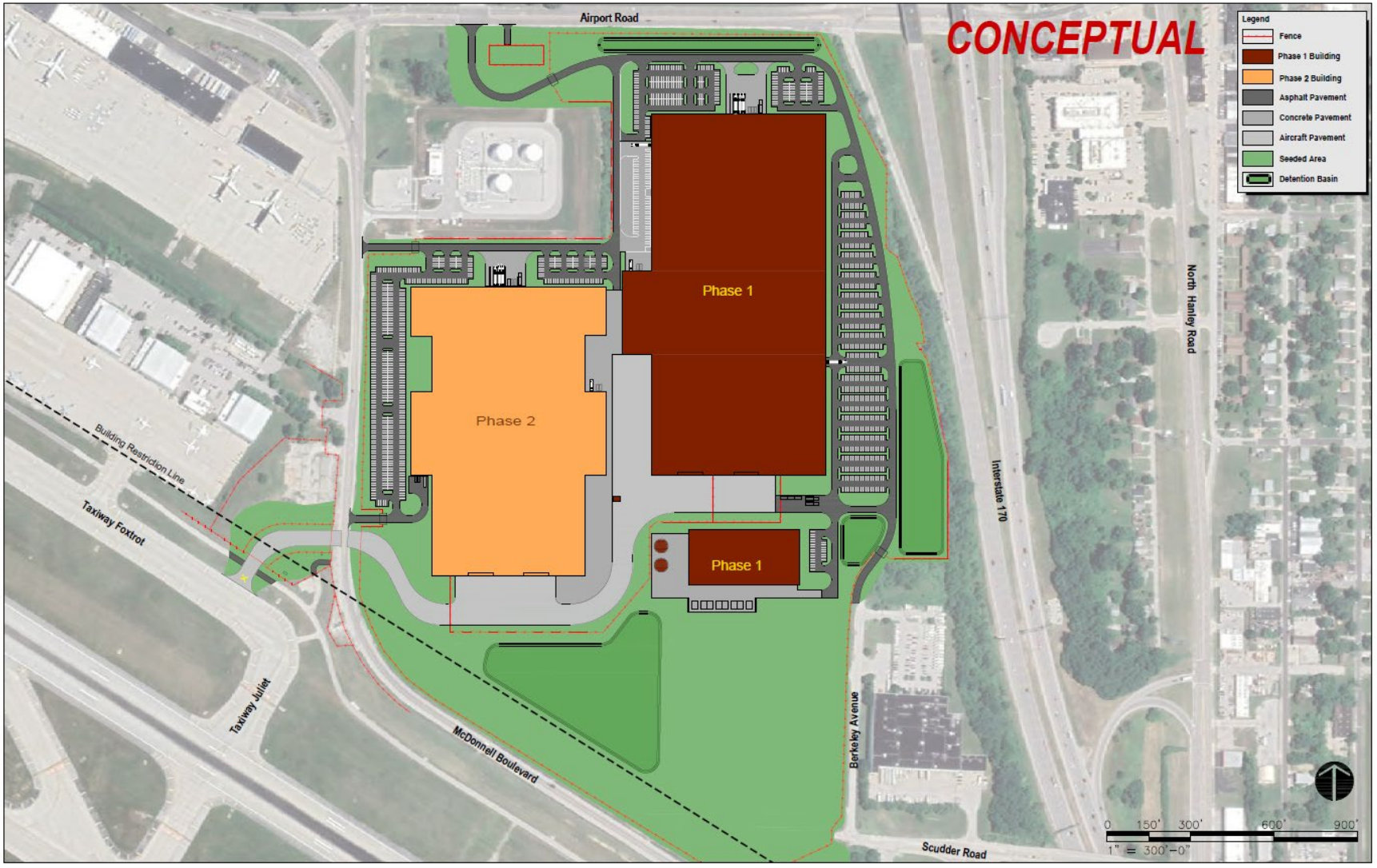


Figure 5: Project Map - Brownleigh



Attachment 2: Points of Contact

Federal Aviation Administration	**Missouri State Historic Preservation Officer**
Primary contact: Jim Johnson Director, Central Region Airport Division Airports Division (ACE-600), Room 364 901 Locust St. Kansas City, MO 64106-2325 816-329-2600 Jim.Johnso@faa.gov **Secondary contact:** Scott Tener Environmental Specialist 901 Locust St., Room 364 Kansas City, MO 64106-2325 816-329-2639 Scott.Tener@faa.gov	**Primary contact:** Amy Rubingh Historic Preservation Specialist PO Box 176 Jefferson City, MO 65102 573-751-4589 Amy.Rubingh@dnr.mo.gov **Secondary contact:** Jeffrey Alvey Historic Preservation Specialist PO Box 176 Jefferson City, MO 65102 573-751-7862 jeffery.alvey@dnr.mo.gov
City of St. Louis, Airport Authority	**The Boeing Company**
Primary contact: Gerald Beckmann Deputy Director PO Box 10212 St. Louis, MO 63145-0212 314-551-5034 GABeckmann@flystl.com **Secondary contact:** Jason Christians Assistant Director PO Box 10212 St. Louis, MO 63145-0212 314-551-5008 jachristians@flystl.com	**Primary contact:** Charles Woods Boeing Defense, Space, and Security 6300 James S. McDonnell Blvd. Mailstop S100-1375 Berkeley, MO 63134 314-232-2395 charles.h.woods@boeing.com **Secondary contact:** N/A

The Osage Nation **Primary contact:** Dr. Andrea A. Hunter THPO, Osage Nation Historic Preservation Office (ONHPO)_ 627 Grandview Ave Pawhuska, OK 74056 918-287-5328 ahunter@osagenation-nsn.gov **Secondary contact:** Luke Morris Archaeologist, ONHPO 627 Grandview Ave Pawhuska, OK 74056 918-287-5328 luke.morris@osagenation-nsn.gov **Inadvertent Discovery Secondary contact:** Sarah O'Donnell NAGPRA Coordinator, ONHPO 627 Grandview Ave Pawhuska, OK 74056 918-287-5522 sodonnell@osagenation-nsn.gov	**The Quapaw Nation** **Primary contact:** NAME ORG ADDRESS PHONE EMAIL **Secondary contact:** NAME ORG ADDRESS PHONE EMAIL
Peoria Tribe of Oklahoma **Primary contact:** Burgandy Fletcher Historic Preservation Specialist Peoria Tribe of Oklahoma PO Box 1527 Miami, OK 74355 918-544-9234 bfletcher@peoriatribe.com **Secondary contact:** N/A	

July 12, 2023

Scott Tener, P.E.
Environmental Specialist
FAA Central Region Airports Division
901 Locust St., Room 364
Kansas City, Missouri 64106-2325

Ref: *Proposed Boeing Site Development Project at the St Louis Lambert International Airport*
St. Louis County, Missouri
ACHP Project Number: 19746

Dear Mr. Tener:

On June 27, 2023, the Advisory Council on Historic Preservation (ACHP) received your notification of adverse effect for the referenced undertaking that was submitted in accordance with 36 CFR 800.6(a)(1) of Section 106 of the National Historic Preservation Act and its implementing regulations, "Protection of Historic Properties" (36 CFR Part 800). The background documentation included with your submission did not include all of the required information specified in 36 CFR § 800.11(e) of the regulations. We, therefore, are unable to determine whether Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, applies to this undertaking. Accordingly, we request that you submit the following additional information so that we can determine whether our participation in the consultation to resolve adverse effects is warranted.

- Copies or summaries of any views provided by consulting parties, and the public.

Upon receipt of the additional information, we will notify you within 15 days of our decision.

If you have any questions, please contact Ms. Rachael Mangum at (202) 517-0214 or by e-mail at rmangum@achp.gov and reference the ACHP Project Number above.

Sincerely,

LaShavio Johnson

LaShavio Johnson
Historic Preservation Technician
Office of Federal Agency Programs

Tener, Scott (FAA)

From: OFAP <OFAP2@achp.gov>
Sent: Wednesday, July 26, 2023 1:39 PM
To: Tener, Scott (FAA)
Cc: gabeckmann@flystl.com; amy.rubingh@dnr.mo.gov; Rachael Mangum
Subject: Proposed Boeing Site Development Project at the St Louis Lambert International Airport, St. Louis County, Missouri
Attachments: mo.faa.st louis lambert international airport.boeing site development project.20230726.np.pdf

From: Office of Federal Agency Programs

Advisory Council on Historic Preservation

Attached is our letter on the subject undertaking (in Adobe Acrobat PDF format)

If you have any questions concerning our letter, please contact:

Rachael Mangum
rmangum@achp.gov
202 517-0214
Project # 19746

Tener, Scott (FAA)

From: Rachael Mangum <rmangum@achp.gov>
Sent: Wednesday, July 26, 2023 12:06 PM
To: Tener, Scott (FAA)
Subject: RE: [External] RE: Proposed Boeing Site Development Project at the St Louis Lambert International Airport, St. Louis County (MO), Case 019746

Scott,

Thank for you providing the additional information requested. After reviewing it, we have determined that our participation in the continuing consultation to resolve adverse effects is not needed. We will be providing this response in a letter that should be emailed by the end of the week.

If you need any assistance as you work on the MOA or have questions about other aspects of the consultation, please feel free to reach out.

Sincerely,
Rachael

From: Rachael Mangum
Sent: Tuesday, July 11, 2023 11:48 AM
To: Tener, Scott (FAA) <scott.tener@faa.gov>
Subject: Re: [External] RE: Proposed Boeing Site Development Project at the St Louis Lambert International Airport, St. Louis County (MO), Case 019746

Thank you, Scott. I'll review the additional information provided with this email and get back to you soon if I have any further questions or will send a letter regarding our decision about participation.

Thanks,
Rachael

From: Tener, Scott (FAA) <scott.tener@faa.gov>
Sent: Monday, July 10, 2023 12:24 PM
To: Rachael Mangum <rmangum@achp.gov>
Subject: [External] RE: Proposed Boeing Site Development Project at the St Louis Lambert International Airport, St. Louis County (MO), Case 019746

Please find responses to your comments below…

Please let me know if you have any questions,

Scott Tener
Environmental Program Manager

FAA Central Region Airports Division
901 Locust St., Room 364

Kansas City, Missouri 64106-2325
T 816.329.2639 | F 816.329.2611
http://www.faa.gov/airports/central/

From: Rachael Mangum <rmangum@achp.gov>
Sent: Thursday, July 6, 2023 2:25 PM
To: Tener, Scott (FAA) <scott.tener@faa.gov>
Subject: Proposed Boeing Site Development Project at the St Louis Lambert International Airport, St. Louis County (MO), Case 019746

Scott,

I am following up on the recent adverse effect notification to the Advisory Council on Historic Preservation (ACHP) for the subject undertaking.

I've reviewed the documentation provided and wanted to request additional information on your efforts to identify and consult with potential consulting parties as well as the public as well as aspects of the proposed resolution of adverse effects. In the e106 form you note that the consultation package with the SHPO copied representatives of several local government jurisdictions around the airport as well as historical societies in some of those same areas.
What was the date(s) of correspondence that copied those parties? (Note: I only have the SHPO's June 20, 2023 response to the finding of effect).
Sorry, thought I also forwarded our SHPO/Tribal consultation letters, please find attached. Please note the list of copied parties at the bottom of the May 23, SHPO consultation letter. This letter was emailed to these parties on May 23 at the same time it was sent to the SHPO.
To date, have you received any responses from those parties or made any efforts to follow up to determine their interest in consulting?
We have not received any responses from any of these parties. No, we have not made any additional effort to reach out to these parties except through the public comment process. FYI, the State and surrounding municipalities appear to be very supportive of the Boeing expansion project. Boeing currently has a large presence on nearby property, and the state and municipalities are supportive of the possibility of new jobs that the development will bring to the area.

In response to the request from the Quapaw Nation, did the FAA provide the requested correspondence with SHPO?
No not yet, it was on my to-do list to complete this week.

Have you received any follow up to that or a request for consulting party status from the Quapaw Nation or other Indian tribes?
No other responses from tribes have been received to date and no requests for consulting party status.

I understand that you have not received yet, but anticipate a response from, the Osage Nation requesting monitoring during construction. I also note in the documentation that archaeological monitoring is recommended during ground-disturbing activities within the Brownleigh location and though this is not cited in the SHPO's response specifically, does the FAA plan to include this commitment in the MOA stipulations to help address concerns about potential effects to archaeological resources or properties of religious and cultural significance to tribes, if present?

Yes, we plan to add this to the stipulations in the MOA. Additionally, archaeological monitoring will be added as mitigation as part of our NEPA determination.

I also note that in the response from SHPO, they do not specifically comment on the adverse effect to Building 42, though the FAA has made the adverse effect finding based on demolition of this building in addition to the Curtis-Wright Aeroplane Factory. Would stipulations in the MOA address measures to resolve adverse effects for both historic properties?
Yes, we plan to add stipulation in the MOA to resolve adverse effects to both buildings pending further consultation with the SHPO.

Lastly, I understand that two public scoping meetings were held as part of the overall environmental compliance efforts. Were any comments received from the public with concerns about the effects of the undertaking on historic properties?
We received 7 comments out of 57 commenters regarding Historic and Cultural Properties. Only one brief comment regarding historic properties, "Preserving any burial grounds and buildings" with no other specific information. Two comments were regarding unrelated historic storage of WWII radioactive waste on nearby property and contamination leaking to other nearby properties. Three comments were regarding the acquisition of homes based on the airport expansion over 25-years ago. This undertaking will not be acquiring any property or homes for airport expansion. Lastly, one comment requesting a "culturally diverse workforce". We received one comment under Visual Effects, "Hopefully this includes tearing down the dilapidated buildings on Banshee. Makes the area look like garbage".

Thanks for providing additional information to address these questions. If I can provide any assistance, please let me know.

Sincerely,
Rachael

Rachael Mangum, MA, RPA
Program Analyst
Advisory Council on Historic Preservation
(202) 517-0214
rmangum@achp.gov

July 26, 2023

Scott Tener, P.E.
Environmental Specialist
FAA Central Region Airports Division
901 Locust St., Room 364
Kansas City, Missouri 64106-2325

Ref: *Proposed Boeing Site Development Project at the St Louis Lambert International Airport*
St. Louis County, Missouri
ACHP Project Number: 19746

Dear Mr. Tener:

On June 27, 2023, the Advisory Council on Historic Preservation (ACHP) received your notification and supporting documentation regarding the potential adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information you provided, we have concluded that Appendix A, Criteria for Council Involvement in Reviewing Individual Section 106 Cases, of Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe our participation in the consultation to resolve adverse effects is needed.

However, if we receive a request for participation from the Missouri State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer, affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Should the undertaking's circumstances change, consulting parties cannot come to consensus, or you need further advisory assistance to conclude the consultation process, please contact us.

Pursuant to 36 CFR § 800.6(b)(1)(iv), you will need to file the final Section 106 agreement document (Agreement), developed in consultation with the Missouri SHPO and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the Agreement and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the NHPA.

Thank you for providing us with your notification of adverse effect. If you have any questions or require our further assistance, please contact Ms. Rachael Mangum at (202) 517-0214 or by e-mail at rmangum@achp.gov and reference the ACHP Project Number above.

Sincerely,

LaShavio Johnson

LaShavio Johnson
Historic Preservation Technician
Office of Federal Agency Programs

Tener, Scott (FAA)

From: Nathan Mai-Lombardo <Nathan@berkeleymo.us>
Sent: Thursday, July 13, 2023 11:38 AM
To: Tener, Scott (FAA)
Cc: Karen Robinson, Clerk, City of Bridgeton; Patrick Mulcahy, Director of Economic Development, City of Florissant; Joe McDavid, President, Florissant Valley Historical Society; Gina Seibe, President, Historic Florissant, Inc.; Esley Hamilton, Parks Historian, St. Louis County Landmarks
Subject: Re: Section 106 Consultation; Boeing Site Development; St. Louis Lambert International Airport, St. Louis, MO

We are very much in favor of this project and look forward to being a positive contributor to its development.

Sent from my iPhone

> On Jul 13, 2023, at 11:31 AM, Tener, Scott (FAA) <scott.tener@faa.gov> wrote:
>
> Reaching out again to see if you had any comments regarding the subject project.
>
> Please let me know if you have any questions,
>
> Scott Tener
> Environmental Program Manager
>
> FAA Central Region Airports Division
> 901 Locust St., Room 364
> Kansas City, Missouri 64106-2325
> T 816.329.2639 | F 816.329.2611
> http://www.faa.gov/airports/central/
>
>
> _____
> __
> From: Tener, Scott (FAA)
> Sent: Wednesday, May 24, 2023 12:39 PM
> To: DNR.MOSection106 <MOSection106@dnr.mo.gov>
> Cc: Jerry Beckmann, St. Louis Airport Authority
> <GABeckmann@flystl.com>; Jennifer Kuchinski, WSP
> <Jennifer.Kuchinski@wsp.com>; John Van Woensel, WSP
> <John.VanWoensel@wsp.com>; Andrew Murphy, Boeing
> <andrew.murphy4@boeing.com>; Sara Jackson, Jacobs
> <Sara.Jackson1@jacobs.com>; Karen Robinson, Clerk, City of Bridgeton
> <krobinson@bridgetonmo.com>; Nathan Mai-Lombardo, City Manager, City
> of Berkeley <nathan@ci.berkeley.mo.us>; Patrick Mulcahy, Director of
> Economic Development, City of Florissant <pmulcahy@florissantmo.com>;
> Joe McDavid, President, Florissant Valley Historical Society
> <florissantvalleyhs@gmail.com>; Gina Seibe, President, Historic
> Florissant, Inc. <historicflo@aol.com>; Esley Hamilton, Parks
> Historian, St. Louis County Landmarks <EHamilton@stlouisco.com>

> Subject: Message 1 of 2: Section 106 Consultation; Boeing Site
> Development; St. Louis Lambert International Airport, St. Louis, MO
>
> Message 1 of 2…
>
> The Federal Aviation Administration (FAA) is considering a proposal by St. Louis Lambert International Airport (STL) to lease two locations, referred to as Northern Tract and Brownleigh, to the Boeing Company (Boeing) for the construction of an aircraft assembly building and an associated flight ramp. The Project is an undertaking subject to Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations (36 CFR Part 800) (Section 106). The purpose of this letter is to initiate Section 106 consultation for the Project pursuant to 36 C.F.R. § 800.4(a)(1).
>
> Please find attached coordination letter, maps, and Literature Search and Architectural Resources Results .
>
> Please let me know if you have any questions,
>
> Scott Tener
> Environmental Specialist
>
> FAA Central Region Airports Division
> 901 Locust St., Room 364
> Kansas City, Missouri 64106-2325
> T 816.329.2639 | F 816.329.2611
> http://www.faa.gov/airports/central/<https://urldefense.com/v3/__http:
> /www.faa.gov/airports/central/__;!!EErPFA7f--AJOw!HXSODABj_QeR9KMuDrLr
> hiqtH_uTHmPqkQNZhDFHA8XA6Msd5qVterj9BtRh_SCvyQ-8ZNRKFh9k8wLDH1I6Pn2uYS
> bcuw$>
>
>

From: Roberts, Andy
To: Jackson, Sara
Cc: Murphy (US), Andrew; Tener, Scott (FAA); Beckmann, Gerald A.; Weber, John S
Subject: Re: [EXTERNAL] Request for Informal Section 7 Consultation - Boeing Site Development Project at STL
Date: Tuesday, May 23, 2023 11:14:05 AM

Dear Ms. Jackson,

The U.S. Fish and Wildlife Service has reviewed your May 11, 2023, email and enclosures requesting consultation on the proposed site development project in St. Louis County, Missouri and submits these comments pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544).

Based on the information the Service concurs with your determination that the proposed work is not likely to adversely affect federally listed species. Should the scope, timing, or manner of activity change, please contact this office.

Thank you for the opportunity to review the proposed project.

Sincerely,

Andy Roberts

From: Jackson, Sara <Sara.Jackson1@jacobs.com>
Sent: Thursday, May 11, 2023 11:57 AM
To: Roberts, Andy <andy_roberts@fws.gov>
Cc: Murphy (US), Andrew <andrew.murphy4@boeing.com>; Tener, Scott (FAA) <scott.tener@faa.gov>; Beckmann, Gerald A. <GABeckmann@flystl.com>
Subject: [EXTERNAL] Request for Informal Section 7 Consultation - Boeing Site Development Project at STL

Good afternoon, Mr. Roberts –
Jacobs Engineering (Jacobs), on behalf of the Federal Aviation Administration (FAA), would like to initiate informal Section 7 consultation for a Boeing site development project at St. Louis Lambert International Airport (STL). Per the email chain below, we are submitting this request to you in Vona Kuczynska's absence.

The following agencies/groups and associated points of contact are involved in this effort:
Lead Federal Agency: FAA (Scott Tener)
Action Sponsor: STL (Jerry Beckmann)
Partner: Boeing (Andy Murphy)

Consultant: Jacobs (Sara Jackson)

Under this proposed project, Boeing would lease two parcels of land from STL and redevelop the land for aircraft assembly and testing purposes. Both sites, the Northern Tract and Brownleigh, are previously developed. The Northern Tract is almost completely paved and contains several buildings. The Brownleigh site was a former neighborhood that was purchased by STL and all structures were demolished; the area is vegetated. Full descriptions of the sites and the proposed activities are included in the attachments to this email, which include:

1. IPaC consultation packages for each site
2. A Biological Evaluation prepared in support of this consultation effort and a NEPA evaluation that is underway

Please confirm receipt of this email and its three attachments. We respectfully request your response within 30 days.

Thank you for your assistance. Please let me know if you have any questions or need supplemental information.

Sincerely,
Sara Jackson

Sara Jackson, PMP, REM, REPA, CEA | Jacobs | Sr. Environmental Scientist
O: 407.903.5128 | M: 321.890.3648 | sara.jackson1@jacobs.com
200 S. Orange Avenue Suite 900 | Orlando, FL 32801 | USA

PTO: 19-22, 24-25 May 2023

From: Weber, John S <John_S_Weber@fws.gov>
Sent: Wednesday, May 10, 2023 11:43 AM
To: Jackson, Sara <Sara.Jackson1@jacobs.com>
Cc: Roberts, Andy <andy_roberts@fws.gov>; Backus, Timothy L <timothy_backus@fws.gov>
Subject: [EXTERNAL] Re: USFWS POC for Informal Section 7 Consultation

Hi Sara,

Andy Roberts (cc'ed here) of our staff will assist you with any consultation needs you may have. Thank you.

John Weber
Field Supervisor
Missouri Field Office
U.S. Fish & Wildlife Service
Cell: 573-825-6048

Tener, Scott (FAA)

From: Tener, Scott (FAA)
Sent: Thursday, September 7, 2023 4:20 PM
To: 'environmental_review@ios.doi.gov'
Subject: RE: Notice of Availability for the Draft Section 4(f) Statement for Proposed Boeing Site Development Project at St. Louis Lambert International Airport, St. Louis, Missouri
Attachments: STL_Section4f_Statement_7Sep23.pdf

Please find revised Draft Section 4(f) Statement. We missed a minor revision when we were preparing the Section 4(f) that we sent to you on Wednesday. It's a minor change, but we wanted to make sure you have it. Please see revised version, the only change is the 5th bullet in Section 7.

Please let me know if you have any questions,

Scott Tener
Environmental Program Manager

FAA Central Region Airports Division
901 Locust St., Room 364
Kansas City, Missouri 64106-2325
T 816.329.2639 | F 816.329.2611
http://www.faa.gov/airports/central/

From: Tener, Scott (FAA)
Sent: Wednesday, September 6, 2023 3:34 PM
To: 'environmental_review@ios.doi.gov' <environmental_review@ios.doi.gov>
Subject: Notice of Availability for the Draft Section 4(f) Statement for Proposed Boeing Site Development Project at St. Louis Lambert International Airport, St. Louis, Missouri

Please find attached for your review the Draft Section 4(f) Statement for the Proposed Boeing Site Development Project at the St. Louis Lambert International Airport. The City of St. Louis Airport Authority proposes to lease airport property to the Boeing Company for construction and operation of U.S. defense-related aircraft production and testing. The proposed action includes an adverse effect on historic properties listed or eligible for listing on the National Register of Historic Properties. This adverse effect results in a physical use under Section 4(f) of the Department of Transportation Act of 1966. The adverse effect is being mitigated through a Memorandum of Agreement (MOA) per Section 106 of the National Historic Preservation Act (NHPA) between the Federal Aviation Administration (FAA), the Missouri State Historic Preservation Office, the Boeing Company, The Osage Nation, and the City of St. Louis.

The Draft Section 4(f) Statement, Draft Environmental Assessment, and Draft MOA are anticipated to be available for public review September 19 through October 26. Additional information can be found on-line at https://www.flystl.com/document-portal-page/boeing-site-development/boeing-site-development-for-aircraft-assembly-and-flight-testing.

We request that you provide any comments by October 6, 2023.

Please let me know if you have any questions,

Scott Tener
Environmental Specialist

FAA Central Region Airports Division
901 Locust St., Room 364
Kansas City, Missouri 64106-2325
T 816.329.2639 | F 816.329.2611
http://www.faa.gov/airports/central/