
5.6 HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

This section describes potential impacts on areas of historic, architectural, archeological, and cultural significance resulting from the proposed Federal undertaking. This assessment, completed in compliance with the National Historic Preservation Act of 1966 (NHPA), identifies historic properties in the areas of potential effect (APEs) and includes a description of potential impacts on these types of resources resulting from the alternatives under consideration.

5.6.1 Resources

Historical, architectural, archeological, and cultural resources include a range of sites, properties, and physical resources that relate to human activities, society, and cultural institutions. These resources include past and present expressions of human culture and history in the physical environment, such as prehistoric and historic archeological sites, structures, objects, and districts that are considered important to a culture or community. Historical, architectural, archeological, and cultural resources also include aspects of the physical environment, such as natural features and biota, which are part of traditional ways of life and practices and are associated with community values and institutions.¹

5.6.2 Regulatory Context

Applicable laws relevant to the analysis of historical, architectural, archeological, and cultural resources include the NHPA of 1966, as amended in 1992, and its implementing regulations, most recently amended in 2004. The NHPA requires that the lead agency—the FAA—consult with the State Historic Preservation Officer (SHPO). In Illinois, the SHPO is part of the Illinois Historic Preservation Agency (IHPA). The NHPA also requires that the FAA gather information to determine which properties in a project's APE are listed in or eligible for the National Register of Historic Places (National Register). The National Register is maintained by the Secretary of the Interior. The Keeper of the National Register is the individual delegated by the National Park Service with the authority to list properties and determine their eligibility for the National Register.

The National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archaeological resources. The National Register lists resources such as districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture and possess integrity of location, design, setting, materials, workmanship, feeling, and association.²

Resources listed in the National Register are defined as historic properties. Historic property:

... means any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in, the National Register of Historic Places.

The term eligible for inclusion in the National Register includes both properties formally determined as such in accordance with the regulations of the Secretary of the Interior and all other properties that meet the National Register criteria.³

¹ Federal Aviation Administration Office of Environment and Energy, 1050.1F Desk Reference Version 2 (February 2020), page 8-2

² Integrity is the ability of the resource to convey its significance. To be eligible for the National Register, resources must have both significance and integrity.

³ 36 CFR Part 800 – Protection of Historic Properties, incorporating amendments effective August 5, 2004.

In accordance with 36 CFR Part 800, "Protection of Historic Properties," implementing Section 106 of the NHPA, the consultation process requires the following:

- Determine if a project is an undertaking and if so, initiate the review with the SHPO,
- The responsible federal agency (FAA) identifies the APE, which is the geographic area or areas within which an undertaking may cause changes in the character or use of historic properties if historic properties are subsequently identified within the APE,
- Identify which properties within the APE are historic properties,
- Determine the effect of the undertaking on historic properties,
- Assess adverse effects, and
- Resolve adverse effects through a Memorandum of Agreement with the SHPO/Tribal Historic Preservation Officer (THPO), or in cases where there is a failure to agree, allow the Advisory Council on Historic Preservation (ACHP) an opportunity to comment.

Historic properties are also covered under Section 4(f) of the U.S. Department of Transportation Act of 1966, 49 U.S.C. Section 303, which describes the resources covered under Section 4(f), such as historic properties, public parks and recreation areas, and wildlife and waterfowl refuges, and documents the impact of the alternatives relative to Section 4(f) requirements. Chapter 5, **Section 5.8** of this EA addresses Section 4(f). Other potential applicable laws relevant to the analysis of historical, architectural, archeological, and cultural resources are outlined in the FAA 1050.1F Desk Reference Version 2 (February 2020). The undertaking is defined as the Proposed Action being assessed in this EA.

5.6.2.1 Consultation

As part of preparation for the effort to identify historic properties, the FAA conducted outreach to local government agencies and organizations that have jurisdiction over historic properties within the off-airport APE to seek information about historic properties. A contact list is provided in Appendix E of the Architecture/History Survey Report for Terminal Area Plan and Air Traffic Actions Environmental Assessment (Survey Report, see **Appendix G**, Attachment G-1). In August and September 2019, the FAA contacted each government agency or organization by mail or e-mail. If no response was received, the FAA then contacted them by phone. This outreach resulted in the identification of locally important sites, which are listed in Appendix F of the Survey Report (**Appendix G**, Attachment G-1).

The FAA initiated Section 106 consultation for eligibility of Terminal 1 with the Illinois SHPO in 2019 (see **Appendix G**, Attachment G-2.1). The FAA provided details of the Proposed Action to the SHPO during a meeting on March 29, 2019, and completed a walkthrough of the existing terminal core buildings with the SHPO on April 12, 2019. These early discussions focused on an independent project for Terminal 1, evaluated under separate Section 106 and NEPA review and documentation, but also introduced the proposed O'Hare Global Terminal (OGT) and related Proposed Action projects that would potentially impact buildings in the terminal core.

The FAA initiated Section 106 consultation by inviting the SHPO, ACHP, Native American Tribes, and certain individuals and organizations with a demonstrated interest, including other potentially interested parties, in the undertaking to a Consulting Party Meeting on August 3, 2021, via e-mail (see **Appendix G**, Attachment G-4). Following the meeting, the FAA sent invitations to participate as a consulting party via e-mail on August 30, 2021 (see **Appendix G**, Attachment G-4). This invitation was extended to Native American Tribes under 36 CFR 800.2, the SHPO, owners of on-airport historic properties, and other potentially interested parties. The ACHP responded on November 29, 2021, noting that its participation

may be premature and requested that the FAA notify the ACHP if, through consultation, there is a finding that the undertaking would adversely affect historic properties and that a Section 106 agreement is necessary.

The following parties confirmed their interest in participating as consulting parties: the SHPO, United Airlines, American Airlines, Jacobsen Daniels (representing the O'Hare Airline Liaison Office), DOCOMOMO Chicago, Landmarks Illinois, The Chicago Women in Architecture Foundation, Preservation Chicago, and Potawatomi-Prairie Band of Potawatomi Nation.

The following meetings were held with consulting parties, as documented in **Appendix G**, Attachment G-4:

- The first consultation meeting, held August 3, 2021, provided an introduction of the Proposed Action and addressed the Section 106 process and identification of historic properties.
- The second consultation meeting, held December 13, 2021, addressed the effects of the Proposed Action on historic properties.
- The third consultation meeting, held January 13, 2022, addressed questions and comments on the preliminary effect finding and effect documentation.

A list of invitees to each meeting and a summary of each meeting are included in **Appendix G**, Attachment G-4.

During the scoping outreach for the EA, the public was provided the opportunity to put forth for consideration by the FAA any additional historic properties or locally important historic sites. To date, no additional historic properties or locally important sites have been identified by the public.

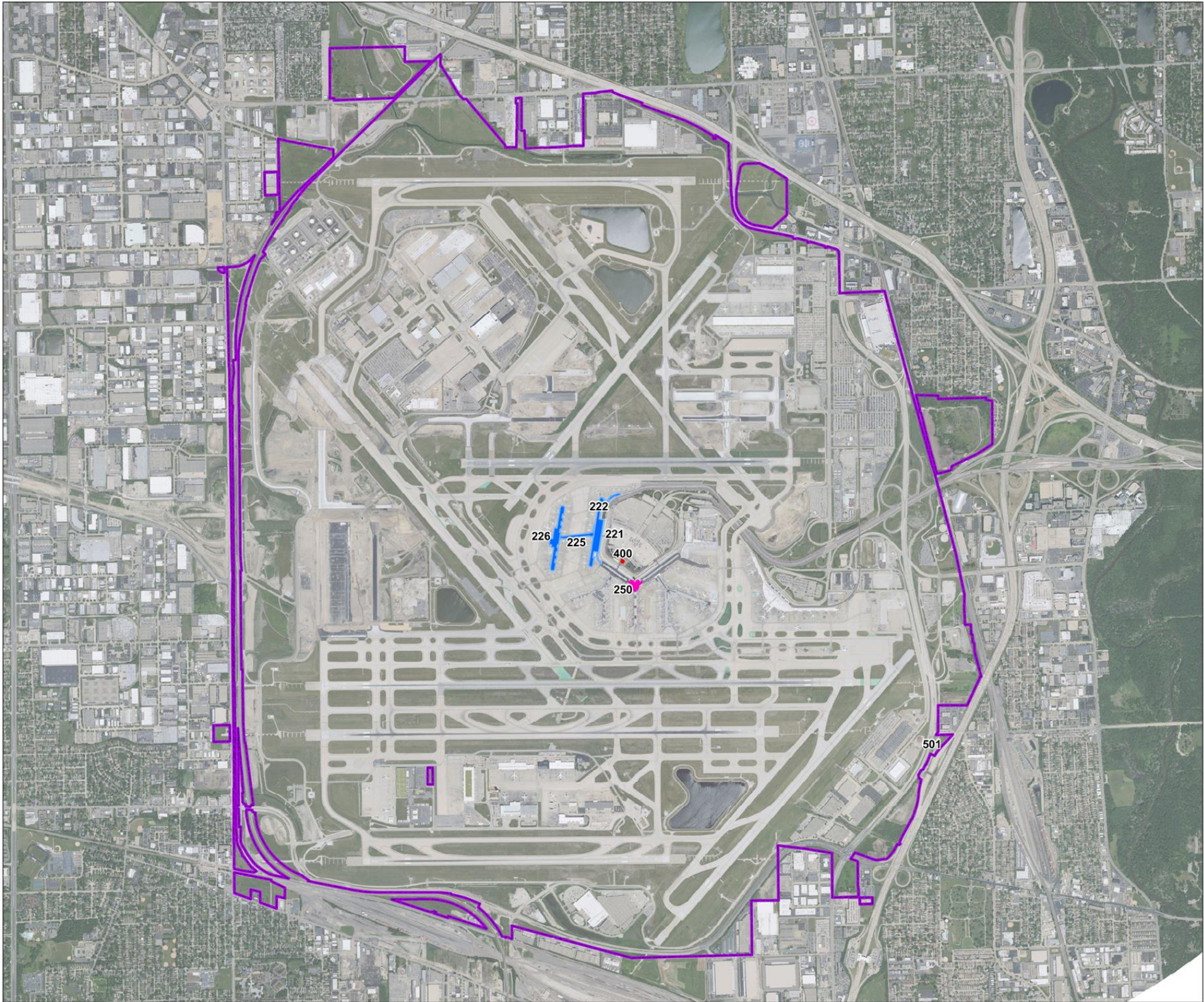
5.6.2.2 Affected Environment

The APE is defined in Section 106 regulations as “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. The APE is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking.”⁴

To evaluate the potential for effect, the FAA has established two separate APEs for the Proposed Action: on-airport, which is defined as within the airport property boundary, and off-airport, which is defined as outside the airport property boundary but within reach of potential impacts. The APEs are depicted on two maps, one for on-airport and one for off-airport (see **Exhibits 5.6-1** and **5.6-2**).

The physical impact components of the Proposed Action would take place entirely on airport land that has been previously disturbed. Due to this prior land disturbance, the APE addresses only historic properties that are part of the built environment (i.e., specific to historic buildings); therefore, archeological sites are not considered. An APE was not established for archeology, and no archeological investigations were conducted.

⁴ 36 CFR 800.16(d); as defined under Section 106, “Historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior...” 36 CFR 800.16(l).



Source: ESRI base mapping ArcPro Version 2.8; O'Hare International Airport, Future Airport Layout Plan Draft, Ricondo & Associates, Inc. analysis, August 2019



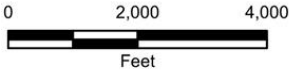
Chicago O'Hare
International Airport

**Terminal Area Plan and
Air Traffic Procedures
Environmental Assessment**

— ORD Airport Boundary and Area of
Potential Effect

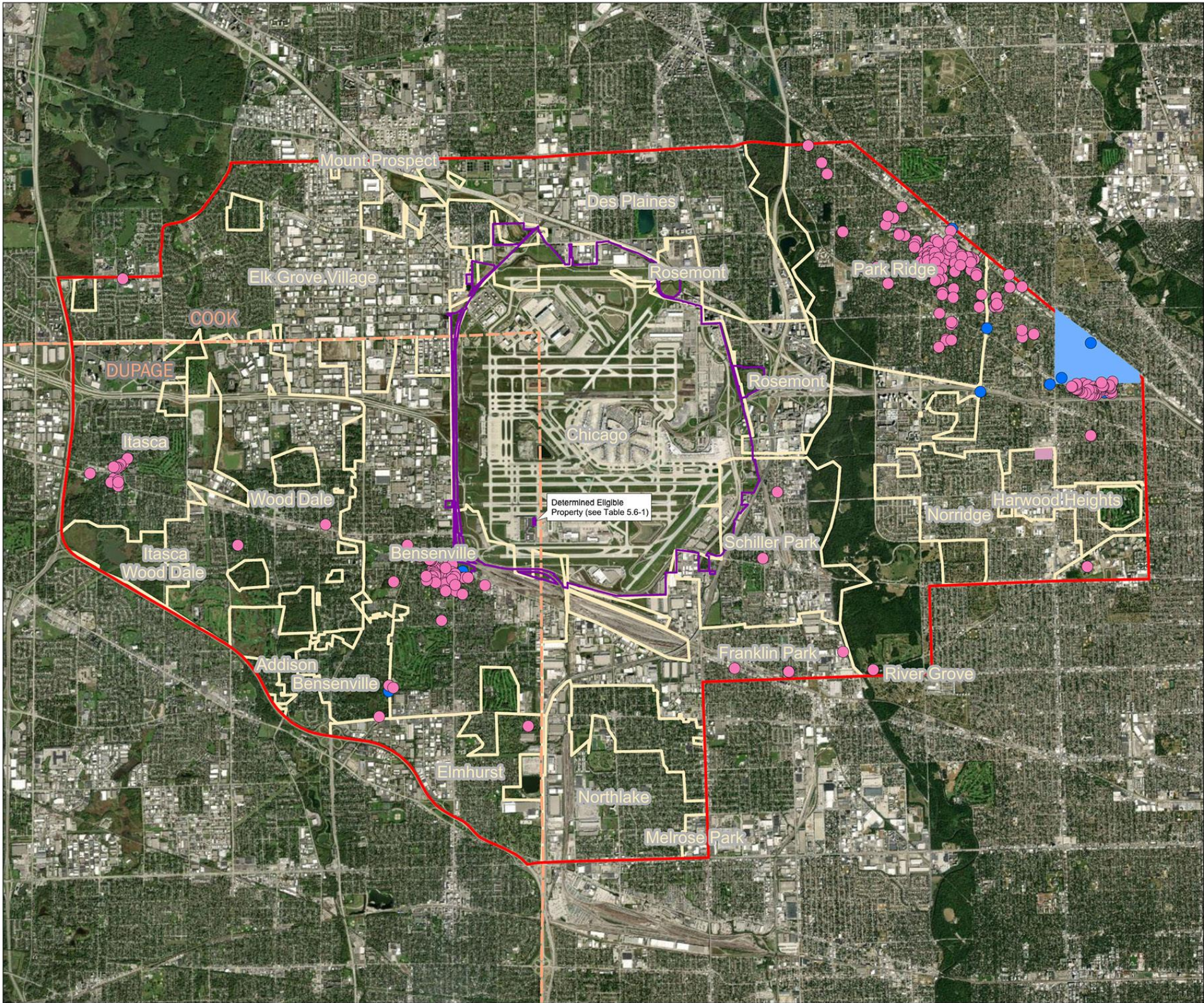
Historic Properties

- Terminal 1 (Bldgs. 221,222,225,226)
- CDA Control Tower (Bldg. 400)
- Rotunda (Bldg. 250)



Historic Places and Sites
(Sheet 1 of 2)

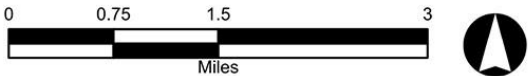
► Exhibit 5.6-1



**Chicago O'Hare
International Airport**

**Terminal Area Plan and
Air Traffic Procedures
Environmental Assessment**

- Individual Property Listed or Determined Eligible for the NRHP
- Locally Important Site
- Historic District Listed or Determined Eligible for the NRHP
- Locally Important District
- ORD Airport Boundary and On-Airport Area of Potential Effect
- Off-Airport Area of Potential Effect
- - - County Boundary
- Municipality Boundary



Historic Places and Sites
(Sheet 2 of 2)

► Exhibit 5.6-2

The on-airport and off-airport APEs were submitted by the FAA to the SHPO as part of the Survey Report on April 29, 2021.⁵ The SHPO concurred in correspondence dated May 14, 2021 (see **Appendix G**, Attachment G-1).

On-Airport APE

The on-airport APE, developed based on the Proposed Action, considered potential visual, atmospheric, and audible changes. Specifically, new airport buildings were evaluated for potential visual or atmospheric effects to on-airport historic properties. Potential noise and vibration effects were also specifically considered.

Off-Airport APE

The off-airport APE, developed based on the Proposed Action, considered the potential visual, atmospheric (such as air quality changes, etc.), or audible changes. No visual or atmospheric effects to off-airport historic properties are anticipated with the Proposed Action.

Auditory (or noise) impacts may affect these properties. To establish the APE to consider potential noise effects, the FAA used the 65 DNL dB noise contour *2020 Interim Condition Noise Contour* from the 2015 Written Re-Evaluation of the 2005 OMP EIS, with a substantial buffer that “rounds” the contour out to include significant natural, man-made, or political jurisdictional boundaries (for a discussion on air quality, see **Section 5.3**).⁶ The airport is surrounded by a number of communities with commercial and residential development.

5.6.2.2.1 Methodology

A historic property architectural survey was conducted to identify above-ground properties in the APE and evaluate them by applying National Register Criteria. Properties must be of sufficient age (50 years old by 2032)⁷ to meet the National Register threshold or have potential to meet National Register Criteria Consideration G: properties that have achieved significance within the past fifty years (see Architecture/History Survey Report in **Appendix G**). Fieldwork and documentation were completed based on procedures accepted by the FAA and the SHPO and in accordance with the Secretary of the Interior's Standards and Guidelines.

5.6.2.2.2 Existing Condition

The FAA recommended three potentially affected on-airport properties as eligible for the National Register: Terminal 1, the Rotunda, and the CDA Control Tower. The SHPO concurred with the FAA's determinations of eligibility in letters dated September 12, 2019, and December 18, 2019 (see **Appendix G**, Attachments G-

⁵ Architecture/History Survey Report for Terminal Area Plan and Air Traffic Actions Environmental Assessment (Mead & Hunt, Inc., April 2021).

⁶ This contour was chosen because it represents noise levels from a condition most like levels that will be present under the Build Out Proposed Action airport layout. The contour includes updates to modeling methods that have occurred since the publication of the 2005 OMP EIS. The purpose of the buffer was to recognize that the 65 DNL dB noise contour for the undertaking was not yet determined at the time the APE was defined; however, the contour, once defined, is expected to fall entirely within the buffer, as the lateral extent has been established to sufficiently capture changes in the 65 DNL contour resulting from the undertaking. The lateral extent of the buffer is further defined by the following: 1) The extent of the area defined by the 65 DNL contour intersects several cities and towns; 2) The area within city/municipal boundaries intersecting the 65 DNL contour was appended to form the buffer, but only to the intersections with major roadways and natural features (e.g., rivers, lakes, etc.) beyond the DNL contour.

⁷ 2032 is the latest year in this analysis. National Park Service, “National Register Bulletin: How to Apply the National Register Criteria for Evaluation,” 1990 (revised 1997), https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf, 41-42.

2.1, G-2.2, G-2.3, and G-2.4). Identified historic properties, which were presented to Section 106 consulting parties during a meeting on August 3, 2021, are shown in **Table 5.6-1**.

**TABLE 5.6-1
IDENTIFIED HISTORIC PROPERTIES**

Building Name	On- or Off-Airport (Address/City)	National Register Status
Terminal 1 (including Concourses B and C) (ALPCDA Building Nos. 221, 222, 225, and 226)	On-Airport (Chicago)	Determined eligible
Rotunda (ALP/CDA Building No. 250)	On-Airport (Chicago)	Determined eligible
CDA Control Tower (City Tower) (ALP/CDA Building No. 400)	On-Airport (Chicago)	Determined eligible
Churchville Schoolhouse	Off-Airport (3N784 Church Road, Bensenville)	Listed
Green Street School	Off-Airport (119 E. Green Street, Bensenville)	Determined eligible
Wingert House	Off-Airport (6231 N. Canfield Avenue, Chicago)	Listed
Passionist Fathers Monastery	Off-Airport (5700 N. Harlem Avenue, Chicago)	Listed
Noble-Seymour-Crippen House	Off-Airport (5624 N. Newark Avenue, Chicago)	Listed
Chicago & North Western Railroad Depot	Off-Airport (6089 N. Northwest Highway, Chicago)	Listed
Norwood Park Historic District	Off-Airport (bordered by Avondale Avenue to the north, Nagle Avenue to the east, Bryn Mawr Avenue to the south, and Harlem Avenue to the west, Chicago)	Listed
Bridge over JFK Expressway (I-90) carrying Canfield Avenue	Off-Airport (5743 N. Canfield Avenue, Chicago)	Determined eligible
Pickwick Theater Building	Off-Airport (5 S. Prospect Avenue, Park Ridge)	Listed
Rest Haven Cemetery	Off-Airport (West Cargo Road) – located in an enclave surrounded by airport property	Determined eligible

Within the off-airport APE, the FAA identified historic properties (listed in or determined eligible for the National Register) and/or locally important sites.⁸ Ten off-airport properties were already known to be listed in or eligible for the National Register. An additional 243 locally important sites were identified, as provided in Appendix F of the Survey Report (see **Appendix G**, Attachment G-1). While these sites have not been evaluated to determine their eligibility for listing in the National Register, they were assumed eligible and therefore were treated as historic properties for analysis under Section 106 for the Proposed Action.

5.6.3 Environmental Consequences

This section presents a discussion of potential impacts to historic, architectural, archeological, and cultural resources from the No Action, Interim (2025) Proposed Action, and Build Out (2032) Proposed Action Alternatives. To determine potential impacts to historic, architectural, archeological, and cultural resources, a threshold for significance is needed. While the FAA has not established a significance threshold for impacts to historical, architectural, archeological, and cultural resources, FAA Order 1050.1F has identified a finding of adverse effect through the Section 106 process as a factor to consider in lieu of the threshold. A finding of adverse effect does not automatically trigger a significant impact for the purposes of the NEPA. The FAA makes the determination on the level of impact under NEPA, considering the level of impact along with any mitigation identified, as necessary, to resolve adverse effects.

A project's potential effects under Section 106 are those that may be triggered by applying the criteria of adverse effect, defined as follows:

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

Adverse effects on historic properties include, but are not limited to:

- (i) Physical destruction of or damage to all or part of the property;
- (ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines;
- (iii) Removal of the property from its historic location;
- (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

⁸ Locally important sites were identified following the process utilized in the 2005 OMP EIS. This process involved outreach to communities (county, townships, and municipalities) and local historical societies and organizations that may have knowledge and information about historic sites within the APE. Additionally, a background literature/database search was conducted to identify inventoried properties that are listed in or eligible for the National Register or State Register of Historic Places, in addition to Certified Local Government designated properties and properties that have been locally designated or recognized by a municipality, county, or historical society within the APE.

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.⁹

If the potential for an adverse effect on a historic property is identified, then the effects of the action are evaluated through the Section 106 process.

To determine impacts of the Proposed Action on historic, architectural, archeological, and cultural resources, historic properties within the APE were assessed to determine whether a finding of adverse effect was applicable. The results of the assessment and the FAA's findings were presented in effect documentation provided to the SHPO and consulting parties on December 20, 2021 (see **Appendix G**, Attachment G-3.2). The FAA determined that the Proposed Action would have either no effect or no adverse effect on historic properties, pursuant to 36 CFR Parts 800.4(d)(1) and 800.5(b), respectively. A finding of no effect is applicable when historic properties are present, but when the undertaking will not alter the characteristics that qualify it for inclusion in or eligibility for the National Register. A finding of no adverse effect is applicable when the Proposed Action does not meet the criteria of adverse effect. A summary of the findings is presented below.

5.6.3.1 No Action Alternative

Under the No Action Alternative, including both the Interim No Action and the Build Out No Action, existing facilities at O'Hare will be maintained with improvements that have already been planned, approved by the FAA, and for which the NEPA process has been completed.

On-Airport

Under the No Action Alternative, there would be no effect on on-airport historic properties. There would be no substantive modifications or changes to historic properties and nearby facilities. Therefore, no impacts to historical, architectural, archeological, or cultural resources would occur.

Off-Airport

Under the No Action Alternative, there would be no effect on off-airport historic properties. No physical development associated with airport activities would occur off-airport. Further, changes to aircraft operations would result in a decrease in corresponding aircraft noise exposure to historic properties. Therefore, no visual, atmospheric, or audible impacts would occur to historical, architectural, archeological, or cultural resources.

5.6.3.2 Interim Proposed Action

Under the Interim Proposed Action, the activities that have the potential to affect identified historic properties include the temporary walkway/extended jetway from Concourse C, the taxiway geometry south of the proposed Terminal 5 expansion, and the modified taxiway geometry south and west of Runway 4L. The temporary walkway will be removed once Satellite 1 is completed under the Proposed Action.

⁹ 36 CFR 800.5

On-Airport

The FAA determined that the Interim Proposed Action would have no adverse effect on Terminal 1. The criteria of adverse effect as outlined in the Section 106 regulations were applied, including consideration of whether proposed alterations would be consistent with The Secretary of the Interior's Standards for the Treatment of Historic Properties, Standards for Rehabilitation, 36 CFR 68.39(b) (Secretary's Standards). Overall, Terminal 1 would be retained, and there would be no damage to the historic property and its character-defining features. The proposed temporary alterations to Terminal 1 are consistent with the Secretary of the Interior's Standards for Rehabilitation.

Off-Airport

The FAA determined that the Interim Proposed Action would have no effect on the off-airport listed or eligible properties within the APE. No atmospheric effects would be caused by the Proposed Action. No visual effects would be caused by air traffic activities, and changes in noise levels due to the Interim Proposed Action would not result in modifications to the historic properties, nor would they alter the characteristics that qualify the properties for inclusion in the National Register. As described in Draft Section 4(f) Assessment (see **Appendix H**), noise levels resulting from the Interim Proposed Action would not significantly change when compared to the No Action Alternative. The FAA determined that the Interim Proposed Action would have no effect on off-airport historic properties.

5.6.3.3 Build Out Proposed Action

Under the Build Out Proposed Action, potential effects to identified historic properties were assessed.

On-Airport

The FAA determined that the Build Out Proposed Action would have no effect on the National Register-eligible CDA Control Tower. The Build Out Proposed Action does not include any modifications to the CDA Control Tower. No visual or atmospheric impacts, and no noise or vibration effects were found to be applicable.

The FAA determined that the Build Out Proposed Action would have no adverse effect on Terminal 1. The Proposed Action would involve the following modifications to Terminal 1:

- Connection to the OGT via a connecting walkway link at the southern end of Concourse B,
- Addition of Satellite 1 to the southern end of Concourse C,
- Northeast end expansion of Concourse B, and
- North expansion of Concourse C.

The criteria of adverse effect, as outlined in the Section 106 regulations, were applied, including consideration of whether proposed alterations would be consistent with The Secretary of the Interior's Standards for the Treatment of Historic Properties, Standards for Rehabilitation. Overall, Terminal 1 would be retained, and there would be limited destruction or damage to the historic property and its character-defining features. The FAA determined that the proposed alterations to Terminal 1 are consistent with the Secretary of the Interior's Standards for Rehabilitation.

Terminal 1 would remain in use, with parts of the historic property removed to accommodate construction of the Proposed Action. Despite the removal of some of the building, the majority of Terminal 1, including its character-defining features, would be retained, and destruction or damage to the historic property

would be minimized. The proposed interface of Terminal 1 with the OGT and Satellite 1 and the two additions to Terminal 1 would retain the historic character of the property and avoid removing distinctive materials, features, and spaces that characterize it. The Build Out Proposed Action would preserve the distinctive materials, features, finishes, and construction techniques that characterize the historic property, including the distinctive glass and structural steel system throughout the building and the southern ends of Concourses B and C, with their barrel-vaulted apses and holdrooms. The connections to the OGT and Satellite 1 and the building additions are compatible with the historic materials, features, size, scale and proportion, and massing of Terminal 1. As a result, the FAA determined that the Build Out Proposed Action would have no adverse effect on Terminal 1.

The FAA determined that the Build Out Proposed Action would have no adverse effect on the Rotunda. The Build Out Proposed Action would involve reusing the Rotunda. New corridors will be added to connect the Rotunda to OGT and Terminal 3. A new landside connection would also be constructed, connecting the OGT to Terminal 3. A new concourse-level exterior airside terrace is proposed to infill the space between the new west and southwest corridors between the OGT and the Rotunda. Within the interior of the Rotunda, historic features will be retained, and the existing non-original concession installations will be removed on the concourse level, returning it to a more open configuration.

The criteria of adverse effect, as outlined in the Section 106 regulations, were applied, including consideration of whether proposed alterations would be consistent with the Secretary of the Interior's Standards. Overall, the Rotunda would be retained, and there would be limited destruction or damage to the historic property and its character-defining features. The FAA determined that the proposed alterations to the Rotunda are consistent with the Secretary of the Interior's Standards.

The Rotunda would be reused, with small portions of the historic property removed to accommodate construction of the Build Out Proposed Action. Despite the removal of some portions of the building (to allow for an interface of the OGT to the Rotunda), the Rotunda would retain the historic character of the property and no distinctive materials, features, and spaces that characterize it would be removed. The Build Out Proposed Action would preserve distinctive materials, features, finishes, and construction techniques that characterize the historic property, including the double-height interior atrium space with mezzanine supported by interior columns, the majority of the extant original exterior glass bays, and the roof oculus and ribs. The new airside and landside corridor additions and the OGT—which would be offset from the Rotunda by an exterior terrace at the departures level—would be compatible with the historic materials, features, and proportions of the Rotunda in terms of the additions' size, scale, and massing. New additions and related new construction adjacent to and connecting with the Rotunda would allow for the possibility of removal of the connection of the OGT to the Rotunda and for the essential form and integrity of the historic property to be unimpaired. As a result, the FAA determined that the Build Out Proposed Action would have no adverse effect on the Rotunda.

Table 5.6-2 provides a summary of effect findings for on-airport historic properties.

TABLE 5.6-2
SUMMARY OF EFFECT FINDING FOR ON-AIRPORT HISTORIC PROPERTIES

Building Name	On- or Off-Airport (Address/City)	National Register Status	Effect
Terminal 1 (including Concourses B and C) (ALPCDA Building Nos. 221, 222, 225, and 226)	On-Airport (Chicago)	Determined eligible	No Adverse Effect
Rotunda (ALP/CDA Building No. 250)	On-Airport (Chicago)	Determined eligible	No Adverse Effect
CDA Control Tower (City Tower) (ALP/CDA Building No. 400)	On-Airport (Chicago)	Determined eligible	No Effect

Off-Airport

The FAA assessed the potential for effects and determined that the Build Out Proposed Action would have no effect on the off-airport listed or eligible properties within the APE (see **Appendix G**, Attachment G-3.1). No atmospheric effects would be caused by the Proposed Action. No visual effects would be caused by air traffic activities as this area is already overflown by aircraft which would continue under the Proposed Action. Changes in noise levels due to the Build Out Proposed Action would not result in modifications to the historic properties, nor would they alter the characteristics that qualify the properties for inclusion in the National Register.

Locally important sites being treated as historic properties for analysis purposes under Section 106 were assessed for potential effects. Six off-airport historic properties have the potential to be impacted by changes in air traffic activities that would result in increased noise. The remaining off-airport historic properties listed in **Table 5.6-3** have no potential to be impacted by the Build Out Proposed Action. Four of the properties—residences in Bensenville at 301, 309, 313, and 317 W. Green Street—would experience increases in noise that could make them eligible for acoustical treatments to provide sound insulation to reduce interior noise levels. All these residences have previously received sound insulation. Because the Build Out Proposed Action would not alter the characteristics that qualify them for eligibility for the National Register, the FAA determined there would be no effect to these properties from the change in aircraft noise exposure.

The commercial block/Bensenville Theatre at 9-23 S. Center Avenue in Bensenville would experience increased aircraft noise exposure from the Build Out Proposed Action. The FAA determined there would be no effect to the commercial block/Bensenville Theatre property since commercial properties and the theatre (a recreational property) are compatible uses based on Part 150 noise compatibility guidelines. In addition, the Build Out Proposed Action would not alter the characteristics that could qualify the property as eligible for the National Register.

The Itasca Baptist Church at 210 S. Walnut Street in Itasca would experience increased aircraft noise exposure resulting from the Build Out Proposed Action. Historically, the CDA has only insulated residential and school components of churches; therefore, this property would not receive acoustical treatments, since it has no school or residential uses. No change to the use of the property is expected, and the Build Out Proposed Action would not alter the historic or architectural characteristics that could qualify

the church for eligibility for the National Register; therefore, the FAA determined there would be no effect to the property from the change in noise exposure.

No visual effects would be caused by air traffic actions to the six locally designated sites which are currently overflowed and have historically experienced air traffic activity. The FAA determined a finding of no effect applies to all the locally designated sites because the undertaking will not alter the characteristics that qualify these properties for inclusion in or eligibility for the National Register.

TABLE 5.6-3
SUMMARY OF EFFECT FINDING FOR OFF-AIRPORT HISTORIC PROPERTIES

Building Name	On- or Off-Airport (Address/City)	National Register Status	Effect
Churchville Schoolhouse	Off-Airport (3N784 Church Road, Bensenville)	Listed	No Effect
Green Street School	Off-Airport (119 E. Green Street, Bensenville)	Determined eligible	No Effect
Wingert House	Off-Airport (6231 N. Canfield Avenue, Chicago)	Listed	No Effect
Passionist Fathers Monastery	Off-Airport (5700 N. Harlem Avenue, Chicago)	Listed	No Effect
Noble-Seymour-Crippen House	Off-Airport (5624 N. Newark Avenue, Chicago)	Listed	No Effect
Chicago & North Western Railroad Depot	Off-Airport (6089 N. Northwest Highway, Chicago)	Listed	No Effect
Norwood Park Historic District	Off-Airport (bordered by Avondale Avenue to the north, Nagle Avenue to the east, Bryn Mawr Avenue to the south, and Harlem Avenue to the west, Chicago)	Listed	No Effect
Bridge over JFK Expressway (I-90) carrying Canfield Avenue	Off-Airport (5743 N. Canfield Avenue, Chicago)	Eligible	No Effect
Pickwick Theater Building	Off-Airport (5 S. Prospect Avenue, Park Ridge)	Listed	No Effect
Rest Haven Cemetery	Off-Airport (West Cargo Road), surrounded by O'Hare International Airport	Determined eligible	No Effect
Residence	Off-Airport (301 W. Green Street, Bensenville)	Locally Important Site	No Effect

39	On- or Off-Airport (Address/City)	National Register Status	Effect
Residence	Off-Airport (309 W. Green Street, Bensenville)	Locally Important Site	No Effect
Residence	Off-Airport (313 W. Green Street, Bensenville)	Locally Important Site	No Effect
Residence	Off-Airport (317 W. Green Street, Bensenville)	Locally Important Site	No Effect
Commercial block/Bensenville Theatre	Off-Airport (9-23 S. Center Avenue, Bensenville)	Locally Important Site	No Effect
Itasca Baptist Church	Off-Airport (210 S. Walnut Street, Itasca)	Locally Important Site	No Effect

In correspondence dated January 24, 2022, the SHPO concurred with the no effect finding to the CDA Control Tower and off-airport historic properties. In this correspondence, the SHPO also noted that the stage of design presented for the OGT avoids an adverse effect to Terminal 1 and the Rotunda with conditions. The FAA responded to the SHPO on March 3, 2022, identifying conditions for future review. Following this, the SHPO concurred with the FAA's finding of no adverse effect to Terminal 1 and the Rotunda in correspondence dated April 13, 2022 (correspondence provided in **Appendix G**, Attachment G-3.3).

5.6.3.3.1 Mitigation and Minimization

The CDA proposes to implement construction specifications during the project that would protect neighboring buildings from vibration damage; these are provided in Appendix B of the Survey Report (see **Appendix G**, Attachment G-1).

In accordance with SHPO concurrence on the no adverse effect finding for Terminal 1 and the Rotunda, the CDA will provide design plans to the SHPO for review to assess that the Proposed Action will continue to have no adverse effect on Terminal 1, which includes Concourses B and C and the Rotunda. This review will occur after the CDA has completed engagement with federal regulatory agencies (Customs and Border Protection, Transportation Security Administration, etc.) and airline stakeholders to ensure project stability in terms of both scope and budget of the project as it relates to the interface design assumptions. As such, the CDA estimates that the plan review with the SHPO will occur after the 30 percent design development milestone but before the 90 percent design development milestone; therefore, the review will likely occur around the 60 percent design development milestone. Plan review will be limited to the connections to the historic properties including Terminal 1 Concourse B connection to the OGT, Terminal 1 Concourse C connection to Satellite 1, and Rotunda connection to the OGT and the walkway connector from Rotunda to Terminal 3. Connections requiring review are depicted on Key to SHPO Plan Review (February 2022, 3 sheets, see **Appendix G**, Attachment G-3.3). At each connection, elevation and plan views will be provided to the SHPO. For the Rotunda, the CDA will also provide plans depicting removal of non-original concessions and offices on the concourse level. The CDA will also provide the SHPO with plans for the outdoor terrace space between the Rotunda and the OGT. This will be an attractive space with public access, commensurate with other publicly accessible concourse spaces from the OGT and the connector between the Rotunda and the OGT. The SHPO will be provided with a review of the following:

- Demolition plans and details,
- Floor plans for publicly accessible levels,
- Reflected ceiling plans,
- Interior and exterior elevations,
- Building and wall sections,
- Plan and section details,
- Material selections and product technical information,
- Curtain wall inventory drawings for the Rotunda,
- Window elevations and section cuts, and
- Terrace plan and details.

All documents should be at scales suitable to see and understand the scope of work proposed. Documents submitted to the SHPO should be a subset of the TAP full set of drawings.

If there are concerns with the 60 percent submittal, the SHPO may request review of additional plans developed following 60 percent plans to confirm that design is progressing in accordance with the effect determination.

If the project scope is significantly changed or inadvertent findings are discovered that will have an effect on historic properties, FAA will consult to resolve any adverse effects as defined in 36 CFR Part 800, "Protection of Historic Properties," implementing Section 106 of the National Historic Preservation Act of 1966. The Section 106 regulations provide for situations where a previously unknown historic property or unanticipated effects to a known property are discovered after the Section 106 process has been concluded. See Section 106 regulations at 36 CFR Part 800.13 for complete text.

5.7 DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F) AND LAND AND WATER CONSERVATION 6(F)

This section sets forth the existing conditions and environmental consequences of Proposed Action implementation on Section 4(f) and Section 6(f) properties in the Primary Study Area. **Appendix H** provides supporting information about the effects of the Proposed Action on property eligible for protection under Section 4(f) of the U.S. Department of Transportation Act (DOT) of 1966. The Act mandates that special efforts be made to avoid and minimize adverse effects of federally funded or permitted projects resulting from the permanent, temporary, or constructive use of publicly owned parks, recreation areas, wildlife and waterfowl refuges, and public and privately owned historic sites during construction or operation of DOT projects, codified at 49 U.S.C. Section 303 and implemented at 23 CFR Part 774. Section 6(f)(3) of the Land and Water Conservation Act requires consideration of affected parks that use Land and Water Conservation Funds.

5.7.1 Regulatory Context

Section 4(f) of the DOT Act¹⁰ states:

The Secretary may approve a transportation program or project (other than any project for a park road or parkway under section 204 of title 23) requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site)] only if—

- (1) there is no prudent and feasible alternative to using that land; and
- (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Thus, this section focuses on identifying the effects of the Proposed Action and its alternatives on public parks, recreation areas, wildlife/waterfowl refuges of national, State, or local significance, and national state or local significant historic sites. FAA Order 1050.1F Appendix B, Section B-2.2.3 and FAA Order 1050.1F Desk Reference, Chapter 5.3.3, note FAA's guidance for a DOT Section 4(f) *de minimis* determination established in Section 6009 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (Public Law 109–59). That guidance states:

The FAA may make a *de minimis* impact determination with respect to a physical use of Section 4(f) property if, after taking into account any measures to minimize harm, the result is either:

- A determination that the project would not adversely affect the activities, features, or attributes qualifying a park, recreation area, or wildlife or waterfowl refuge for protection under Section 4(f); or
- A Section 106 finding of no adverse effect or no historic properties affected.

The Section 6(f) assessment includes consideration of impacts to properties (which are also Section 4(f) properties) acquired using funds provided through the Land and Water Conservation Fund Act (LAWCON Act) of 1965, 54 U.S.C. Section 200302. Section 6(f)(3) of the LAWCON Act of 1965 (Public Law 88-578), codified at 16 U.S.C. Section 4601-4, commonly referred to as "Section 6(f)," states:

No property acquired or developed with assistance under this section shall, without the approval of the Secretary [of the Interior], be converted to other than public outdoor recreation uses. The Secretary shall approve such conversion only if he finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location.

As the Proposed Action would not involve acquisition or development of land that used LAWCON funding, no further consideration was given to Section 6(f) for LAWCON land.

5.7.1.1 Methodology

This section summarizes how Section 4(f) properties were identified and how impacts associated with the Proposed Action and its alternatives were then assessed. **Appendix H** provides a detailed description of the evaluation process, including the identification and assessment of impacts.

As noted above, Section 4(f) properties consist of public parks, recreation areas, wildlife/waterfowl refuges of national, State, or local significance, and national state or local significant historic sites. **Section 5.7**

¹⁰ Codified in 49 U.S.C. Section 303(c).

explains how historic sites that were identified in **Section 5.6** were assessed for Section 4(f) impacts. Parks, recreation areas, and wildlife and waterfowl refuges were identified within the study area by examining local municipal park district information, past airport environmental studies, community comprehensive plans, township records, county recreation plans, and state and federal maps and plans. Municipal or park district web sites for 15 villages/cities were consulted,¹¹ along with those of five townships¹² and Cook and DuPage Counties. State and regional maps were also consulted relative to the PSA (See **Appendix H**).

Airport development can impact or "use" Section 4(f) properties either directly or indirectly. Direct impacts or "use" refers to direct physical impacts to Section 4(f) properties, such as a physical taking or acquisition of Section 4(f) properties for incorporation into a proposed project. Pursuant to 23 CFR 774.17, certain conditions would be considered a "use" of Section 4(f) properties. These include a) when the land is permanently incorporated into a transportation facility; b) when there is a temporary occupancy of the land that is adverse in terms of the statute's preservation purpose under 23 CFR 774.13(d); and c) when a constructive use occurs. The first two are considered direct effects, whereas the latter is addressed through consideration of indirect effects. Indirect impacts, termed "constructive use," do not incorporate land from a Section 4(f) property, but due to the proximity impacts of the project, the activities, features, or attributes of the site's vital functions are substantially impaired. Thus, the impact analysis documented in other sections of this EA was used to identify impacts to determine if they would rise to the level of being a constructive use. For example, aircraft noise impacts, discussed in **Section 5.5**, were used to consider the effects of aircraft noise, while **Section 5.3** identifies impacts on air quality and **Section 5.13**, **Section 5.14**, and **Section 5.15** consider other impacts. Each of these indirect impacts were considered relative to the resources available at each Section 4(f) property and how the project-related effects might affect use of the Section 4(f) property.

FAA Order 1050.1F Table 4-1 notes the following significance threshold for Section 4(f) effects:

The action involves more than a minimal physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource.¹³ ... Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished.

Appendix H provides supplemental information about the assessment of impacts on Section 4(f) properties.

5.7.1.2 Affected Environment

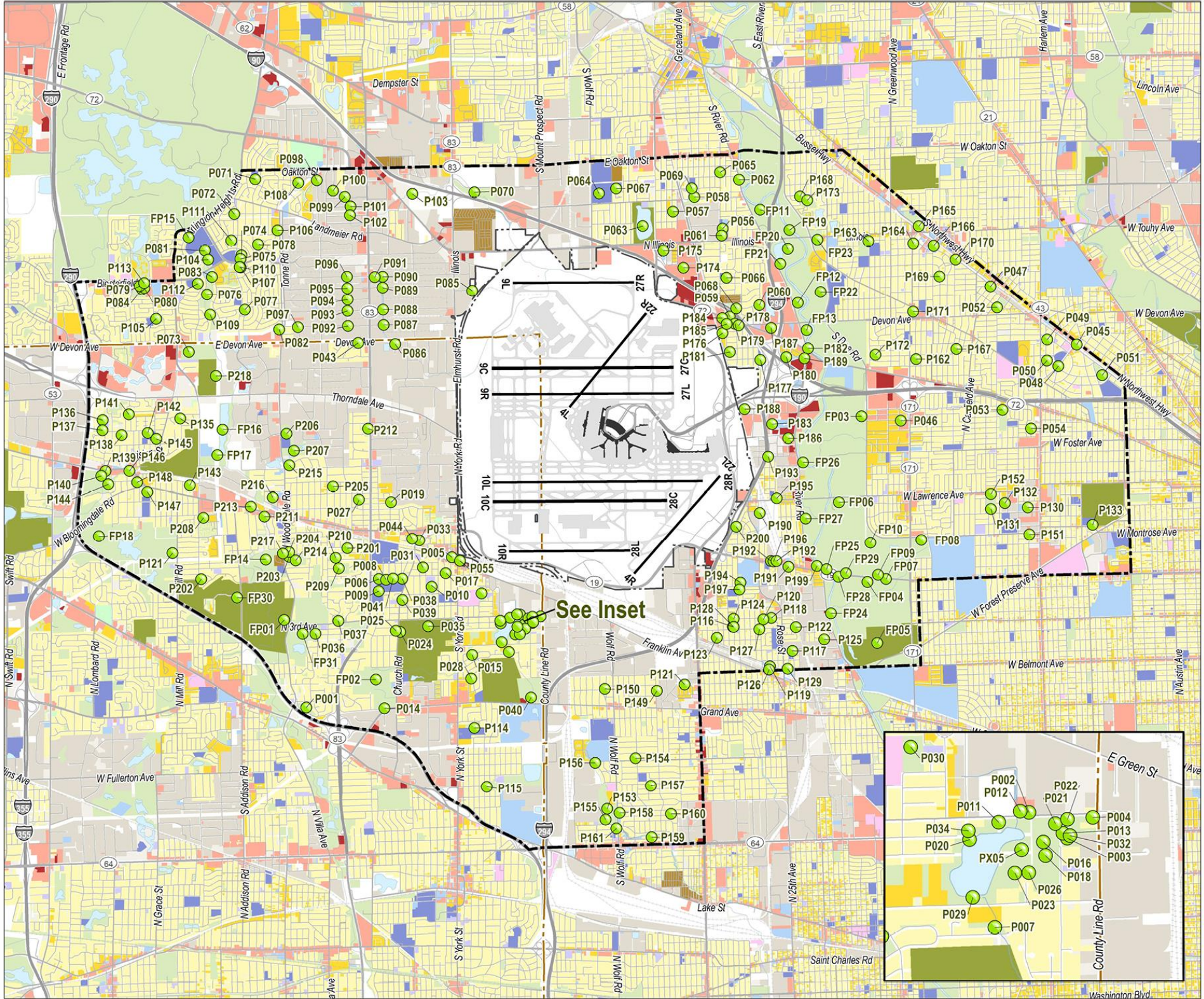
Exhibit 5.7-1 shows the location of each park, recreation area, and wildlife/waterfowl refuge identified in the study areas, while **Exhibits 5.7-2** and **5.7-3** show the historic sites. As is shown, 218 parks/recreation resources and 31 forest preserve sites were identified in the Primary Study Area as well as 263 historic sites. **Appendix H**, Table H.3-1 lists the Section 4(f) properties by the identifier shown on the map.

The Proposed Action would not involve acquisition of land. Thus, the direct effects of the alternatives, as described in **Section 5.7.4** below, focus on the on-airport Section 4(f) properties that have been determined eligible for the National Register of Historic Places (NRHP); there are no parks, recreation areas, or

¹¹ Cities/towns/villages: Chicago, Park Ridge, Rosemont, Des Plaines, Elk Grove, Wood Dale, Itasca, Bensenville, Elmhurst, Northlake, River Forest, Franklin Park, Schiller Park, Norwood Park, Norridge, and Veterans Park District

¹² Townships: Maine, Elk Grove, Leyden, Norwood Park, and River Forest.

¹³ A "minimal physical use" is part of the FAA's significance threshold that has been continued from FAA Order 1050.1E. It is different from a *de minimis* impact determination established in Section 6009 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). A *de minimis* impact determination is described in Appendix B, B-2.2.3.



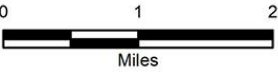
Source: Land Use: Chicago Metropolitan Agency for Planning (CMAPI); City and Municipal Boundaries: Illinois Geospatial Data Clearinghouse; County Boundaries, Roads, and Railroads: ESRI



Chicago O'Hare
International Airport

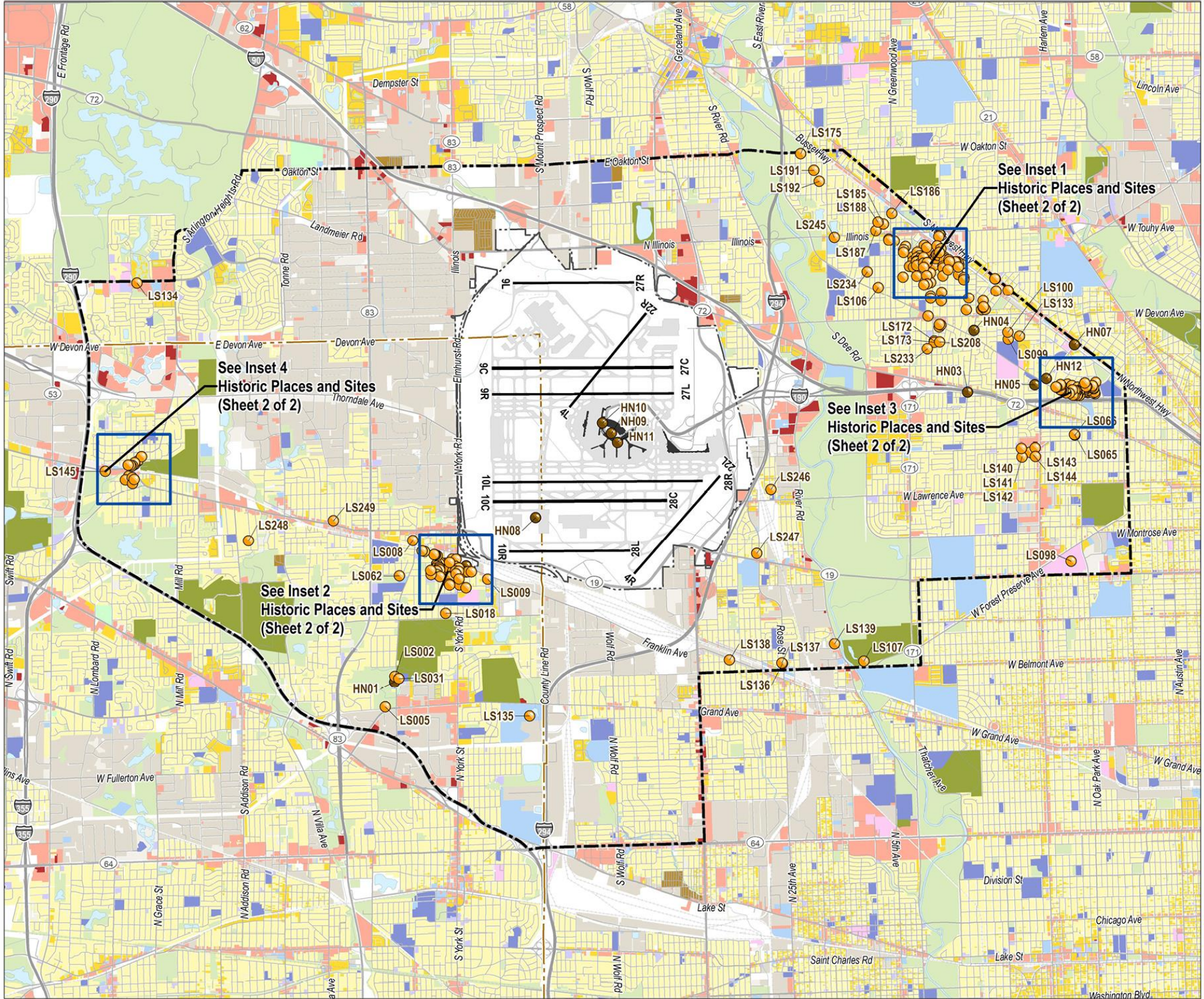
Terminal Area Plan and Air Traffic Procedures Environmental Assessment

- Park or Forest Preserve
- Primary Study Area
- Airport Boundary
- Runways
- County Boundary
- Highway
- Secondary Roads
- Railroad Lines
- Single Family Residential
- Multi-Family Residential
- Mobile Home
- Transient Lodging
- School / Education
- Place of Worship
- Hospital / Medical
- Water
- Public Use
- Commercial
- Industrial
- Agriculture
- Open Space Recreation
- Golf
- Vacant / Undefined



Park and Forest Preserve Land

► Exhibit 5.7-1



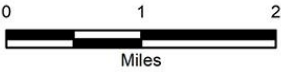
Source: Land Use: Chicago Metropolitan Agency for Planning (CMAP); City and Municipal Boundaries: Illinois Geospatial Data Clearinghouse; County Boundaries, Roads, and Railroads: ESRI



Chicago O'Hare
International Airport

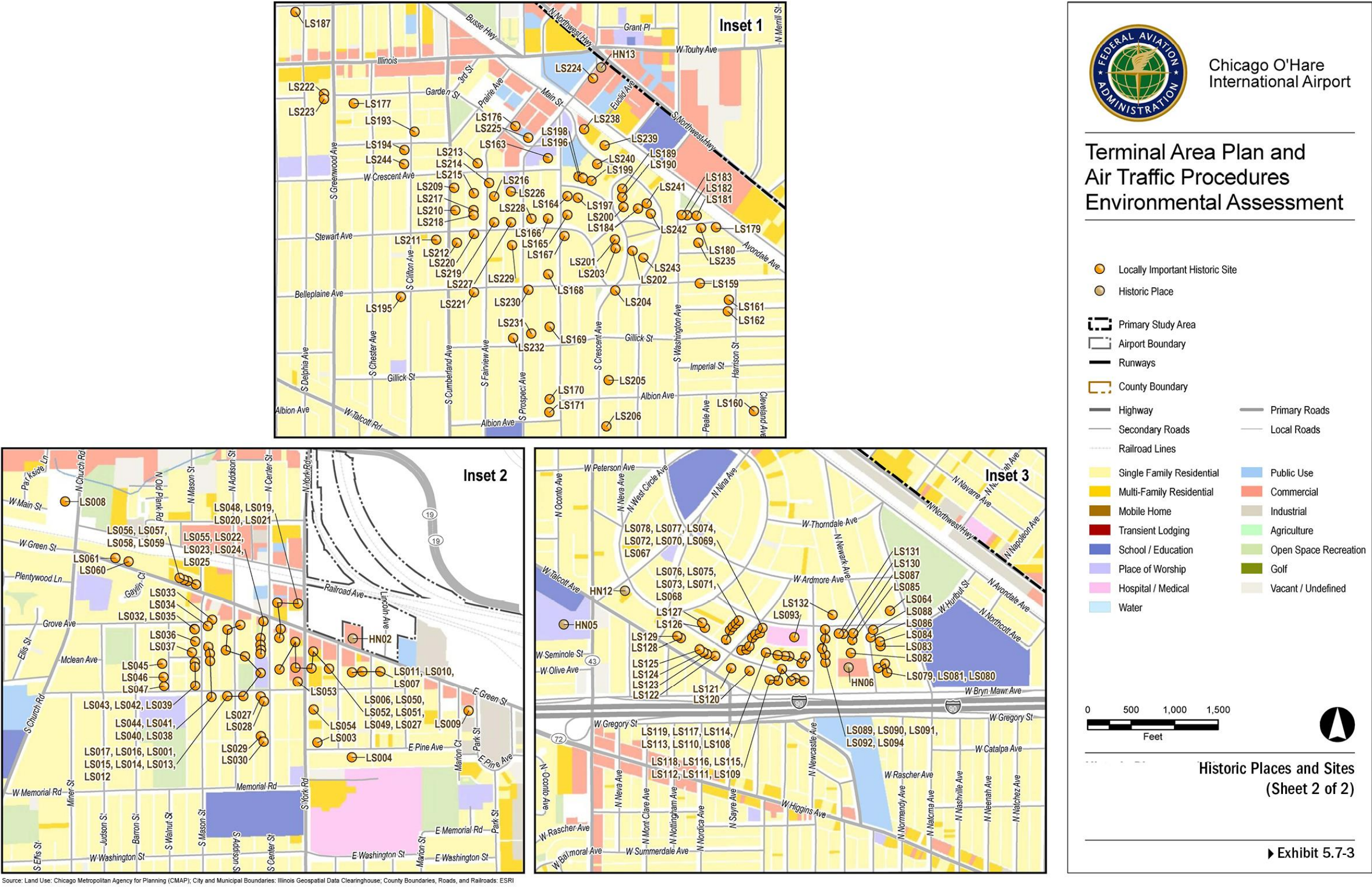
Terminal Area Plan and Air Traffic Procedures Environmental Assessment

- Locally Important Historic Site
- Historic Place
- Primary Study Area
- Airport Boundary
- Runways
- County Boundary
- Highway
- Secondary Roads
- Railroad Lines
- Single Family Residential
- Multi-Family Residential
- Mobile Home
- Transient Lodging
- School / Education
- Place of Worship
- Hospital / Medical
- Water
- Public Use
- Commercial
- Industrial
- Agriculture
- Open Space Recreation
- Golf
- Vacant / Undefined



Historic Places and Sites
(Sheet 1 of 2)

► Exhibit 5.7-2



wildlife/waterfowl refuges (collectively called parkland) on-airport. Seven buildings within the on-airport APE used in the Section 106 process described in **Section 5.7** that met the age threshold or were otherwise eligible for listing were surveyed and evaluated. Only three (3) on-airport properties were determined eligible for the National Register: Terminal 1/Concourses B and C, the Rotunda, and the CDA Control Tower. As noted in the determination of eligibility, "These properties meet the National Register Criteria due to significance in American history and/or architecture and possess sufficient historic integrity in the seven aspects of location, design, setting, materials, workmanship, feeling, and association." In addition, 263 sites were identified based upon three criteria: 1) historic properties not on the NRHP but determined to be eligible, 2) NRHP-listed historic properties, and 3) locally important sites.

5.7.2 Environmental Consequences

As noted, three on-airport Section 4(f) properties were identified as being eligible for the National Register and 249 parks/recreational resources/wildlife refuges and 263 off-airport historic sites were identified and evaluated. This section described the direct and indirect effects of the No Action and Proposed Action on those resources. **Appendix H** contains additional details concerning the assessment.

5.7.2.1 Interim and Build Out No Action

Under the No Action, none of the proposed project components in Group 1 through Group 5 would be constructed. As a result, the No Action would not cause project-related impacts to Section 4(f) properties. Relative to the existing conditions, none of the already approved and under construction projects included in the No Action Alternative would alter on-airport historic sites nor would on or off-airport impacts rise to the level of constructive use. **Appendix H**, Table H.4-4 identifies the noise exposure at select Section 4(f) properties with the No Action, while **Appendix H**, Table H.3-5 identifies the noise exposure at all Section 4(f) properties.

5.7.2.2 Interim and Build Out Proposed Action

The following sections discuss the impacts of the Proposed Action on Section 4(f) properties. Construction impacts to Section 4(f) properties were assessed and are discussed first, followed by the operational impacts once construction would be completed.

5.7.2.3 Construction Impacts

Construction activities associated with the Interim (2025) Proposed Action would be focused on the area west and southwest of and including Concourse C and would not affect Concourse B or the Rotunda. Section 4(f) properties that would be affected would be the connection between Concourse C and the new satellite concourse. As is noted in **Appendix H**, during the Section 106 process, it was determined that while Concourse C is eligible for the National Register, the Proposed Action would not have an adverse effect on Concourse C. Details concerning the construction of the Proposed Action are provided in **Appendix G**, Table G-18. No off-airport Section 4(f) properties would be affected by construction.

By the Build Out (2032) Condition, the Proposed Action would already be completed. This would include completed construction of the OGT and Satellite Concourses with connections to the two historic sites: Rotunda, and Terminal 1/Concourse B and C. No off-airport Section 4(f) properties would be affected by construction of the Proposed Action.

As is noted in **Appendix H**, during the Section 106 process, it was determined that while several on-airport Section 4(f) properties are eligible for the NRHP, no adverse effects to these properties would be expected;

the CDA modified its initial proposed project such that the Proposed Action would not adversely affect these resources. Thus, the construction impacts of this phase would not be significant and would meet the criteria for a Section 4(f) *de minimis* determination. During the Section 106 Consulting Parties Meeting #3 (January 13, 2022), the FAA advised the consulting parties that the FAA would make a Section 4(f) *de minimis* finding based upon the 'no adverse effects' Section 106 conclusion.

5.7.2.4 Operational Impacts

There would be no Section 4(f) impacts to on-airport resources due to operational impacts since they are airport buildings. Since there would be no physical impacts off airport, the FAA only analyzed whether there would be a constructive use to off-airport Section 4(f) properties from operational impacts from the Proposed Action. When considering potential impacts that might rise to being a constructive use, air quality/climate, noise, surface transportation, water resources, and visual conditions were specifically considered. Of the Proposed Action related impacts, noise was found to be the only applicable effect. Thus, relative to constructive use, the discussion relative to Section 4(f) properties in this section focuses on noise exposure levels.

Table H.4.3 in **Appendix H** identifies the noise exposure at the sites where the Proposed Action could affect a Section 4(f) property via aircraft noise. This evaluation considered locations where a significant project-related change would occur (a 1.5 DNL or greater increase to a site within the 65 DNL and greater noise contour) or a change that would move a Section 4(f) property into either the 65 DNL or 70 DNL contour. See **Appendix H**, including Tables H.4.3 and H.4.4, for the noise impacts at all Section 4(f) properties. Table H.4.4 notes the sites where the changes warranted further review of the Section 4(f) properties based on the activities that occur on each property to determine whether the resulting noise exposure would be incompatible with that use.

Compared to the Interim No Action, the Interim Proposed Action would alter aircraft noise exposure due to the Group 5 component of the Proposed Action (i.e., permanent adoption of the offset arrival procedures). For Section 4(f) property, none of these sites would experience a significant noise change or move to a higher contour band (i.e., move from 65 DNL band to inside 70 DNL band or from outside 65 DNL to inside 65 DNL). Further consideration was also given to the active or passive recreational¹⁴ nature of the resource. Active recreation areas, per the Standard Land Use Coding Manual¹⁵ that corresponds to the FAA's land use compatibility guidelines, have a higher sound level compatibility than do passive recreation areas. All the recreational uses are compatible with the Interim Proposed Action noise levels. All the historic sites are compatible with the Interim noise exposure.

At Build Out, nine Section 4(f) properties would either experience a significant change in noise or move to inside a higher contour band. Four of these sites are residential uses which are not compatible with noise above 65 DNL unless sound-insulated. However, all four residences have been insulated by the CDA's residential sound-insulation program. One church (Itasca Baptist Church) would move to within 65 DNL, but the levels in the portion of churches not used for residential or educational purposes are considered compatible by the CDA and ONCC. The four recreational uses (the Bensenville Theatre and the three parks) are compatible with the expected noise levels at Build Out.

¹⁴ Active recreation refers to a resource dominated by structured or team activity that requires use of special facilities or equipment (such as baseball/football/soccer fields, tracks, swimming pools). Passive recreation refers to activities such as walking trails, hiking, wildlife viewing, camping, and open space that do not require prepared facilities and equipment.

¹⁵ https://planning-org-uploaded-media.s3.amazonaws.com/legacy_resources/lbcs/background/pdf/slucm.pdf

All Section 4(f) properties are compatible with the anticipated noise exposure as noted in Table H.4.4 in Appendix H. As discussed in Section 5.6, the FAA determined under Section 106 there would be no effect to off-airport historic properties. This also means that there would be no constructive use of those

5.7.2.5 Permits and Approvals

No Section 4(f) permits are required. The effects of the Proposed Action to Terminal 1 and the Rotunda meet the *de minimis* criteria as defined in FAA Order 1050.1F Desk Reference and 49 U.S.C. Section 303(d). In addition, there would be no Section 4(f) impact to the CDA Control Tower.

Further, while not required of a *de minimis* finding, **Appendix H**, Section H.2.3 shows there is no prudent and feasible alternative to avoiding the effect to the historic resources of the airport's Rotunda and Terminal 1/Concourses B and C caused by the Group 1 project elements. No off-airport Section 4(f) properties would be acquired, and the Proposed Action Interim or Build Out conditions would not result in a constructive use.

5.7.2.6 Mitigation and Minimization

Components of the CDA's initial proposed project were modified to result in the Proposed Action such that it would result in no adverse effect under Section 106 to the on-airport Section 4(f) properties of Terminal 1 and the Rotunda. As a result, the Proposed Action would not have a significant Section 4(f) impact to on-airport properties. An impact to a historic property would not be considered a Section 4(f) constructive use once FAA issues a finding of no effect or no adverse effect under Section 106 of the NHPA. In addition, a constructive use effect would not result with the Proposed Action to any off-airport Section 4(f) properties. Therefore, no mitigation measures are required.

5.7.2.7 Draft Section 4(f) Finding

In its finding, the FAA has considered construction impacts relative to a direct use as well as construction and operational impacts relative to constructive use. A *de minimis* impact on a historic resource is defined as a finding of either "no adverse effect" or "no historic properties affected" (no effect) in compliance with Section 106 of the NHPA. A *de minimis* impact on a park, recreational use, and/or wildlife or waterfowl refuge is defined as an impact that does not adversely affect the activities, features, or attributes of that Section 4(f) property. *De minimis* impact findings must be made in compliance with Section 6009(a) of SAFETEA-LU and subsequent amendments to Section 138 of Title 23 and Section 303 of Title 49, U.S.C.

The FAA has determined that there would be a *de minimis* impact under Section 4(f) for the on-airport properties of Terminal 1 and the Rotunda and no impact for the CDA Control Tower. Since all construction activity (direct impacts) would occur on-airport, analysis of off-airport impacts was limited to constructive use. Based on the analysis presented above, the Proposed Action would not result in a constructive use effect of any off-airport Section 4(f) properties. As a result, the Proposed Action would not have a significant impact on any Section 4(f) properties. The Illinois SHPO concurred with the FAA's no adverse effect finding for on-airport properties of Terminal 1 and the Rotunda, and the no effect finding for the CDA Control Tower and the off-airport properties.¹⁶ Therefore, no mitigation measures are required.

A draft Section 4(f) Assessment was prepared and is presented in **Appendix H**.

¹⁶ Letter from SHPO to FAA, dated April 13, 2022, contained in Appendix G, Attachment G-3.3 of this EA.

5.8 BIOLOGICAL RESOURCES

5.8.1 Definition of Resources

Biological resources are defined as 1) the various flora and fauna in a particular area and 2) rivers, lakes, wetlands, forests, upland communities, and other habitats that support flora and fauna. This section also addresses effects on federal- and state-listed threatened and endangered species and their habitats.

5.8.2 Regulatory Context

The primary federal statute for biological resources is the Endangered Species Act (ESA) of 1973, 16 U.S.C. Sections 1531–1544, administered by the U.S. Fish and Wildlife Service (USFWS). The ESA requires all federal agencies to conserve threatened and endangered species and, in consultation with the USFWS, to ensure that federal actions do not jeopardize the existence of or destroy critical habitat of threatened and endangered species. Overall coordination on species and habitats of concern is administered under Section 7 of the ESA, which requires federal agencies to consult the USFWS and appropriate state fish and wildlife agencies when a federal project may adversely affect listed fish or wildlife resources.

Additional federal requirements relating to wildlife include the Migratory Bird Treaty Act (MBTA), 16 U.S.C. Sections 703–712, administered by the USFWS, which prohibits taking or selling migratory birds, bird eggs, or nests, or engaging in other activities that may harm them, unless authorized by a special USFWS permit. In addition, the Bald and Golden Eagle Protection Act, 16 U.S.C. Sections 668–668d, protects eagles and their nests from unauthorized capture, purchase, or transportation.

On the state level, Illinois' Endangered Species Protection Act, Il. Stat. Section (520 ILCS 10/) and the associated Administrative Rules, Ill. Adm. Code 1010.10–1010.40, 1050.10–1050.40, contain a variety of restrictions, a permit program, and several exemptions pertaining to species designated as endangered or threatened. A person may not possess, take,¹⁷ transport, give, or sell any portion of (or product thereof) any endangered or threatened species. The Act established the Illinois Endangered Species Protection Board, whose charge is to review and revise the Illinois List of Endangered and Threatened Species as needed and to advise the Illinois Department of Natural Resources (IDNR) on various aspects of protection, conservation, and management of endangered and threatened species. Administrative rules established under this Act provide consultation procedures for assessing impacts of agency actions (Ill. Adm. Code 1075.10–1075.80).

Invasive species are introduced alien species that are likely to cause economic or environmental harm. Executive Order 13112 (February 3, 1999) requires federal agencies to prevent and minimize the introduction and spread of invasive species to the extent practicable, subject to budgetary limits. Further requirements of the EO call for research on control methods, public education on invasives, and restoration of native species and habitats where practicable.

FAA Advisory Circular (AC) No. 150/5200–33C, Hazardous Wildlife Attractants on or near Airports (dated February 21, 2020), provides guidance on certain land uses on and near public-use airports. Certain land use practices have the potential to attract wildlife hazardous to aviation. Particular attention should be given to hazardous wildlife attractants that could affect aircraft within approach and departure airspace.

¹⁷ Per the Endangered Species Act of 1978, as amended through the 108th Congress, the term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Accessed at: <https://www.fws.gov/sites/default/files/documents/endangered-species-act-accessible.pdf>.

O'Hare has a Wildlife Hazard Management Plan (WHMP) in place and actively monitors and administers recommendations in the plan to minimize potential risks due to hazardous wildlife.

5.8.3 Affected Environment

This section describes the plants and wildlife in the project area, including invasive species and threatened and endangered species. Information presented in this section is based on existing data from wildlife observations made at the airport by U.S. Department of Agriculture – Animal and Plant Health Inspection Service (USDA-APHIS) personnel and the 2019 Wetlands and Waters of the United States.¹⁸ No other field surveys were conducted for the project area.

5.8.3.1 Methodology

The potential impacts of the proposed project on federally-listed fish, wildlife, and plants were assessed in accordance with the ESA of 1973, Fish and Wildlife Coordination Act, Executive Order 13112 on invasive species, the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act. Threatened and endangered species assessments were completed through coordination and consultation with state and federal resource agencies. Coordination using the USFWS Information for Planning and Consultation (IPaC) search tool identified federally-listed species. Except for the red knot (*Calidris canutus rufa*), each federally-listed species is also state-listed in either or both Cook and DuPage counties. Listed species identified for the airport are presented in **Table 5.8-4** and in **Appendix I**.

The USFWS Rusty Patched Bumble Bee Range Map provides information on the historical range of the bumble bee. This map was accessed to assess areas mapped as zones of high and low potential for the presence of the rusty patched bumble bee.

Wildlife and botanical studies were not performed as part of this study. Wildlife data contained in the Wildlife Hazard Management at O'Hare International Airport 2018 Annual Report¹⁹ and the Chicago O'Hare International Airport Wildlife Hazard Management Plan²⁰ provided information on wildlife at the airport.

Botanical data is sourced from the 2019 Wetlands and Waters of the United States²¹ assessment undertaken at the airport. Floristic quality assessments were conducted on every wetland delineated at the airport. Additional data on upland plant species was collected as part of that effort.

Habitat for the eastern prairie fringed orchid was assessed following project review and Section 7 guidance for the Chicago Metro Area to determine its presence on relevant lands.²²

At the state level, the IDNR Natural Heritage Database (dated July 6, 2021) was also reviewed using the Illinois Ecological Compliance Tool (EcoCAT). The review indicated that impacts to state-listed species and natural areas are unlikely.

Appendix I contains project correspondence with the USFWS and IDNR, including the natural resource review provided by EcoCAT.

¹⁸ Mead & Hunt, 2019, 2019 Wetlands and Waters of the United States, Chicago O'Hare International Airport; Jurisdictional Determination in conformance with the 2015 Clean Water Rule.

¹⁹ Scully, Sharon, 2018, Wildlife Hazard Management at O'Hare International Airport 2018 Annual Report.

²⁰ USDA, 2018, Chicago O'Hare International Airport Wildlife Hazard Management Plan prepared by United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services.

²¹ Mead & Hunt, 2019, 2019 Wetlands and Waters of the United States, Chicago O'Hare International Airport.

²² United States Fish & Wildlife Service (USFWS), 2019, "Eastern prairie fringed orchid (*Platanthera leucophaea*)," Midwest Region Endangered Species, S7 Technical Assistance, accessed August 26, 2021.
<https://www.fws.gov/midwest/endangered/section7/s7process/plants/epfos7guide.html>.

5.8.3.2 Existing Condition

This section describes the conditions present at the time of analysis. More detailed information on biological resources, including the flora and fauna present at the airport, appears in **Appendix I**. Below is a summary of the vegetation and wildlife commonly found at O'Hare.

5.8.3.2.1 Upland Plant Communities

The state of Illinois recognizes 14 natural divisions that have similar topography, soils, bedrock, plants, and animals. The airport lies in the Northeastern Morainal Division.²³ While this division hosts abundant natural communities including wetlands, forests, savannas, and lakes, it also has seen extensive alteration and is home to heavily populated areas centered around Chicago. Urban development has been and continues to be a major stressor affecting natural communities.

Plant communities at the airport have been disturbed by historical land conversion to an urbanized environment, ongoing airfield construction activities, invasion of non-native species, and altered hydrology due to management of stormwater runoff. These communities do not represent native conditions.

5.8.3.2.2 Wetlands

Wetland plant communities overall have a low vegetative diversity based on floristic quality assessment conducted during the 2019 wetland delineation fieldwork (see **Appendix L**). Many wetlands are dominated by invasive and/or introduced species such as cattail (*Typha angustifolia*) and common reed (*Phragmites australis*), among others.

Wetlands on the airfield are characterized as small, isolated areas with relatively low water quality and limited runoff storage function due to their small size. The average size of these wetlands is 0.19 acres. Few are connected to streams and therefore provide minimal floodwater storage benefit. Wetlands potentially impacted by the proposed project are considered in **Section 5.13**.

5.8.3.2.3 Land Cover at O'Hare

O'Hare falls within the Des Plaines River Watershed. Several tributaries to the Des Plaines River, including Higgins, Willow, and Crystal Creeks and Bensenville Ditch, flow through or along airport property. These highly modified tributaries are often carried through man-made covered conveyance structures. Open channels frequently are reinforced with heavy rip-rap stone, gabions (wire cages filled with rocks), or concrete walls within airport property.

Three large detention areas exist on the airport: the North Detention Basin, the Central Detention Basin, and the South Detention Basin. The baseline condition for assessment of environmental consequences assumes that the Central Detention Basin is filled in due to the construction of Taxiways A-B, a Baseline Project that will be completed by 2025, and that the South Detention Basin has been expanded under a basin expansion project to be completed by 2023. A Condensed Environmental Assessment was signed in July 2021 for the Taxiway A-B construction project.²⁴ The Willow-Higgins Flood Control Reservoir is located on the north side of the airfield near the North Detention Basin. The Touhy Avenue Flood Control

²³ Schwegman, J. E., 1973, Comprehensive Plan for the Illinois Nature Preserves System, part 2, the natural divisions of Illinois, Illinois Nature Preserves Commission.

²⁴ Environmental Assessment: Taxiways A&B Relocation and Rehabilitation and South Airfield Detention Consolidation, Chicago O'Hare International Airport; Federal Aviation Administration – Great Lakes Region, July 8, 2021.

Reservoir, north of Touhy Avenue, is partially located on Airport property. The Silver Creek Reservoir is adjacent to airport property south of Irving Park Road. The Willow Creek Compensatory Storage and Bensenville Ditch Compensatory Storage areas provide additional flood and stormwater storage capacity. See **Section 5.13** for more information and location maps of water features.

Impervious surfaces, such as runways, taxiways, roads, parking structures, and hangar and cargo areas, dominate land use at the airport. Open infield areas, characterized as mowed/maintained, are covered by a mix of grasses and flowering plants which are regularly mowed to minimize potential habitat for hazardous wildlife.

FAA policy encourages habitat management to promote safe operations and reduce aircraft/wildlife conflicts. Potential wildlife attractants on or near airports should be minimized through various habitat management techniques including shrub and tree removal, regular mowing, and planting of grasses unattractive to hazardous wildlife.²⁵

Several areas containing stockpiled soils and construction debris are located around airport property outside the active airfield. These are primarily vegetated with seeded grasses and weedy, early successional species, none of which are state or federally-listed as threatened or endangered.

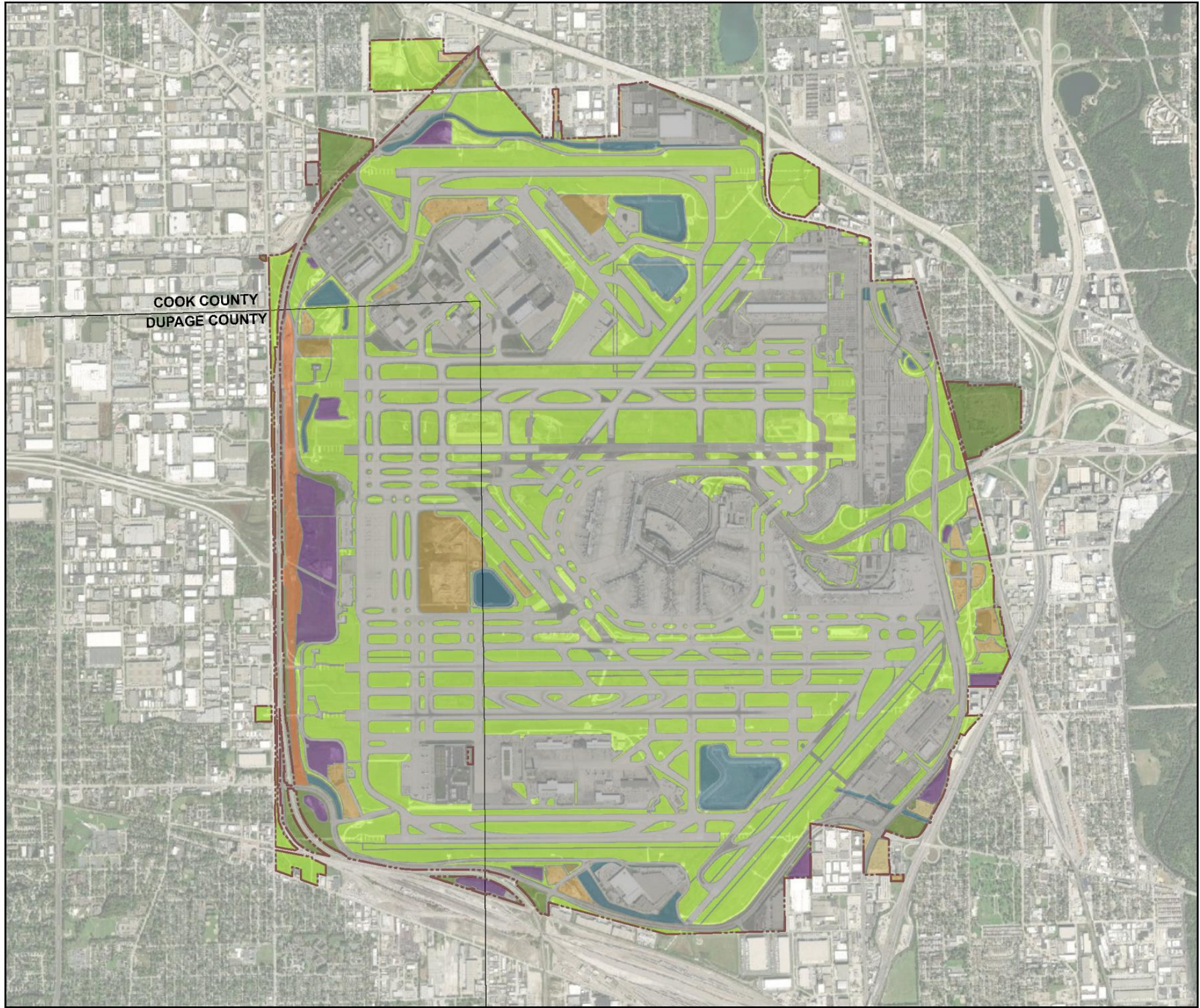
Table 5.8-1 summarizes land use on airport property. **Exhibit 5.8-1** illustrates land cover at the airport under baseline conditions. Due to the degree of development at the airport, most land use consists of impervious area and mowed/maintained landscapes.

TABLE 5.8-1
EXISTING CONDITION LAND COVER AT O'HARE

Land Use Classification	Acres
Construction Areas (including staging areas)	210
Elgin-O'Hare Western Access (EOWA)	77
Impervious (pavement, roads, and structures)	3,716
Mowed/Maintained	2,657
Open Lands/Unmaintained	180
Open Water (detention and streams)	197
Temporary stockpile	159
Wooded	30

Sources: ORD Airport Layout Plan: City of Chicago
Aerial imagery (2020): ERSI, Inc World Imagery
Data prepared by Mead & Hunt, Inc.

²⁵ U.S. Department of Transportation, Federal Aviation Administration, "Advisory Circular 150/5200-33C: Hazardous Wildlife Attractants on or near Airports," February 21, 2020, https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5200-33C.pdf.



ORD Airport Layout Plan; City of Chicago Aerial Imagery (2020); ESRI, Inc. World Imagery (Maxar) Site visit: Mead and Hunt survey during Wetland delineation, 2019.



Chicago O'Hare
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Legend

- Construction (including staging areas)
- Elgin O'Hare Expressway
- Impervious (pavement, roads, and structures)
- Mowed/Maintained
- Open Water (detention and streams)
- Open Lands/Unmaintained
- Temporary stockpile
- Wooded
- Airport Boundary
- County Boundary

0 1,000 2,000 4,000
Feet



Existing Condition
Land Cover at O'Hare
International Airport

► Exhibit 5.8-1

5.8.3.2.4 Invasive Species

The National Invasive Species Council (NISC) was established under Executive Order 13112. Terrestrial plants listed by the NISC found on O'Hare property include Canada thistle (*Cirsium arvense*), common teasel (*Dipacus fullonum*), garlic mustard (*Alliaria petiolata*), common buckthorn (*Rhamnus cathartica*), Johnson grass (*Sorghum halepense* and *S. almum*), leafy spurge (*Euphorbia esula*), quackgrass (*Elymus repens*), and spotted knapweed (*Centaurea stoebe*). Aquatic invasive plants found at the airport include common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*).

The European starling (*Sturnus vulgaris*), identified as an invasive avian species by the NISC, is observed at the airport.

USDA-APHIS considers most Illinois counties to be infested with the emerald ash borer (*Agrilus planipennis*), a destructive wood-boring pest of ash trees (*Fraxinus* spp.) Quarantine areas were established to limit the spread of the insect, but this action has seen only limited success due to a variety of causes. The domestic quarantine areas have been removed under a rule published in 2020 (85 FR 81085).

5.8.3.2.5 Wildlife Resources

Over the last 70 years, the airport and its surrounding environs have been heavily developed for commercial, industrial, and transportation purposes. Species better adapted to urban environments are present at the airport and surrounding areas. Due to the degree of development at the airport, most land use consists of impervious area and mowed/maintained landscapes.

Common wildlife species observed (see **Table 5.8-2**) are described in the WHMP (USDA-APHIS, 2018). Focus is placed on these species due to their potential to impact aviation operations.

**TABLE 5.8-2
COMMON SPECIES OBSERVED AT O'HARE**

Species Group
Birds
Raptors: Hawks, Falcons, Owls, and Eagles
Gulls: Ring-billed and Herring Gulls
Blackbirds: European Starlings, Brown-Headed Cowbirds, Common Grackles, and Red-Winged Blackbirds
Waterfowl: Canada Geese, Mallards, and other migratory waterfowl
Pigeons and English/House Sparrows
Canids
Coyotes and Red Fox
Ungulates
White-Tailed Deer
Rodents
Voles, Deer Mice, Norway Rats, and Woodchucks

<i>Beaver</i>
Other Mammals
<i>Raccoon, Opossum, Rabbits, and Striped Skunk</i>
Source: <i>Wildlife Hazard Management Plan at O'Hare International Airport</i> : USDA-APHIS, 2018

Birds

Raptors such as red-tailed hawks, rough-legged hawks, and American kestrels are attracted to the airport due to the presence of abundant sources of small mammal prey and the availability of perches. While a limited number of trees exist at the airport, birds also perch on lighting structures, antennae, and signage.

Gulls are the most numerous birds from spring until late fall. These birds are most attracted by food scraps and garbage. Other highly adaptable birds found at the airport are blackbirds, including the European starling, grackle, red-winged blackbird, and cowbird. Only the first resides at the airport year-round. The flocking behavior of these birds presents a significant hazard to aircraft.

The airport is located along a major flyway for migratory birds. Waterfowl are primarily attracted to sources of water found in large detention areas and along creeks. Canada geese and mallards reside at the airport throughout the year. Migrating waterfowl use areas in and around the airport for feeding, resting, and protection from predators, especially during spring and fall migrations.

Suitable nesting habitat for birds subject to the MBTA is limited by wildlife habitat management activities at the airport.

Mammals

Mammal surveys are conducted as part of wildlife management activities to track the prey population available to raptors and other carnivores and to guide management decisions relating to the small mammal population. Nocturnal surveys and small mammal transect surveys with traps are conducted over the year.

Mammals observed during the 2019 wetland delineation conducted from July through September are presented in **Table 5.8-3**.

TABLE 5.8-3
MAMMALS OBSERVED DURING 2018 NOCTURNAL MAMMAL SURVEYS AND 2019
WETLAND DELINEATION

Scientific Name	Common Name
Mammals Observed during Nocturnal Surveys	
<i>Sylvilagus floridanus</i>	Cottontail Rabbit
<i>Didelphus virginiana</i>	Opossum
<i>Procyon lotor</i>	Raccoon
<i>Mephitis</i>	Striped Skunk
Mammals Observed during Wetland Delineation	
<i>Odocoileus virginianus</i>	White-tailed Deer
<i>Ondatra zibethicus</i>	Muskrat
<i>Microtus spp.</i>	Vole
Sources: Wildlife Hazard Management at O'Hare International Airport 2018 Annual Report: USDA-APHIS Wetlands and Waters of the United States: Chicago O'Hare International Airport (2019)	

Reptiles, Amphibians, and Fish

No survey reports for reptiles, amphibians, or fish were available for review. Surveys for these animals are not conducted by the USDA wildlife biologists because these animals are not considered wildlife hazards. No surveys for reptiles, amphibians, or fish were part of this assessment.

Suitable amphibian habitat is present at the airport in Willow, Higgins, and Crystal Creeks and Bensenville Ditch. Most wetlands on the airfield are small and are degraded by invasive plant species and nutrients carried by stormwater runoff. It is likely that only common species of frogs, toads, turtles, and snakes would find suitable habitat in these areas.

The Proposed Action would not affect waterbodies that could support these species. Therefore, impacts to these species are unlikely.

5.8.3.2.6 Threatened and Endangered

Assessments of threatened and endangered species were completed through coordination and consultation with state and federal agencies and review of publicly available data. Coordination with USFWS through the IPaC search tool identified federally-listed species. Federally-listed species are also state-listed in Cook and DuPage counties. The USFWS Rusty Patched Bumble Bee Range Map provides information on the historical range of the bumble bee. This map also indicates zones of high and low potential for the presence of the rusty patched bumble bee, which is discussed below.

The IDNR Natural Heritage Database (dated July 6, 2021) was also reviewed using EcoCAT, a tool developed for state agencies to initiate natural resource reviews.²⁶ Impacts to state-listed species and natural areas are unlikely. No federally-designated critical habitat is mapped within the project area. **Table 5.8-4** provides the listed plants and animals identified during the consultation process.

²⁶ EcoCAT (Ecological Compliance Assessment Tool), Illinois Department of Natural Resources
<https://www2.illinois.gov/dnr/programs/EcoCAT/Pages/default.aspx>

**TABLE 5.8-4
LISTED SPECIES**

Common Name	Scientific Name	Federal Status	State Status
Mammals			
Northern Long-Eared Bat	<i>Myotis septentrionalis</i>	Threatened	Threatened
Birds			
Piping Plover	<i>Charadrius melodus</i>	Endangered	Endangered
Red Knot	<i>Calidris canutus rufa</i>	Threatened	Threatened
Reptiles			
Eastern Massasauga (rattlesnake)	<i>Sistrurus catenatus</i>	Threatened	Endangered
Insects			
Hine's Emerald Dragonfly	<i>Somatochlora hineana</i>	Endangered	Endangered
Rusty Patched Bumble Bee	<i>Bombus affinis</i>	Endangered	Endangered
Flowering Plants			
Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>	Threatened	Endangered
Leafy Prairie-Clover	<i>Dalea foliosa</i>	Endangered	Endangered
Prairie Bush-Clover	<i>Lespedeza leptostachya</i>	Threatened	Endangered
Sources: List of Threatened and Endangered Species: USFWS Consultation Code: 03E13000-2021-SLI-0597, May 26, 2021 Rusty Patched Bumble Bee Fact Sheet: USFWS			

Northern Long-Eared Bat

The northern long-eared bat hibernates in winter in caves and mines, preferring the constant temperatures, high humidity, and lack of air currents in those landscape features. Summer finds them roosting singly or in colonies underneath bark or in cavities or crevices of both live and dead trees.

The project area is situated in a highly developed urban environment and is highly maintained. Trees are not present in active airfield areas due to their potential to become safety area obstructions and perches for birds, which may be hazardous to aircraft operations.

No critical habitat is designated for this species. Review and consultation with USFWS through IPaC's Determination Key for the northern long-eared bat indicated a determination of "may affect." The USFWS issued a letter (provided in **Appendix I**) indicating that responsibilities for the Proposed Action under the ESA Section 7(a)(2) are satisfied.

No tree removal is anticipated with project construction. However, any necessary tree removal will be accomplished during recommended time periods appropriate for minimizing impacts to any potential bat populations. If necessary, the timing of any tree removals will be consistent with recommended conservation measures designed to take place outside of the summer roosting period (April through September), and optimally during the winter months (October 1 through March 31 when possible).

Piping Plover and Red Knot

These two migratory shorebirds live much of the year on the Lake Michigan shoreline in Michigan and Illinois. Winter ranges for both birds are coastal areas along the Gulf of Mexico, the southern Atlantic Coast, and, in the case of the more wide-ranging red knot, as far south as South America. Both birds breed in Canada during the spring and summer. The birds feed on insects, spiders, and crustaceans they find in their preferred habitat: wide, open, flat, sandy beaches.

The designated critical habitat for the piping plover is the shoreline of Lake Michigan in Lake County. Proposed critical habitat for the red knot is confined to shoreline areas on the eastern seaboard and the Gulf of Mexico. The project area is not situated on or near shoreline areas of Lake Michigan nor the eastern seaboard and Gulf of Mexico. Therefore, the project area does not provide suitable habitat for either bird.

Eastern Massasauga Rattlesnake

The Eastern Massasauga rattlesnake has historically occupied the Upper and Lower Peninsulas of Michigan and other areas of the Upper Midwest, including New York, Pennsylvania, Ohio, Indiana, Illinois, Wisconsin, Minnesota, Missouri, and Iowa.

Eastern Massasauga rattlesnakes have been found in a variety of wetland habitat types across their range, including bogs, fens, shrub swamps, wet meadows, marshes, moist grasslands, wet prairies, peatlands, coniferous forests, and floodplain forests. They make use of upland areas for foraging and hibernation.

No critical habitat has been established for this snake. Due to the historical land conversion to agriculture and later to the highly developed and maintained airport environment, the project area is unlikely to be suitable habitat for the snake.

Hine's Emerald Dragonfly

The Hine's emerald dragonfly's historic range includes Alabama, Indiana, and Ohio. Today it is in four Midwestern states: Illinois, Michigan, Wisconsin, and Missouri. The dragonfly lives in high calcium carbonate (calcareous) groundwater-fed marshes and sedge meadows. These high-quality habitats are underlain by dolomitic bedrock. Historic collection records from northeast Illinois show the dragonfly's presence in Cook, DuPage, and Will Counties.

Critical habitat for the Hine's emerald dragonfly is established in the southern portions of Will and Cook Counties along the Des Plaines River, approximately 23 miles south of the airport.²⁷ During the 2019 wetland delineation, no calcareous marshes or sedge meadows were identified (see **Appendix L**). Therefore, the project area does not contain suitable habitat for the dragonfly.

Rusty Patched Bumble Bee

The rusty patched bumble bee is historically associated with grasslands and tallgrass prairies of the Upper Midwest. This type of habitat provides nesting sites, overwintering sites, and nectar and pollen from an abundant array of flowering plants.

Most of the project area is in the historical range of the rusty patched bumble bee, as shown on the USFWS habitat map.²⁸ An area of low potential zone is identified around the southern and western edges of the

²⁷ USFWS 2021, "Hine's emerald dragonfly (*Somatochlora hineana*)," Midwest Region Endangered Species, accessed August 26, 2021 at <https://www.fws.gov/midwest/endangered/insects/hed/index.html>.

²⁸ USFWS 2021, "Rusty Patched Bumble Bee Map," Midwest Region Endangered Species, accessed August 26, 2021 at <https://www.fws.gov/midwest/endangered/insects/rpbb/rpbbmap.html>.

airport. Low potential zones are defined as areas in which the bumble bee is not likely to be present. Therefore, according to the USFWS, Section 7 consultation and incidental take permits are not needed for these areas.

Eastern Prairie Fringed Orchid

The historical range of this orchid extends from as far south as Missouri east to western New York and southern Ontario, encompassing southern Wisconsin, northern and central Illinois, southern Michigan, northern Indiana and Ohio, and parts of western Pennsylvania. At one point, Illinois likely contained the largest population of the orchid but has seen drastic population decline due to land conversion to agriculture.

This threatened orchid occurs in a wide variety of habitats, ranging from wet prairies to wetlands such as sedge meadows, marsh edges, and occasionally bogs. It requires open, sunny conditions with little to no encroachment of woody plants. Natural processes such as fire, consistent groundwater flow, and local disturbance patterns may be important in enabling seedling establishment.

No critical habitat has been designated for this species. The USFWS provides guidance for assessing the presence of the orchid based on the floristic quality of an area and known plant associates of the orchid. Native Mean C is a numerical measure of the native vegetation quality of a particular habitat. The USFWS considers wetlands with Native Mean C values over 3.5 to be high quality aquatic resources. No delineated wetlands were identified that meet a Native Mean C threshold of 3.5 or greater. No delineated wetlands within the project area contained four or more identified plant associates of the orchid. Therefore, the orchid is not present in any of the wetlands delineated at the airport and no further consultation is necessary.

Leafy Prairie-Clover and Prairie Bush-Clover

These two plant species were historically present in the prairie ecosystems that once covered northeastern Illinois and the rest of the Great Plains. Occurrences of leafy prairie-clover are currently known at only 14 sites in Illinois, Alabama, and Tennessee. The largest populations of prairie bush-clover occur in southwestern Minnesota and northwestern Iowa.

No critical habitat has been designated for either species. Leafy prairie-clover and prairie bush-clover are likely not present in the project area due to historical land conversion, current vegetation management practices, and lack of suitable habitat.

Summary

Federal- and state-listed species identified in consultation with USFWS and the IDNR are likely not present in the project area due to lack of suitable habitats. No designated critical habitat for any these species is present in the project area.

5.8.4 Environmental Consequences

This section presents a discussion of potential impacts to biological resources (including wildlife, fish, plants, wetlands, and threatened and endangered species) from the Proposed Action Alternative. A comparison of anticipated changes to biotic communities for the No Action Alternative under baseline conditions with the Interim (2025) Proposed Action and Build Out (2032) Proposed Action is presented in this section.

The Proposed Action primarily involves improvements on the existing airfield. New pavement, parking areas, structures, and service roadways are proposed in previously disturbed areas on the airfield. The West Side development projects are located outside the active airfield on lands that have previously been disturbed. The Multimodal Facility (MMF) Hotel and Mixed-Use Development east of Manheim Road includes a proposed hotel, surface parking lot, and detention basin relocations on lands that have been previously disturbed.

To determine potential impacts to biological resources, a threshold for significance is needed. FAA's 1050.1F Desk Reference provides a significance threshold for biological resources including fish, wildlife, and plants. A significant impact would occur when "The U.S. Fish and Wildlife Service 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." The Desk Reference also states that the FAA has not established a significance threshold for non-listed species.²⁹ FAA Order 1050.1F, however, does list factors to consider when determining significance for non-listed species. The factors to be considered are whether the Proposed Action has the potential for:

- A long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area (e.g., a new commercial service airport),
- Adverse impacts to special status species (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats,
- Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations, or
- Adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance.

5.8.4.1 Interim No Action

The existing vegetation at the airport primarily consists of common or non-native species. No impacts to upland plant communities or wetlands would occur under the No Action Alternative. Because no suitable habitat for threatened or endangered species is present on the airport, no effect is anticipated for the identified species. The regional ecosystem would remain unchanged.

5.8.4.2 Build Out No Action

Similarly, under the Build Out No Action, no impacts to upland plant communities or wetlands would occur under this alternative. Because no suitable habitat for threatened or endangered species is present on the airport, no effect is anticipated for the identified species. The regional ecosystem would remain unchanged.

²⁹ Federal Aviation Administration, February 2020, 1050.1F Desk Reference, "Chapter 2. Biological Resources," https://www.faa.gov/about/office_org/headquarters_offices/apl/enviro_policy_guidance/policy/faa_nepa_order/desk_ref/

5.8.4.3 Interim Proposed Action

5.8.4.3.1 Construction Impacts

Implementing the Interim Proposed Action would result in the loss of previously disturbed habitat for common biotic species. Construction activities include grading and removal of stockpile areas, paving, building construction, road construction, and, potentially, establishment of new construction staging areas to manage parking, logistics, and materials storage.

Overall, implementing the Interim Proposed Action would result in an increase in impervious surfaces consisting of pavement, roads, and structures by 86 acres and a loss of mowed/maintained landscapes by two acres. Temporary stockpiles show the largest reduction in area (86 acres) and existing construction areas are reduced by four acres. A large stockpile area, which would be graded to construct the West Side Development Area, accounts for a large part of this change. A loss of open lands/unmaintained land (three acres) would result from the western construction projects (see **Table 5.8-5**).

Detention areas, both on the airfield and at the MMF, would increase by 10 acres. Proposed detention areas associated with the West Side Development Area and the MMF Hotel and Mixed-Use Development are designed to accommodate those projects' stormwater needs and to compensate for the loss of the large detention area west of the existing MMF.

The Interim Proposed Action impacts 1.17 acres of non-jurisdictional wetlands. These wetlands contain little intact native vegetation, are of low floristic quality, and are fragmented across the project area (see **Appendix L**).

No impacts to federally-listed threatened or endangered species are expected. No suitable habitat exists on the airport for the identified species (see **Appendix I**); therefore, the Interim Proposed Action should have no effect under Section 7 of the ESA.

TABLE 5.8-5
LAND COVER TYPE FOR INTERIM NO ACTION AND INTERIM PROPOSED ACTION

Land Cover Category	Interim No Action (acres)	Interim Proposed Action (acres)
Construction Areas (including staging areas)	201	197
Elgin-O'Hare Western Access (EOWA)	77	77
Impervious (pavement, roads, and structures)	3,715	3,801
Mowed/Maintained	2,653	2,651
Open lands/Unmaintained	180	177
Open Water (detention and streams)	210	220
Temporary stockpile	159	73
Wooded	30	30

The loss of these biotic communities is not considered significant. The areas affected by the Interim Proposed Action have been disturbed in the past and contain little native vegetation. The biotic communities supported are common, highly adaptive species that exist well in urban environments.

The increase in detention with the proposed project may require measures to reduce the attractiveness of the detention basins to wildlife and birds. It is anticipated that with continued implementation of wildlife

monitoring and habitat management activities by on-site USDA staff, there will be no increase in the probability of bird strikes.³⁰

5.8.4.3.2 Operational Impacts

Infield areas and landscaped areas around new structures will be maintained by mowing to reduce the attractiveness to wildlife.

5.8.4.3.3 Permits and Approvals

No permits related to biological resources will be needed to implement the Interim Proposed Action.

5.8.4.3.4 Mitigation and Minimization

This section provides guidance on the types of mitigation and best management practices (BMPs) that may be employed to reduce the potential impact of the Proposed Action.

No tree removal is anticipated with project construction. However, if tree removal is needed, it will be accomplished during recommended time periods appropriate for minimizing impacts to any potential northern long-eared bat populations. If necessary, the timing of any tree removals will be consistent with recommended conservation measures designed to take place outside the summer roosting period (April through September), optimally during the winter months (October 1 through March 31 when possible). Although there would be no significant impacts to biological resources, the CDA would incorporate BMPs and conservation measures that minimize impacts to habitats and biota into their requests for proposals and general conditions in the bidding documents for construction projects. These may include:

- BMPs for erosion and sediment control, such as surface protection for slopes, sediment capture, and runoff management; and
- Installation of silt curtains and berms, to the extent possible, to isolate the work area during fill placement to prevent temporary impacts on water quality on the airport.

5.8.4.4 Build Out Proposed Action

5.8.4.4.1 Construction Impacts

Implementing the Build Out Proposed Action would result in the loss of previously disturbed habitat for common biotic species. The dispersed nature of the proposed projects over airport property makes the impacts to biotic communities small for any single project within construction impact areas. Construction activities could include grading and removal of stockpile areas, paving, building construction, road construction, and, potentially, establishment of new construction staging areas to manage parking, logistics, and materials storage.

Overall, implementing the Build Out Proposed Action would result in seven additional acres of impervious surfaces (pavement, roads, and structures) compared to the Interim Proposed Action. Mowed/maintained landscapes and open lands/unmaintained lands remain the same compared to the Interim Proposed Action. Detention areas increase in the Build Out Proposed Action by one acre, with most of the new detention

³⁰ USDA 2018, Chicago O'Hare International Airport Wildlife Hazard Management Plan, prepared by United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services.

capacity (10 acres) being constructed in the Interim Proposed Action (see **Table 5.8-6**). **Exhibit 5.8-2** shows the Build Out Proposed Action.

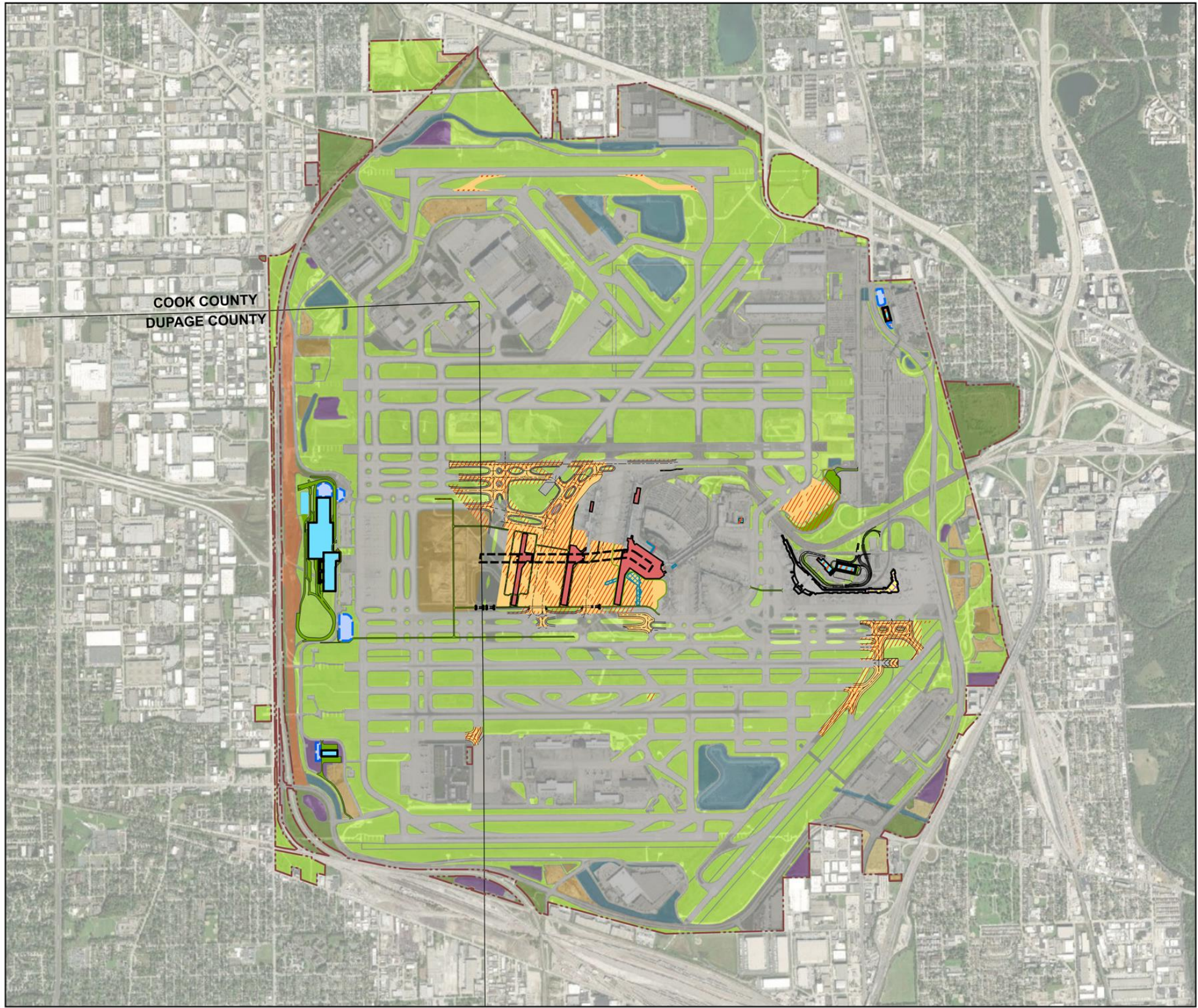
The Build Out Proposed Action impacts an additional 0.31 acres of non-jurisdictional wetlands and Waters of the U.S., resulting in a total of 1.48 acres of wetland impact. These wetlands contain little intact native vegetation, are of low floristic quality, and are fragmented across the project area (see **Appendix L**).

No impact to federally-listed threatened or endangered species is expected due to the loss of previously disturbed habitat. No suitable habitat exists on the airport for the identified species (see **Appendix I**); therefore, the Build Out Proposed Action will have no effect under Section 7 of the ESA.

TABLE 5.8-6
LAND COVER TYPE FOR INTERIM AND BUILD OUT NO ACTION AND PROPOSED ACTION

Land Cover Category	Interim No Action (acres)	Interim Proposed Action (acres)	Build Out No Action (acres)	Build Out Proposed Action (acres)
Construction Areas (including staging areas)	201	197	201	194
Elgin-O'Hare Western Access (EOWA)	77	77	77	77
Impervious (pavement, roads, and structures)	3,715	3,801	3,719	3,808
Mowed/Maintained	2,653	2,651	2,649	2,651
Open lands/Unmaintained	180	177	180	177
Open Water (detention and streams)	210	220	210	221
Temporary stockpile	159	73	159	67
Wooded	30	30	30	30

Sources: ORD Airport Layout Plan: City of Chicago
Aerial imagery (2020): ESRI, Inc World Imagery
TAP project and Independent Utility project footprints
Data prepared by Mead & Hunt, Inc.



Source: Aerial Imagery (2020): ESRI, Inc. World Imagery (Maxar) O'Hare International Airport, Future Airport Layout Plan Draft, Ricondo & Associates, Inc. Site visit: Mead and Hunt survey during Wetland delineation, 2019. TAP Projects, HMMH, Inc.



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Terminal Area Plan and Air Traffic Procedures Environmental Assessment

- Airport Boundary
 - County Boundary
 - Construction (including staging areas)
 - Elgin O'Hare Expressway
 - Impervious (pavement, roads, and structures)
 - Mowed/Maintained
 - Open Water (detention and streams)
 - Open lands/unmaintained
 - Temporary stockpile
 - Wooded
- TAP Project Legend
- Future Demolition
 - Future Road
 - Future Pavement
 - Building Relocated
 - Future Terminal Building
 - Future Detention Basin
 - Future Building

0 1,000 2,000 4,000 Feet



Land Cover at O'Hare International Airport - Build Out Proposed Action

► Exhibit 5.8-2

The loss of these biotic communities is not considered significant. The areas affected by the Build Out Proposed Action have been disturbed in the past and contain little native vegetation. The biotic communities supported are common, highly adaptive species that exist well in urban environments.

The increased water detention will require measures to reduce the attractiveness of the basin to wildlife and birds.³¹ It is anticipated that with continued implementation of wildlife monitoring and habitat management activities, there will be no increase in the probability of birdstrikes.³²

5.8.4.4.2 Operational Impacts

Infield areas and landscaped areas around new structures will be maintained by mowing to reduce their attractiveness to wildlife.

5.8.4.4.3 Permits and Approvals

No permits related to biological resources will be needed to implement the Build Out Proposed Action.

5.8.4.4.4 Mitigation and Minimization

No tree removal is anticipated with project construction. However, if tree removal is needed, it will be accomplished during recommended time periods appropriate for minimizing impacts to any potential northern long-eared bat populations. If necessary, the timing of any tree removal will be consistent with recommended conservation measures designed to take place outside the summer roosting period (April through September), optimally during the winter months (October 1 through March 31 when possible).

The FAA determined the Proposed Action would have no effect on threatened and endangered species or protected habitat under Section 7 of the ESA. Although there would be no significant impacts on biological resources, the CDA will incorporate BMPs and conservation measures that minimize potential impacts to habitats and biota into their requests for proposals and general conditions in the bidding documents for construction projects. These may include:

- BMPs for erosion and sediment control, such as surface protection for slopes, sediment capture, and runoff management; and
- Installation of silt curtains and berms, to the extent possible, to isolate the work area during fill placement to prevent temporary impacts on water quality on the airport.

5.9 VISUAL EFFECTS

This section summarizes the analysis of visual effects that may occur under the No Action and Proposed Action Alternatives.

³¹ U.S. Department of Transportation, Federal Aviation Administration, "Advisory Circular 150/5200-33C: Hazardous Wildlife Attractants on or near Airports," February 21, 2020, https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5200-33C.pdf.

³² USDA 2018, *Chicago O'Hare International Airport Wildlife Hazard Management Plan*, prepared by United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services.

5.9.1 Definition of Resource

The Visual Effects³³ environmental impact category includes Light Emissions and Visual Resources and Visual Character. As noted in **Section 5.2**, the Proposed Action would not significantly affect Visual Resources and Visual Character and therefore analysis in this section is focused on Light Emissions. A more detailed analysis of the potential effects on impacts to historic resources can be found in **Section 5.6**.

Light emissions (and potential glare) include all light produced in conjunction with aviation activities including airfield lighting, navigational aids, roadway lighting, construction and operation of terminal buildings, and ancillary uses such as hotels. Additionally, light emissions from overflying aircraft are also considered for this analysis. Although the Proposed Action could change light emissions in many locations, only activities presented in Groups 2 (MMF hotel) and 5 (Air Traffic Procedure Changes) are sufficiently close to an airport boundary to emit light off-airport. Otherwise, the construction and operation of terminal facilities within an existing, international airport where these activities would primarily be occurring well within the airport boundary indicates that light emissions from Groups 1, 3, and 4 would not differ appreciably from current conditions. Consequently, only light emissions with respect to Groups 2 and 5 are discussed in this analysis.

For reasons previously noted in **Section 5.2**, Visual Resources and Visual Character were dismissed from further analysis.

5.9.2 Regulatory Context

There are no federal regulations regarding light emissions, although the FAA has factors to consider under Order 1050.1F.³⁴ The only aspect applicable to Light Emissions to consider is “[t]he degree to which the action would have the potential to create annoyance or interfere with normal activities from light emissions.”

5.9.3 Affected Environment

The area around O'Hare is suburban in character and part of a larger major, urban metropolitan area. The area is well-lit at night, consistent with the existing industrial, commercial, and moderately dense residential land use patterns.

For Group 2 of the Proposed Action, specifically construction of the proposed MMF hotel, land uses in the vicinity are industrial and commercial. North of the MMF site, mixed-used office, hotel, and retail uses predominate. Immediately east of the proposed MMF hotel site lies the MMF itself; beyond that is a railroad right-of-way and, past that, residential uses. To the south and west are airport parking areas.

For purposes of defining an affected environment for the Group 5 action, a subset of the PSA for noise provides a suitable spatial extent for bounding the analysis. For this aspect of the Proposed Action (air traffic), the affected environment would lie in an area described as semicircle south of and about the southern-most runway (Runway 10R/28L), the radius of which is approximately 10 NM. This semicircular area of analysis would include aircraft operating on extended runway centerline approaches (No Action) as well as on the 2.5-degree offset air traffic approach (Build Out Proposed Action) for the southernmost runway. Currently, aircraft landing on either Runway 10R or 28L may use the offset air traffic approaches, especially during periods of inclement weather and low visibility under temporary authority. These aircraft currently emit light during day and nighttime operations on the offset tracks. The 2015 Written Re-

³³ FAA Order 1050.1F, Environmental Impacts: Policies and Procedures Desk Reference, Section 13.2.1., February 2020.

³⁴ FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, Par. 4.3.3., July 15, 2015.

Evaluation assumed the offset air traffic approaches would expire when Build Out of the O'Hare Modernization Program occurred, i.e., when the extension of Runway 9R/27L is fully operational.

Extending east from the landing threshold of Runway 28L, industrial/warehouse and office land uses immediately abut the eastern boundary of the airport. East of those are a north/south four-lane, divided surface road (Route 12), and an Interstate highway (I-294). Further east, on the other side of I-294, are residential uses—predominantly single-family dwellings. Along the south side of the airport are industrial and commercial areas (e.g., railroad classification yard, warehouses, hotels, offices, and similar uses) with residential and parkland uses further from the airport. Extending west from the landing threshold of Runway 10R, land uses abutting the western boundary of the airport are a mix of single- and multi-family dwellings, commercial buildings, public uses, and schools. A north/south railroad right of way curves around the southern edge of the airport property, separating these land uses from the runway threshold and associated, cleared safety areas.

5.9.3.1 Methodology

Analysis of light emissions is done qualitatively in the absence of a specified threshold of significance. Factors to consider when assessing significance from light emissions include:³⁵

- The degree to which the action would have the potential to create annoyance or interfere with normal activities from light emissions and
- The degree to which the action would have the potential to affect the visual character of the area due to light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources.

For Group 2, an abbreviated land use analysis of the potentially affected area with respect to the light emissions from the proposed hotel is presented. For Group 5 (air traffic procedures), the principal focus of the analysis for light emissions is the extent to which those experienced currently but which would expire if not approved for permanent continuation (Proposed Action) would differ appreciably from those associated with the No Action. For these analyses, the anticipated effects/changes from existing conditions (offset air traffic approach in use) are detailed in the No Action subsections below.

As is the case with noise (**Sections 5.5**), the energy associated with light emissions diminishes with the square of the distance from source to receiver; consequently, effects of light emissions from aircraft are much less noticeable when the aircraft are at higher altitudes and are more pronounced the closer the aircraft is to the ground. Above 3,000 feet, the effect of aircraft light emissions is generally disregarded, absent an environment where a dark sky is of paramount concern. The area around O'Hare is not a dark sky environment.

To further focus the analysis, arrivals are analyzed in detail. Arrivals have a shallower angle of approach compared to a departure's take-off angle. This means an arrival flight is closer to the ground at similar lateral distances from a runway end than would be a departure flight tracing the same path and would typically represent a greater effect for light emissions than a departure. Applying the standard 3-degree glideslope for arrivals, descending aircraft typically cross 3,000 feet above ground level³⁶ approximately 10

³⁵ FAA Order 1050.1F, Environmental Impacts: Policies and Procedures Desk Reference, Section 13, February 2020.

³⁶ Aircraft in flight typically reference altitudes in terms of feet above mean sea level (MSL) rather than above ground level immediately below them. Published flight procedures reference this common datum or elevation benchmark (sea level). In areas of steep gradients or non-uniform terrain features, where ground elevation above sea level varies significantly from that of the airport, the AGL altitudes during overflights would vary. While there is slightly rising terrain to the west of O'Hare, approximately 200 feet higher than the airfield elevation 10-20 NM west, this would not be considered a steep gradient: however, a receiver of light emissions may be more (or less) distant from an aircraft in flight than the nominal 3,000' AGL cited.

NM from the runway ends. The second reason for this focus on arrivals is that the southernmost runway at O'Hare (Runway 10R/28L) is used almost exclusively for arrivals rather than for departures and is the subject of part of the Proposed Action.

Selected points along both approach corridors (Proposed Action vs. No Action Alternatives)³⁷ extending from both ends of Runway 10R/28L are presented to compare the intensity of the light emissions from the perspective of an observer on the ground. Calculations are presented to indicate the relative intensities of light emissions from aircraft at similar distances and altitudes along each arrival corridor.

5.9.3.2 Existing Conditions

For Groups 2 and 5, existing conditions are as described above in Affected Environment (**Section 5.9.3**). The area for the Group 2 project, specifically the proposed hotel at the MMF site, currently has a multilevel parking structure and several commercial structures. The other hotel site, within the Terminal 5 complex, is well removed from the airport boundary. The offset air traffic approaches for Runway 10R/28L in Group 5 are in operations in the existing conditions.³⁸ For further details on existing land use, see the figures presented in **Section 5.5**.

For Group 5, aircraft arriving to Runway 10R/28L fly flight tracks that correspond to the offset procedure approach courses, with the vast preponderance of aircraft flying within 200 feet laterally of the published procedure centerline when within 5 NM from the landing runway threshold. By the time aircraft cross the airport boundary to Runway 10R/28L, or at approximately 3,160 feet from the runway threshold when landing on Runway 10R or approximately 2,700 feet from that runway's threshold when landing on Runway 28L, aircrews have visually acquired the runway threshold and the actual flight tracks flown using the offset procedure have joined the extended runway centerline.

5.9.4 Environmental Consequences

With respect to light emissions associated with the Group 2 projects (hotels), the effects would arise from construction and operation of the hotels. Specifically, illumination of parking areas, buildings, and signage would be anticipated on completion of construction and operation of the hotels.

With respect to Group 5, the aircraft on arrival to Runway 10R/28L would generate light emissions with intensities like those experienced in existing conditions. If the Proposed Action were not selected and aircraft were to fly the runway extended centerline, the position of the aircraft overhead would be laterally offset to a minor extent (runway centerline versus a 2.5 degree offset).

5.9.4.1 Interim No Action

For the Interim (2025) No Action Condition, the hotel construction would not occur; therefore, no change to light emissions with respect to Group 2 actions would be expected.

For Group 5, in the No Action Condition, the offset air traffic approach currently in use would not exist. Additionally, when comparing the Proposed Action offset track to the No Action runway heading track, the offset track would converge with the extended runway centerline by the time the aircraft crosses the airport boundary. Therefore, this would not involve a change in the position of the aircraft's light emissions at the reference location with respect to a viewer's position on the ground.

³⁷ The offset air traffic approach is currently in effect for arrivals to Runways 10R and 28L. For the procedure, aircraft approach the runway 2.5 degrees south of extended runway centerlines.

³⁸ See 2015 Re-Evaluation of the OMP EIS.

As first noted in the **Section 5.9.3.1**, light, like noise, spreads spherically from a source, which means that mathematically the intensity of the light would decrease with the square of the distance. For example, a lamp viewed from three feet away would be one-fourth as bright at six feet away. **Table 5.9-1** illustrates this concept by presenting selected, notional distances of aircraft arrivals to Runway 10R/28L, each chosen to illustrate the offset conditions compared to runway extended centerlines. Approach corridors to both runway ends are primarily over residential land uses until approaching the airport boundary. For the Runway 10R approach, the nearest residential uses³⁹ are a few hundred feet west from the airport boundary; for Runway 28L the nearest residences⁴⁰ are approximately one-half mile east from the airport boundary.

At further distances from the airport, the aircraft altitude is higher while the lateral difference increases. At five NM from the landing runway threshold, the aircraft would be at an altitude of approximately 1,590 feet. A ground observer would see 1.08 percent of the intensity seen at the airport boundary. The No Action, with the removal of the offset, would shift the aircraft's position approximately 1,187 feet north, reducing the light intensity by 0.39 percent (to 0.69 percent of the reference intensity) while increasing the intensity seen by residents under the centerline by the corresponding amount.

TABLE 5.9-1
INTENSITY OF LIGHT AT VARYING AIRCRAFT DISTANCES

	Ground Distance to Landing Runway Threshold	Lateral Distance between Offset (Proposed Action) and Extended Runway Centerline (No Action)	Aircraft Altitude (see note 1)	Total Distance from Plane (Slant Distance)	Light Intensity (Compared to Reference Intensity Crossing Airport Boundary)	Light Intensity (Difference of Proposed Action and No Action)
Arrival to Runway 10R						
Airport Boundary (Reference Intensity)	3,160 ft	N/A (see note 2)	165 ft	165 ft	100.00%	-
Nearest Home (Existing/Proposed Action) (with offset)	3,350 ft	-	175 ft	175 ft	88.98%	-
Nearest Home (see note 3) (No Action) (no offset)	3,350 ft	8 ft	175 ft	176 ft	88.79%	-0.19%
5 NM (with offset)	30,381 ft	-	1,590 ft	1,590 ft	1.08%	-
5 NM (no offset)	30,381 ft	1,187 ft	1,590 ft	1,984 ft	0.69%	-0.39%
10 NM (with offset)	60,761 ft	-	3,180 ft	3,180 ft	0.27%	-
10 NM (no offset)	60,761 ft	2,513 ft	3,180 ft	4,053 ft	0.17%	-0.10%
Arrival to Runway 28L						
Airport Boundary	2,700 ft	N/A (see note 2)	141 ft	141 ft	100.00%	-

³⁹ 11 West Main Street, Bensenville was identified as the closest residence to the Runway 10R landing threshold.

⁴⁰ 4311 Wehrman Avenue, Schiller Park was identified as the closest residence to the Runway 28L landing runway threshold.

	Ground Distance to Landing Runway Threshold	Lateral Distance between Offset (Proposed Action) and Extended Runway Centerline (No Action)	Aircraft Altitude (see note 1)	Total Distance from Plane (Slant Distance)	Light Intensity (Compared to Reference Intensity Crossing Airport Boundary)	Light Intensity (Difference of Proposed Action and No Action)
Nearest Home (Existing/Proposed Action) (With Offset)	6,050 ft	-	317 ft	317 ft	19.92%	-
Nearest Home (see note 3) (No Action) (no offset)	6,050 ft	146 ft	317 ft	410 ft	16.42%	-3.50%
5 NM (with offset)	30,381 ft	-	1,590 ft	1,590 ft	0.79%	-
5 NM (no offset)	30,381 ft	1,207 ft	1,590 ft	1,996 ft	0.50%	-0.29%
10 NM (with offset)	60,761 ft	-	3,180 ft	3,180 ft	0.20%	-
10 NM (no offset)	60,761 ft	2,533 ft	3,180 ft	4,065 ft	0.12%	-0.08%

Sources: HMMH, 2022

Notes:

1. The ground elevation above sea level is uniform within 5 NM of O'Hare. Beyond 5 NM, to the west, the terrain rises. At 10 NM west of the airport, the terrain is approximately 200 feet higher. To the east, there is little to no terrain change. No attempt to correct AGL for this is made since that the terrain change at 10 NM would not noticeably alter the results. If the aircraft were assumed to be 200 feet closer to the ground at 10 NM, the intensity values at 10 NM would be within 0.05% and 0.01% of those published above.
2. The airport boundary is the position where the offset track joins the extended runway centerline. Because the distance from runway threshold to airport differs for each runway end, and this point is where the convergence is assumed to occur, the lateral offset distances for each runway approach compared to centerline also differ.

The same "Nearest Home" to Runway 10R is used to compare the change in light intensity between the No Action and Proposed Action. A different "Nearest Home" to runway 23L is used to compare the light intensity between the No Action and Proposed Action for that runway end.

When the aircraft is descending below 3,000 feet, or about 10 NM from the airport property, the lateral offset distance would be 2,513 feet from the extended centerline for No Action versus Proposed Action. A ground observer would see light emissions at 10 NM of a value of 0.27 percent of that crossing the airport boundary. The No Action Alternative, with the removal of the offset, would reduce the light intensity to 0.17 percent, while increasing the intensity seen by residents under the centerline by the corresponding amount.

Runway 28L

The closest residence to the west of Runway 28L is approximately 6,050 feet east of the landing runway threshold.⁴¹ At this distance, the two flight tracks for the No Action and Proposed Action Alternatives are

⁴¹ Although the nominal track distances are the same at 5 NM, these values differ slightly from those presented for Runway 10R because the distance from airport boundary to the landing runway threshold, and thus the assumed convergence point of the offset air traffic approach course with the extended runway centerline, are different on the west side of the airfield (2,700 feet) than on the east side (3,350 feet) for Runway 28L.

146 feet laterally apart from each other, resulting in a difference in slant distance of 93 feet as the aircraft are higher (317 feet) since the residence is further from the landing threshold than in the example presented for Runway 10R. Therefore, the light seen by the residents of this household would only differ because of the 93-foot lateral difference. It should be noted that this light is far less intense than that which would be seen under 10R arrivals, as the aircraft is approximately 142 feet higher when crossing the residence closest to the 28L runway threshold. At this dwelling, the intensity of illumination compared to the reference intensity at the airport boundary would be 16.42 percent for the No Action (runway centerline) compared to 19.92 percent for the Proposed Action (offset air traffic approach). The No Action, with the removal of the offset air traffic approach, would shift the aircraft's position 146 feet north while keeping the altitude constant at approximately 317 feet, decreasing the light intensity seen by residents under the existing offset air traffic approach by 3.50 percent while increasing the intensity seen by residents under the centerline by a corresponding amount.

At further distances from the airport, the aircraft altitude is higher while the lateral difference increases. At five NM from the landing runway threshold, the aircraft would be at an altitude of approximately 1,590 feet. A ground observer would see 0.79 percent of the intensity seen at the airport boundary. The No Action, with the removal of the offset, would shift the aircraft's position approximately 1,207 feet north, reducing the light intensity by 0.29 percent (to 0.50 percent of the reference intensity) while increasing the intensity seen by residents under the centerline by the corresponding amount.

When the aircraft is descending below 3,000 feet or about 10 NM from the airport property, the lateral offset distance would be 2,533 feet from the extended centerline for No Action versus Proposed Action. A ground observer would see light emissions at 10 NM of a value of 0.20 percent of that crossing the airport boundary. The No Action, with the removal of the offset, would reduce the light intensity to 0.12 percent while increasing the intensity seen by residents under the centerline by the corresponding amount.

At close-in distances, the emissions and glare emitted from aircraft are comparable between Proposed Action and No Action Alternatives because the two flight tracks are close and the corresponding slant distances are similar. Further from the airport boundary, along the approach corridors, the light emissions and glare potential diminish exponentially with distance, and with that the differences between the offset and extended runway centerline alternatives similarly become less noticeable.

5.9.4.2 Build Out No Action

For the Build Out (2032) No Action scenario, the hotels would not be constructed; therefore, no change to light emissions with respect to Group 2 actions would occur. With respect to Group 5, the anticipated consequences from light emissions would be as described in **Section 5.9.4.1**. As with the Interim No Action case, changes in the air traffic volume would not produce noticeably different light effects, only the position of the light source would change. The calculations for the distance from the aircraft and the corresponding relative light intensity would be the same as described for the Interim No Action.

5.9.4.3 Interim Proposed Action

For the Interim Proposed Action Alternative, the site for the MFF Hotel project in Group 2 is along the eastern airport boundary in an area where land use includes commercial and industrial activities. Consequently, until construction on a hotel complex begins (see **Section 5.9.4.4**), conditions would resemble those of the existing lighting character. Existing lighting conditions present and described for the Group 2 hotel site associated with Terminal 5 also would remain similar. During construction, there could be potential for nighttime light emissions from the construction site illumination.

With respect to Group 5 activities, the offset air traffic approach would remain. Without a positional change to aircraft in flight, no change to light emissions would be expected.

5.9.4.4 Build Out Proposed Action

For the Build Out Proposed Action, additional light emissions affecting Group 2 buildings would occur. While detailed site plan layouts and engineering and architectural drawings (including detailed illumination plans) have yet to be prepared for the 43,000-square foot development described in **Appendix A**, construction of a multi-story hotel on the west side of the MMF, along with associated illuminated off-street parking areas, would include light emissions. Given the placement of the hotel pad, and depending upon its height, the building itself (including any aviation red lighting required for safety of aircraft overflying landing on Runway 27R) would be visible from residences to the east of the MMF structure and the railroad right-of-way. While the building may be visible during day and night, potential for excessive illumination and glare is low. The principal source of direct lighting would be light poles for parking area illumination. These structures are generally between 20 and 35 feet high, with shielding and aiming of the light downward. Residential uses on the east of the railroad right-of-way and MMF would be shielded from the parking area and its illumination by the height and extensive footprint of the MMF compared to the hotel parking area and light poles.

The Group 2 hotel associated with Terminal 5 would similarly create additional light emissions; however, this site's distance from an airport boundary is considerably greater than that of the MMF hotel site. As with the MMF hotel and the MMF itself, a degree of shielding of this hotel by the Terminal 5 building and structures would occur. Consequently, the potential for excessive light emissions and glare from this proposed hotel (including aviation red safety lighting) would also be low; when coupled with the greater distance from an airport boundary, the light would be less than that anticipated from the MMF hotel.

With respect to Group 5 activities, the offset air traffic approach would remain. Without a positional change to aircraft in flight, no change to existing light emissions would be expected.

5.9.5 Additional Considerations

The guidance from the FAA requires additional checks for potential light emissions impacts in the unique situations listed below:⁴²

- Native American traditional cultural places, protected tribal resources, and Indian sacred sites that may be affected by light emissions,
- Unique areas, valued for dark skies, where light emissions would be substantially increased, and
- Light-sensitive biological resources in the area including migratory birds and marine mammals.

For each case, the previous existence of the airport has removed the potential for such effects. Additionally, there are no Native American cultural places or light-sensitive biology within the area of potential light effects (10 NM from any runway ends).

⁴² FAA Order 1050.1F, Environmental Impacts: Policies and Procedures Desk Reference, Section 13, February 2020.