APPENDIX C
ALTERNATIVES

C.1 INTRODUCTION AND SUMMARY

This appendix contains background material that supplements the material contained in the main body of the Environmental Assessment (EA), especially **Chapter 3**. In accordance with Council on Environmental Quality (CEQ) regulations and Federal Aviation Administration (FAA) guidance, this appendix includes identification of a range of reasonable and feasible alternatives that meet the purpose and need of the Proposed Action.

As described in **Chapter 2**, there are five groups of projects in the Proposed Action with specific needs identified for each project group. The alternatives discussed in this appendix are designed to address each set of purposes and needs.

As stated in **Chapter 2**, the purposes of the Proposed Action, are to:

- Groups 1, 3, and 5: Meet FAA design standards,
- Group 1: Provide terminal facilities that meet industry-recommended guidelines and modern customer service expectations,
- Group 2: Maintain Chicago Department of Aviation (CDA) financial independence and meet financial obligations,
- Group 4: Maximize employee parking and screening while also optimizing safety and security of goods processing and commercial vehicle holding, and
- Group 5: Retain operational efficiency and prevent additional delay.

This appendix describes the process used to identify reasonable alternatives to meet the purpose and need(s) for the Proposed Action, and consists of the following sections:

- **Section C.1** summarizes the regulatory context, provides an overview of the alternatives screening process, and concludes with a summary of the alternatives conclusions to provide context for the following sections.
- **Section C.2** presents the alternatives considered for each of the five groups of projects contained in the proposed action, including:
    - Group 1 – Terminal Projects,
    - Group 2 – On-Airport Hotels,
    - Group 3 – Airfield and Taxiway Improvements Not Required by the Terminal Projects,
    - Group 4 – Support Facilities Not Required by the Terminal Projects, and
    - Group 5 – Air Traffic Actions for Offset Approach Procedures for Runway 10R/28L.

  It also summarizes the results of the alternatives analysis for each project group.
- **Section C.3** provides a detailed description of the Proposed Action Alternative based on outcome of the alternatives screening process summarized in **Section C.2**.
- **Section C.4** provides a detailed description of the No Action Alternative.

Regulatory Context

This section provides additional context related to the specific guidance on alternatives analysis as prescribed under CEQ regulations.

CEQ Guidance

CEQ regulations[1] state that responsible agencies shall "evaluate reasonable alternatives to the proposed action, and, for alternatives that the agency eliminated from detailed study, briefly discuss the reasons for their elimination."[2] CEQ defines "reasonable alternatives" as those "that are technically and economically feasible, meet the purpose and need for the proposed action, and, where applicable, meet the goals of the applicant."[3]

CEQ requires agencies to "discuss each alternative considered in detail, including the proposed action, so that reviewers may evaluate their comparative merits."[4] Documentation must also include a no action alternative and identification of "the agency's preferred alternative or alternatives, if one or more exists."[5] National Environmental Policy Act (NEPA), CEQ, and FAA regulations require consideration of a no action alternative. No action, in instances involving federal decisions, "would mean the proposed activity would not take place and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity of an alternative activity to go forward."[6]

The environmental analysis should "inform decision makers and the public of reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment."[7] CEQ regulations state "the alternatives section should present the environmental impacts of the proposed action and the alternatives in comparative form based on the information and analysis presented in the sections on the affected environment and the environmental consequences."[8] Agencies should also "limit their consideration to a reasonable number of alternatives."[9] The extent of the alternative development process is tied to the anticipated significance of environmental consequences.

FAA Guidance

FAA guidance states that the alternatives chapter should present "a comparative analysis of the no action alternative, the proposed action, and other reasonable alternatives to fulfill the purpose and need for the action, to sharply define the issues, and provide a clear basis for choice among options by the approving official."[10] The basic criteria for any alternative are that it must be reasonable, be feasible, and achieve the project's purpose.[11]

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1 Note that this document was initiated prior to the September 2020 revisions of the Council on Environmental Quality (CEQ) regulations and, thus, complies with the earlier regulation and remains in compliance with FAA Orders 1050.1F and 5050.4B.
2 Council on Environmental Quality. Executive Office of the President. National Environmental Policy Act Implementing Regulations. 40 Code of Federal Regulations (CFR) Part Section 1502.14(a). 2020. Accessed December 13, 2021, at https://www.ecfr.gov/current/title-40/chapter-V/subchapter-A/part-1502/section-1502.14
3 40 CFR Section 1508.1(z). Accessed December 13, 2021 at https://www.ecfr.gov/current/title-40/chapter-V/subchapter-A/part-1508
4 40 CFR Section 1502.14(b)
5 40 CFR Sections 1502.14(c) and (d)
6 Council on Environmental Quality. Executive Office of the President. Memorandum to Agencies: Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations. 46 Fed. Reg. 18026 (March 23, 1981). Accessed April 1, 2021, at https://www.energy.gov/sites/prod/files/2018/06/f53/G-CEQ-40Questions.pdf
7 40 CFR Section 1502.1
8 CEQ Implementing Regulations, 40 CFR Section 1502.14
9 CEQ Implementing Regulations, 40 CFR Section 1502.14(f)
10 FAA Order 1050.1F Section 7-1.1.e
11 FAA Order 1050.1F Section 7-1.1.e

The number of alternatives considered should be commensurate with the nature of the Proposed Action and expected environmental impacts. If more environmental impacts are expected, more alternatives should be considered.[12] Although, "An EA [Environmental Assessment] may limit the range of alternatives to the proposed action and no action when there are no unresolved conflicts concerning alternative uses of available resources."[13] "Typically, an unresolved conflict exists when an airport development project involves one or more special purpose law."[14]

To meet NEPA's requirement that all "reasonable" alternatives be considered, the screening process(es) must not eliminate any alternative that might provide a reasonable approach to the problem as enumerated in the purpose and need. The FAA also requires an explanation as to why a possible alternative was eliminated from further study, including whether it is not considered reasonable to meet the purpose and need for the Proposed Action.[15]

Federal Special Purpose Laws

As described later in this EA, the assessment of impacts to environmental resources is conducted according to a regulatory context that, in several cases, requires consideration of special purpose environmental laws with particular requirements relative to the consideration of alternatives. According to FAA Order 5050.4B, "Special purpose laws cover a range of Federal laws, regulations, executive orders, and departmental orders that are outside NEPA."[16] NEPA analysis and documentation require coordination and integration with analysis and findings to be made under special purpose laws. As alternatives were being considered for this EA, it was evident that some components of the Proposed Action could affect resources protected by the following special purpose laws that have requirements relative to alternatives:

- United States (U.S.) Department of Transportation (DOT) Act, Section 4(f)[17]
- Section 106 of the National Historic Preservation Act
- Clean Water Act (CWA), Section 404(b)(1)[18]
- Executive Order (EO) 11988, Floodplain Management[19] and DOT Order 5650.2, Floodplain Management and Protection[20]

Section 4(f) of the U.S. DOT Act of 1966 (now codified at 49 United States Code [U.S.C.] Section 303(c)) protects significant publicly owned parks, recreational areas, wildlife, and waterfowl refuges, and historic sites. It states that the Secretary of Transportation "may approve a transportation program or project … requiring the use of [Section 4 (f) lands] … only if (1) there is no prudent and feasible alternative to the using that land; and (2) the program or project includes all possible planning to minimize harm … resulting from the use" (underline added).[21]

[12] FAA Order 1050.1F Section 6-2.1.d
[13] FAA Order 1050.1F Section 6-2.1.d
[14] Federal Aviation Administration. Order 5050.4B National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, Effective April 28, 2006. Section 706.d.5.a, pg. 7-6. Accessed December 13, 2021 https://www.faa.gov/airports/resources/publications/orders/environmental_5050_4/media/5050-4B_complete.pdf
[15] FAA Order 1050.1F Section 6-2.1.d
[16] FAA Order 5050.4B Section 9.t
[17] 23 CFR Part 774. Accessed December 13, 2021, at https://www.ecfr.gov/current/title-23/part-774
[18] 40 CFR Part 230. Accessed December 13, 2021 at https://www.ecfr.gov/current/title-40/chapter-I/subchapter-H/part-230?toc=1
[19] Executive Order 11988 of May 24, 1977, provisions appear at 42 FR 26951, 3 CFR, 1977 Comp., p. 117. Accessed December 13, 2021 at https://www.archives.gov/federal-register/codification/executive-order/11988.html
[20] DOT Order 5650.2, Floodplain Management and Protection. Accessed December 13, 2021 at https://www.fhwa.dot.gov/engineering/hydraulics/policymemo/order56502.pdf
[21] 49 U.S.C. Section 303(c)(1)(2). govinfo.gov/content/pkg/USCODE-2019-title49/pdf/USCODE-2019-title49-subtitleI-chap3-subchapI-sec303.pdf

FAA Order 5050.4B Section 1007e(5) identifies considerations relative to Section 4(f) and defines the term "prudent" as referring to rationale judgement. FAA notes that "a project may be possible, but not prudent when one considers its safety, policy, environmental, social, or economic consequences…"[22]

As to wetland resources, 40 Code of Federal Regulations (CFR) Section 230 provides Section 404(b)(1) [of the Clean Water Act] guidelines for specification of disposal sites for dredged or fill material. It states, "Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences."[23]

FAA 1050.F Desk Reference (v2), Section 14.2.1.1 states, "To comply with Executive Order 11988, Floodplain Management and Protection of Wetlands and DOT Order 5650.2, Floodplain Management and Protection, all FAA actions must avoid floodplains if a practicable alternative exists; if no practicable alternative exists, actions in a floodplain must be designed to minimize adverse impacts to the floodplain's natural and beneficial values."[24]

The Section 4(f) assessment for the Proposed Action is documented in **Appendix H** of this EA.

Overview of the Alternatives Screening Process

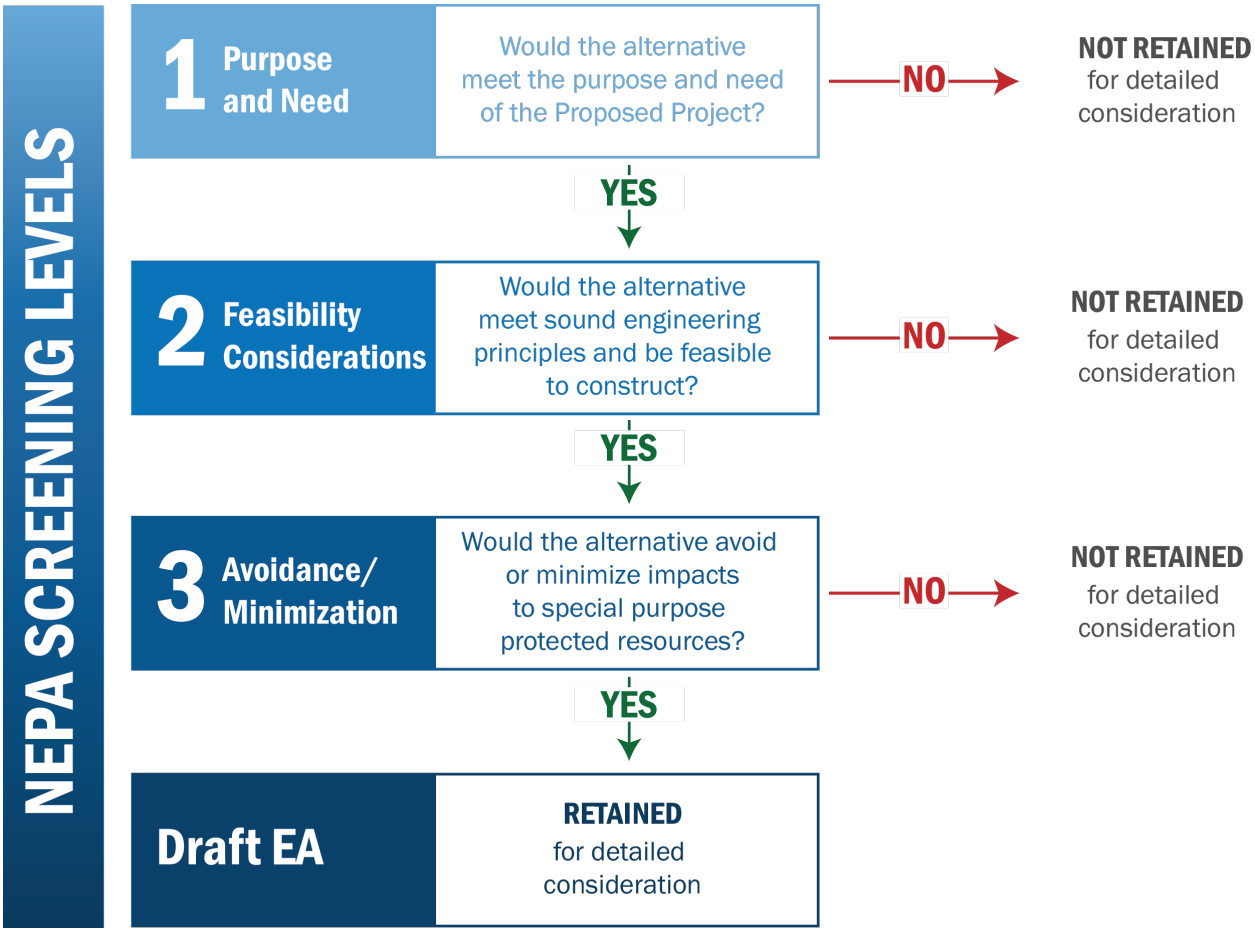
The alternatives evaluation for this EA followed a three-step process, reflecting CEQ, FAA, and special purpose law considerations depicted in **Figure C-1**. The FAA applied the same systematic screening process to all five groups of projects in the Proposed Action, although the process was modified to accommodate the specific project needs of each group. Screening Step 1 addressed whether the alternatives would satisfy the purpose and need for each group of projects. The needs identified in **Chapter 2** reflect a broad range of problems; therefore, a broad range of potential alternatives were considered to meet these needs. Screening criteria varied by project group and were based on the specific needs identified. A more detailed discussion concerning screening criteria for each group is included in **Section C.2**.

Screening Step 2 was used to determine if an alternative was feasible; according to FAA guidance, "an alternative is not feasible if it cannot be built as a matter of sound engineering judgement."[25] Under this step, alternatives were screened to ensure that they meet sound engineering and constructability principles. Analysis conducted in Step 3 evaluated the extent to which the alternative would avoid or minimize impacts to special purpose protected resources, as noted in **Section C.1.1**.

Alternatives that did not meet criteria established in any one of the preceding steps were not carried forward for further assessment; for example, alternatives that did not meet Step 1 (purpose and need) criteria were not assessed in Step 2 (feasibility) of the screening process, and alternatives that did not meet Step 2 criteria were not assessed in Step 3 (avoidance/minimization). Additionally, alternatives not retained through this screening process were not subject to the detailed analysis of environmental consequences described in **Chapter 5**.

[22] FAA Order 5050.4B Section 1007e(5)
[23] 40 CFR Section 230.10 (a). https://www.ecfr.gov/current/title-40/chapter-I/subchapter-H/part-230
[24] Federal Aviation Administration. *1050.1F Desk Reference (v2).* Effective February 2020. Accessed December 13, 2021 at https://www.faa.gov/sites/faa.gov/files/about/office_org/headquarters_offices/apl/desk-ref.pdf
[25] 1050.1F Section Appendix B-2.3

FIGURE C-1
ALTERNATIVES SCREENING PROCESS



Source: HMMH, 2021

Summary of Alternatives Conclusions

A range of alternatives was developed for Group 1 and Group 5 project groups.

As detailed in **Section C.2.1.4**, only one Group 1 alternative satisfied Steps 1 and 2 of the screening process. During Step 3, it was shown that this alternative would cause impacts to resources protected under special purpose environmental laws and regulations, principally impacts to historic resources considered within Section 4(f) resources. During Step 3, it was shown that there are no prudent and feasible alternatives that would avoid the on-airport Section 4(f) resources. The FAA then considered variations to the alternative that would minimize impacts to the Section 4(f) resources and avoid adverse effects for three building interface locations:

1. Between the proposed O'Hare Global Terminal and Concourse (OGT) and existing Terminal 1 Concourse B (OGT/Concourse B),
2. Between the proposed OGT and the existing Rotunda (OGT/Rotunda), and
3. Between existing Terminal 1 Concourse C and the proposed Satellite 1 concourse (Concourse C/Satellite 1).

Numerous variants were identified as lessening the effects, but only the one variant at each interface was found to avoid an adverse effect. After the alternatives screening process, the CDA incorporated the variant to the OGT/Concourse B, OGT/Rotunda, and Concourse C/Satellite 1 as components of the Proposed Action. Two alternatives—the CDA's Proposed Action and the No Action—were carried forward for detailed consideration of environmental consequences in this EA.

Groups 2, 3, and 4 are not anticipated to cause significant environmental consequences or unresolved conflicts. As a result, two alternatives each were considered for Groups 2, 3, and 4: the Proposed Action Alternative and the No Action Alternative. Both were retained for detailed considerations of environmental consequences in this EA.

For Group 5, two alternatives were considered in addition to the No Action Alternative: the 2.5 degree offset alternative and the 3 degree offset alternative. During Step 3, the FAA determined that the 2.5 degree offset alternative would avoid or minimize environmental impacts relative to the 3 degree offset alternative. Therefore, the two alternatives carried forward for detailed consideration of Environmental Consequences in this EA are the 2.5 degree offset alternative and the No Action Alternative.

Alternatives carried forward for detailed consideration of environmental consequences in this EA are described in detail in **Section C.3**.

C.2 ALTERNATIVES CONSIDERED

This section presents alternatives considered for each group of projects. Alternatives were considered for each project group separately to ensure that the widest range of options was reviewed. This section is organized with the following subsections for each group of projects:

- Range of Alternatives Considered,
- Screening Process Overview,
- Alternatives Evaluation, and
- Identification of Alternatives Carried Forward.

C.2.1 Group 1 – Terminal Projects

Group 1 Terminal Projects includes the following specific projects:

- O'Hare Global Terminal and Concourse,
- Satellite Concourses 1 and 2,
- Terminal 1 Concourse B northeast end expansion,
- Terminal 1 Concourse C expansion,
- Terminal 3 Concourse L stinger one-gate addition,
- A consolidated tunnel for handling baggage, pedestrians, and utilities,
- Terminal 5 curbside and roadway improvements,
- Taxiway replacements, and
- Temporary projects.

A broad range of potential alternatives were considered to meet the needs of Group 1. Group 1 needs, described in detail in **Chapter 2, Section 2.3.1**, include:

- Provide updated terminal facilities to address those that have reached the end of their design life,
- Provide facilities that meet modern passenger needs,

- Facilitate domestic and international airline partner operations to ensure that passengers, luggage, and aircraft can transition between the two types of travel
- Provide sufficient gate frontage and availability, gate flexibility, and taxiway connections to efficiently accommodate aircraft fleet mix, and
- Provide adequately sized curbside facilities and ground access to Terminal 5.

C.2.1.1 Range of Group 1 Alternatives Considered

As part of this EA, the FAA took a comprehensive approach to Group 1 alternatives development as described in the following section. **Table C-1** provides a list of the fourteen alternatives considered. Each alternative summarized in the sections that follow was assigned an Alternative Identification (ID) number to assist in tracking them throughout analysis presented in this document.

TABLE C-1
RANGE OF ALTERNATIVES CONSIDERED

Location	Group	Alternative ID	Alternative
Off-Airport	Use of Other Modes of Travel or Communication	1a	Conventional and High-Speed Rail Alternative
		1b	Highway Travel Alternative
		1c	Communications Alternative
	Use of Other Airports	1d	Use of Local Airports Alternative
		1e	Use of Other Mid-Continent Airports Alternative
On-Airport	North	2a	New Terminal Core (North) Development Alternative
		2b	Improvement and Expansion (North-Central) Development Alternative
	South	2c	New Terminal Core (South) Development Alternative
		2d	Improvement and Expansion (South-Central) Development Alternative
	East	2e	New Terminal Core (East) Development Alternative
		2f	Improvement and Expansion (East-Central) Development Alternative
	West	2g	O'Hare Modernization Terminal Concept Alternative
		2h	New Terminal Core (West) Development Alternative
		2i	Improvement and Expansion (West-Central) Development Alternative (Proposed Action)

Source: HMMH, 2021

Off-Airport Alternatives

Off-airport alternatives present alternatives to on-airport construction to address the needs identified for Group 1 projects (see **Chapter 2, Section 2.3.1**). In effect, these alternatives might serve existing or forecast demand for commercial air service at O'Hare International Airport (O'Hare or the airport) (see **Chapter 1, Section 1.4**) by providing alternate means or modes of travel for passengers to achieve their travel needs. Such off-airport alternatives could include use of conventional or high-speed rail, highway travel (car or

bus), and alternative communication modes (i.e., teleconferencing). All off-airport alternatives are described in the sections below.

Use of Other Modes of Travel or Communication

It may be possible to alleviate the need for the Proposed Action if passengers and cargo use surface modes of transportation (car, bus, or rail) or telecommunications to achieve the purpose of their travel. Thus, alternative modes of travel or communication might provide options to accommodate some portion of the demand forecast for O'Hare. This category of alternative includes consideration of the following:

Alternative 1a. Conventional and High-Speed Rail Alternative. This alternative considers the use of conventional or high-speed rail as a transportation option for existing and forecast passengers using O'Hare. Conventional rail includes intercity passenger service, such as Amtrak. High-speed rail operates on separate tracks and at higher speeds than conventional rail, making it a preferable option for long distance rail travel.

Alternative 1b. Highway Travel Alternative. This alternative considers the use of existing highways as an option for passengers using O'Hare. Intercity travel by automobile or bus is a commonly used alternative to air travel, especially for relatively short or less time-sensitive trips.

Alternative 1c. Communications Alternative. This alternative considers the use of telecommuting and virtual conferencing as options for both business and leisure passengers traveling via O'Hare. Advanced technology, video-conferencing, and collaborative computing could potentially satisfy at least some of the demand for air travel for business purposes and, in some cases, leisure travel. Considerable progress in the reliability, security, and speed of telecommunications networks has been made in the last decade. The COVID-19 pandemic proved the effectiveness of virtual workspaces, meetings, and conferences in certain circumstances.

Use of Other Airports

The timing and need for terminal improvements at O'Hare might also be reduced or eliminated if operations and/or passengers used other airports. This category of alternatives included consideration of:

Alternative 1d. Use of Local Airports Alternative. This alternative considers the use of one or more local airports as an option for existing passengers using O'Hare. Because of their geographic locations and current levels of service, the following local airports were considered for their ability to accommodate additional commercial passenger service: Chicago Midway International, Gary/Chicago International, Chicago Rockford International Airport (local), Milwaukee General Mitchell International, and a proposed South Suburban Airport.

Alternative 1e. Use of Other Mid-Continent Airports Alternative. This alternative considers the use of other mid-continent airports (outside the immediate Chicago region) as an option for existing passengers using O'Hare. Connecting passengers[26] accounted for about 46.2 percent of the passenger traffic at O'Hare in 2018.[27] It may be possible for connecting passengers to be routed by airlines through alternate connecting hubs, which could reduce the projected demand at O'Hare. Multiple large mid-continent airports, including those in St. Louis, Minneapolis-St. Paul, Kansas City, Detroit, Cleveland, and Cincinnati, might accommodate connecting passengers that would otherwise use O'Hare.

[26] Connecting passengers are passengers who used O'Hare to transfer between flights.
[27] City of Chicago. Official Statement. Appendix E: Report of the Airport Consultant. September 15, 2020. https://bondlink-cdn.com/1348/O%27Hare_2020ABCDE_POS.4wnUgLrc.pdf

On-Airport Alternatives

This section summarizes the potential O'Hare on-airport development alternatives to address the Group 1 needs. On-airport development could include alternatives to constructing facilities at the O'Hare terminal core, such as terminal development on other areas on the airport.

On-airport terminal development concepts were guided by the FAA's design standards, as noted in FAA Advisory Circulars (AC) 150/5300-13A Airport Design and 150/5360-13A Airport Terminal Planning, as well as industry recommendations from Airport Cooperative Research Program documents. On-airport alternatives were also guided by prior O'Hare Master Planning efforts.[28] The CDA determined the terminal space requirements necessary to meet the purpose and need for Group 1 projects based on these sources.[29] Various concepts were developed to determine where terminal development needs could be met geographically given O'Hare's layout and existing constraints.

Airport planning principles prioritize highest and best use of airport land. [30] The highest and best use of land at an airport typically starts with the airfield, which is determined based upon wind coverage and safety parameters. The airfield usually represents one of the largest uses of airport lands. At commercial service airports, passenger terminals are the next priority. Terminals need to be sited to enable efficient use of the airfield and supporting infrastructure and provide efficient access to the traveling public. Cargo user needs can be met using residual lands that provide access to both the airfield and surface transportation networks needed for shipping connections. Finally, other supporting facilities and infrastructure occupy the remaining residual space on the airport property.

For this EA, the FAA considered terminal development concepts that had historically been explored by the CDA as well as several new on-airport alternatives. While the CDA has identified its preferred terminal development, the FAA examined alternative locations where the facilities might be undertaken. The O'Hare on-airport development alternatives were analyzed by compass direction relative to the existing central terminal core (essentially existing Terminals 1 through 3), the location of which is displayed in the blue 'Central' shape in **Exhibit C-1**. For each direction (north, south, east, and west), a minimum of two alternatives were considered:

1. Construction of a new terminal core. These alternatives would incorporate the construction of a new terminal core in another location to meet terminal facility requirements.
2. Improvements to and expansion of the existing terminal core. These alternatives would incorporate improvements to and expansion of the existing terminal core to meet terminal facility requirements that would address the purpose and need for Group 1 projects.

Alternatives considered to the west of the existing terminal core also included a prior terminal alternative considered by the CDA, in the 2005 O'Hare Modernization Program Environmental Impact Statement (OMP EIS), the O'Hare Modernization Terminal Concept Alternative (Alternative 2g). All on-airport alternatives are identified and described in the sections below and the analysis of these alternatives is documented later in **Section C.2.1.3** (Group 1 Project Alternatives Evaluation).

[28] O'Hare International Airport Master Plan, City of Chicago, February 2004

[29] Prepared by Ricondo. Prepared for Chicago Department of Aviation. Terminal Area Plan (TAP) and Future Airport Layout Plan (ALP) Projects, Preliminary Terminal Space Program Requirements, Draft, November 2021.

[30] Highest and Best Use Definition: "The highest and most profitable use for which the property is adaptable and needed or likely to be needed in the reasonably near future," as defined by Interagency Land Acquisition Conference. Uniform Appraisal Standards for Federal Land Acquisitions 2016. Section 4.3.1. Accessed September 9, 2021, at: https://www.justice.gov/file/408306/download

Source: HMMH, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, Environmental Systems Research Institute

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

O'Hare On-Airport Alternatives by Geographical Direction

▶ Exhibit C-1

North

Alternative 2a. New Terminal Core (North) Development Alternative. This alternative considered the construction of a new terminal core to the north of the existing central terminal core.

Alternative 2b. Improvement and Expansion (North-Central) Development Alternative. This alternative considered improvements to the existing terminal core and expansion of the existing terminal core to the north. It would include any combination of North-Central-East, North-Central-West, and North-Central-South development alternatives where most of the new development and expansion of the existing central terminal core would occur in the area north of the existing central terminal core.

South

Alternative 2c. New Terminal Core (South) Development Alternative. This alternative considered the construction of a new terminal core south of the existing central terminal core.

Alternative 2d. Improvement and Expansion (South-Central) Development Alternative. This alternative considered improvements to the existing terminal core and expansion of the existing terminal core to the south. It would include any combination of South-Central-East, South-Central-West, and South-Central-North development alternatives where the concentration of new development and expansion of the existing central terminal core would occur in the area south of the existing central terminal core.

East

Alternative 2e. New Terminal Core (East) Development Alternative. This alternative considered the construction of a new terminal core east of the existing central terminal core.

Alternative 2f. Improvement and Expansion (East-Central) Development Alternative. This alternative considered improvements to the existing terminal core and expansion of the existing terminal core to the east. It would include any combination of East-Central-West, East-Central-North, and East-Central-South development alternatives where most of the new development and expansion of the existing central terminal core would occur in the area east of the existing central terminal core.

West

Alternative 2g. O'Hare Modernization Terminal Concept Alternative. In this alternative, the recommended terminal-related improvements developed by the CDA for the 2004 Master Plan (as part of the OMP were considered.

Alternative 2h. New Terminal Core (West) Development Alternative. This alternative considered the construction of a new terminal core west of the existing central terminal core.

Alternative 2i. Improvement and Expansion (West-Central) Development Alternative. This alternative considered improvements to the existing terminal core and expansion of the existing terminal core to the west. It would include any combination of West-Central-East, West-Central-North, and West-Central-South development alternatives where most of the new development and expansion of the existing central terminal core would occur in the area immediately west of the existing central terminal core. This is the Proposed Project for Group 1 and the CDA's preferred action; it includes improvements to the existing terminal core and expansion of the existing terminal core to the west, in the west-midfield, with some improvements slated for the area east of the central core.

No Action Alternative

Under the No Action Alternative, implementation of the proposed Group 1 projects would not occur. The current terminal facilities at O'Hare would remain unchanged. The No Action Alternative includes existing facilities and their associated square footage[31] and independent utility projects. As explained in **Chapter 1** and **Chapter 2**, some independent utility projects, as shown on the draft O'Hare Future Airport Layout Plan (ALP), have been or will be processed through separate NEPA review and documentation. A list of these projects is provided in **Table C-51**.

C.2.1.2 Group 1 Projects Screening Process Overview

As described in **Section C.1.2**, the alternatives evaluation for this EA followed a systematic three-step screening process to narrow down the range of alternatives considered as illustrated in **Figure C-1.** The alternatives were evaluated using consistent screening criteria to determine which one(s) met Purpose and Need, are feasible to construct, and minimize or avoid impacts to special purpose law protected resources. This section describes the criteria used to evaluate the alternatives.

Step 1: Purpose and Need Evaluation

This section details the criteria used to evaluate whether each alternative meets the stated needs of the Proposed Action for Group 1.

Criterion 1. Would the alternative address the need to provide updated terminal facilities that address those that have reached the end of their design life?

As noted in **Section 2.3.1.1**, *Need for the Proposed Action*, many of the facilities and infrastructure components in O'Hare's terminals are functionally outdated. A 2015 facilities review and inspection report prepared for the CDA documents significant facility maintenance issues[32] and a subsequent (2016) facilities condition assessment identified the need for major facility improvements.[33] To meet this need, infrastructure that has reached the end of its useful life must be replaced.

Criterion 1 Requirement(s):

> **Requirement 1.** The alternative must accommodate replacement or revitalization of infrastructure that has reached the end of its useful life.

Criterion 2: Would the alternative address the need to provide facilities that meet modern passenger needs?

As part of this EA, specific terminal facility spatial requirements were calculated based on the anticipated activity level in the future planning horizon. Facility requirements show that additional space is needed to meet modern passenger needs and meet the forecast activity levels. Terminal facility requirements, and the need to support airfield infrastructure such as apron pavement, ramps, and taxiway connections, were translated into an estimated land envelope to determine where on the airport property spatial requirements to meet the purpose and need could be accommodated.

The land envelope for the No Action Alternative was based on 6,306,820 square feet of terminal facility space within the existing central terminal core (Terminal 1 through Terminal 3), estimated to be contained

[31] CDA. Chicago O'Hare International Airport. Terminal Area Plan Environmental Assessment. Terminal and Concourse Space – Existing, No Action Scenario, and With Project Scenario – Final Proposed Action. November 19, 2021.
[32] Landrum & Brown, Independent Consultant's Report, 2015, Chicago O'Hare International Airport, Facilities Review & Inspection, June 2016
[33] Chicago Department of Aviation, presentation to the Capital Program Technical Working Group, "Assessment of Minimum Required Investment, Final Review Draft," August 9, 2016

within a 412-acre land envelope that includes supporting airfield infrastructure such as apron pavement, ramps, and taxiway connections.[34] As noted in **Section 2.3.1.2**, alternatives must provide an additional 3,225,620 square feet of terminal facility space, requiring an estimated 134 additional acres adjacent to the existing terminal core, when compared to the No Action Alternative. Therefore, FAA determined that a total land envelope of 546 acres is needed to meet modern passenger needs in a single, contiguous land envelope, an increase of approximately 50 percent over the No Action Alternative.

Two terminal envelopes were identified by the CDA as the maximum number that would enable airline codeshare partners to occupy a shared terminal at O'Hare. Two main airline codeshare[35] agreements supported by two airlines dominate activity at O'Hare: Oneworld (American Airlines and its partners) and Star Alliance (United Airlines and its partners). Criteria 3 and 4 explain in further detail why creating more than two complexes would prevent other needs from being achieved. In summary, separation of airline facilities not only requires that international passengers connect between multiple terminals but also results in the need for duplicate staffing for airlines, inefficient baggage processing, and longer gate occupancy times for aircraft.

If development were to take place in two separate land envelopes (i.e., the existing central terminal core and a separate, non-adjacent plot of land), the spatial requirement of the additional land envelope would increase to 224 acres as the separate terminal complex would need to fully accommodate one of the main airline codeshare agreements (see Criterion 3 for further detail). Recognizing the spatial constraints of land at O'Hare and the business relationships of the airlines, the following options were explored:

- New terminal core to replace the existing terminal core, requiring a total land envelope of 546 acres,
- Necessary improvements to the existing terminal core and expansion of terminal facilities within a non-adjacent land envelope of 224 acres to accommodate the airlines that are a party to codeshare agreements, and
- Necessary improvements to the existing terminal core and expansion of terminal facilities within an adjacent, contiguous land envelope of 134 acres.

Criterion 2 Requirement(s):

Requirement 2. The alternative development location must have land available for development that accommodates addressing these needs: additional security screening checkpoint and infrastructure space, accessible and inclusive facilities and services, passenger amenities and concessions, enhanced passenger circulation and wayfinding, enlarged passenger waiting areas and gate frontage, incorporation of evolving technology to enhance the customer experience, and improved baggage circulation and goods storage and circulation. The spatial requirements to address this need could be met in one of three ways:

1. A new terminal core to replace the existing terminal core, requiring a total land envelope of 546 acres,
2. Necessary improvements to the existing terminal core and expansion of terminal facilities within a non-adjacent land envelope of 224 acres to accommodate the airlines that are a party to codeshare agreements, or
3. Necessary improvements to the existing terminal core and expansion of terminal facilities within an adjacent land envelope of 134 acres.

[34] No Action includes existing space (as of April 2020) and independent utility projects that will provide additional space in the future. See Section C.4 and Table C-51.

[35] Codeshares are business agreements between groups of airlines, as further explained in Chapter 2, Section 2.3.1.3.

Criterion 3: Would the alternative address the need to facilitate domestic and international airline partner operations to ensure that passengers, luggage, and aircraft can transition between the two types of travel?

As noted in **Section 2.3.1.3**, insufficient space currently exists in O'Hare terminals to enable airline codeshare partners to occupy a shared terminal. Additionally, O'Hare's only Customs and Border Patrol (CBP) Federal Inspection Station (FIS) facility is in Terminal 5. All international arriving passengers (except those from preclearance flights) must be processed through an FIS facility. Therefore, domestic airlines and their codeshare partners based in Terminals 1, 2, and 3 that operate international flights must also operate from Terminal 5. Separation of airline facilities not only requires that international passengers connect between multiple terminals, but also results in the need for duplicate staffing for airlines, inefficient baggage processing, and longer gate occupancy times for aircraft.

To meet this need, terminal facilities must accommodate integration of international and domestic operations to minimize passenger and baggage transfer between Terminal 5 and the terminal core and enable airline codeshare partners to occupy a shared terminal. Based on the CDA's facility requirement estimates noted in **Section 2.3.1.3**, the FIS facility requires an additional 253,240 square feet of terminal space.

As noted above, there are two main airline codeshare agreements supported by two airlines that dominate activity at O'Hare: Oneworld (American Airlines and its partners) and Star Alliance (United Airlines and its partners). The maximum number of terminal envelopes that would enable airline codeshare partners to occupy a shared terminal is two: one for each codeshare partner. Three or more terminal complexes would lead to separation of airline facilities and would not address the need documented in **Section 2.3.1.3**. In the CDA's Gate Allocation (2025 Design Day Flight Schedule) White Paper prepared in June 2018, the Projected 2025 Design Day Flight Schedule forecasted 2,831 daily operations. Star Alliance was estimated to account for 1,321 operations, or 46.7 percent while Oneworld would account for 1,160 operations, or 41.0 percent. To estimate how this activity might affect the distribution of terminal core land envelopes, these percentages were applied to the 546-acre land envelope required for facilities and supporting infrastructure to meet the Purpose and Need. Using the activity as a reasonable representation of minimum spatial requirement indicates that 255 acres and 224 acres would be needed for Star Alliance and Oneworld, respectively. Thus, 224 acres, the smaller parcel, was used to indicate whether an alternative might meet the need when considering alternative development sites not adjacent to the existing central terminal core on O'Hare property.

Criterion 3 Requirement(s):

Requirement 3. The alternative development location must have land available for development that can accommodate 253,040 square feet of additional FIS space within the 9,532,440 square feet of total terminal facility space required under Criterion 2. This requires one of three options to accommodate both terminal facility requirements as well as supporting airfield infrastructure, landside access, and passenger connectivity. Those are:

1. A new terminal core to replace the existing terminal core, requiring a total land envelope of 546 acres,
2. Necessary improvements to the existing terminal core and expansion of terminal facilities within a non-adjacent land envelope of 224 acres to accommodate the airlines that are a party to codeshare agreements, and
3. Necessary improvements to the existing terminal core and expansion of terminal facilities within an adjacent land envelope of 134 acres.

Essentially this is the same spatial need as evaluated by Criterion 2 but addresses separate functional needs: to enhance passenger connections and enable co-location of codeshare partners.

Criterion 4: Would the alternative address the need to provide sufficient gate frontage and availability, gate flexibility, and taxiway connections to efficiently accommodate aircraft fleet mix?

As noted in **Section 2.3.1.4**, additional gate frontage and flexible gates are needed to adapt to changing aircraft fleet mixes, improve gate utilization, and reduce existing delays caused by the current terminal configurations. Specific gate frontage needs were identified based on the anticipated activity level in the future planning horizon. To meet Criterion 4 and accommodate forecast (2029) demands, alternatives must provide 25 percent more gate frontage (increasing from 24,770 to 30,990 linear feet).

In addition, alternatives must provide sufficient gate flexibility. Gate flexibility enables O'Hare facilities to efficiently respond to the changing demands of airline fleet sizes, which fluctuate both in the short-term (e.g., hourly, seasonally) and long-term (e.g., fleet upgauging) in response to market conditions. As of April 2017, O'Hare had 185 gates. Analysis of gate requirements for forecast conditions indicates that a range of 192 to 219 gates[36] is required to meet forecasted demand.[37] Gate and associated ramp requirements, as well as the terminal facility requirements discussed in Criterion 2, were translated into a single contiguous land envelope of 546 acres.

Another stated purpose of the Proposed Action is to maintain operational efficiency and not erode the delay reductions achieved by the airfield reconfiguration completed since 2005 (see **Section 2.2**). Therefore, alternatives that would meet Criterion 4 requirements by fragmenting or breaking up the space available for terminal and landside development or requiring aircraft to cross multiple runways, were dismissed. Terminal space should be configured to maintain operational efficiency as measured by taxi time and sufficient aircraft gates at passenger terminals versus remote aircraft parking.

Finally, large capital investments have been made in both terminal and surface access facilities and their supporting infrastructure at O'Hare. The existing terminal complex and surface access system are integrated with the regional surface transportation systems through highway and rail connections including Illinois Interstate 190, the Chicago Transit Authority (CTA) Blue Line, and the METRA commuter train. New terminal development alternatives should be compatible with continued use of this infrastructure. Although major development may require relocation or reconfiguration of some supplemental facilities, it is prudent to maximize use of existing facilities and surrounding infrastructure that would support the operation of these facilities. Alternatives that would meet Criterion 4 requirements by displacing large quantities of existing infrastructure were also dismissed.

Criterion 4 Requirement(s):

Requirement 4A. The alternative development location must have land available for development that can accommodate 30,990 linear feet of gate frontage, including a flexible range of 192 to 219 gates within:

1. A single land envelope of 546 acres,

[36] Gate counts are expressed as a range to account for the variability of aircraft parking configurations at flexible gates. For example, each airline has a parking plan for its flight schedule which varies throughout the day. Within the same linear gate frontage, one plan for example may have 13 group V aircraft (B777, B787, A330), 5 group IV aircraft (B767, A310), and 13 group III (B737, A320) aircraft. Their next plan might park 15 group V aircraft, 3 group IV, and 12 group III. Each group relates to the wingspan and tail height of the aircraft. (FAA AC150/5300 Airport Design)

[37] Chicago Department of Aviation, Terminal Area Plan and Future Airport Layout Plan Projects, Project Descriptions -Appendices, Appendix C, "Summary of Gates and Frontage, Chicago O'Hare International Airport," Table 2-7, October 2019

2. A non-adjacent land envelope of 224 acres to accommodate the airlines that are a party to codeshare agreements, or
3. An adjacent land envelope of 134 acres.

Requirement 4B. The alternative must maximize gate collocation and minimize runway crossing and displacement of adequate existing infrastructure.

Criterion 5. Would the alternative address the need to provide adequately sized curbside facilities and ground access to Terminal 5?

As described in **Section 2.3.1.5**, as of 2020, several Terminal 5 roadways operate with a "D"[38] or "E"[39] level of service (LOS), causing roadway and curbside traffic congestion. Improved curbside facilities and enhancements to Terminal 5 ground access roadways are needed to accommodate current and anticipated demand.

Criterion 5 Requirement(s):

Requirement 5. The alternative must allow for necessary improvements to Terminal 5 roadways, including reducing roadway congestion at Terminal 5 and enabling the efficient transfer of passengers between terminals.

Step 2: Feasibility

Criterion 6: Could the alternative be constructed using sound engineering principles?

This criterion assesses whether an alternative can be constructed using sound engineering and building principles.

Criterion 6 Requirements:

Requirement 6. Public information must be available to affirm the ability to construct the proposed alternative using sound engineering and building principles.

Step 3: Avoidance or Minimization of Impact

Following Steps 1 and 2, only the Proposed Action Alternative (Alternative 2i) remained and was assessed in Step 3 of this alternatives screening process. The two criteria in Step 3 are intended to summarize the analyses conducted in the Section 4(f) and Section 106 special purpose law assessments of the Alternative 2i variants.[40]

Criterion 7. Would the alternative minimize or avoid adverse effect to resources protected by special purpose laws?

This criterion assesses the extent to which the alternative variants avoid adverse effect to resources protected by the special purpose laws discussed in **Section C.1.1** above. As is noted in **Appendix C.3**, the Proposed Action would use on-airport facilities that are eligible for the National Register of Historic Places (NRHP). Sites eligible for the NRHP also require consideration under Section 4(f). **Section C.1.1.3** summarizes the special purpose law issues. Under Section 4(f), approval of a Proposed Action that would use a Section 4(f) property requires that Secretary of Transportation show that there are no prudent and feasible alternatives. Group 1 projects were found to not affect any other resource that is protected under special purpose environmental laws that have requirements about alternatives. Thus, Criterion 7 was

[38] LOS D indicates that drivers have little freedom to maneuver and driving comfort levels are low.
[39] LOS E indicates that the roadway is operating at or near capacity during the arrivals level peak.
[40] Further detail about the variants assessment that occurred in the Section 106 and Section 4(f) processes can be found in Appendix G and Appendix H.

designed to evaluate the requirements under Section 4(f) as to whether the use can be avoided and if not, whether effects can be minimized.[41,42]

Criterion 7 Requirements:

Requirement 7A. The variant must avoid use of Section 4(f) resources if a feasible and prudent alternative exists.

Requirement 7B. If the variant would not meet requirement 7A, then the alternative selected must cause the least overall harm to Section 4(f) resources (includes all possible planning to minimize and mitigate any adverse impacts).

Requirement 7C. The variant must avoid adverse effects on Section 106 resources, if possible.

Requirement 7D. If the variant would not meet requirement 7C, then it must minimize adverse effects on Section 106 resources.

Criterion 8. Would the refined elements that avoid or minimize adverse effects still meet the project purpose and need?

This criterion assesses whether each Alternative 2i variant meets the purpose and need for the Proposed action. If the variant would meet requirements under Criterion 7, it was reviewed to see if it meets the project Purpose and Need. To assess ability to meet the project Purpose and Need, five requirements corresponding to the five needs discussed in **Chapter 2,** and in Criterion 1 through 5 under Step 1, were assessed.[43]

Criterion 8 Requirements:

Requirement 8A. The variant must provide for improvements or new facilities that address existing narrow corridor widths.

Requirement 8B. The variant must meet facility requirements for space (programmable space), gates, and gate flexibility.

Requirement 8C. The variant must enable appropriate functionality and organization of space.

Requirement 8D. The variant must accommodate sufficient wayfinding, signage, and universal design.

Requirement 8E. The variant must enable direct routing and connection of baggage system and back-of-house functions.

Requirement 8F. The variant must be feasible to construct and avoid impact to essential or difficult-to-replace functions.

[41] Reference is made to the Section 106 process. As per the requirements of the NHPA Section 106, the Secretary of the Interior criteria were used to identify whether the effects of a variant would be adverse.

[42] As is noted in Appendix H (DOT Section 4(f) Evaluation), the Proposed Action would use on-airport facilities that are eligible for the NRHP.

[43] Further detail about the variants assessment that occurred in the Section 106 and Section 4(f) processes can be found in Appendix G and Appendix H, respectively.

TABLE C-2
ALTERNATIVES SCREENING PROCESS CRITERIA

Step	Criteria		Requirements	
1 – Purpose and Need	1	Would the alternative address the need to update terminal facilities to address those that have reached end of their design life?	1	The alternative must accommodate replacement or revitalization of infrastructure that has reached the end of its useful life.
	2	Would the alternative address the need to provide facilities that meet modern passenger needs?	2	The alternative development location must have land available for development that accommodates addressing the need for: additional security screening checkpoint and infrastructure space, accessible and inclusive facilities and services, passenger amenities and concessions, enhanced passenger circulation and wayfinding, enlarged passenger waiting areas and gate frontage, incorporation of evolving technology to enhance the customer experience, and improved baggage circulation and goods storage and circulation. The spatial requirements to address this need could be met in one of three ways: 1. A new terminal core to replace the existing terminal core, requiring a total land envelope of 546 acres, 2. Necessary improvements to the existing terminal core and expansion of terminal facilities within a non-adjacent land envelope of 224 acres to accommodate airlines that are a party to codeshare agreements, or 3. Necessary improvements to the existing terminal core and expansion of terminal facilities within an adjacent land envelope of 134 acres.
	3	Would the alternative address the need to facilitate domestic and international airline operations to ensure that passengers, luggage, and aircraft can transition between the two types of travel?	3	The alternative development location must have land available for development that can accommodate 253,040 square feet of additional FIS space within the 9,532,440 square feet of total terminal facility space required under Criterion 2. This requires one of three options to accommodate terminal facility requirements as well as supporting airfield infrastructure, landside access, and passenger connectivity. Those are: 1. A new terminal core to replace the existing terminal core, requiring a total land envelope of 546 acres, 2. Necessary improvements to the existing terminal core and expansion of terminal facilities within a non-adjacent land envelope of 224 acres to accommodate airlines that are a party to codeshare agreements, or 3. Necessary improvements to the existing terminal core and expansion of terminal facilities within an adjacent land envelope of 134 acres. This is essentially the same spatial need as evaluated by Criterion 2 but addresses separate functional needs: to enhance passenger connections and enable co-location of codeshare partners.
	4	Would the alternative address the need to provide sufficient gate frontage and availability, gate flexibility, and taxiway	4A	The alternative development location must have land available for development that can accommodate 30,990 linear feet of gate frontage, including a flexible range of 192 to 219 gates within:

Step	Criteria		Requirements	
		connections to efficiently accommodate aircraft fleet mix?		1. A single land envelope of 546 acres, 2. A non-adjacent land envelope of 224 acres to accommodate airlines that are a party to codeshare agreements, or 3. An adjacent land envelope of 134 acres.
			4B	The alternative must maximize gate fragmentation and minimize runway crossing and displacement of adequate existing infrastructure.
	5	Would the alternative address the need to provide adequately sized curbside facilities and ground access to Terminal 5?	5	The alternative must allow for necessary improvements to Terminal 5 roadways, including reducing roadway congestion at Terminal 5 and enabling the efficient transfer of passengers between terminals.
2 – Feasibility	6	Could the alternative be constructed using sound engineering principles?	6A	Public information must be available to affirm the ability to construct the proposed alternative using sound engineering and building principles.
3 – Avoidance or Minimization of Impact	7	Would the alternative minimize and/or avoid impacts to resources protected by special purpose laws (see note)?	7A	The variant must avoid use of Section 4(f) resources if a feasible and prudent alternative exists.
			7B	If the variant would not meet requirement 7A, then the alternative selected must cause the least overall harm to Section 4(f) resources (includes all possible planning to minimize and mitigate any adverse impacts).
			7C	The variant must avoid adverse effect on Section 106 resources, if possible.
			7D	If the variant would not meet requirement 7C, then it must minimize adverse effect on Section 106 resources.
	8	Would the refined elements that avoid or minimize effects still meet the project purpose and need?	8A	The variant must provide for improvements or new facilities that address existing narrow corridor widths.
			8B	The variant must meet facility requirements for space (programmable space), gates, and gate flexibility.
			8C	The variant must enable appropriate functionality and organization of space.
			8D	The variant must accommodate sufficient wayfinding, signage, and universal design.
			8E	The variant must enable direct routing and connection of baggage system and back-of-house functions.
			8F	The variant must be feasible to construct and avoid impact to essential or difficult-to-replace functions.

Note: As noted in Chapter 5, resources protected by special purpose laws that are affected by the Proposed Action include Section 4(f) and Section 106, but not jurisdictional wetlands protected under Section 404 of the CWA.

C.2.1.3 Group 1 Projects Alternatives Evaluation

The evaluation process for Group 1 alternatives is based on the criteria presented in the prior section and are defined in **Table C-2**. **Figure C-2** on the next page provides an overview of the results of the evaluation process, which is detailed in the sections that follow.

FIGURE C-2
ALTERNATIVES EVALUATION OVERVIEW

LEGEND ● Yes ◆ No ✓ Retained ✗ Not Retained

	Criteria	Off-Airport 1a – 1c Other Modes	Off-Airport 1d – 1e Other Airports	On-Airport North 2a New Core	On-Airport North 2b Improvement & Expansion	On-Airport South 2c New Core	On-Airport South 2d Improvement & Expansion	On-Airport East 2e New Core	On-Airport East 2f Improvement & Expansion	On-Airport West 2g OMP Terminal Concept	On-Airport West 2h New Core	On-Airport West 2i Improvement & Expansion	No Action
Purpose and Need	1 Would the alternative address the need to provide updated terminal facilities that have reached the end of their design life?	◆	◆	●	●	●	●	●	●	◆	●	●	N/A
	2 Would the alternative address the need to provide facilities that meet modern passenger needs?	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	N/A
	3 Would the alternative facilitate domestic and international airline partner operations to ensure that passengers, luggage, and aircraft can transition between the two types of travel?	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	N/A
	4 Would the alternative address the need to provide sufficient gate frontage and availability, gate flexibility, and taxiway connections to efficiently accommodate aircraft fleet mix?	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	●	N/A
	5 Would the alternative address the need to provide adequately sized curbside facilities and ground access to Terminal 5?	◆	◆	●	●	●	●	◆	◆	●	●	●	N/A
	Move to Step 2?	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	N/A
Feasibility	6 Could the alternative be constructed using sound engineering principles?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	●	N/A
	Move to Step 3?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	✓	N/A
Minimization	7 Would the alternative minimize or avoid adverse effect to resources protected by special purpose laws?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	●	N/A
	8 Would the refined elements that avoid adverse effects still meet the project purpose and need?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	●	N/A
	Retained for Detailed Consideration in this EA?	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓

Source: HMMH, 2021.

Step 1: Purpose and Need Evaluation

Step 1 of the alternatives evaluation process is the Purpose and Need evaluation. This section describes the results of the Step 1 evaluation which focuses on the ability of the alternatives to satisfy the purpose and need for Group 1 projects, as described in **Chapter 2, Section 2.3.1**.

Off-Airport Alternatives

Use of off-airport alternatives were considered extensively in preparing the 2005 OMP EIS. The evaluation conducted for this EA uses much of the information in the EIS with appropriate updates based on changed conditions since the EIS.

Use of Other Modes of Travel or Communication (Alternatives 1a through 1c)

Due to O'Hare's unique position as a mid-continent hub airport with well-established air service, international travel, cargo operations, and regional connections, the airport continues to attract high numbers of passengers and aircraft operations. Forecast demand is expected to increase, regardless of whether surface transportation service offerings or connections were improved.

Conventional rail and highways generally serve limited markets within 500 miles from Chicago at O'Hare. The historical growth in passenger activity at O'Hare indicates that air travel is preferred over rail travel, even in markets where rail fares are considerably lower than airfares. Limited service, longer travel times, and lack of convenience are major barriers to increased use of conventional long-distance rail travel in this market. Substantial increases in rail service offerings and decreases in travel time would be required to divert significant numbers of air passengers to conventional rail travel. Both of those changes would require significant investments over an extended period beyond the planning horizon for which there are no present commitments.

Since it is faster than conventional rail, high-speed rail could be a long-term alternative to air travel in markets within 500 miles of Chicago. Routes would need to be located to serve high population corridors and connect major cities. In August 2021, Governor J.B. Pritzker signed into Illinois state law the High-Speed Railway Commission Act creating a Commission tasked with creation of a statewide plan for a high-speed rail line and feeder network connecting St. Louis and Chicago.[44] This development indicates an appetite for planning high-speed rail in the Chicago region, but there are currently no plans for implementation. In the absence of such plans, it is not reasonable to assume that high-speed rail would significantly reduce total passenger demand at O'Hare within the planning horizon. If and when any such plans are approved, it is likely that:

1. The time required to finance and construct major high-speed rail lines would be beyond the time horizon in which terminal improvements are needed at O'Hare and
2. The individual markets served by any new high-speed rail lines would represent a relatively small share of the total passenger demand at O'Hare.

In terms of the telecommunications alternative, although technology has evolved and virtual communications have improved over time, they do not replace the desire and need for air travel. The COVID-19 pandemic provides a relevant case study. Business and leisure air travel decreased sharply due to the pandemic, with virtual telecommunications and remote work quickly replacing them. Once virus

[44] Illinois General Assembly. Public Act 102-0261. High-Speed Railway Commission Act https://ilga.gov/legislation/billstatus.asp?DocNum=399&GAID=16&GA=102&DocTypeID=HB&LegID=128395&SessionID=110

transmission was understood, and it was determined safe to travel via air, the aviation industry and operations began to rebound steadily. This demonstrates that some business and leisure travel simply cannot be replaced by telecommunications technology.

The Use of Other Modes of Travel or Communication Alternatives (Alternatives 1a, 1b, and 1c) do not meet any of the criteria established under Step 1 of screening and therefore would not meet the purpose and need for the Group 1 projects. Additionally, the investment required to attract more air passengers to rail and highway cannot be assured and would not offset the forecast demand which has generated the need for terminal improvements at O'Hare. While increased use of telecommunications might meet the needs of some air travel purposes, it would not materially reduce the level of passengers using O'Hare. While telecommunications became widely used during the 2020-22 COVID-19 pandemic, as a vaccine became available, air travel rebounded as the public wished to travel for vacations or face-to-face meetings with family and friends. Finally, increased use of surface transportation or telecommunications would not alleviate the need to modernize the terminal complex for the passengers who do travel by air.

Use of Other Airports (Alternatives 1d and 1e)

Alternative 1d. Use of Local airports

Multiple local airports, such as Chicago Midway International, Gary/Chicago International, Chicago Rockford International, Milwaukee General Mitchell International, and the proposed South Suburban Airport could accommodate additional commercial passenger service. Using these local airports could relieve demand at O'Hare and reduce the urgency or need for certain airport terminal improvements.

However, after the airline deregulation of 1978, the federal government does not control where, when, and how airlines provide their services, nor is the federal government the driving force in airport development or airport utilization. Rather, the airlines, in partnership with local and regional government, and in response to market demand, determine where and how air travel demand is accommodated. As a result, the FAA reached the following conclusions:

- It is possible that the capacity at other existing and potential local airports could satisfy some of the local origin-destination passenger demand forecast for O'Hare.
- It is not likely that any of the other local airports would be used as a significant connecting hub or international gateway during the forecast period because they do not have sufficient facilities to enable such activity.
- The continued role of O'Hare as a major domestic connecting hub and international gateway is dependent on the airline service of local origin-destination demand at O'Hare, so there is a limit to the amount of local demand that could be diverted while still maintaining O'Hare's role as a hub and gateway.
- The practical limit of potential diversion of demand from O'Hare is estimated to be far less than the likely availability of existing capacity at other local airports and would not meaningfully affect activity levels at O'Hare.
- Any material diversion of demand from O'Hare would require strategic airline decisions which cannot be predicted or relied on.

As a result, it was determined that the use of other local airports would not satisfy the Purpose and Need. Demand at O'Hare would remain as forecast and terminal facilities require updates to serve that demand. Further, even if activity could be diverted to use of other local airports, there would still be the need to modernize facilities at O'Hare that have reached their useful life.

Alternative 1e. Use of other Mid-Continent Airports

Other mid-continent airports could potentially be used to accommodate connecting passengers forecast for O'Hare. Significant reductions in connecting passenger traffic at O'Hare would likely reduce the level of air service for local passengers at the airport. The current connecting hub operations at O'Hare enable a range and frequency of service convenient for local passengers. With connecting passengers available to "fill" the airplanes, airlines can provide a greater offering of nonstop service to multiple destinations than would otherwise be the case. If connecting passengers were diverted to other hubs, it is likely that there would be a reduction in the frequency and range of nonstop service. This reduction in the frequency and range of service would likely be most pronounced for smaller domestic markets and for international markets, which rely significantly on connecting passenger flows. This would result in diminished service to local Chicago passengers.

It is not reasonable to expect either hubbing carrier would voluntarily shift enough connecting traffic to one or more alternative mid-continent airports to avoid the need for improvements at O'Hare, and the federal government cannot mandate such a shift. Also, use of other airports would not alleviate the need to modernize facilities at O'Hare that have reached the end of their useful life and the need for improved terminal facilities for those passengers who do travel and connect via O'Hare.

The Use of Other Airports Alternatives (Alternatives 1d and 1e) do not meet any of the criteria established under Step 1 of screening and therefore would not meet the purpose and need for the Group 1 projects.

Conclusion

The FAA concluded that the Off-Airport Alternatives would not meet the Purpose and Need screening criteria for Group 1 under Step 1 and would not advance to Step 2 of the screening analysis, see **Table C-3**. No further consideration was given to Off-Airport Alternatives.

TABLE C-3
GROUP 1, STEP 1, PURPOSE AND NEED EVALUATION FOR OFF-AIRPORT ALTERNATIVES

Criteria		1a – 1c. Other Modes of Communication	1e – 1f. Use of Other Airports
1	Would the alternative address the need to provide updated terminal facilities to address those that have reached end of their design life?	**No.** While some passengers would use other modes of communication (rail, bus, telecommunications), this alternative would not obviate the need to update O'Hare terminal facilities.	**No.** While some passengers would use other airports, updating of O'Hare terminal facilities would be needed for air travelers.
2	Would the alternative address the need to provide facilities that meet modern passenger needs?	**No.** While some passengers would use other modes of communication (rail, bus, telecommunications), improvements to O'Hare's terminal facilities would be needed for air travelers.	**No.** While some passengers would use other airports, improvements to O'Hare terminal facilities would be needed for air travelers.
3	Would the alternative address the need to facilitate domestic and international airline operations to ensure that passengers, luggage, and aircraft can	**No.** This is not possible with off-site locations.	**No.** This is not possible with off-site locations.

Criteria		1a – 1c. Other Modes of Communication	1e – 1f. Use of Other Airports
	transition between the two types of travel?		
4	Would the alternative address the need to provide sufficient gate frontage and availability, gate flexibility, and taxiway connections to efficiently accommodate aircraft fleet mix?	**No.** This is not possible with off-site locations.	**No.** This is not possible with off-site locations.
5	Would the alternative address the need to provide adequately sized curbside facilities and ground access to Terminal 5?	**No.** This is not possible with off-site locations.	**No.** This is not possible with off-site locations.
Move to Step 2?		**No.** These alternatives are not retained for detailed consideration because they do not accommodate all criteria required to meet the Group 1 purpose and need.	**No.** These alternatives are not retained for detailed consideration because they do not accommodate all criteria required to meet the Group 1 purpose and need.

On-Airport Alternatives

The FAA analyzed existing airport property[45] to identify available area that might accommodate the Group 1 needs. The existing land use was categorized into the following:

- Category 1: Land used for airfield and airfield safety areas, such as the Runway Protection Zones (RPZs),[46] Runway Safety Areas (RSAs),[47] and Runway Object Free Areas (ROFAs),[48]
- Category 2: Existing infrastructure (passenger terminal, cargo, maintenance, and other supporting functions),
- Category 3: Presently undeveloped land where limited development opportunities may exist to accommodate supporting facilities and infrastructure, and
- Category 4: Presently undeveloped land where development opportunities may exist to meet the purpose and need.

In keeping with airport planning principles that prioritize highest and best use of airport land, Category 1 (airfield) was considered fixed when alternative terminal concepts were considered. No material changes in the airfield would be included in a new terminal concept except taxiway improvements that would be needed to support new terminal facilities. Category 2 (existing infrastructure) was considered fixed unless it could be accommodated in presently undeveloped land (Categories 3 and 4). Category 3 represented land within the airport property but outside the boundary of existing surface transportation routes (roadway and rail). The FAA determined that Category 3 land could be used to support relocation of existing infrastructure, should development occur elsewhere on the airfield that displaced existing infrastructure but could not directly accommodate terminal facilities required to meet the purpose and

[45] February 2022 Draft Future O'Hare ALP

[46] FAA AC 150/5300-13A Section 102.vvv (2012) defines RPZ as: An area at ground level prior to the threshold or beyond the runway end to enhance the safety and protection of people and property on the ground. https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5300-13A-chg1-interactive-201907.pdf

[47] FAA AC 150/5300-13A Section 102.www (2012) defines RSA as: A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway. https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5300-13A-chg1-interactive-201907.pdf

[48] FAA AC 150/5300-13A Section 309 (2012) states: The ROFA clearing standard requires clearing the ROFA of above-ground objects protruding above the nearest point of the RSA. https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5300-13A-chg1-interactive-201907.pdf

need. This is because terminal development in any of these areas would require relocating existing surface transportation routes to ensure efficient landside and airside access to terminal facilities.

Focus was then placed on Category 4: presently undeveloped land within the surface transportation boundary where development opportunities may exist to meet the purpose and need, and where Category 4 land is located in relation to Categories 1 and 2. This analysis informed Step 1 of the screening process for determining whether sufficient land is available for development that would meet the purpose and need for Group 1 projects. Specifically, the land envelope would need to meet the spatial requirements noted for Criteria 2, 3, and 4. **Exhibit C-2** shows constrained spaces and land where opportunity for development may exist to meet the Group 1 Purpose and Need.

As shown in **Exhibit C-2,** about 2,385.9 acres of land—33.0 percent of O'Hare's present 7,225.2 acres—are devoted to runways and airfield safety (Category 1) and 3739.2 acres—51.8 percent—are devoted to existing facility space and associated infrastructure (Category 2). Combining these two categories resulted in 84.8 percent of the total acreage at the airport being constrained; land where development opportunities may exist to accommodate supporting facilities and infrastructure (Category 3) includes 281.8 acres—3.9 percent of the total acreage at the airport. Finally, land where development opportunities may exist to meet the purpose and need (Category 4) includes 818.3 acres—11.3 percent of total acreage at the airport.

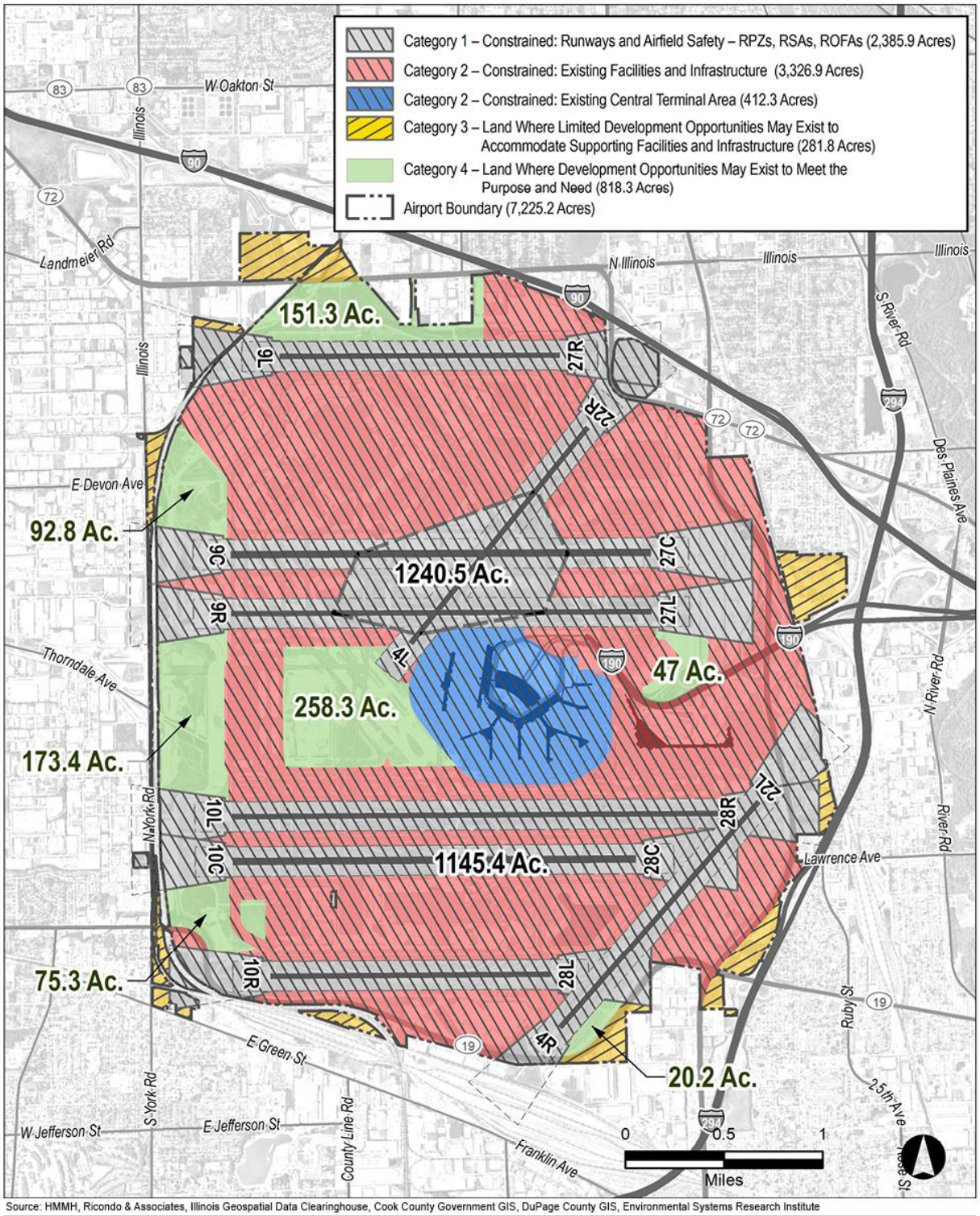
Exhibit C-3 highlights the land available in each geographical direction where there may be opportunities for development that meets the purpose and need for Group 1 projects. It also shows that the largest contiguous plot of land available for development is the 258.3-acre plot in the west-midfield, directly adjacent to the existing central terminal area.

As discussed in **Section 2.3.1.2**, the CDA determined that 6,306,820 square feet of terminal space would be required for the No Action Alternative, which includes existing space (as of April 2020) and completion of independent utility projects. The FAA calculated that this terminal space would require a 412-acre land envelope. The CDA also determined that O'Hare would require an additional 3,159,310 square feet of terminal facility space to meet Group 1 needs. In addition, the FAA calculated that this additional space would require either a contiguous land envelope of 546 acres, an adjacent land envelope of approximately 134 acres, or a separate, non-adjacent land envelope of 224 acres.

The FAA considered two types of on-airport development alternatives in each development direction within the airport:

1. New Terminal Core (accommodating existing Terminals 1 through 3) Development Alternatives and
2. Improvement and Expansion Development Alternatives.

As discussed in **Section C.2.1.2**, a land envelope of 546 acres would be required for development of New Terminal Core alternatives. For Improvement and Expansion development alternatives, a combination of the No Action land envelope of 412 acres plus a separate, non-adjacent land envelope of 224 acres or an adjacent land envelope of 134 acres—creating a single contiguous land envelope that encompasses the existing central terminal core of 546 acres—would be required to meet Group 1 needs. The sections that follow summarize the results of Screening Step 1 for on-airport alternatives by geographical direction.



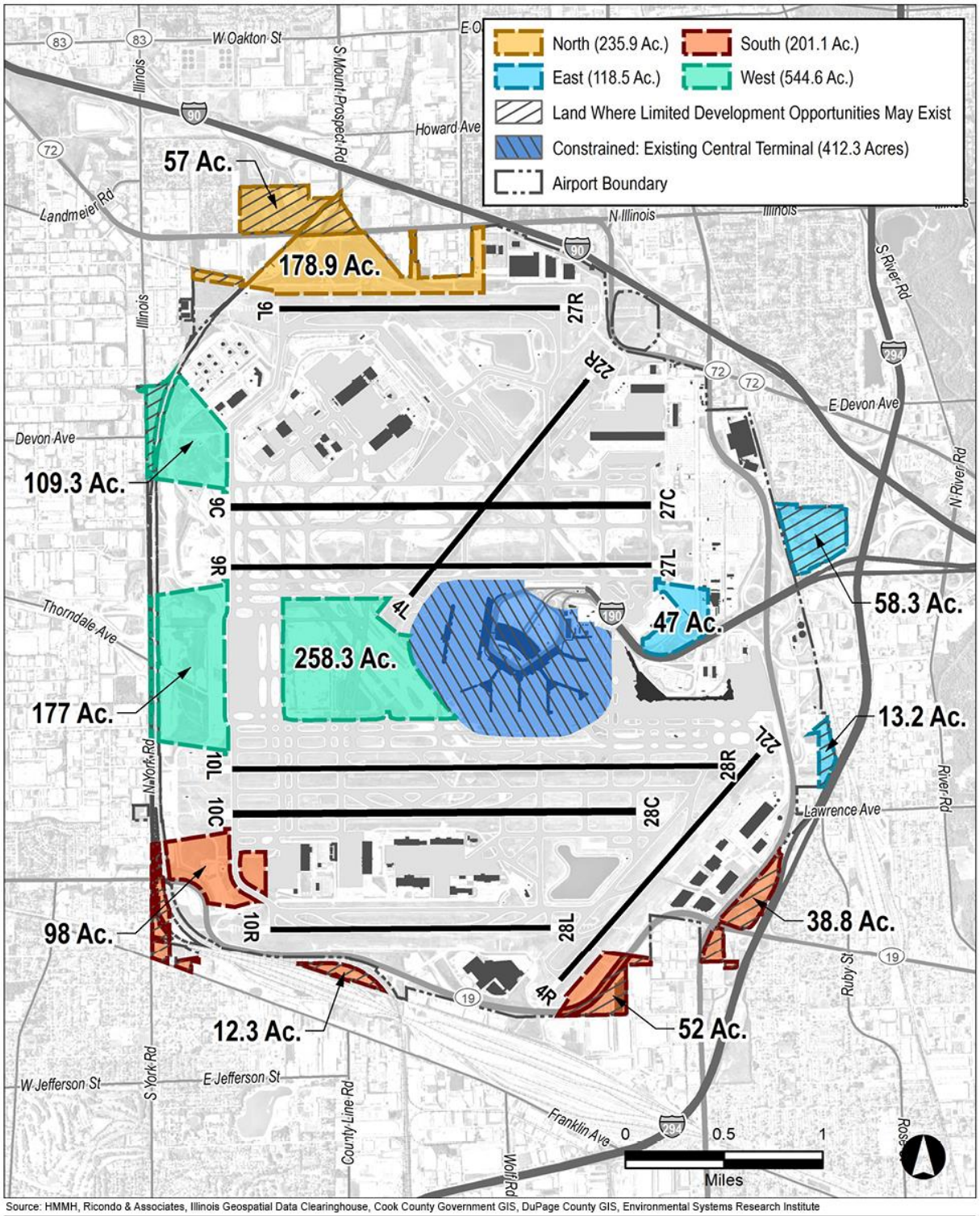
Source: HMMH, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, Environmental Systems Research Institute

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Constrained vs. Land Available for Development Within the Airport Boundary

▶ **Exhibit C-2**



Source: HMMH, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, Environmental Systems Research Institute

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Land where Opportunities May Exist to Meet the Purpose and Need by Direction

▶ Exhibit C-3

North

This category would include alternatives in which most of the new development would occur north of the existing terminal core. It would not preclude incorporating significant but lesser development in any other direction from the existing terminal core.

Historically, the CDA has explored options for expanding terminal development north of the existing terminal core that would require runway configurations that differ significantly from those that currently exist. As a result, no past development alternatives north of the central terminal area were analyzed in the alternatives assessment for this EA.

Alternative 2a. New Terminal Core (North) Development

This alternative considered the construction of a new terminal core north of the existing central terminal core. The FAA determined that Alternative 2a could meet requirements to address Criterion 1 as, through the construction of a new terminal core, it would replace infrastructure that has reached the end of its useful life. It could also meet requirements for Criterion 5 as it could accommodate improvements to Terminal 5 roadways. However, it would not meet requirements of Criterion 2, 3, or 4.

It would not meet Requirements 2, 3, or 4A. Construction of a new terminal core north of the existing terminal core would require 546 acres of contiguous acreage available for development. As shown on **Exhibit C-3**, no such plot of land is available to develop. This alternative would also fail to meet Requirement 4B, since development would not minimize replacement of adequate existing infrastructure relative to the other alternatives considered. Replacing all existing facilities would require decommissioning of all or portions of existing Terminals 1, 2, and 3. It would also create surface access challenges as the new terminal core would not utilize existing parking infrastructure, or surface connections, and these facilities would need to be developed at the new site. Additionally, the northern airfield is occupied by:

- Three runways (9R/27L, 4L/22R, and 9L/27R) and their associated airfield taxiways and
- 880.4 acres that contains maintenance facilities and hangars, along with the North Air Traffic Control Tower between Runways 9L/27R, 9/27C, and 4L/22R (see **Exhibit C-1**).

Building a new terminal core in any of these areas would require displacement and relocation of 880 acres of existing facilities, not including the runways and taxiways (which could not be accommodated elsewhere on the airport). This development would likely be replaced in the vacated existing terminal core. Therefore, this alternative would not minimize replacement of adequate existing infrastructure relative to the other alternatives considered. As a result, the FAA determined that this alternative does not meet the criteria established in Criterion 4B and did not retain it for further consideration.

Alternative 2b. Improvement and Expansion (North-Central) Development

This alternative would entail improving the existing terminal core, including expanding the existing central terminal core to the north to accommodate terminal facility requirements identified to address Group 1 needs.

This alternative could meet requirements to address Criterion 1 as it would replace infrastructure that has reached the end of its useful life by improving and expanding the existing terminal core. It could also meet requirements for Criterion 5 as it would accommodate improvements to Terminal 5 roadways. However, it would not meet requirements of Criterion 2, 3, or 4.

It would not meet Requirements 2, 3, or 4A as no land is available for development north of the existing central terminal core that could accommodate the 224-acre, non-adjacent requirement or the adjacent 134-acre requirement to create a contiguous 546-acre land envelope that includes the existing central terminal core. Currently, the land immediately adjacent to the existing central terminal core area is occupied by Runways 9R/27L and 4L/22R and their associated airfield taxiways. This alternative would require either the displacement and relocation of Runways 9R/27L and 4L/22R—and their associated infrastructure—or significant tunneling and/or runway crossing. Therefore, this alternative would not meet criterion 4B since it would not minimize replacement of adequate existing infrastructure nor runway crossing relative to the other alternatives considered.

The 179-acre plot available on the northern perimeter of the airport boundary (see **Exhibit C-3**) could not accommodate spatial needs associated with enabling airline codeshare partners to occupy a shared terminal, which would require a minimum of 224 acres. Therefore, this alternative would not meet Requirements 2, 3, or 4A. In addition, if terminal complex development were to occur in this plot, it would not meet Requirement 4B. Given the existing runway configuration at O'Hare and the insufficient gate flexibility to accommodate all aircraft, development in this area would result in one of two outcomes:

- It would limit the aircraft types able to utilize the new northern terminal expansion because the length of Runway 9L/27R (7,500 feet) cannot safely accommodate departure or landing operations of larger passenger and cargo aircraft that require a runway length greater than 7,500 feet or
- It would require larger passenger and cargo aircraft that require a runway length greater than 7,500 feet to cross runway(s) to ensure safe departure or landing from Runways 9C/27C and 10C/28C.

Therefore, developing this alternative on the northern perimeter of the airport boundary would not address the spatial needs of Requirements 2, 3, or 4A and regarding Requirement 4B, it would either significantly limit gate flexibility—a stated need of the proposed action—or would not minimize runway crossing relative to the other alternatives considered.

As a result, the FAA determined that this alternative does not meet the criteria established in Step 1 and did not retain it for further consideration.

Conclusion

The On-Airport–North Alternatives would not meet the purpose and need of the Group 1 projects and were therefore not retained in Step 2 of the alternatives assessment for this EA (see **Table C-4**). No further consideration was given to On-Airport – North Alternatives.

TABLE C-4
GROUP 1 STEP 1 PURPOSE AND NEED EVALUATION FOR ON-AIRPORT–NORTH ALTERNATIVES

Criteria		Alternatives	
		2a. New Terminal Core (North) Development	**2b. Improvement and Expansion (North-Central) Development**
1	Would the alternative address the need to provide updated terminal facilities to address those that have reached end of their design life?	**Yes.** This alternative would replace infrastructure that has reached the end of its useful life by replacing the existing terminal core.	**Yes.** This alternative would replace infrastructure that has reached the end of its useful life by improving and expanding the existing terminal core.
2	Would the alternative address the need to provide facilities that meet modern passenger needs?	**No.** This alternative would not meet the spatial requirement for Criterion 2 as it would require 546 acres of contiguous acreage available for development when no such land exists north of the existing terminal core within the airport boundary.	**No.** This alternative would not meet the spatial requirement for Criterion 2 as it would require 134 acres of adjacent or 224 acres of non-adjacent contiguous acreage available for development when no such land exists north of the existing terminal core within the airport boundary.
3	Would the alternative address the need to facilitate domestic and international airline operations to ensure that passengers, luggage, and aircraft can transition between the two types of travel?	**No.** This alternative would not meet the spatial requirement for Criterion 3 as it would require 546 acres of contiguous acreage available for development when no such land exists north of the existing terminal core within the airport boundary.	**No.** This alternative would not meet the spatial requirement for Criterion 2 as it would require 134 acres of adjacent or 224 acres of non-adjacent contiguous acreage available for development when no such land exists north of the existing terminal core within the airport boundary.
4	Would the alternative address the need to provide sufficient gate frontage and availability, gate flexibility, and taxiway connections to efficiently accommodate aircraft fleet mix?	**No.** This alternative would not meet the spatial requirement for Criterion 4 as it would require 546 acres of contiguous acreage available for development when no such land exists north of the existing terminal core within the airport boundary.	**No.** This alternative would not meet the spatial requirement for Criterion 2 as it would require 134 acres of adjacent or 224 acres of non-adjacent contiguous acreage available for development when no such land exists north of the existing terminal core within the airport boundary.
5	Would the alternative address the need to provide adequately sized curbside facilities and ground access to Terminal 5?	**Yes.** This alternative would accommodate improvements to Terminal 5 roadways.	**Yes.** This alternative would accommodate improvements to Terminal 5 roadways.
Move to Step 2?		**No.** This alternative was not retained for detailed consideration because it does not accommodate all criteria required to meet the Group 1 purpose and need.	**No.** This alternative was not retained for detailed consideration because it does not accommodate all criteria required to meet the Group 1 purpose and need.

South

This category would include development alternatives where most new development would occur south of the existing terminal core. It would not preclude incorporating significant but lesser development in any other direction from the existing terminal core.

Historically, the CDA has not explored options for expanding terminal development areas south of the existing terminal core. As a result, no past development alternatives south of the central terminal area were analyzed in the alternatives assessment for this EA.

Alternative 2c. New Terminal Core (South) Development

This alternative considers constructing a new terminal core south of the existing central terminal core. This alternative could meet requirements to address Criterion 1, as construction of a new terminal core would replace infrastructure that has reached the end of its useful life. It could also meet requirements for Criterion 5 as it would accommodate improvements to Terminal 5 roadways. However, it would not meet requirements of Criterion 2, 3, or 4.

It would not meet Requirements 2, 3, or 4A; construction of a new terminal core south of the existing terminal core would require 546 acres of contiguous acreage available for development. As shown on **Exhibit C-3**, no such plot of land is available for development. It would also fail to meet Requirement 4B, as development would not minimize replacement of adequate existing infrastructure relative to the other alternatives considered. For example, replacing all existing facilities would require decommissioning of the existing central terminal core to preserve Section 106 resources. It would also create surface access challenges, as the new terminal core would not utilize existing parking infrastructure or surface connections. In addition, the southern airfield is occupied by:

- Four runways (10L/28R, 10/28C, 10R/28L, and 4R/22L) and their associated airfield taxiways,
- 545.3 acres of facilities and infrastructure, including cargo facilities and the South Air Traffic Control Tower between Runways 10C/28C and 10R/28L,
- 181.6 acres of USPS facilities south of Runway 10R/28L, and
- Silver Creek and Lake O'Hare.

Construction of a new terminal core in any of these areas would require displacement and relocation of existing infrastructure noted above (more than 726 acres of facilities, not including runways), which could not be accommodated elsewhere on the airport. Little land exists to support the displaced facilities other than the vacated existing terminal core. Therefore, this alternative would not minimize replacement of adequate existing infrastructure relative to the other alternatives considered and would not address Requirement 4B.

As a result, the FAA determined that this alternative does not meet the criteria established in Step 1 and did not retain it for further consideration.

Alternative 2d. Improvement and Expansion (South-Central) Development

This alternative would entail improvements to the existing terminal core, including expansion of the existing central terminal core to the south, to accommodate terminal facility requirements identified to address Group 1 needs.

This alternative could meet requirements to address Criterion 1 as it would replace infrastructure that has reached the end of its useful life through improvements to and expansion of the existing terminal core. It

could also meet requirements for Criterion 5 as it could accommodate improvements to Terminal 5 roadways. However, it would not meet requirements of Criterion 2, 3, or 4.

It would not meet Requirements 2, 3, or 4A; expanding the existing terminal core to the south would require either a 134-acre land envelope adjacent to the existing central terminal core or a 224-acre non-adjacent land envelope. No such plots of land are available for development. In addition, the area immediately adjacent to the existing central terminal core to the south is occupied by Runways 10L/28R and 10C/28C and their associated airfield taxiways. Development of this alternative would require either the displacement and relocation of Runways 10/28C and 10R/28L or significant tunneling to enable passenger connections between terminals and/or crossing over runways. Therefore, this alternative would not meet Requirement 4B, since it would not minimize replacement of adequate existing infrastructure nor minimize runway crossing relative to the other alternatives considered.

As a result, the FAA determined that this alternative does not meet the criteria established in Step 1 and did not retain it for further consideration.

Conclusion

The On-Airport–South Alternatives would not meet the purpose and need of the Group 1 projects and were therefore not retained in Step 2 for further consideration (see **Table C-5**).

TABLE C-5
GROUP 1 STEP 1 PURPOSE AND NEED EVALUATION FOR ON-AIRPORT–SOUTH ALTERNATIVES

Criteria		Alternatives	
		2c. New Terminal Core (South) Development	**2d. Improvement and Expansion (South-Central) Development**
1	Would the alternative address the need to provide updated terminal facilities to address those that have reached end of their design life?	**Yes.** This alternative would replace infrastructure that has reached the end of its useful life through developing a new terminal core.	**Yes.** This alternative would replace infrastructure that has reached the end of its useful life through improving and expanding the existing terminal core.
2	Would the alternative address the need to provide facilities that meet modern passenger needs?	**No.** This alternative would not meet the spatial requirement for Criterion 2 as it would require 546 acres of contiguous acreage available for development when no such land exists south of the existing terminal core within the airport boundary.	**No.** This alternative would not meet the spatial requirement for Criterion 2 as it would require 134 acres of adjacent or 224 acres of non-adjacent contiguous acreage available for development when no such land exists south of the existing terminal core within the airport boundary.
3	Would the alternative address the need to facilitate domestic and international airline operations to ensure that passengers, luggage, and aircraft can transition between the two types of travel?	**No.** This alternative would not meet the spatial requirement for Criterion 3 as it would require 546 acres of contiguous acreage available for development when no such land exists south of the existing	**No.** This alternative would not meet the spatial requirement for Criterion 3 as it would require 134 acres of adjacent or 224 acres of non-adjacent contiguous acreage available for development when no such land exists south of the

Criteria		Alternatives	
		2c. New Terminal Core (South) Development	**2d. Improvement and Expansion (South-Central) Development**
		terminal core within the airport boundary.	existing terminal core within the airport boundary.
4	Would the alternative address the need to provide sufficient gate frontage and availability, gate flexibility, and taxiway connections to efficiently accommodate aircraft fleet mix?	**No.** This alternative would not meet the spatial requirement for Criterion 4 as it would require 546 acres of contiguous acreage available for development when no such land exists south of the existing terminal core within the airport boundary.	**No.** This alternative would not meet the spatial requirement for Criterion 4 as it would require 134 acres of adjacent or 224 acres of non-adjacent contiguous acreage available for development when no such land exists south of the existing terminal core within the airport boundary.
5	Would the alternative address the need to provide adequately sized curbside facilities and ground access to Terminal 5?	**Yes.** This alternative would accommodate improvements to Terminal 5 roadways.	**Yes.** This alternative would accommodate improvements to Terminal 5 roadways.
Move to Step 2?		**No.** This alternative was not retained for detailed consideration because it does not accommodate all criteria required to meet the Group 1 purpose and need.	**No.** This alternative was not retained for detailed consideration because it does not accommodate all criteria required to meet the Group 1 purpose and need.

East

This category would include development alternatives where most new development would occur east of the existing terminal core. It would not preclude incorporating significant but lesser development in any other direction from the existing terminal core.

During previous planning efforts, the CDA has not explored options for expanding terminal development areas east of the existing terminal core due to the constraints of existing infrastructure in this area. As a result, no past development alternatives east of the central terminal area were analyzed in the alternatives assessment for this EA.

Alternative 2e. New Terminal Core (East) Development

This alternative would consider constructing a new terminal core east of the existing central terminal core. A new terminal core east of the existing central terminal core would occur in the area overlapping Terminal 5 and the primary airport entrance access corridor (immediately adjacent to the existing central terminal core). Vehicles would continue to approach the terminal curbsides through the I-190 corridor, but the entrance would be shifted further east and north to accommodate the relocated terminal core.

This alternative could meet requirements to address Criterion 1, as it would replace infrastructure that has reached the end of its useful life through the construction of a new terminal core. However, it would not meet requirements of Criterion 2, 3 or 4.

It would not meet Requirements 2, 3, or 4A; construction of a new terminal core east of the existing terminal core would require 546 acres of contiguous acreage. No such plot of land is available for development. Alternative 2e would also fail to meet Requirement 4B, as development would not minimize replacement of adequate existing infrastructure relative to the other alternatives considered. For example, replacing all

existing facilities would require decommissioning of the existing central terminal core (Terminals 1 through 3). It would also create surface access challenges as the new terminal core would not utilize existing parking infrastructure or surface connections that would need to be replaced at a new terminal core site. Additionally, the eastern airfield is occupied by:

- Two taxiways,
- The Airport Transit System (ATS),
- The primary airport entrance access corridor, connecting to I-90, I-294, and State Route 45 (Mannheim Road) as well as the METRA line that runs north and south on the east side of the airport, and
- Terminal 5.

Construction of a new terminal core in this area would require displacement and relocation of existing infrastructure which could not be accommodated elsewhere on the airfield. Therefore, this alternative would not minimize replacement of adequate existing infrastructure relative to the other alternatives considered. Development in this area would also preclude it from meeting requirements for Criterion 5 as it would displace Terminal 5 and associated roadways and therefore would not allow for improvements to occur.

As a result, the FAA determined that this alternative does not meet the criteria established in Step 1 and did not retain it for further consideration.

Alternative 2f. Improvement and Expansion (East-Central) Development

This alternative would entail improvements to the existing terminal core, including expansion of the existing central terminal core immediately to the east to accommodate terminal facility requirements identified to address Group 1 needs. This alternative could meet requirements to address Criterion 1 as it would replace infrastructure that has reached the end of its useful life through improvements to and expansion of the existing terminal core. However, it would not meet requirements of Criterion 2, 3, or 4.

It would not meet Requirements 2, 3, or 4A, as expanding the existing terminal core to the east would require 225 acres of land available for development. No such plot of land is available for development.

Alternative 2f also considered expansion immediately adjacent to the existing central terminal core to the east, which would require a 134-acre adjacent plot of land. No such plot of land is available for development. In addition, the eastern terminal airfield is occupied by two airfield taxiways, the I-90 access corridor, and Terminal 5, all of which would need to be displaced and relocated for this alternative to be developed. Therefore, this alternative would not minimize replacement of adequate existing infrastructure relative to the other alternatives considered and would not meet Requirement 4B. Development in this area would also preclude it from the ability to meet requirements for Criterion 5 as it would displace Terminal 5 and associated roadways and therefore would not allow for improvements to occur.

As a result, the FAA determined that this alternative does not meet the criteria established in Step 1 and did not retain it for further consideration.

Conclusion

The On-Airport–East Alternatives would not meet the purpose and need of the Group 1 projects and were therefore not retained in Step 2 of the alternatives assessment for this EA (see **Table C-6**). No further consideration was given to On-Airport–East Alternatives.

TABLE C-6
GROUP 1, STEP 1, PURPOSE AND NEED EVALUATION FOR ON-AIRPORT–EAST ALTERNATIVES

Criteria		Alternatives	
		2e. New Terminal Core (East) Development	**2f. Improvement and Expansion (East-Central) Development**
1	Would the alternative address the need to provide updated terminal facilities to address those that have reached end of their design life?	**Yes.** This alternative would replace infrastructure that has reached the end of its useful life by replacing the existing terminal core.	**Yes.** This alternative would replace infrastructure that has reached the end of its useful life by improving and expanding the existing terminal core.
2	Would the alternative address the need to provide facilities that meet modern passenger needs?	**No.** This alternative would not meet the spatial requirement for Criterion 2 as it would require 546 acres of contiguous acreage available for development when no such land exists east of the existing terminal core within the airport boundary.	**No.** This alternative would not meet the spatial requirement for Criterion 2 as it would require 134 acres of adjacent or 224 acres of non-adjacent contiguous acreage available for development when no such land exists east of the existing terminal core within the airport boundary.
3	Would the alternative address the need to facilitate domestic and international airline operations to ensure that passengers, luggage, and aircraft can transition between the two types of travel?	**No.** This alternative would not meet the spatial requirement for Criterion 3 as it would require 546 acres of contiguous acreage available for development when no such land exists east of the existing terminal core within the airport boundary.	**No.** This alternative would not meet the spatial requirement for Criterion 3 as it would require 134 acres of adjacent or 224 acres of non-adjacent contiguous acreage available for development when no such land exists east of the existing terminal core within the airport boundary.
4	Would the alternative address the need to provide sufficient gate frontage and availability, gate flexibility, and taxiway connections to efficiently accommodate aircraft fleet mix?	**No.** This alternative would not meet the spatial requirement for Criterion 4 as it would require 546 acres of contiguous acreage available for development when no such land exists east of the existing terminal core within the airport boundary.	**No.** This alternative would not meet the spatial requirement for Criterion 4 as it would require 134 acres of adjacent or 224 acres of non-adjacent contiguous acreage available for development when no such land exists east of the existing terminal core within the airport boundary.
5	Would the alternative address the need to provide adequately sized curbside facilities and ground access to Terminal 5?	**No.** This alternative would displace Terminal 5 roadways and therefore would not allow for improvements to occur.	**No.** This alternative would displace Terminal 5 roadways and therefore would not allow for improvements to occur.
Move to Step 2?		**No.** This alternative was not retained for detailed consideration because it does not accommodate all criteria required to meet the Group 1 purpose and need.	**No.** This alternative was not retained for detailed consideration because it does not accommodate all criteria required to meet the Group 1 purpose and need.

West

This category would include development alternatives where most of the new development occurs west of the existing terminal core. It would not preclude incorporating significant but lesser development in any other direction from the existing terminal core.

The CDA has previously explored and proposed development alternatives west of the existing central terminal core. One such terminal development concept, the O'Hare Modernization Program (OMP) Terminal Concept Alternative—developed as part of the 2004 Master Plan for O'Hare—was analyzed as part of the alternatives assessment for this EA, along with the New Terminal Core (West) alternative and Improvement and Expansion (West-Central) alternatives.

Alternative 2g. O'Hare Modernization Terminal Concept

The 2004 Master Plan for O'Hare, prepared by the CDA for the OMP, included recommendations for the configuration of the airfield that were completed as part of the OMP. In preparing this EA, the O'Hare Modernization Terminal Concept was evaluated relative to achieving the purpose and need for Group 1 projects. Other than the Terminal 3 stinger and the Terminal 5 extension, terminal-related improvements were not undertaken, as further coordination with the airport users was necessary to gain support and ensure that the projects could be funded. Subsequent negotiations between the CDA and its tenants led to the terminal recommendations reflected in this EA.

The OMP EIS envisioned development of new eastern and western terminal facilities. In developing the proposed projects, it was assumed that planned terminal development in the approved World Gateway Program EA, on the east side of O'Hare, would be implemented with modifications. On the west side of the airport, a new satellite concourse and terminal facility (Terminal 7) with associated gates and a new ground access point of entry from York Road would have been developed. The new western access could operate in conjunction with the extension of the Elgin-O'Hare Expressway (I-390) and/or construction of a Western By-Pass connecting I-90 and I-294. The improvements that were anticipated would have provided a total of 232 gates and approximately 38,460 linear feet of total gate frontage.

The terminal improvements identified in the 2004 Master Plan were re-evaluated in this EA to determine whether they would meet the purpose and need. That proposed development (referred to as the O'Hare Modernization Terminal Concept) was a refinement to the 2001 World Gateway Plan. The O'Hare Modernization Terminal Concept consisted of:

- **East Terminal Development:** Additional international facilities, called Terminal 6, would be constructed adjacent to Terminal 5. According to the 2004 Master Plan, this development would have produced 2,818 additional linear feet of gate frontage and provided 16-18 additional gates and 570,000 square feet of building area.[49]
- **Terminal Core Area:** The 2004 Master Plan indicated no changes in the building area for Terminals 1, 2, and 3. A new terminal, Terminal 4, would have been added next to Concourse L and provided 2,900 linear feet of gate frontage and 608,000 square feet of building space. The proximity of Terminal 4 to Concourse L would have reduced the amount of linear gate frontage for Terminal 3 from 9,864 feet to 8,600 (a loss of 1,264 feet), so this addition would have produced a net increase of 1,636 linear feet. Terminal 3 would have gone from 73 gates to 56 gates with the addition of 12 gates at Terminal 4.
- **West Terminal Development:** This new terminal complex, Terminal 7, would have included a landside terminal on the west side of the site with a connected single-loaded concourse, landside access from York Road and Thorndale Avenue, and a satellite concourse on the east side of the site. The satellite would have been configured to provide approximately 5,700 linear feet of gate frontage accommodating a mix of regional jets and larger aircraft. The landside terminal and its connected concourse would have been configured to provide approximately 3,000 linear feet of gate frontage. This facility would have provided 60 gates.

[49] Table VI-3, 2004 Master Plan

The World Gateway Program costs were estimated at $2.6 billion (in 1999 dollars) for the Terminal 4 and Terminal 6 improvements, plus about $1 billion for the terminal improvements noted in the 2004 Master Plan.

This alternative would not meet the requirement of Criterion 1 as it would rely heavily on use of existing Terminals 1, 2, and 3 in addition to the new terminal facilities. Only minor upgrades were envisioned to Terminal 2, and none to Terminal 1 or 3, other than the needed modernization of these facilities. The new western facilities would be modern, but no other improvements would be made to modernize the existing central core terminal complex.

The FAA determined that Alternative 2g would not meet the requirements of Criteria 2 and 3. While it could meet the spatial aspects of Requirements 2 and 3, it would not meet the needs associated with these criteria. This is because while new western facilities would be developed, some needs associated with the existing central core facilities—narrow corridor widths, inadequate passenger amenities, and inadequate baggage circulation—would not be addressed. In addition, based on their three activity centers, airlines would be more distributed and distanced, further inhibiting passenger connections.

Alternative 2g could meet all requirements of Criterion 4 and 5, as improvements outlined would provide 232 gates and approximately 38,460 linear feet of total gate frontage. This would exceed the 30,990 linear feet of gate frontage and range of 192–219 gates required to meet the purpose and need. Also, required improvements to Terminal 5 roadways could be accommodated in relation to Criterion 5.

As a result, the FAA determined that this alternative does not meet all the criteria established in Step 1 and did not retain it for further consideration.

Alternative 2h. New Terminal Core (West) Development

This alternative would entail the construction of a new terminal core west of the existing central terminal core. Construction of a new terminal core would occur in the west-midfield, immediately adjacent to (and partially overlapping) the existing central terminal core. Vehicles would continue to approach the terminal curbsides through the Interstate Highway (I-190) corridor, but the entrance would be shifted further north and west to accommodate the relocated terminal core.

This alternative could meet requirements to address Criterion 1, since constructing a new terminal core it would replace infrastructure that has reached the end of its useful life. It could also meet requirements for Criterion 5, as it could accommodate improvements to Terminal 5 roadways. However, it would not meet requirements of Criterion 2, 3, or 4.

It would not meet Requirements 2, 3, or 4A; building a new terminal core west of the existing terminal core would require 546 acres of contiguous acreage available for development and no such land is available for development. Alternative 2h would also fail to meet Requirement 4B as development would not minimize replacement of adequate existing infrastructure relative to the other alternatives considered. It would also create surface access challenges, as the new terminal core would not utilize existing parking infrastructure or surface connections. In addition, demolishing the existing terminal core would be required to enable a roadway connection, resulting in loss of existing adequate infrastructure that does not necessarily need replacement.

Therefore, the FAA determined that this alternative does not meet the criteria established in Step 1 and did not retain it for further consideration.

Alternative 2I. Improvement and Expansion (West-Central) Development

This alternative would consider improvement and expansion in land available for development west of the existing central terminal core. Two plots of land are available for development west of the existing central terminal core: the 177-acre plot on the western perimeter of the airfield and the 258-acre plot in the west midfield (see **Exhibit C-3**).

Development in the 177-acre plot available on the western perimeter of the airport boundary (see **Exhibit C-3**) could meet requirements to address Criterion 1 as it would replace infrastructure that has reached the end of its useful life through improvements to and expansion of the existing terminal core. It could also meet requirements for Criterion 5 as it would accommodate improvements to Terminal 5 roadways. However, it would not meet requirements of Criterion 2, 3, or 4.

It could not meet Requirement 2, 3, or 4A because the land available is not adjacent to the existing central terminal core and therefore, 224 acres is the minimum spatial requirement. As a result, developing this plot would not accommodate spatial needs associated with enabling airline codeshare partners to occupy a shared terminal; it would limit ability to enhance passenger connections and enable co-location of codeshare partners and therefore would not meet the functional need associated with Requirement 3.

Improvement and expansion in the 258.3-acre west-midfield plot (see **Exhibit C-3**) is the Proposed Action for Group 1 and represents the CDA's preferred terminal development that includes development on the west side of the airport. This alternative would include improvements to the existing terminal core, including expansion of the existing central terminal core immediately to the west to accommodate terminal facility requirements identified to address Group 1 needs. This alternative would also update the existing terminal core, while incorporating an additional international CBP FIS processing facility. The concept would allow for gate flexibility and the accommodation of international gates within the terminal core. Additionally, this alternative would include upgrades to Terminal 5 east of the central terminal core to improve the surface travel connection and reduce roadway congestion.

This alternative could meet the screening criteria established in Step 1. This alternative meets the requirement of Criterion 1 as it would accommodate replacement of infrastructure that has reached the end of its useful life. It would also meet requirements of Criteria 2, 3, and 4.

The 258-acre west-midfield plot exceeds the spatial requirement of 134 acres of land available for development immediately adjacent to the existing central terminal core and therefore meets Requirements 2, 3, and 4A. This plot can accommodate 3,159,310 square feet of additional terminal facility space within an adjacent plot of land, creating the required contiguous land envelop of 546 acres, including the existing central terminal core, to accommodate supporting airfield infrastructure, landside access, and passenger connectivity. This alternative would also address the other requirements of Criteria 2 and 3. It would provide for improvements or new facilities that address existing narrow corridor widths, inadequate passenger amenities, and inadequate baggage circulation and would also allow for enhanced passenger connections and enable co-location of desired codeshare partners.

This alternative could also meet Requirement 4B. Relative to the other alternatives considered, this alternative would minimize facility fragmentation, runway crossing, and replacement of adequate existing infrastructure by adhering to airport planning principles and accomplishing the following:

- Retains the current runway system and configuration and allows for modifications elsewhere on the airfield to maximize operational efficiency,
- Improves passenger handling by enhancing connectivity to the airfield and existing surface transportation access systems such as the I-90 terminal access corridor, and

- Retains the current location of the existing terminal, which is central to the primary runway(s), to minimize aircraft taxiing distances and active runway crossings, reducing the probability of runway incursions.

Finally, this alternative would address requirements for Criterion 5 as it would accommodate improvements to Terminal 5 roadways.

As a result, the FAA determined that this alternative meets the criteria established in Step 1 and retained it for further consideration in Step 2.

Conclusion

For the On-Airport–West Alternatives, the FAA determined that Alternatives 2g and 2h would not meet the purpose and need of the Group 1 projects; therefore, these were not retained in Step 2 of the alternatives assessment for this EA (see **Table C-7**). No further consideration was given to these alternatives. Alternative 2i (Improvement and Expansion (West-Central) Development)—where development would occur in the 258.3-acre west midfield plot—was retained for consideration in Step 2.

TABLE C-7
GROUP 1 STEP 1 PURPOSE AND NEED EVALUATION FOR ON-AIRPORT–WEST ALTERNATIVES

Criteria		Alternatives		
		2g. O'Hare Modernization Terminal Concept Alternative	**2h. New Terminal Core (West) Development**	**2i. Improvement and Expansion (West-Central) Development**
1	Would the alternative address the need to provide updated terminal facilities to address those that have reached end of their design life?	**No.** The O'Hare Modernization Terminal Concept Alternative relies heavily on use of existing Terminals 1, 2, and 3 in addition to the new terminal facilities. Only minor upgrades were envisioned to Terminal 2, and none to Terminals 1 or 3. The new western facilities would be modern, but corridor widths would not have been expanded nor other required improvements made to modernize the existing central core terminal complex.	**Yes.** This alternative would replace infrastructure that has reached the end of its useful life through replacement of the existing terminal core.	**Yes.** This alternative would replace infrastructure that has reached the end of its useful life through improvements to and expansion of the existing terminal core.
2	Would the alternative address the need to provide facilities that meet modern passenger needs?	**No.** While new western facilities would be developed, the needs associated with the existing central core facilities would not be addressed. Narrow corridor widths, inadequate	**No.** This alternative would not meet the spatial requirement for Criterion 2 as it would require 546 acres of contiguous acreage available for development when no such land exists west of the	**Yes.** This alternative could accommodate the spatial requirements for Criterion 2 and would provide necessary facility improvements to meet modern passenger needs.

Criteria		Alternatives		
		2g. O'Hare Modernization Terminal Concept Alternative	**2h. New Terminal Core (West) Development**	**2i. Improvement and Expansion (West-Central) Development**
		passenger amenities, and inadequate baggage circulation would remain.	existing terminal core within the airport boundary.	
3	Would the alternative address the need to facilitate domestic and international airline operations to ensure that passengers, luggage, and aircraft can transition between the two types of travel?	**No.** Based on having three separate terminal activity centers, airlines would be more distributed and distanced, further inhibiting passenger connections. Lack of an FIS addition to Terminal 2 would continue to prevent the co-location of codeshare partners.	**No.** This alternative would not meet the spatial requirement for Criterion 3 as it would require 546 acres of contiguous acreage available for development when no such land exists west of the existing terminal core within the airport boundary.	**Yes.** This alternative could accommodate the spatial requirements for Criterion 3 and would address the need to integrate domestic and international airline and airline partner screening operations.
4	Would the alternative address the need to provide sufficient gate frontage and availability, gate flexibility, and taxiway connections to efficiently accommodate aircraft fleet mix?	**Yes.** The O'Hare Modernization Terminal Concept Alternative would provide 232 gates and approximately 38,460 linear feet of total gate frontage, exceeding the required 30,990 linear feet of gate frontage and the range of 192 to 219 gates required to meet this Criterion.	**No.** This alternative would not meet the spatial requirement for Criterion 4 as it would require 546 acres of contiguous acreage available for development when no such land exists east of the existing terminal core within the airport boundary.	**Yes.** This alternative could accommodate the spatial requirements for Criterion 4 and would minimize fragmentation, runway crossing, and replacement of adequate existing infrastructure relative to the other alternatives considered by adhering to airport planning principles.
5	Would the alternative address the need to provide adequately sized curbside facilities and ground access to Terminal 5?	**Yes.** This alternative would accommodate improvements to Terminal 5 roadways.	**Yes.** This alternative would accommodate improvements to Terminal 5 roadways.	**Yes.** This alternative would accommodate improvements to Terminal 5 roadways.
Move to Step 2?		**No.** This alternative was not retained for detailed consideration because it does not accommodate all criteria required to meet the Group 1 purpose and need.	**No.** This alternative was not retained for detailed consideration because it does not accommodate all criteria required to meet the Group 1 purpose and need.	**Yes.** This alternative was retained for consideration in Step 2.

Step 2: Feasibility

For those alternatives that successfully met the Step 1 criteria, the FAA then evaluated them for feasibility under Step 2. Since the FAA determined that Alternative 2i met the criteria under Step 1, Purpose and Need, it was then screened for feasibility.

In Step 2, feasibility was reviewed to ensure that the alternative could be implemented, or be practical, from a technical or economic perspective. There are 18 Group 1 projects in the proposed action. Further detail on these projects can be found in **Section C.3.1** of this Appendix as well as in **Chapter 1**. The FAA reviewed the CDA's conceptual architectural renderings, plan-level views, demolition plans, and section views that affirm the ability to construct the proposed project, and as a result, determined that the CDA's sponsor-preferred action would meet sound engineering principles and be feasible to construct. The FAA determined that the CDA's Proposed Action satisfied both Step 1 and Step 2 of the screening process, including the requirement for Criterion 6, and was retained for further consideration in Step 3.

Step 3: Avoidance and/or Minimization of Impacts

Finally, Step 3 evaluated the extent to which Alternative 2i would avoid or minimize impacts to special purpose law protected resources. The screening process under Step 3 led to an evolution in the consideration of alternatives as specific design variants of Alternative 2i**.** The variants focused on various facets of the CDA's initial proposed project, largely connections between new facilities and facilities that are eligible for the NRHP, to determine if adverse effects could be avoided while meeting the purpose and need.

The CDA developed conceptual architectural renderings, plan-level views, demolition plans, and section views at each proposed interface connection to illustrate the relationship between the proposed facilities and eligible structures. Based on preliminary concepts, the FAA indicated potential for a finding of adverse effect per the National Historic Preservation Act (NHPA) regulations under Title 36 of the CFR Part 800.5 pertaining to impacts to Terminal 1 (including Concourses B and C) and the Rotunda that would not conform to portions of the Secretary of the Interior's Standards for Rehabilitation that govern analysis of impacts under Section 106.[50] Proposed passenger terminal facilities require connections to structures within the existing O'Hare complex that have been determined to be eligible for listing on the NRHP. The FAA determined that the Rotunda and Terminal 1/Concourse B and C were eligible for the NRHP and that the CDA's initial Proposed Action under Alternative 2i would use (alter) parts of these NRHP structures through:

- The interface between the proposed O'Hare Global Terminal and Concourse and existing Terminal 1 Concourse B,
- The interface between the proposed OGT and the existing Rotunda,
- The interface between existing Terminal 1 Concourse C and the proposed Satellite 1 concourse,
- The proposed expansion at the northeast end of Concourse B, and
- The proposed expansion at the northwest end of Concourse C.

Through the Section 106 process, the latter two Section 4(f) effects (Terminal 1 Concourse B northeast end and Terminal 1 Concourse C North) were determined to not be an adverse effect as proposed by CDA. The first two effects were determined to be adverse. The FAA requested that the CDA consider refinements to Alternative 2i that either avoided the adverse effect or minimized the impacts by reducing the amount of existing historic fabric and historic features to be removed, different interface connection points (including potential underground connections), narrower and/or revised interface connections, and increased transition space between the existing and proposed structures. In response, the CDA developed alternative layout concepts ("design variants") of the OGT and Satellite 1 intended to avoid or minimize potential adverse effect(s) on Terminal 1 and the Rotunda.

[50] Properties eligible for the NRHP are also subject to Section 4(f).

In total, the CDA evaluated 36 design variants for three building interface locations in response to FAA's concerns regarding impacts to historic fabric/features:

- Nineteen variants were reviewed for the interface of Terminal 1 Concourse B with the OGT,
- Nine variants were reviewed for the interface of Terminal 1 Concourse C with Satellite 1, and
- Nine variants were reviewed for the interface of the Rotunda with the OGT.

Figure C-3 and **Figure C-4**, on the following pages, summarize the Step 3 screening results for each design variant considered, including an assessment of requirements under Criteria 7 and 8.[51] As shown, only the Proposed Action design variants avoid adverse effects to NRHP resources while also meeting the purpose and need, those are:

- Variant B12d for the OGT connection to Concourse B,
- Variant R-5-1 for the connection of the OGT to the Rotunda, and
- Variant C6a for the connection between Concourse C and Satellite S1.

As a result, the FAA retained these design variants as part of the Proposed Action (**Alternative 2i. Improvement and Expansion (West-Central) Development)** that was retained for detailed consideration in this EA.

[51] Further detail on the assessment process and results can be found in Appendix H and Appendix G.

FIGURE C-3
DESIGN VARIANT SCREENING RESULTS

OGT-Terminal 1/Concourse B Connection

Variants	Criteria # / Requirement								
	7A Avoid use of special purpose law protected resource?	7B Avoid adverse effect on special purpose law protected resources?	7C Minimize adverse effect on special purpose law resources?	8A Provide for improvements or new facilities that address existing narrow corridor widths?	8B Meet facility requirements for programmable space, gates, & gate flexibility?	8C Enable appropriate functionality & organization of space?	8D Accommodate sufficient wayfinding, signage & universal design?	8E Enable direct routing, connection of baggage system, & back of house functions?	8F Feasible to construct & avoid impact to essential or difficult to replace functions?
B1: Maximized OGT	◆	◆	◆	●	●	●	●	●	●
B2: Initial CDA Proposed Project	◆	◆	◆	●	●	●	●	●	●
B3: Extended Transition	◆	◆	◆	●	◆	▲	◆	●	●
B4: Revised Proposed Action	◆	◆	●	●	●	●	●	●	●
B5: Extended Concourse Transition	◆	◆	●	●	◆	◆	●	●	●
B5-1: Extended Concourse Transition Variant	◆	◆	●	●	●	●	●	●	●
B6: Side connection btwn OGT & Concourse B	◆	◆	●	●	◆	◆	◆	◆	●
B6A: B6 relocating restroom	◆	◆	●	●	◆	◆	◆	◆	●
B7: Underground connection btwn OGT & Concourse B	◆	◆	●	●	◆	◆	◆	◆	●
B8: Straight Center entrance to B1	◆	◆	●	●	◆	▲	▲	▲	●
B9: Angled center entrance to B1	◆	◆	●	●	◆	▲	▲	▲	●
B10a, B10b, B11a, B11b, B12a, B12c	◆	◆	●	●	▲	●	▲	●	●
B12d: Proposed Action	◆	●	●	●	●	●	●	●	●

LEGEND ● Yes ▲ Somewhat ◆ No

FIGURE C-4
DESIGN VARIANT SCREENING RESULTS, CONTINUED

Satellite C Connection to Concourse S1

Variants	Criteria # / Requirement								
	7A Avoid use of special purpose law protected resource?	7B Avoid adverse effect on special purpose law protected resources?	7C Minimize adverse effect on special purpose law resources?	8A Provide for improvements or new facilities that address existing narrow corridor widths?	8B Meet facility requirements for programmable space, gates, & gate flexibility?	8C Enable appropriate functionality & organization of space?	8D Accommodate sufficient wayfinding, signage & universal design?	8E Enable direct routing, connection of baggage system, & back of house functions?	8F Feasible to construct & avoid impact to essential or difficult to replace functions?
C1: Maximize Satellite S1	◆	◆	◆	●	●	●	●	●	●
C2: Initial Proposed Action	◆	◆	◆	●	●	●	●	●	●
C3: Variant of C2	◆	◆	●	●	●	●	●	●	●
C4: Extended Transition	◆	◆	●	●	▲	▲	●	●	●
C5: Further Extended Transition	◆	◆	●	●	◆	◆	●	●	●
C6: Side Connection	◆	◆	●	●	◆	◆	◆	◆	●
C6a: Refined C6	◆	●	●	●	●	●	●	●	●
C7: Underground Connection	◆	◆	●	●	◆	◆	◆	◆	●
Rotunda Connection to the OGT									
R1: Maximized OGT/Rotunda Connection	◆	◆	◆	●	●	●	●	●	●
R2: Rotunda connection through Concourse G	◆	◆	◆	◆	●	▲	◆	◆	●
R3: Initial Proposed Action	◆	◆	◆	●	●	●	●	●	●
R4: Increase separation between OGT & Rotunda	◆	◆	●	●	▲	▲	◆	▲	▲
R5: Variant	◆	◆	●	●	●	●	●	●	●
R5-1: Revised Proposed Action	◆	●	●	●	●	●	●	●	●
R6: Adjacent Landside/ Airside Connection	◆	◆	●	●	▲	▲	◆	◆	●
R7: Underground connection OGT/Rotunda	◆	◆	●	●	◆	◆	◆	◆	▲
RX: Annual Concept	◆	◆	●	●	◆	◆	◆	◆	●

LEGEND ● Yes ▲ Somewhat ◆ No

Conclusion

The FAA determined that construction of a new terminal core or improvements and expansion of the existing terminal core to the north, south, or east (Alternatives 2a through 2f) would not meet the purpose and need screening criteria under Step 1 and therefore, none of these alternatives advanced to Step 2 of the screening analysis.

The FAA determined that the O'Hare Modernization Terminal Concept Alternative (alternative 2g) and construction of a new terminal core to the west (alternative 2h) would not meet the purpose and need screening criteria under Step 1. Therefore, alternatives 2g and 2h did not advance to Step 2 of the screening analysis.

The FAA determined that **Alternative 2i. Improvement and Expansion (West-Central) Development** was the only alternative that would meet the purpose and need screening criteria under Step 1.

The FAA and CDA consideration of alternatives concluded that most of the development of new land would need to take place in the West-Central area, along with some elements in the eastern terminal area, to achieve the purpose and need for Group 1 projects. The CDA considered a range of West-Central development alternatives and their associated variants with some elements in the eastern terminal area but eventually agreed with its initial alternative. The FAA's Alternative 2i met the criteria established for Step 2–Feasibility.

Under Step 3 of the screening analysis, Alternative 2i was assessed to determine whether its design variants would avoid or minimize impacts to cultural and historic resources protected under special purpose laws. Based on designs of CDA's Refined Proposed Project, the FAA, in consultation with the State Historic Preservation Officer, determined a finding of no adverse effect under the NHPA.[52]

No Action Alternative

Under the No Action Alternative, the current facilities at O'Hare would remain unchanged because implementation of the Proposed Project would not occur. The No Action Alternative includes existing space and facilities (as of April 2020) and improvements already approved by the FAA that would be constructed by the Interim year (2025) and Build Out year (2032) considered in this EA. Independent utility projects, as shown on the draft O'Hare Future ALP, have independent need from the Proposed Action and have been or will be processed through separate NEPA review and documentation. See **Section C.4** and **Table C-51** for additional information about these independent utility projects.

[52] Further detail provided in Chapter 5, Section 5.7 Historical, Architectural, Archeological, and Cultural Resources.

Conclusion

The No Action Alternative does not meet the purpose and need for Group 1 projects and therefore does not meet the criteria for Step 1 of the evaluation process. However, the No Action Alternative was evaluated throughout this EA in accordance with FAA Order 1050.1F and CEQ guidance.[53]

C.2.1.4 Group 1 Identification of Alternatives Carried Forward

The results of the alternatives-screening analysis for Group 1 are summarized in **Table C-8**. The No Action Alternative and Alternative 2i were carried forward for detailed evaluation in the environmental consequences chapter (**Chapter 5**). Only Alternative 2i meets purpose and need, but the No Action Alternative was also carried forward in accordance with FAA and CEQ requirements. For purposes of this EA, Alternative 2i is herein referred to as the Proposed Action.

[53] 40 CFR Section 1502.14(c)

TABLE C-8
SUMMARY OF ALTERNATIVES SCREENING ANALYSIS RESULTS

			Step 1: Purpose and Need	Step 2: Feasibility	Step 3: Minimization or Avoidance	Retained for Consideration in this EA?	Reason
Off-Airport	1a	Conventional and High-Speed Rail	✗	N/A	✗	✗	This alternative would meet some needs, but not others. It is outside the authority of the FAA and City and would not be completed in the timeframe of the proposed project. Note that the 2005 EIS examined a quantity of activity that might be siphoned off to these modes or locations. Even with reduced activity, many of the needs at ORD would continue, but would not be met at off-site alternatives. Therefore, this alternative was not considered further in this EA.
	1b	Highway Travel	✗	N/A	✗	✗	This alternative would meet some needs, but not others. It is outside the authority of the FAA and City and would not be completed in the timeframe of the proposed project. Note that the 2005 EIS examined a quantity of activity that might be siphoned off to these modes or locations. Even with reduced activity, many of the needs at ORD would continue, but would not be met at off-site alternatives. Therefore, this alternative was not considered further in this EA.
	1c	Communicatio..	✗	N/A	✗	✗	This alternative would meet some needs, but not others. It is outside the authority of the FAA and City and would not be completed in the timeframe of the proposed project. Note that the 2005 EIS examined a quantity of activity that might be siphoned off to these modes or locations. Even with reduced activity, many of the needs at ORD would continue, but would not be met at off-site alternatives. Therefore, this alternative was not considered further in this EA.
	1d	Use of Local Airports	✗	N/A	✗	✗	This alternative would meet some needs, but not others. It is outside the authority of the FAA and City and would not be completed in the timeframe of the proposed project. Note that the 2005 EIS examined a quantity of activity that might be siphoned off to these modes or locations. Even with reduced activity, many of the needs at ORD would continue, but would not be met at off-site alternatives. Therefore, this alternative was not considered further in this EA.
	1e	Use of Mid-Continent Airports	✗	N/A	✗	✗	This alternative would meet some needs, but not others. It is outside the authority of the FAA and City and would not be completed in the timeframe of the proposed project. Note that the 2005 EIS examined a quantity of activity that might be siphoned off to these modes or locations. Even with reduced activity, many of the needs at ORD would continue, but would not be met at off-site alternatives. Therefore, this alternative was not considered further in this EA.
On-Airport North	2a	New Core	✗	N/A	✗	✗	This alternative would not meet the purpose and need as there is not enough contiguous acreage of land available for development of a new terminal core to the north of the airport that would accommodate the terminal facility space requirements to meet Group 1 needs (546-acre land envelope). Additionally, construction of a new terminal core in any of these areas would require the replacement of adequate existing infrastructure, which could not be accommodated elsewhere on the airfield. Therefore, this alternative was not considered further in this EA.
	2b	Improvement & Expansion	✗	N/A	✗	✗	This alternative would not meet the purpose and need as the only land available to accommodate the required 134-acre adjacent or 224-acre non-adjacent expansion of the existing terminal core to the north of the airport would limit gate flexibility and/or require runway crossing for widebody aircraft to safely depart. As a result, this alternative does not meet the requirements for Criterion 4 and does not meet the purpose and need. Therefore, this alternative was not considered further in this EA.
On-Airport South	2c	New Core	✗	N/A	✗	✗	This alternative would not meet the purpose and need as there is not enough contiguous acreage of land available for development of a new terminal core to the south of the airport that would accommodate the terminal facility space requirements to meet Group 1 needs (546-acre land envelope). Additionally, construction of a new terminal core in any of these areas would require the replacement of adequate existing infrastructure, which could not be accommodated elsewhere on the airfield. Therefore, this alternative was not considered further in this EA.
	2d	Improvement & Expansion	✗	N/A	✗	✗	This alternative would not meet the purpose and need as there is not enough contiguous acreage of land available for development of an expansion to the existing terminal core to the south of the airport that would accommodate the 134-acre adjacent or 224-acre non-adjacent terminal facility space requirements to meet Group 1 needs. Additionally, expansion anywhere to the south of the existing terminal core would require replacement of adequate existing infrastructure, which could not be accommodated elsewhere on the airfield. Therefore, this alternative does not meet the purpose and need and was not considered further in this EA.

LEGEND ✓ Retained ✗ Not Retained

			Step 1: Purpose and Need	Step 2: Feasibility	Step 3: Minimization or Avoidance	Retained for Consideration in this EA?	Reason
On-Airport East	2e	New Core	✗	N/A	✗	✗	This alternative would not meet the purpose and need as there is not enough contiguous acreage of land available for development of a new terminal core to the north of the airport that would accommodate the terminal facility space requirements to meet Group 1 needs (546-acre land envelope). Additionally, construction of a new terminal core in any of these areas would require the replacement of adequate existing infrastructure, which could not be accommodated elsewhere on the airfield. Therefore, this alternative was not considered further in this EA.
	2f	Improvement & Expansion	✗	N/A	✗	✗	This alternative would not meet the purpose and need as there is not enough contiguous acreage of land available for development of an expansion to the existing terminal core to the east of the airport that would accommodate the 134-acre adjacent or 224-acre non-adjacent terminal facility space requirements to meet Group 1 needs. Additionally, expansion anywhere to the east of the existing terminal core would require replacement of adequate existing infrastructure, which could not be accommodated elsewhere on the airfield. Therefore, this alternative does not meet the purpose and need and was not considered further in this EA.
On-Airport West	2g	OMP Terminal Concept	✗	N/A	✗	✗	This alternative would meet some needs, but not others. This is because the OTC relies heavily on use of existing Terminal 1, 2, and 3 in addition to the new terminal facilities. Only minor upgrades were envisioned to Terminal 2, and none to Terminal 1 or 3. The new facilities would be modern, but corridor widths would not have been expanded nor other improvements to modernize the existing terminal complex. While new facilities would be developed, the needs associated with the existing facilities would not be addressed. Narrow corridor widths, inadequate passenger amenities, and inadequate baggage circulation would remain. Based upon having three activity centers, airlines would be more distributed and distanced, further inhibiting passenger connections. An FIS addition to Terminal 2 would not enable the co-location of code share partners. Therefore, this alternative was not considered further in this EA.
	2h	New Core	✗	N/A	✗	✗	This alternative would not meet the purpose and need as there is no land available for development of a new terminal core to the north of the airport that would accommodate the terminal facility space requirements to meet Group 1 needs. Additionally, construction of a new terminal core in any of these areas would require the replacement of adequate existing infrastructure, which could not be accommodated elsewhere on the airfield. Therefore, this alternative was not considered further in this EA.
	2i	Improvement & Expansion	✓	✓	✓	✓	This alternative would meet the purpose and need, make efficient use of existing infrastructure, and maximize operational efficiency, and is feasible to construct. Additionally, FAA determined that this design variant would minimize adverse effects to historic and cultural resources. As a result, it was retained for detailed consideration in this EA.
No Action	0	No Action	N/A	N/A	✓	✓	Although this alternative would not satisfy the purpose and need, it was carried forward as a requirement of 40 CFR § 1502.14(d)(1978). The No Action alternative serves as a basis for comparing the impacts of all the reasonable alternatives evaluated.

LEGEND ✓ Retained ✗ Not Retained

C.2.2 Group 2–On-Airport Hotels

Group 2—On-Airport Hotels includes the following projects:

- Multimodal Facility (MMF) Hotel, Mixed-Use Development, and Detention Basin Relocation and
- Terminal 5 Hotel Facility and Pedestrian Bridge.

The Group 2 need, as documented in **Chapter 2**, is to increase non-aeronautical revenue.

C.2.2.1 Identification of Group 2 Alternatives

Based on the preliminary analysis that Group 2 projects are anticipated to have no significant environmental consequences and not involve any resources protected under special purpose environmental laws and regulations, the range of alternatives considered for these projects was: the Proposed Action and the No Action Alternative. Only one action alternative was considered to meet the needs of Group 2.

C.2.2.2 Group 2 Alternatives Carried Forward

Proposed Action

Two on-airport non-aeronautical projects make up the Group 2 Proposed Action. They are further detailed in **Section C.3.2**.

No Action

Under the No Action Alternative, the current facilities at O'Hare would remain unchanged because implementation of the Proposed Action would not occur.

The No Action Alternative was carried forward as a requirement of 40 CFR Section 1502.14(c). The No Action Alternative serves as a basis for comparing the impacts of all reasonable alternatives evaluated.

C.2.3 Group 3–Airfield and Taxiway Improvements Not Required by the Terminal Projects

Group 3—Airfield and Taxiway Improvements Not Required by the Terminal Projects includes the following:

- Bravo Hold Pad Conversion,
- Runway 28R Blast Pad Expansion,
- Runway 9L/27R Exit Taxiways,
- Taxiways P, V, and Y Reconfiguration,
- Taxiway T Demolition, and
- Taxiway DD Realignment at the Taxiways Q Intersection.

The Group 3 needs, as documented in **Chapter 2**, **Section 2.3.3**, are to:

- Provide additional temporary aircraft parking positions,
- Expand Runway 28R blast pad to meet FAA standards, and
- Improve efficiency and reduce aircraft occupancy time on Runway 9L/27R.

C.2.3.1 Identification of Group 3 Alternatives

Based on the preliminary analysis that Group 3 projects are anticipated to have no significant environmental consequences or involve a resource protected under special purpose environmental laws

and regulations, the range of alternatives considered for these projects was the Proposed Action and the No Action Alternative. Only one action alternative was considered to meet the needs of Group 3.

C.2.3.2 Group 3 Alternatives Carried Forward

Proposed Action

Six airfield and taxiway projects make up the Group 3 Proposed Action. They are further detailed in **Section A.3.3**.

No Action

Under the No Action Alternative, the current facilities at O'Hare would remain unchanged because implementation of the Proposed Action would not occur.

The No Action Alternative was carried forward as a requirement of 40 CFR Section 1502.14(c). The No Action Alternative serves as a basis for comparing the impacts of all reasonable alternatives evaluated.

C.2.4 Group 4–Support Facilities Not Required by the Terminal Projects

Group 4–Support Facilities Not Required by the Terminal Projects includes the following:

- West Heating and Refrigeration (H&R) Facility,
- West Employee Screening Facility,
- West Employee Ground Transportation Facility and Parking Garage,
- West Employee Landside Access,
- West Landside Detention Basins,
- Airside Service Roadways,
- Aircraft Rescue and Firefighting Station 4 Relocation,
- Commercial Vehicle Holding Area Expansion, and
- Centralized Distribution and Receiving Facility (CDRF).

The Group 4 needs, as documented in **Chapter 2**, are summarized as:

- Provide additional airline employee parking and
- Safely and efficiently process goods currently being brought into the terminal core

C.2.4.1 Identification of Group 4 Alternatives

Based on the preliminary analysis that Group 4 projects are anticipated to have no significant environmental consequences or involve any resources protected under special purpose environmental laws and regulations, the range of alternatives considered for these projects was binary: the Proposed Action and the No Action Alternative. Only one action alternative was considered to meet the needs of Group 4.

C.2.4.2 Group 4 Alternatives Carried Forward

Proposed Action

Nine support facility projects make up the Group 4 Proposed Action. They are further detailed in **Section C.3.4**.

No Action

Under the No Action Alternative, the current facilities at O'Hare would remain unchanged because implementation of the Proposed Action would not occur.

The No Action Alternative was carried forward as a requirement of 40 CFR Section 1502.14(c). The No Action Alternative serves as a basis for comparing the impacts of all reasonable alternatives evaluated.

C.2.5 Group 5–Air Traffic Actions for Offset Approach Procedures for Runway 10R/28L

The proposed Group 5 air traffic actions include retaining offset (angled) air traffic approaches to Runways 10R and 28L. Multiple alternatives were considered to meet the needs of Group 5. The design and layout of the current runway configuration at O'Hare and the air traffic procedures put in place were based on then-current air traffic separation standards that relied on radar and surveillance equipment and technologies available at the time. Air traffic procedures are dynamic, evolving over time to reflecting changes in technologies and capabilities but which nonetheless have an overall objective of maintaining safety of flight. The FAA updates air traffic procedures frequently to reflect improved air traffic management concepts; these 'new' management concepts are usually enabled by changes in technologies and automation systems that support the communications, navigation, and surveillance infrastructure of the air traffic control system.

Examples of technological advances gaining widespread adoption by the FAA and the aviation industry in the years since the airfield design was assessed in 2005 include:

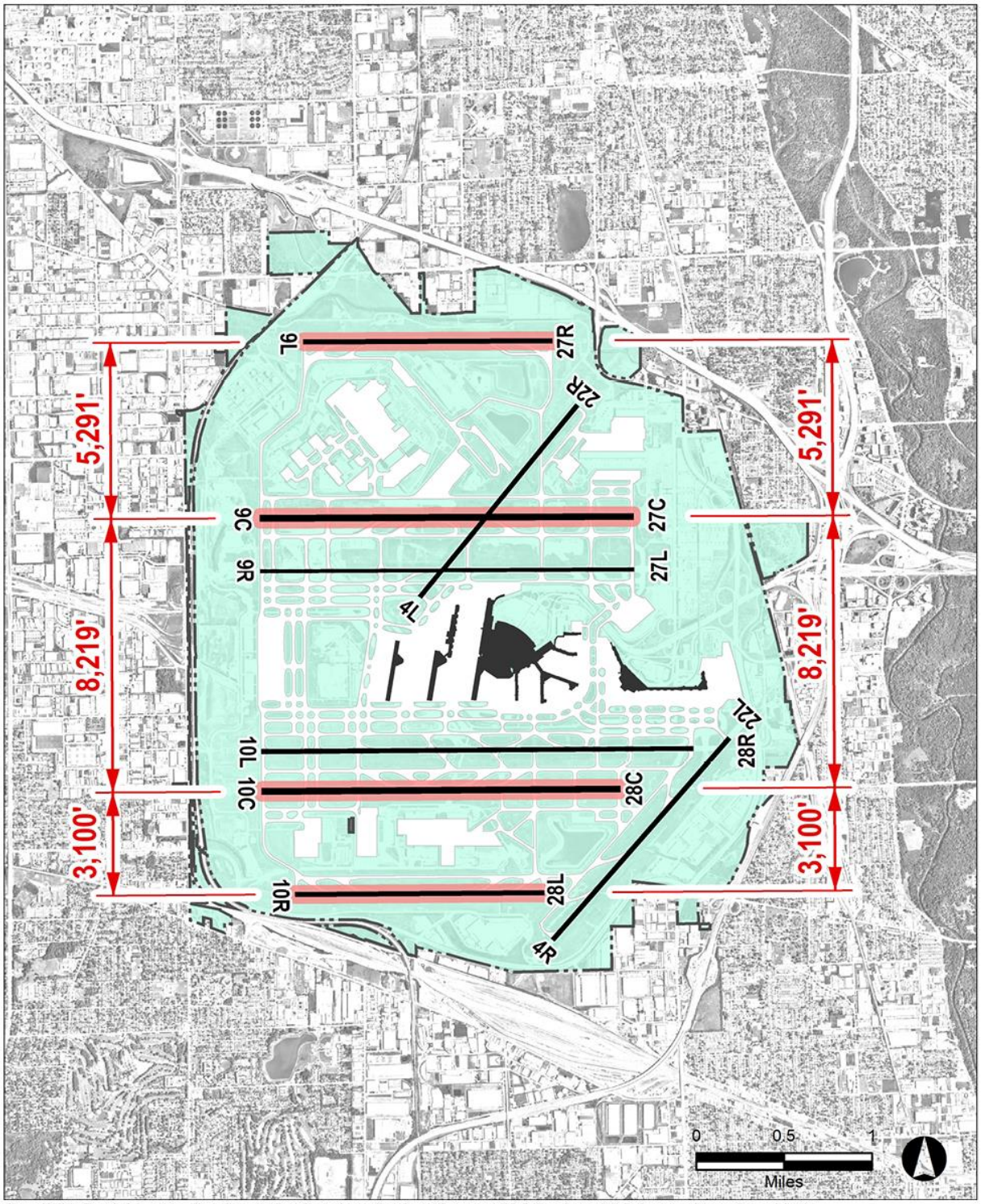
- Cockpit Display of Traffic Information (communications, surveillance),
- Performance-Based Navigation/Area Navigation (navigation),
- Automatic Dependent Surveillance-Broadcast (surveillance), and
- Terminal Sequencing and Spacing (automation).

The combined effects of these several new capabilities coming online over the years has improved the ability of controllers to deliver aircraft to the runway with the required separation from the preceding aircraft necessary for safety while increasing throughput (as measured by arrival acceptance rates per hour). This has allowed, for example, the FAA to devise procedures for implementing independent approaches to runways that are closer together than what would have previously been allowable, resulting in reduced spacing between arrivals—which means greater throughput and reduced delays.

Simultaneous independent arrival approaches allow for increased efficiency, especially in poor weather during east flow operations (for the Runway 10R offset) and enable O'Hare to achieve its airfield design operating capability. Without the offset, increased spacing between sequential arrivals, which can result in delay, would be required. As a result, the FAA needs to retain simultaneous independent approach capabilities to enable O'Hare to achieve its airfield design operating capability and increase efficiency.

In 2015, FAA implemented temporary, independent simultaneous offset (angled) air traffic approach procedures to Runway 10R/28L for greater throughput and reduced delays. With only 3,100 feet separation between Runway 10R/28L and its adjacent parallel runway (Runway 10C/28C), the final approach courses to the southernmost parallel runway (Runway 10R/28L) needed to be offset from their extended centerlines to enable independent simultaneous approaches to Runways 10R and 10C and to Runways 28L and 28C (see **Exhibit C-4**). These offset air traffic approaches to Runway 10R/28L were modeled and the effects were previously disclosed as part of a temporary approval documented in the 2015 Written Re-Evaluation of the OMP EIS.

As a result, this section evaluates alternatives to retention of the offset air traffic approach to Runway 10R/28L.



Source: HMMH, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, Environmental Systems Research Institute

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Main Arrival Runways and Separation Distances

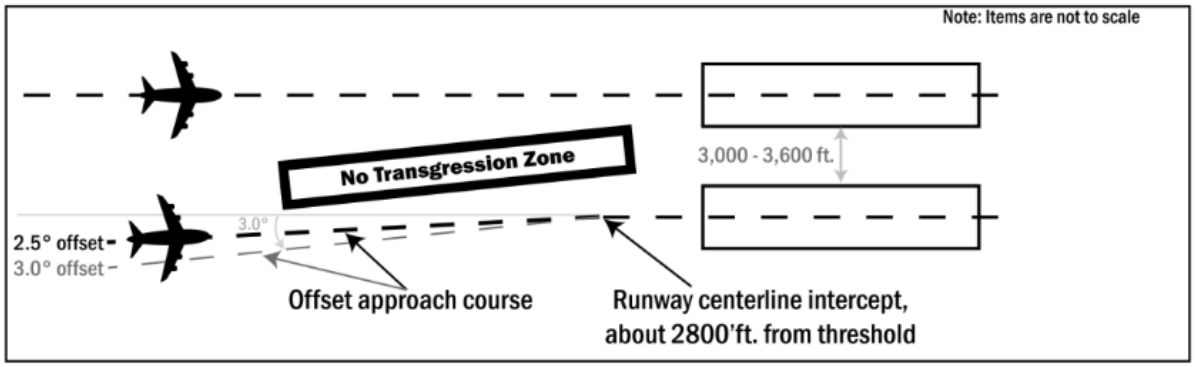
▶ Exhibit C-4

C.2.5.1 Range of Group 5 Alternatives Considered

This section describes the FAA's comprehensive approach to identifying alternatives to Group 5 project components. To achieve the design capability of the airfield, the FAA desired to put in place offset air traffic approaches to Runway 10R/28L. The offset enables simultaneous parallel approach to the four parallel runways used primarily for arrivals—the design objective of the airfield approved in the 2005 EIS. To meet both O'Hare's design operating capability and FAA safety guidance, alternative ways of achieving simultaneous parallel approaches four parallel runways were identified.

Simultaneous independent approaches to closely spaced parallel runways (those defined by FAA guidance as spaced 2,500 and 3,600 feet apart) require that one of the approach courses be offset from the extended centerline (see **Figure C-5**). To ensure safety, the allowable offset air traffic approach angle design standard ranges from 2.5 degrees to 3 degrees. This is because an offset angle of less than 2.5 degrees would not achieve the necessary separation required for independence from aircraft on other runways, resulting in dependency on the adjacent arrival stream. On the other hand, an offset angle greater than 3 degrees is unallowable because it would place aircraft on approach too close to one another, increasing the risk of incursion into the no-transgression zone[54] between the parallel runways by the aircraft on the offset air traffic approach. **Figure C-5** illustrates a notional offset east flow approach; the west flow approach is a mirror image of this graphic.

FIGURE C-5
SIMULTANEOUS INDEPENDENT APPROACHES TO CLOSELY SPACED PARALLEL RUNWAYS



Simultaneous Independent Approaches to Closely Spaced Parallel Runways

- Runway centerlines spaced at 3,000 to 3,600 feet apart
- "Independent" requires that one of the approach courses be offset from extended centerline by 2.5 to 3 degrees

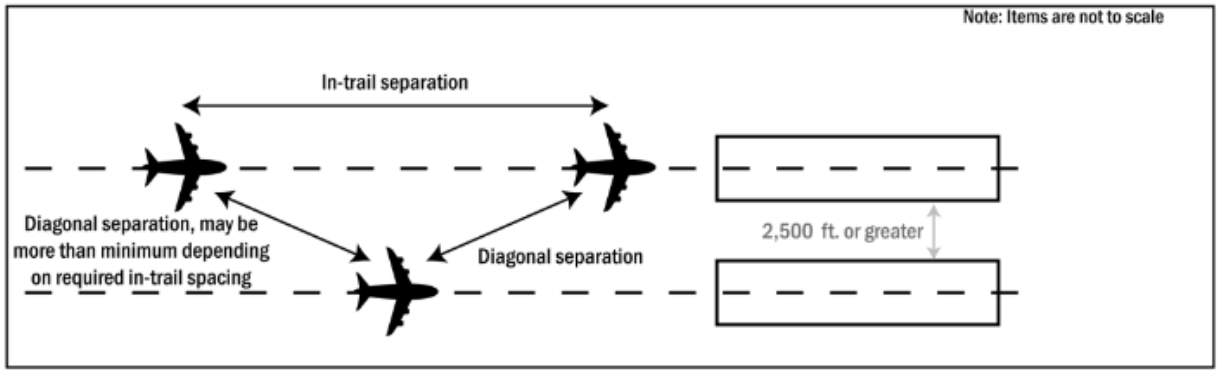
Source: HMMH 2021; Graphic derived from Information contained in FAA JO 7110.65X, USTERPS (FAAO 8260.3E), and FAA JO 7110.308C

[54] FAA JO 7110.65Y defines the no-transgression zone as a 2,000-foot-wide zone equidistant between parallel runway approach courses in which flight is normally not allowed.

The existing temporarily approved offset air traffic approach procedures currently allow for simultaneous approaches to three runways in east or west flows, with one of the three runways being Runway 10R/28L. For example, in east flow, the offset air traffic approach procedures allow for simultaneous approaches to Runways 10R, 10C, and 9L. In west flow, offset air traffic approach procedures allow for simultaneous approaches to Runways 28L, 28C, and 27R. The 2.5 degree offset final approach paths to Runway 10R/28L were temporarily approved in October 2015 in the Written Re-Evaluation of the O'Hare Modernization Environmental Impact Statement. The offset air traffic approach paths increase separation between aircraft on parallel approaches involving Runway 10R/28L. Based on the considerations above, the following Group 5 alternatives were considered:

- **2.5 Degree Offset Alternative.** The offset angle of 2.5 degrees represents the smallest degree of offset from the runway heading that enables independent, parallel approaches.
- **3 Degree Offset Alternative.** The offset angle of 3 degrees represents the largest degree of offset from the runway heading that enables independent, parallel approaches without increasing the risk of incursion into the no-transgression zone between the parallel runways by the aircraft on the offset air traffic approach.
- **No Action Alternative.** The 2015 Written Re-Evaluation assumed the offset air traffic approaches would expire when Build Out of the O'Hare Modernization occurred, currently assumed to occur at the end of 2022. Therefore, the No Action Alternative does not include the offset air traffic approaches and the associated offset downwind approach procedures, relying instead on approaches aligned with the extended runway centerline. **Figure C-6** provides a depiction of simultaneous dependent approaches. In essence, the No Action would result in not achieving the airfield design objective of independent parallel runway approaches.

FIGURE C-6
SIMULTANEOUS DEPENDENT APPROACHES



Simultaneous Dependent Approaches

- Runway centerlines spaced 2,500 feet or greater, except for specific procedures approved with less runway spacing
- Staggered approaches

Source: HMMH 2021; Graphic derived from Information contained in FAA JO 7110.65X, USTERPS (FAAO 8260.3E), and FAA JO 7110.308C

C.2.5.2 Group 5 Projects Screening Process Overview

As described in **Section C.1.2**, the alternatives evaluation for this EA generally followed a systematic three-step screening process illustrated in **Figure C-1**. The process was modified to accommodate the project types included in each group. The first screening step addressed whether the alternatives would satisfy the purpose and need for Group 5, as described in more detail in **Chapter 2**. Under Step 2, Group 5 alternatives were screened to ensure that they met feasibility considerations. Alternatives that did not meet the criteria established at Step 2 were eliminated from further consideration and did not move on to Step 3. Finally, Step 3 evaluated the extent to which the alternative would avoid or minimize impacts to resources protected under special purpose environmental laws and regulations. Alternatives that were not retained through the screening process were dismissed from further review; dismissed alternatives were not subject to a detailed analysis of environmental consequences. The criteria considered in each screening step are defined in **Table C-9.**

TABLE C-9
ALTERNATIVES SCREENING PROCESS CRITERIA

Step	Criteria	Criterion Requirements
1 – Purpose and Need	Would the alternative address the need to align FAA Air Traffic Control procedures with the design operating capability of the airfield runway complex?	The alternative must provide the capability for independent parallel approaches to parallel runways using the southernmost runway, increase flexibility and efficiency, and reflect the existing airfield design operating capability of O'Hare.
2 – Feasibility	Would the alternative be feasible to operate based on existing FAA guidance?	The alternative must be feasible to operate based on existing FAA air traffic management guidance and procedure design criteria.
3 – Minimization	Would the alternative minimize and/or avoid impacts to resources protected under special purpose laws and regulations?	The alternative should minimize and/or avoid impacts to special purpose resource categories.

C.2.5.3 Group 5 Projects Alternatives Evaluation

Because of the complexity of O'Hare's airspace and operations, the FAA used the results of Total Airspace and Airport Modeler (TAAM) computer simulations (or models) to determine whether each alternative could meet the Step 1–Purpose and Need criteria by addressing the need to align FAA Air Traffic Control Procedures with the design operating capability of the airfield runway complex. TAAM was used to assess the average delay for arrivals (see **Table C-10**). The FAA used modeling to determine delay based on a variety of inputs (airfield geometry, ramp/gating considerations, taxiing distances and durations, etc.). Based on the operations forecast developed for the EA, sophisticated TAAM computer simulations (or models) allowed the FAA to evaluate multiple airspace, airfield, and operational scenarios in a variety of contexts (e.g., varied meteorological conditions, peak departure/arrival demand periods, etc.,) and assess how throughput may vary. TAAM analysis provided insight into the operational capabilities of the alternatives being studied and provided a basis for assessment of operational performance and anticipated environmental consequences associated with each alternative.

For this EA, TAAM simulation analyses were conducted by the City of Chicago's Consultant Team with direction, oversight, review, and approval by the FAA and its Third-Party Consultant. The iterative, twelve-month TAAM analysis process ensured that TAAM input assumptions, modeling methodologies,

and output data conformed to industry best modeling practices and accurately reflected air traffic control rules and procedures. In total, the FAA invested over 2,500 hours reviewing assumptions, draft results, animations, and results. The FAA review was conducted by an Air Traffic Work Group consisting of:

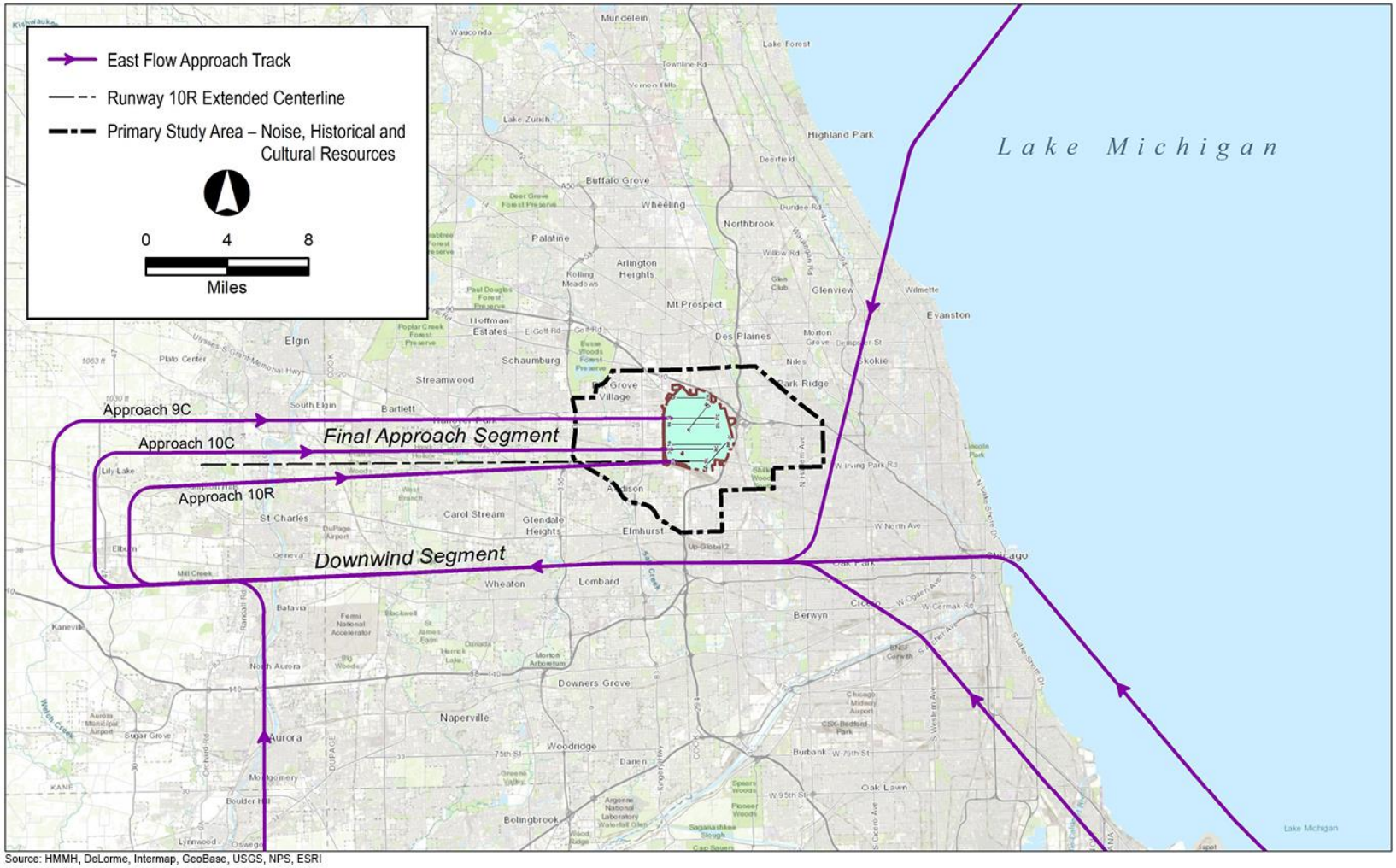
- FAA Management,
- National Air Traffic Controller Association representatives from:
  - O'Hare Air Traffic Control Tower,
  - Chicago Terminal Radar Approach Control Facility, and
  - Chicago Center (ZAU),
- FAA Airports Division, and
- FAA's Third-Party Consultant.

The TAAM simulations were based on forecast flight schedules approved by the FAA for use in this analysis. The software simulates an entire flight, from departure at another airport to when the engines are turned off at the gate at O'Hare. The model considers each hypothetical trip in conjunction with all other aircraft in the region's airspace arriving at or departing from O'Hare. It also simulates aircraft movement on the airfield. The model then calculates the appropriate time between flights at each gate and provides a departure time based on ground traffic at O'Hare and other aircraft demanding the same airspace.

TAAM simulation experiments provided insight as to how the various airfield alternatives performed compared to one another. In addition, the model outputs provided input data to the noise and air quality assessment models.

2.5 Degree Offset and 3 Degree Offset

Exhibit C-5 and **Exhibit C-6** show the approaches for the Offset Alternatives for east and west flows respectively. As noted above, for runway centerlines spaced between 2,500 and 3,600 feet apart, the allowable offset air traffic approach angle design standard ranges from 2.5 to 3 degrees.



Source: HMMH, DeLorme, Intermap, GeoBase, USGS, NPS, ESRI

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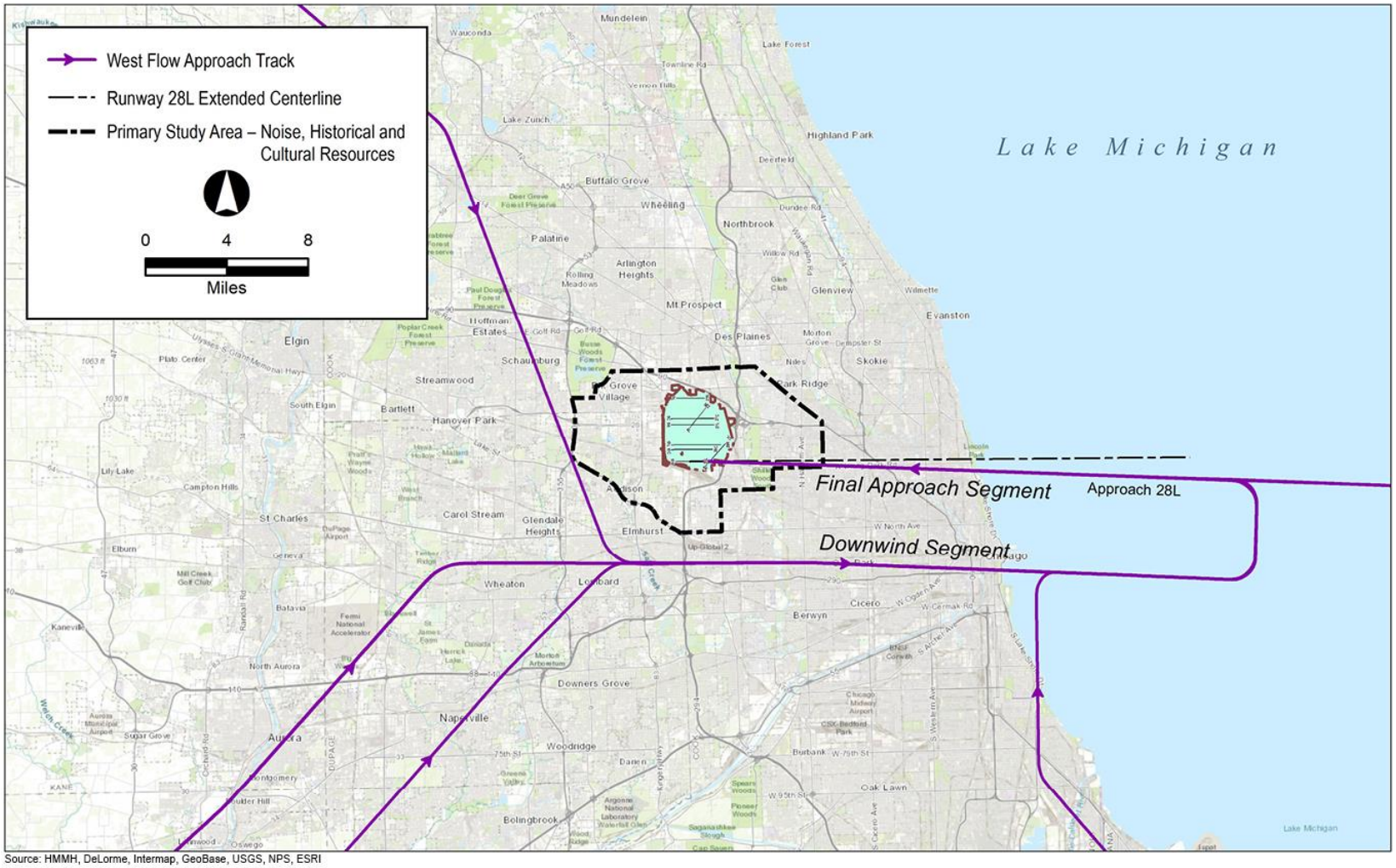
2.5 Degree Offset Approaches for East Flow

Exhibit C-5



Source: HMMH, DeLorme, Intermap, GeoBase, USGS, NPS, ESRI

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2.5 Degree Offset Approaches for West Flow

▶ Exhibit C-6

The results of the TAAM modeling showed that the annual average air and ground delay for arrivals in east flow instrument flight rules (IFR) conditions for the Proposed Action Build Out (with the 10R offset) would be 5.5 minutes compared to 19.4 minutes for the No Action Build Out (no offset) scenario. This results in a 72 percent reduction in average arrival delays with implementation of the 10R offset for arrivals in IFR conditions. In west flow IFR conditions, TAAM modeling showed the average annual air and ground delay for arrivals for the Proposed Action Build Out (with the 28L offset) would be 6.9 minutes, compared to 13.4 minutes for the No Action (no offset) scenario. This results in a 49 percent reduction in average arrival delays with implementation of the 28L offset for arrivals in IFR conditions, see **Table C-10**.

TABLE C-10
TAAM ARRIVAL DELAY AVERAGES FOR PROPOSED ACTION AND NO ACTION (OFFSET) FOR IFR CONFIGURATIONS

Configuration	Average Air and Ground Delay for Arrivals (minutes)		% Reduction in Average Arrival Delay with Offset
	Proposed Action (With Offsets)	No Action (Without Offsets)	
IFR west	6.9	13.4	49%
IFR east	5.5	19.4	72%

Source: CDA, 2020, TAP EA Simulation Data Package, Table 2-9

In addition, offset procedures for Runway 10R/28L would allow for operational flexibilities for triple arrival approaches—as occurs currently—and quadruple arrival approaches in the future. As shown in **Table C-11**, quadruple arrivals increase the model-estimated hourly rate of operations under east flow visual flight rules (VFR) conditions by 69 operations (or 31 percent) and 68 operations (or 30 percent) under west flow VFR conditions.[55]

TABLE C-11
HOURLY RATE OF OPERATION FOR CURRENT OPERATIONS VERSUS QUADRUPLE ARRIVALS ALLOWED BY THE 2.5 DEGREE AND 3 DEGREE OFFSET AIR TRAFFIC APPROACH ALTERNATIVES

Scenario	Hourly Rate (operations)			
	VFR East		VFR West	
	ATC Facility-Reported	Model-Estimated	ATC Facility-Reported	Model-Estimated
Current Operations	214	223	214	224
2.5 Degree Offset and 3 Degree Offset allowing Quadruple Arrivals	N/A	292	N/A	292
Difference	N/A	69	N/A	68

Source: FAA, 2018

[55] FAA 2018 Airport Capacity Profile: Chicago O'Hare International Airport https://www.faa.gov/airports/planning_capacity/profiles/media/ORD-Airport-Capacity-Profile-2018.pdf

Note: This is a best estimate of the effect that quadruple arrivals could have on hourly rate of operations. Values generated in modeling are an aggregate of multiple variables beyond just the offset air traffic approach alternative—in particular, the LAHSO operation (departures on an intersecting runway, 22L) where arrivals from the west, landing to the east, can stop short of (Land and Hold Short Of) 22L.

Using three or four arrival runways allows for decreasing delay and increasing operational flexibility during a variety of demand, meteorological, and maintenance conditions to retain desired throughput capacity.

The FAA determined that both the 2.5 degree offset alternative and 3 degree offset alternative meet the Step 1–Purpose and Need criterion, as they increase flexibility and efficiency of O'Hare's airspace.

FAA determined that both the 2.5 degree and 3 degree offset alternatives are feasible based on existing FAA guidance because the 2.5 degree offset is currently in operation at O'Hare. Therefore, they would meet Step 2 criteria, and both were advanced to Step 3.

In Step 3, when assessing minimization or avoidance of impacts to special purpose law protected resources, the FAA determined that the 3 degree offset alternative would not provide any additional operational benefit over the 2.5 degree offset but that its implementation may increase the likelihood of effects from aircraft noise when compared to the 2.5 degree offset. In addition, the 2.5 degree offset is preferred because, unless other constraints such as terrain or tall structures exist, the smallest degree of offset is always preferred for pilot familiarity with standardized, stabilized approach techniques. Due to the nature of air traffic actions, they are unlikely to have an impact on some special purpose law protected resources, like wetlands, floodplains, and waterways. However, some special purpose law protected resources such as Section 4(f) resources (parks, recreational areas, wildlife and waterfowl refuges, and historic sites) may be impacted from air traffic actions that induce a change in noise exposure. As a result, the primary consideration for this comparative analysis in terms of potential impact to special purpose law protected resources is aircraft noise.

The FAA determined that a greater offset (i.e., a 3 degree offset versus a 2.5 degree offset) from the runway centerline (the No Action Alternative) would result in an increased displacement from the extended runway centerline at any given point along the approach course (compared to the No Action Alternative). As shown in **Table C-12,** an arriving aircraft at 1000 feet prior to the runway threshold (approximately when it would cross the airport boundary) and which is also on a 2.5 degree offset ground track, when compared to where it would be if on the extended runway centerline without an offset, would be displaced a distance of approximately 44 feet from extended centerline. An aircraft similarly located 1,000 feet from the threshold of the landing runway but instead on a 3 degree offset ground track would be approximately 53 feet displaced from extended runway centerline. Comparing a 2.5 degree of offset to 3 degree of offset indicates that noise exposure, for example, would likely be relatively indistinguishable between these two offsets, since the distance between the flight paths is only about nine feet.

TABLE C-12
COMPARISON OF DISTANCES FROM RUNWAY CENTERLINE AT SELECT DISTANCES FROM THE RUNWAY END FOR 2.5 DEGREE AND 3 DEGREE 10R/28L OFFSETS

Traffic Flow	Distance from Runway End	Distance from Runway Centerline (ft)		Distance between 2.5 Degree and 3 Degree Offsets (ft)
		2.5 Degree Offset	3 Degree Offset	
East Flow (Arrivals to Runway 10R)	1,000 feet	43.6	52.3	8.7
	Final Approach Fix (FLLYN for 10R) - 4.7 NM	1,232.4	1,478.7	246.3
	10 NM	2,650.4	3,180.0	529.6

Traffic Flow	Distance from Runway End	Distance from Runway Centerline (ft)		Distance between 2.5 Degree and 3 Degree Offsets (ft)
		2.5 Degree Offset	3 Degree Offset	
West Flow (Arrivals to Runway 28L)	1,000 feet	43.6	52.3	8.7
	Final Approach Fix (YOYUK for 28L) - 4.9 NM	1,298.7	1,558.2	259.5
	10 NM	2,650.4	3,180.0	529.6

That lateral displacement distance would increase to approximately 250–260 feet at the final approach fix, approximately 5 nautical miles (NM) from the runway end (i.e., the difference between ~1,232 feet versus ~1,479 feet), and again to approximately 530 feet at 10 NM from the runway end. At the same time, however, the aircraft would be higher above the airport elevation since it would generally be on a continuous descent following an electronic glidepath that provides the aircrew with vertical guidance. At each of these distances from the landing runway threshold, noise exposure would be relatively indistinguishable between the 2.5 degree and 3 degree offset alternatives. This is due, first, to the minimal distance between the flight paths at 1,000 feet from the runway end (8.7 feet difference in displacements), and second, to the increase in altitude as the distance from the runway end increases along with the distance between the flight paths. Due to geometric spreading,[56] the same amount of sound energy generated by an aircraft flying at a higher altitude propagates across a larger area compared to that from an aircraft at a lower altitude. Energy diminishes as it spreads, decreasing with the square of the distance from the aircraft to the ground. Consequently, although the displacement from centerline would increase the further the aircraft is from runway threshold, and the difference between the 2.5 degree and 3 degree offset air traffic approach courses' displacement would similarly increase, the effects of this difference in displacement would generally become unnoticeable when aircraft are at their altitudes this far from the runway threshold on a generally continuous descent (glidepath) because of the effect of geometric spreading of the same energy.

Since noise would be relatively indistinguishable between these two alternatives, the FAA determined that the 2.5 degree offset alternative, which represents the flight path closer to the runway centerline (No Action Alternative), would tend to minimize environmental impact as it represents the smallest degree of offset from the runway heading that would still enable independent, parallel approaches. Consequently, the 2.5 degree offset alternative was retained as the alternative carried forward for detailed analysis in this EA and the 3 degree offset alternative was not retained for further consideration (see **Table C-13**).

TABLE C-13
GROUP 5 ALTERNATIVES SCREENING EVALUATION

Step	Criteria	2.5 degree offset	3 degree offset
1	Would the alternative address the need to align FAA Air Traffic Control procedures with the design operating capability of the airfield runway complex?	**Yes.** Both offset alternatives could meet the need for increased throughput and efficiency. Simultaneous independent approaches to these closely spaced parallel runways requires the use of an offset final approach course to the southernmost runway in accordance with FAA JO Order 7110.65. Offset procedures for Runway 10R/28L would allow for operational flexibilities for triple arrival approaches, as occurs currently, and	

[56] Geometric spreading refers to the concept of the spreading of sound energy resulting from the expansion of wavefronts. This means that as distance grows between an aircraft and the ground, the area covered by the sound energy becomes larger—thus, sound intensity decreases.

Step	Criteria	2.5 degree offset	3 degree offset
		quadruple arrival approaches in the future. Using three or four arrival runways allows for decreasing delay and increasing operational flexibility during a variety of demand, wind, weather, and construction conditions to retain existing capacity.	
2	Would the alternative be feasible to operate based on existing FAA guidance?	**Yes.** FAA needs to retain the offset air traffic approach capabilities due to the current requirements for simultaneous independent arrivals, allowing for increased efficiency, especially in poor weather during east flow operations (for the Runway 10R offset) to enable O'Hare to achieve its design operating capability.	
3	Would the alternative minimize and/or avoid impacts to special purpose resource categories?	**Yes.**	**No.**

Conclusion

The FAA determined that both the 2.5 degree offset alternative and 3 degree offset alternative meet the Step 1 - Purpose and Need screening criterion as they increase flexibility and efficiency of O'Hare's airspace.

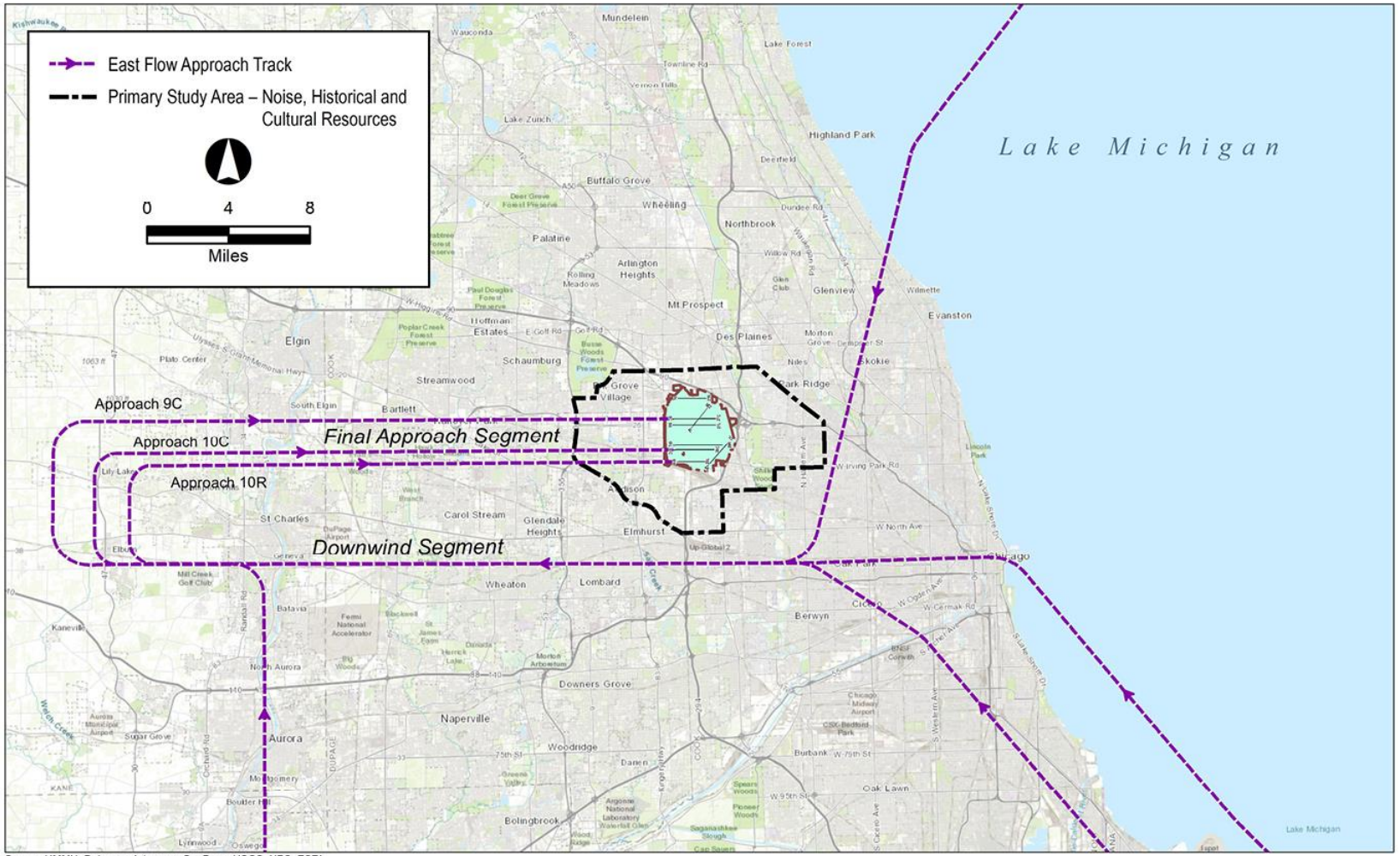
FAA determined that both the 2.5 degree and 3 degree offset alternatives are feasible based on existing FAA guidance because the 2.5 degree offset is currently in operation at O'Hare. Therefore, they would meet Step 2 criteria, and both were advanced to Step 3.

In Step 3, when assessing minimization or avoidance of impacts to special purpose law protected resources, the FAA determined that the 3 degree offset Alternative would not avoid or minimize environmental impact relative to the 2.5 degree offset alternative because the likelihood of environmental impact increases as the offset from centerline increases. Therefore, the 2.5 degree offset alternative, which provides the smallest degree of offset from the runway heading that enables independent, parallel approaches, was selected as the alternative that would best avoid or minimize environmental impact and was carried forward for detailed analysis in this EA.

No Action

Under the No Action Alternative, the current 2.5 degree offset final approach courses to Runway 10R/28L at O'Hare would become extended runway centerline because implementation of the Proposed Action would not occur.

Exhibit C-7 and **Exhibit C-8** show the approaches for the No Action Alternative for east and west flows, respectively. Independent simultaneous approaches to three runways in east or west flows, with one of the three runways being Runway 10R/28L, would not be feasible and the dependent simultaneous approaches would be less efficient.



Source: HMMH, DeLorme, Intermap, GeoBase, USGS, NPS, ESRI

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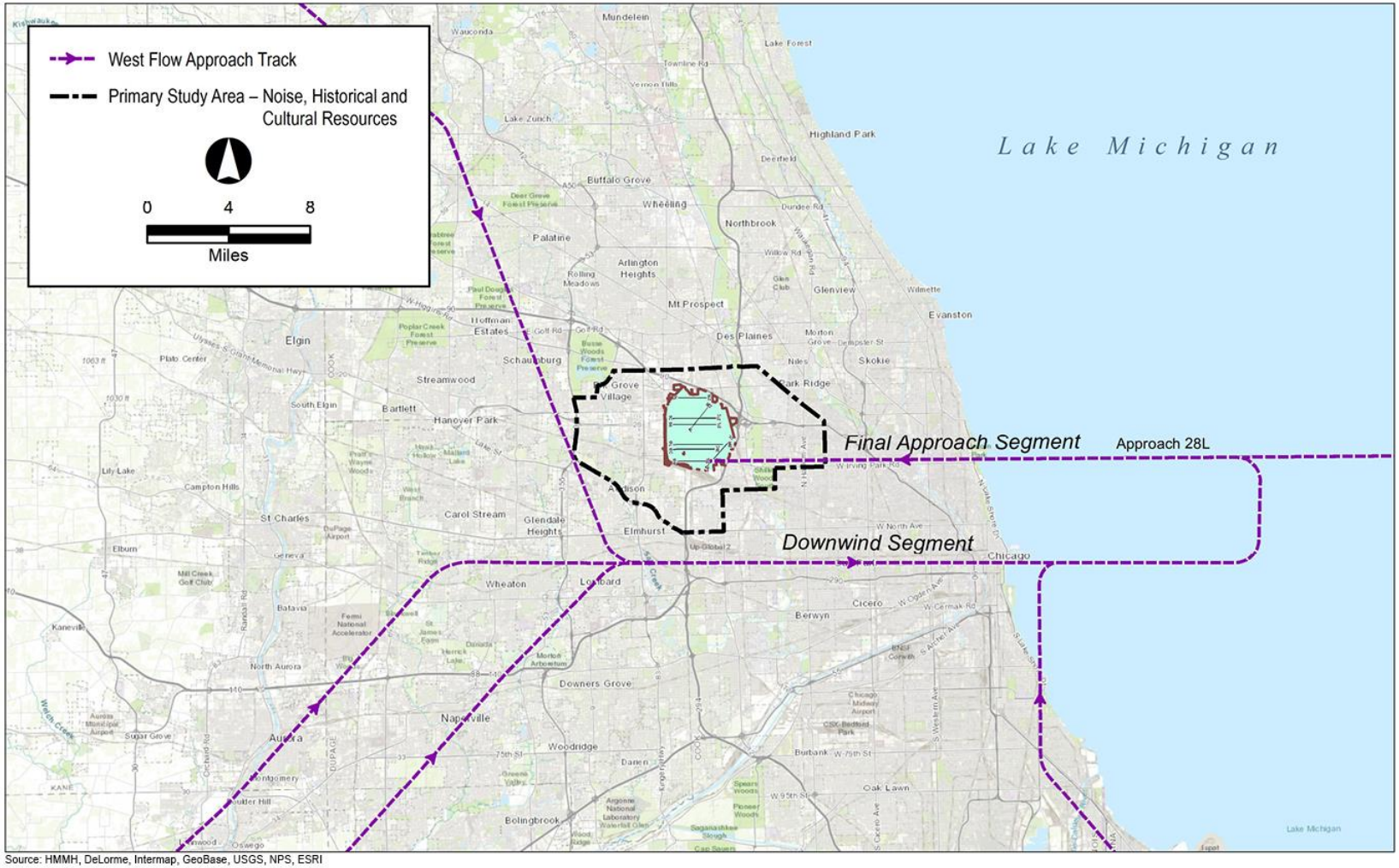
Approaches Without Offset for East Flow

Exhibit C-7



Source: HMMH, DeLorme, Intermap, GeoBase, USGS, NPS, ESRI

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Approaches Without Offset for West Flow

▶ **Exhibit C-8**

As a result, the FAA determined that the No Action Alternative could meet the need to retain operational efficiency and prevent additional delay because the straight-in dependent simultaneous approaches would increase delay, and therefore would not meet the Step 1 – Purpose and Need screening criteria. No further evaluation of the No Action Alternative was conducted during this alternatives screening process.

Conclusion

The No Action Alternative does not meet the purpose and need for Group 5 projects and therefore does not meet the criteria for Steps 1.1 or 1.2 of this alternatives screening process. However, in accordance with NEPA requirements, the No Action Alternative was retained for evaluation throughout this alternatives screening process and environmental consequences assessment in this EA for comparison against any other alternative that passed the screening criteria.

C.2.5.4 Group 5 Identification of Alternatives Carried Forward

The results of the alternatives screening analysis for Group 5 are summarized in **Table C-14**. The 2.5 degree offset Alternative and No Action Alternative were carried forward for detailed evaluation in the environmental consequences chapter (**Chapter 5**). Only the 2.5 degree offset alternative meets Purpose and Need, but the No Action Alternative was also carried forward in accordance with FAA and CEQ requirements.

TABLE C-14
SUMMARY OF ALTERNATIVES SCREENING ANALYSIS RESULTS

Alternative	Step 1	Step 2	Step 3	Retained for Detailed Consideration in this EA?	Rationale
	Does it meet the Group 5 purpose and need?	Would the alternative be feasible to operate based on existing FAA guidance?	Would the alternative minimize and/or avoid environmental impact?		
2.5 Degree Offset	Y	Y	Y	Y	This alternative could meet the need for increased throughput and efficiency. Offset procedures for Runway 10R/28L would allow for increased operational flexibility.
3 Degree Offset	Y	Y	N	N	This alternative would meet the Group 5 need however the likelihood of impact increases as the offset from centerline increases, therefore 2.5 degrees is preferred as compared to 3 degrees. Therefore, this alternative was not considered further in this EA.
No Action Alternative	N	N/A	N/A	Y	Although this alternative would not satisfy the purpose and need, it was carried forward as a requirement of

Alternative	Step 1 Does it meet the Group 5 purpose and need?	Step 2 Would the alternative be feasible to operate based on existing FAA guidance?	Step 3 Would the alternative minimize and/or avoid environmental impact?	Retained for Detailed Consideration in this EA?	Rationale
					40 CFR § 1502.14(c). The No Action Alternative serves as a basis for comparing the impacts of all the reasonable alternatives evaluated.

C.3 DESCRIPTION OF PROPOSED ACTION ALTERNATIVE

This section provides a detailed description of the proposed action, which is comprised of the alternatives retained for detailed consideration under each group. The 35 projects comprising the CDA Recommended Proposed Action Alternative are listed in **Table C-15**. They are organized into five groupings. The number of projects in each grouping and its associated subsection number are in the list below.

1. Terminal Projects (18; **Section C.3.1**),
2. On-Airport Hotels (2; **Section C.3.2**),
3. Airfield and Taxiway Improvements Not Required by the Terminal Projects (6; **Section C.3.3**),
4. Support Facilities Not Required by the Terminal Projects (9; **Section C.3.4**), and
5. Air Traffic Actions for Offset Approach Procedures for Runway 10R/28L (**Section C.3.5**).

Project numbers generated by the CDA appear in the section titles in brackets, e.g., [CDA Project #1]. **Table C-15** lists the footprints for the project, as applicable, and **Exhibits C-9** through **C-17** display the projects.

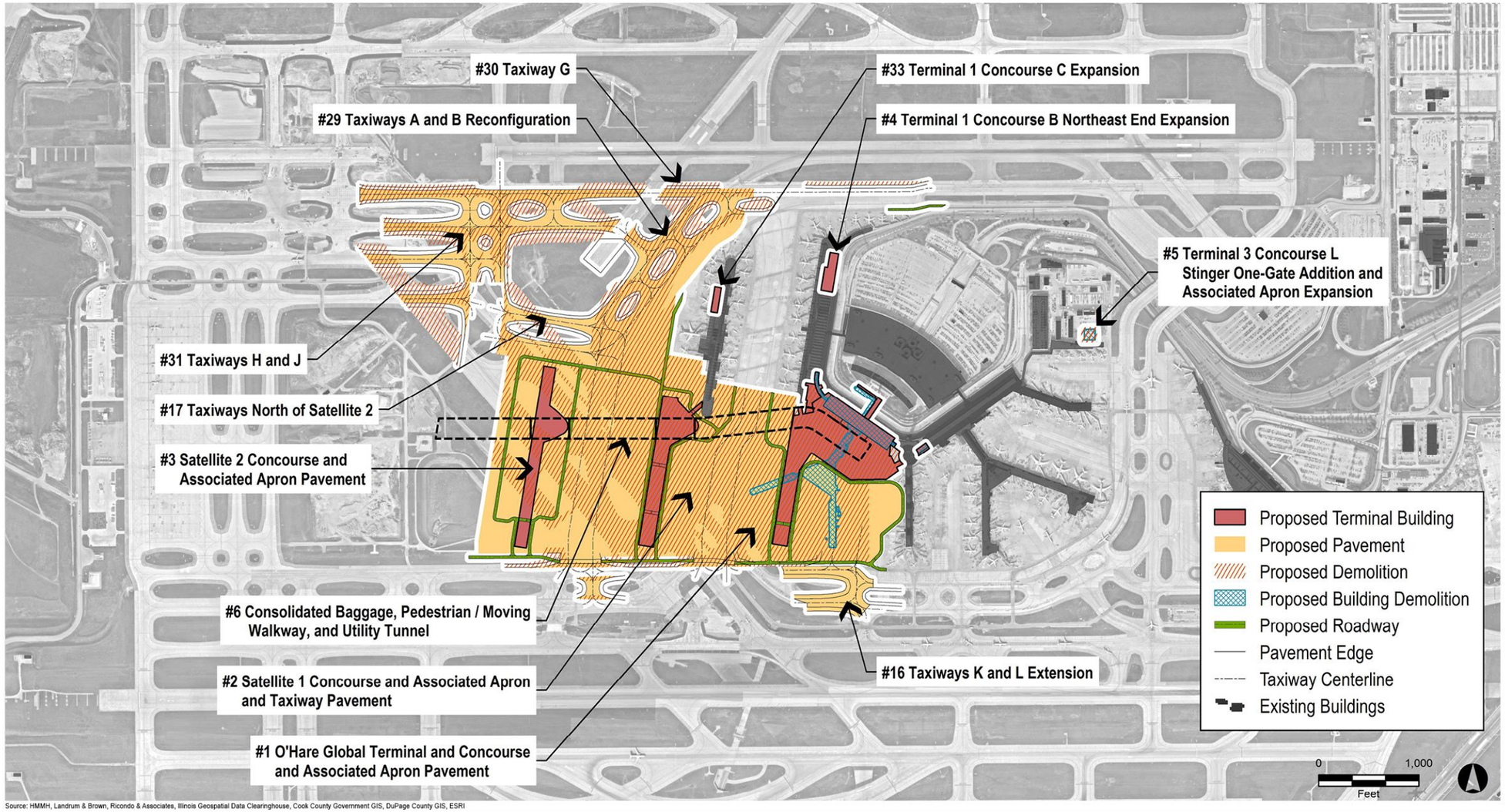
TABLE C-15
PROPOSED ACTION

EA Project Grouping	[CDA Project Number] and Figure Number	Project Name (full)	Proposed Resultant Footprint Area
Terminal Projects	[1] 1	O'Hare Global Terminal and Concourse and Associated Apron Pavement	800,000 sq. ft. main building and concourse 1.7 million sq. ft. new apron pavement
	[2] 1	Satellite 1 Concourse and Associated Apron and Taxiway Pavement	300,000 sq. ft. concourse 2.6 million sq. ft. new apron pavement 60,000 sq ft. new taxiway
	[3] 1	Satellite 2 Concourse and Associated Apron Pavement	270,000 sq. ft. concourse

EA Project Grouping	[CDA Project Number] and Figure Number	Project Name (full)	Proposed Resultant Footprint Area
			1.8 million sq. ft. new apron pavement
	[4] 1	Terminal 1 Concourse B Northeast End Expansion	41,000
	[5] 1	Terminal 3 Concourse L Stinger One-Gate Addition and Associated Apron Expansion	24,000 sq. ft. new apron pavement
	[6] 1	Consolidated Baggage, Pedestrian/Moving Walkway, and Utility Tunnel	N/A
	[7] 3	Terminal 5 Curbside Addition and Interior Reconfiguration	63,000
	[8] 3	Terminal 5 Roadway Improvements	197,000 sq. ft. new roadway pavement 150,000 sq. ft surface parking lot pavement
	[9] 3	Terminal 5 Curbside Expansion	100,000 sq. ft. new roadway; 76,000 sq. ft. of reconfigured/restriped roadway
	[26] 3	Terminal 5 Parking Garage - Phase 2	55,000
	[16] 1	Taxiways K and L Extension (Between Taxiway A11 and Taxiway A13)	260,000 sq. ft. new taxiway
	[17] 1	Taxiways North of Satellite 2 (Between Relocated Taxiways A and B and Penalty Box Hold Pad)	620,000 sq. ft. new taxiway
	[29] 1	Taxiways A and B Reconfiguration (Between Penalty Box Hold Pad and Taxiway G)	780,000 sq. ft. of new taxiway
	[30] 1	Taxiway G (Existing Taxiway H; Between Future Taxiway T and Taxiway A1)	700,000 sq. ft. of new taxiway
	[31] 1	Taxiways H and J (South of Runway 9R Extension from Taxiway SS to Runway 4L/22R)	750,000 sq. ft. of new taxiway
	[33] 1	Terminal 1 Concourse C Expansion (North)	16,000
	[T1] 2	Temporary Walkway/Extended Jetway from Concourse C (With 6 Gates)	20,000
	[T2] 2	Temporary purpose and need and Refrigeration Facility (Near Satellite 2)	44,000 sq. ft. facility; 20,000 sq. ft. pavement
On-airport Non-aeronautical Projects	[22] 4	Multimodal Facility (MMF) Hotel, Mixed-Use Development, and Detention Basin Relocation	43,000 sq. ft. facility 55,000 sq. ft. pavement 82,000 sq. ft. new basins
	[25] 4	Terminal 5 Hotel Facility and Pedestrian Bridge	82,000
Airfield and Taxiway Improvements	[20] 5	Bravo Hold Pad Conversion	1.09 million sq. ft. pavement
	[23] 6	Runway 9L/27R Exit Taxiways	405,000 sq. ft. taxiway
	[24] 5	Runway 28R Blast Pad Expansion	58,000

EA Project Grouping	[CDA Project Number] and Figure Number	Project Name (full)	Proposed Resultant Footprint Area
	[32] 5	Taxiways P, V, and Y Reconfiguration (Between Taxiway RR and the Existing Runway 28R Hold Pad)	1.3 million sq. ft. taxiway
	[37] 5	Demolition and Removal of Temporary Taxiway T Between Taxiway P and Taxiway P6 (North of Runway 10C/28C)	removal of 35,000 sq. ft. of taxiway
	[38] 5	Taxiway DD Realignment at the Taxiway Q Intersection (near the South-Central Cargo Apron)	replacement and realignment of 120,000 sq. ft. of taxiway
Support Facilities	[10] 9	West Heating and Refrigeration Facility	130,000
	[11] 9	West Employee Screening Facility	346,000 sq. ft. facility; 128,000 sq. ft. pavement
	[12] 9	West Employee Ground Transportation Facility and Parking Garage	740,000 sq. ft. facility; 170,000 sq. ft. pavement
	[13] 9	West Employee Landside Access	800,000 sq. ft. roadway pavement
	[14] 9	West Landside Detention Basins	397,000
	[15] 7, 9	Airside Service Roadways	512,000
	[19] 8	Aircraft Rescue and Firefighting (ARFF) Station 4 Relocation	18,000 sq. ft. building; 49,000 sq. ft. pavement
	[21] 7	Commercial Vehicle Holding Area (CVHA) Expansion	172,000
	[35] 9	Centralized Distribution and Receiving Facility (CDRF)	75,000 sq. ft. building; 204,000 sq. ft. pavement; 48,000 sq. ft. basin
Air Traffic Actions	N/A [10-15]	Offset Approach Procedures for Runway 10R/28L	N/A

Source: CDA. Terminal Area Plan (TAP)and Future Airport Layout Plan (ALP) Projects. Project Descriptions. February 18, 2022.



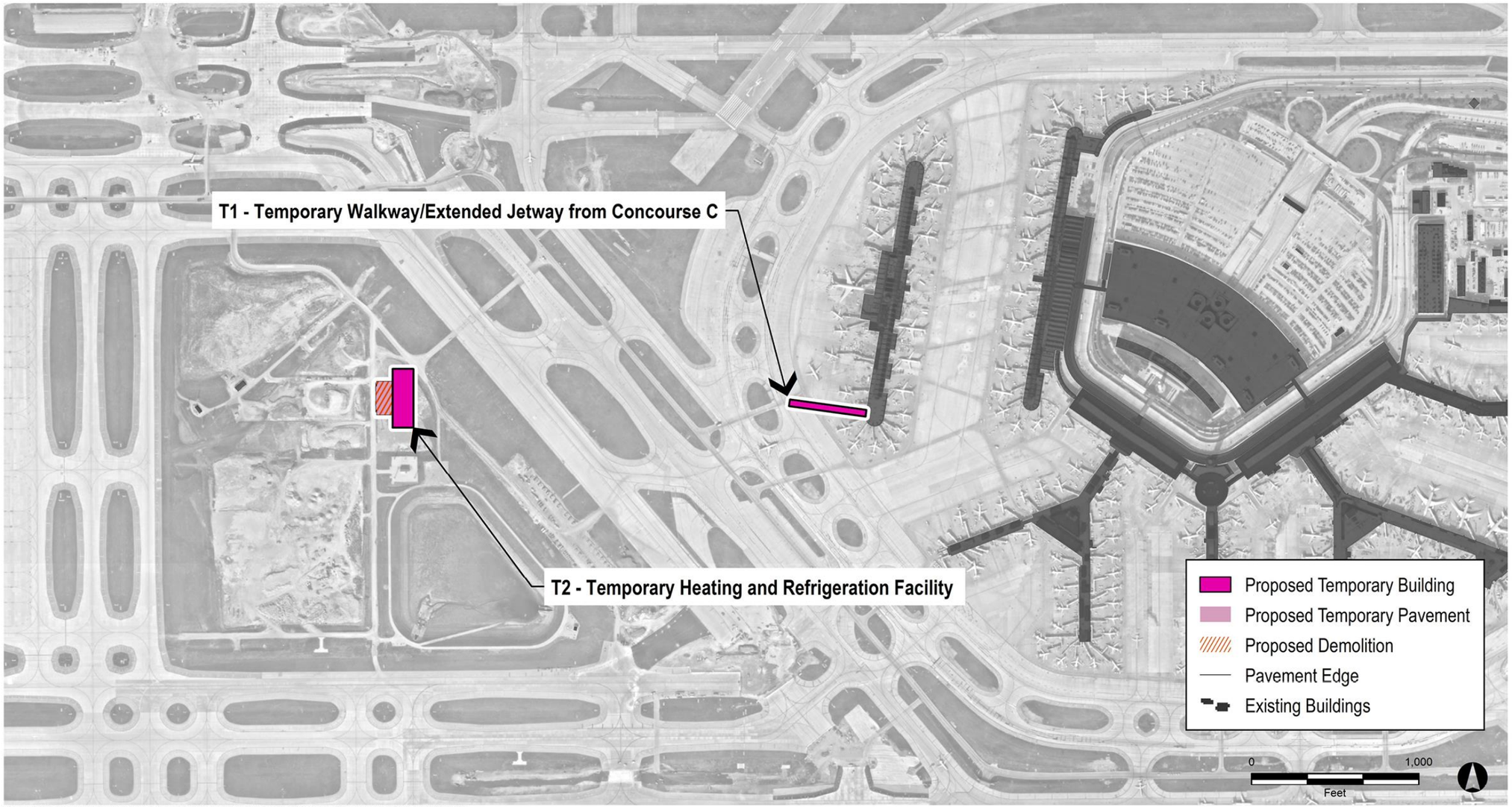
Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Terminal Projects (Set 1 of 3) - O'Hare Global Terminal and Satellite Terminal Projects

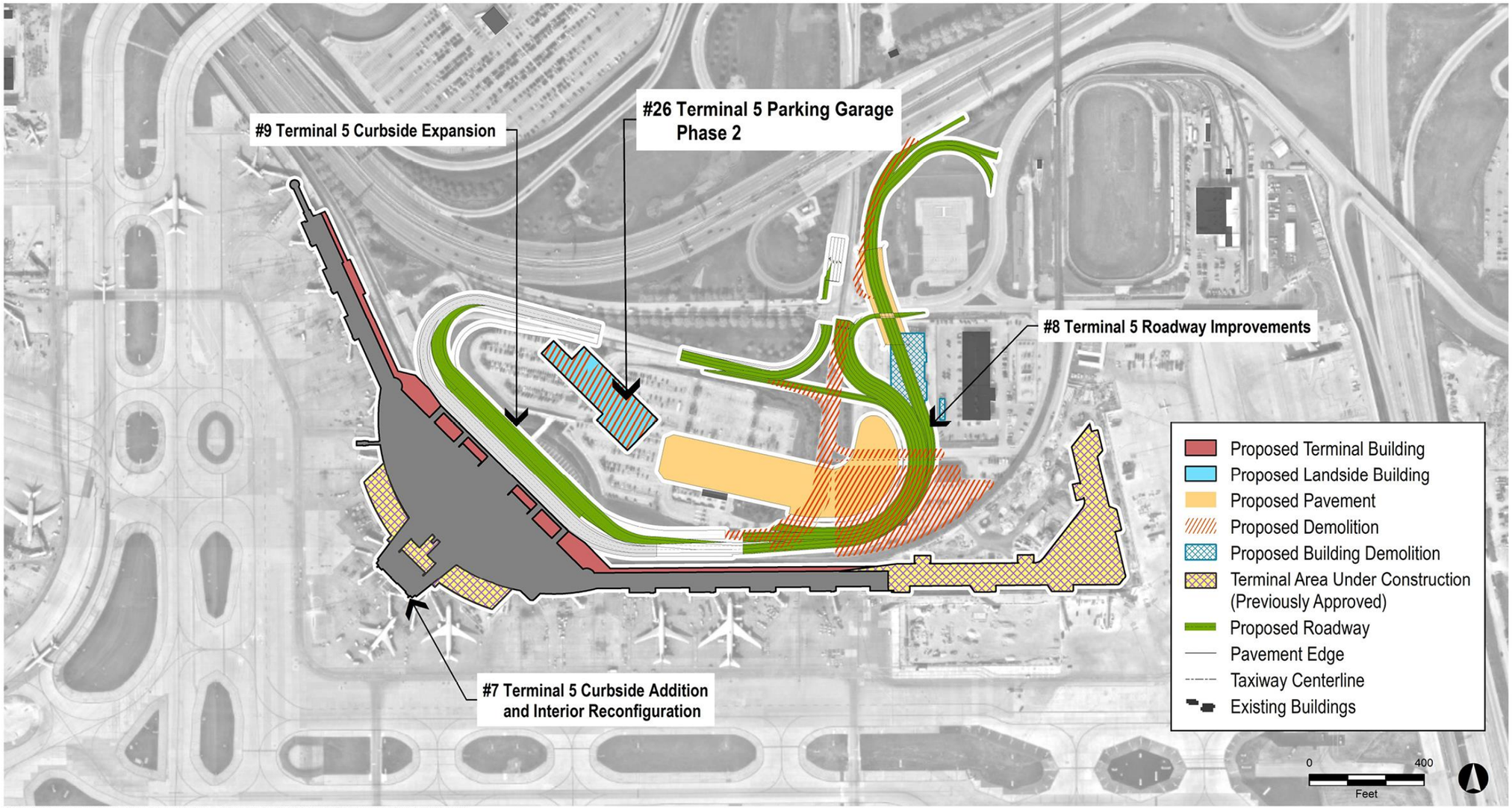
▸ Exhibit C-9



Chicago O'Hare International Airport
Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Terminal Projects (Set 2 of 3) - O'Hare Global Terminal and Satellite Terminal Temporary Projects

Exhibit C-10

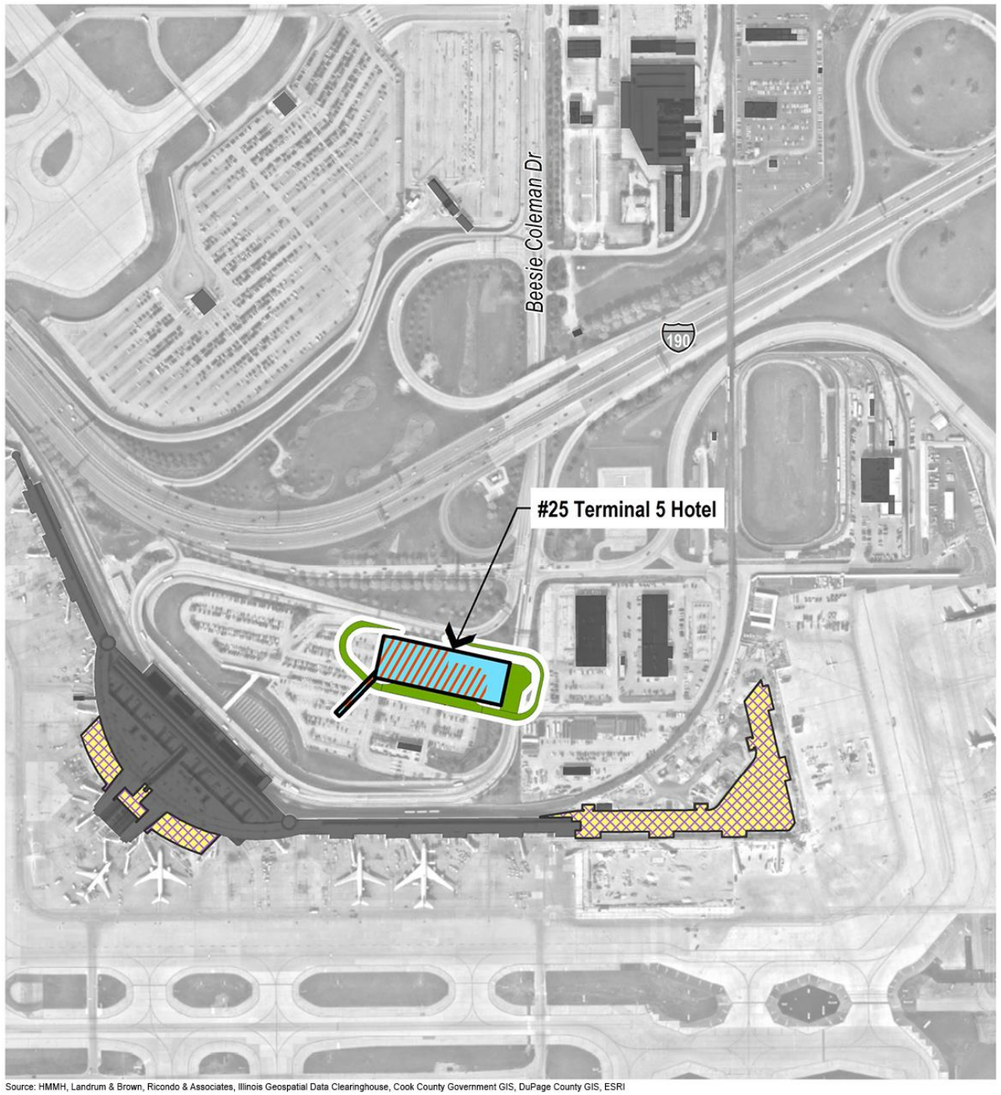


Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport
Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Terminal Projects (Set 3 of 3) - O'Hare Terminal 5 Projects

Exhibit C-11



Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

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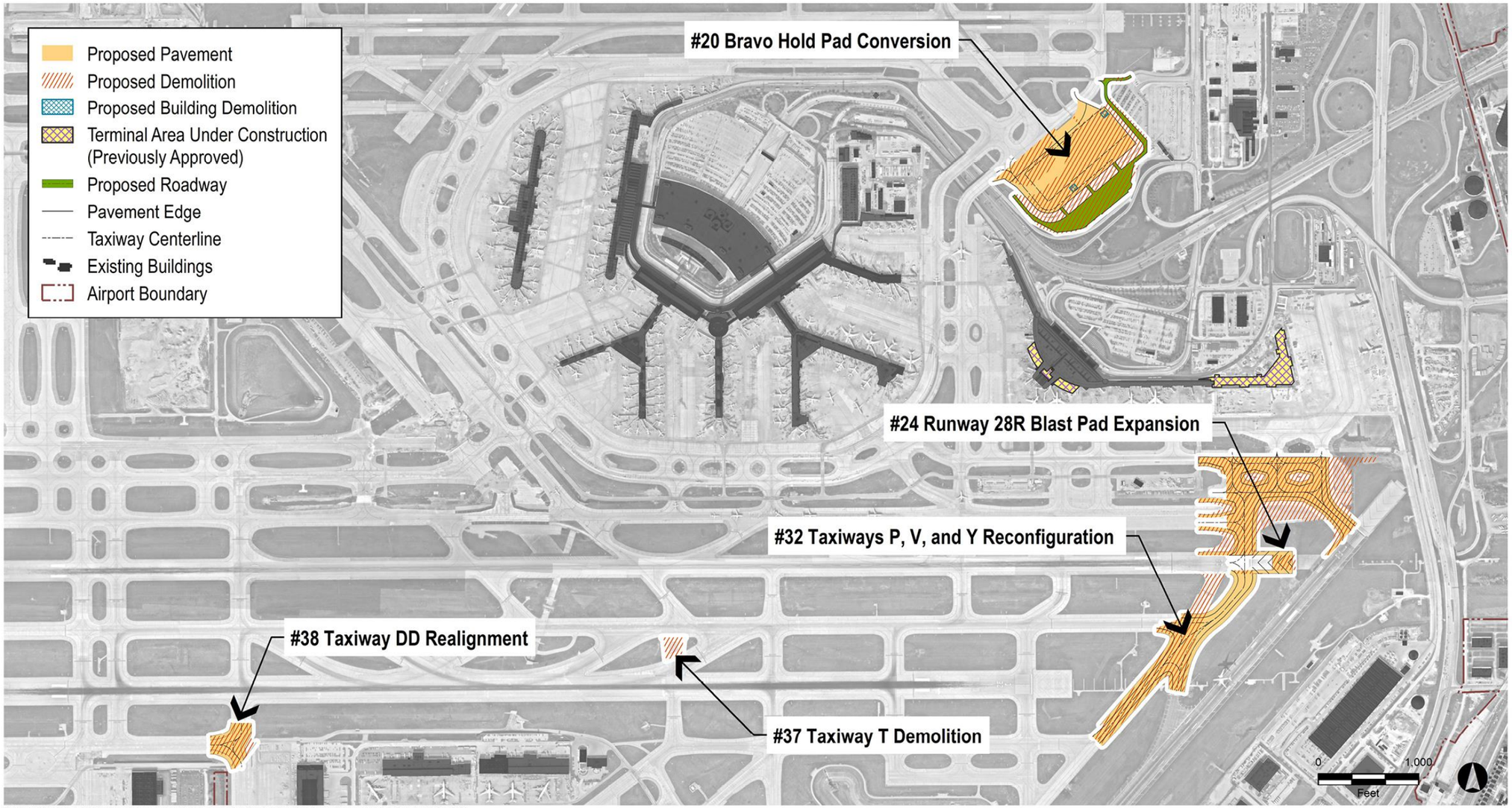
On-Airport Hotels

▸ **Exhibit C-12**

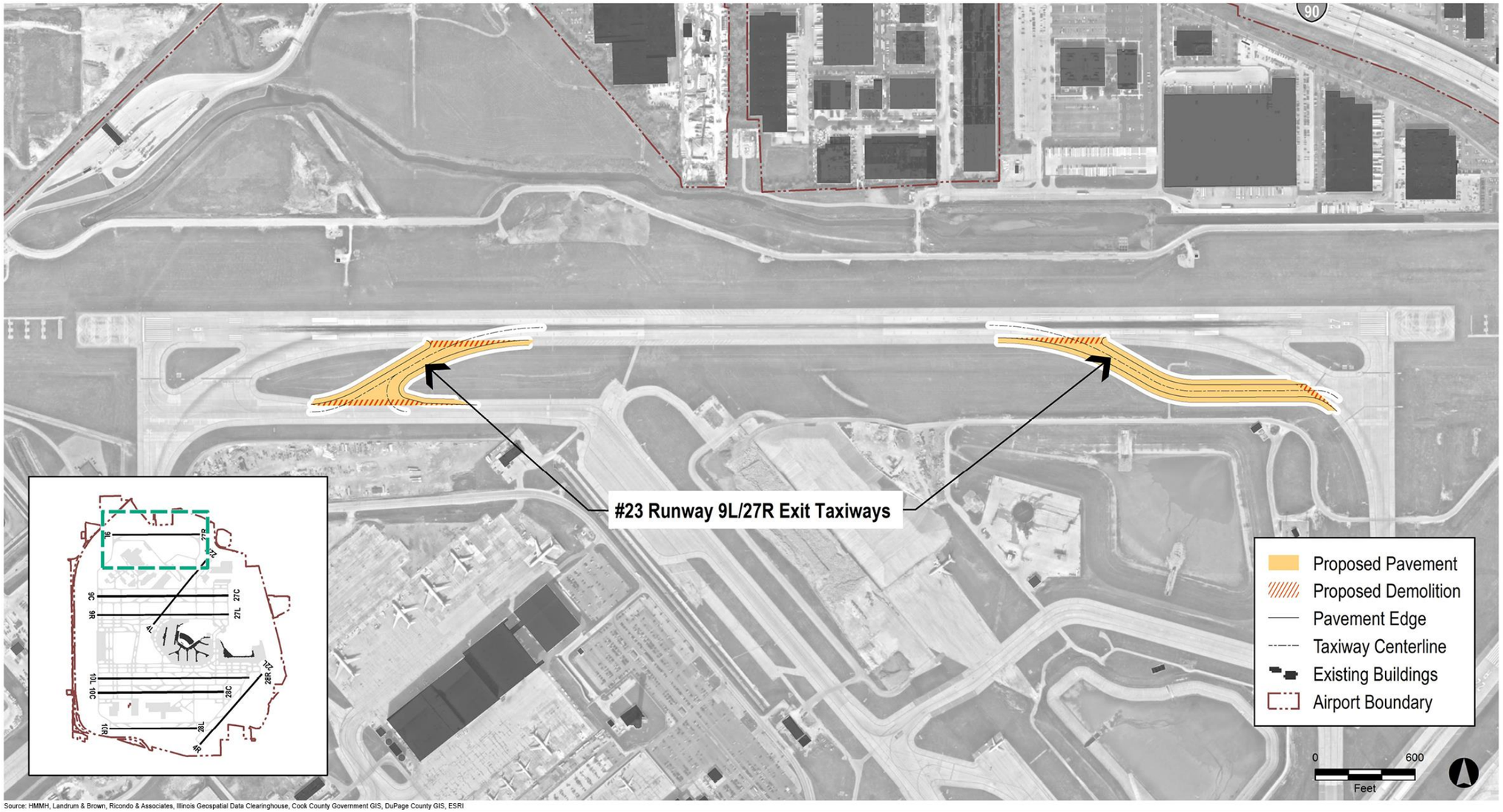


Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport
Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Airfield and Taxiway Improvements Not Required by the Terminal Projects (Set 1 of 2)

Exhibit C-13



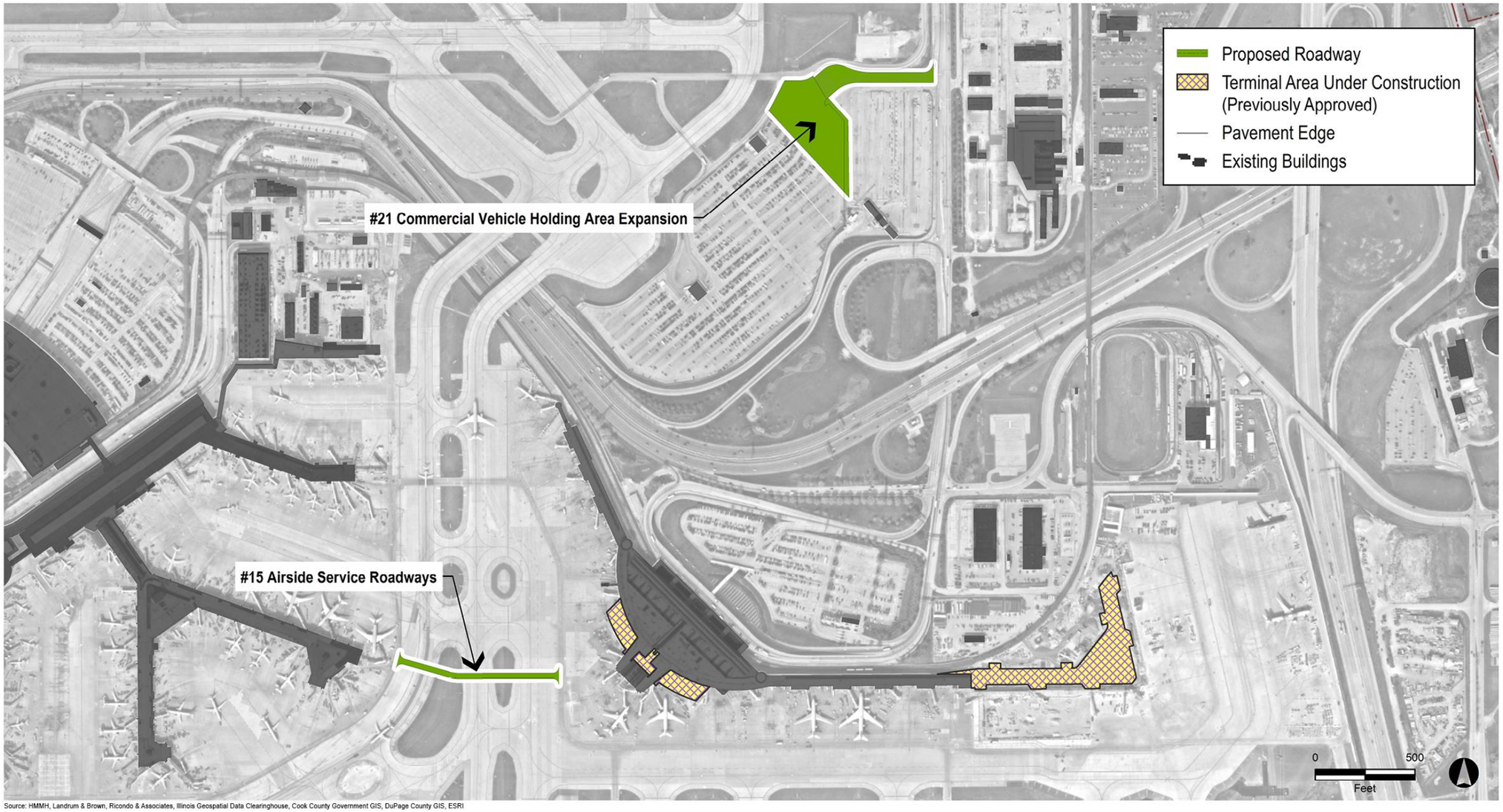
Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Airfield and Taxiway Improvements Not Required by the Terminal Projects (Set 2 of 2)

Exhibit C-14

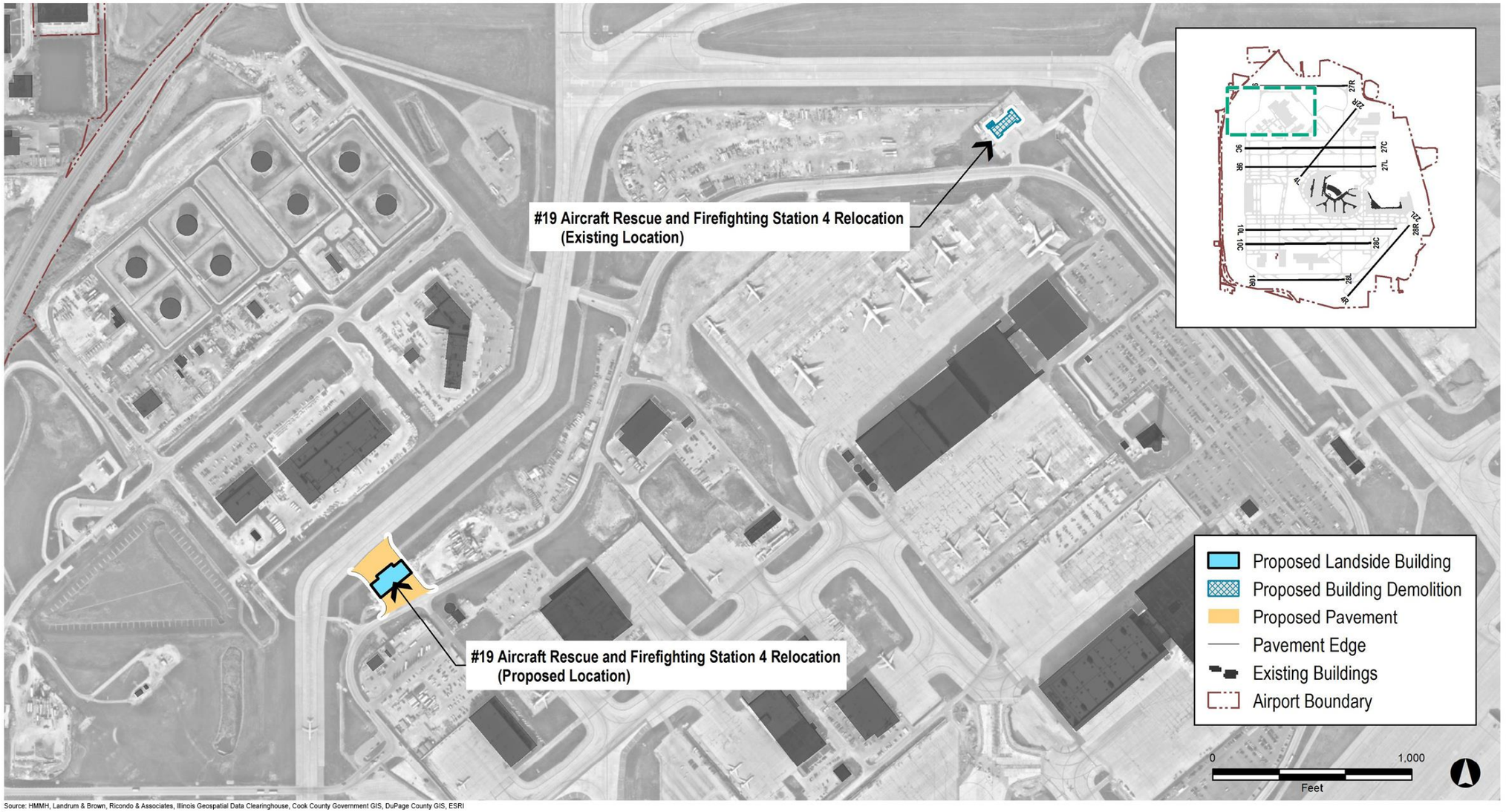


Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport
Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Support Facilities Not Required by the Terminal Projects (Set 1 of 3)

Exhibit C-15



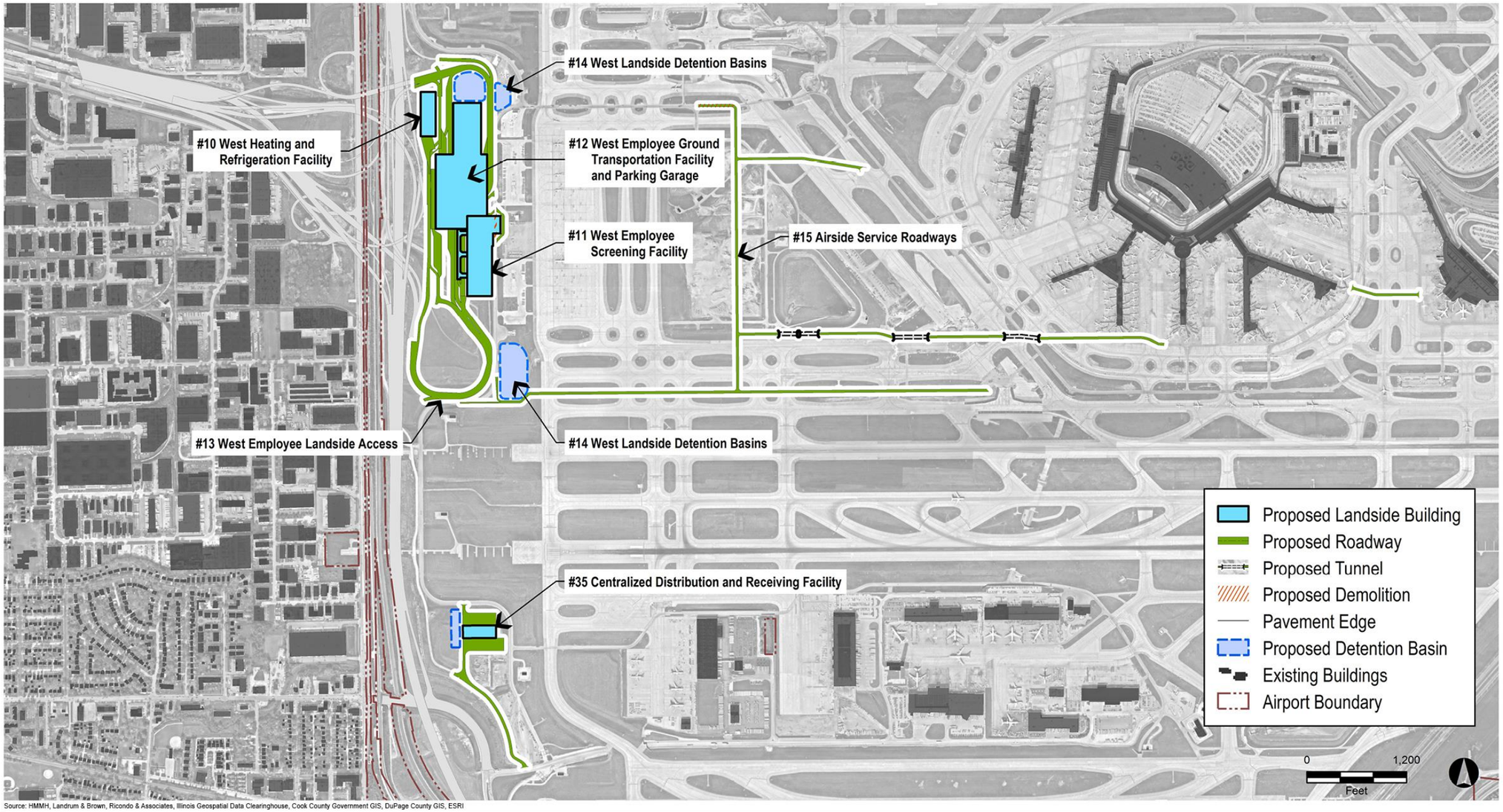
Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Support Facilities Not Required by the Terminal Projects (Set 2 of 3)

Exhibit C-16



Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Support Facilities Not Required by the Terminal Projects (Set 3 of 3)

▸ Exhibit C-17

Group 1–Terminal Projects

O'Hare Global Terminal and Concourse and Associated Apron Pavement (CDA Project 1)

The O'Hare Global Terminal and Associated Apron Pavement project would replace existing Terminal 2, including Concourses E and F, with a new terminal building and attached concourse that would integrate with existing Terminal 1 and Concourse B to the west and the Rotunda to the east. Demolition of Terminal 2 would meet the need to upgrade outdated terminal facilities that have reached the end of their design life, reducing ongoing maintenance needs and costs.

The O'Hare Global Terminal and Associated Apron Pavement project would provide facility improvements needed to meet modern passenger needs. The updated facility would support a full range of terminal functions, including 12 to 21 aircraft gates, passenger holdrooms, check-in facilities, security screening, baggage claim and handling systems, baggage make-up areas, a Federal Inspection Station (FIS), various passenger amenities, and circulation space.

The proposed Multiple Aircraft Ramp System (MARS)-configured aircraft gates would provide more space (frontage) for aircraft parking and improve airlines' flexibility to accommodate daily, hourly, seasonal, and future fluctuations in fleet mix. Additional gate frontage and flexible gates will enable the facility to not only adapt to changing aircraft fleet mixes but also improve gate utilization and reduce delay caused by the current terminal configurations.

The additional FIS would meet the need to integrate domestic and international airline and airline partner screening and operations. Collocating domestic and international gates would improve efficiency and reduce delays by rebalancing and consolidating air carrier operations. The proposed FIS would provide new and expanded customs and immigration facilities with updated features, technologies, and enhanced programs such as CBP Global Entry and Automated Passport Control. The FIS would also help expedite passenger processing for international arrivals and minimize connecting times for international passengers connecting to domestic departures.

The O'Hare Global Terminal and Associated Apron Pavement project would expand the existing Terminal 2 Airport Transit System station by providing an additional platform north of the existing Airport Transit System track and guideway. The existing pedestrian bridge connecting the Terminal 2 Airport Transit System station to the existing Terminal 2 would be replaced with a larger pedestrian bridge connecting the expanded Airport Transit System station to the proposed O'Hare Global Terminal.

Details concerning the O'Hare Global Terminal and Associated Apron Pavement project are provided in **Table C-16**.

TABLE C-16
THE O'HARE GLOBAL TERMINAL AND ASSOCIATED APRON PAVEMENT PROJECT COMPONENTS

Facility	Scope of Work
O'Hare Global Terminal (OGT)	Construct terminal building and concourse (approximately 800,000 square feet); steel and glass structure with a roof that would gently rise from 85 feet to an apex approximately 125 feet high Demolish existing buildings: - Terminal 2 (approximately 110,000 square foot footprint) - Terminal 2 Concourses E and F (approximately 180,000 square foot footprint); Close 40 gates

Facility	Scope of Work
	- Demolish Terminal 1/Terminal 2 secure walkway (approximately 5,900-square-foot footprint); Replace with a new Terminal 1/OGT landside connecting walkway - Demolish Terminal 2/FAA ATCT walkway (approximately 500-square-foot footprint); Replace with non-public walkway to the FAA ATCT - Terminal 2/Rotunda secure walkway (approximately 800-square-foot footprint); Replace connection with an OGT/Rotunda landside connection; Remove lower portion of one exterior bay of glass from the Rotunda Integrate with existing buildings: Concourse B (South End) - Remove approximately 45 feet of the south end façade of Concourse B and six interior columns - Replace 2,400 square feet of existing Concourse B low roof above the semicircular holdroom area to incorporate skylight - Close three gates (Gates B1, B2, and B3) - Preserve the key characteristics of the existing southern end of Concourse B, including the domed roof and step down to the lower roof over the existing semicircular holdrooms Concourse G - Close 7 gates Rotunda - Add a new secure OGT/Rotunda connecting walkway - Add new concourse-level exterior airside (secure) terrace between the proposed secure OGT/Rotunda walkway and proposed OGT/Rotunda landside walkway - Remove existing non-original concession elements on the concourse level, such as directional signage, non-original partitions, and lighting - Retain existing mezzanine and "X"-shaped staircase, ceiling oculus form, ceiling rib splines and lighting, interior columns, and original terrazzo floor - Remove the lower portions of two exterior bays of glass from the Rotunda to accommodate new secure OGT/Rotunda connecting walkway - Remaining bays of glass and infill walls would be left intact Terminal 3/ Rotunda walkway replacement (approximately 8,000 square foot footprint) - Renovate and expand the existing secure walkway to provide a new interior landside walkway (approximately 20 feet wide) along the northeast wall abutting the existing ATCT and a secure (airside) walkway (approximately 40 feet wide) for a total width of approximately 60 feet - Remove the lower portions of three exterior bays of glass from the Rotunda - Remaining bays of glass would be left intact
OGT Apron	Construct apron pavement (approximately 1,700,000 square feet); 12 to 21 gates Integrate with existing, future, and proposed apron and taxiways - Construct 1 Airplane Design Group (ADG) V taxilane between the OGT and proposed Satellite 1 Concourse - Construct taxilane bridge for ADG V taxilane between apron and future Taxiway K - Construct 2 ADG V taxilanes between the OGT and existing Concourse G
Baggage Infrastructure Upgrade	Construct enclosed corridor and baggage infrastructure to facilitate baggage transfer/ movement between OGT and Terminal 3 Integrate with existing and proposed buildings
Terminal 2 ATS Station Expansion	Construct second platform (approximately 6,000 square foot footprint) Renovate existing platform, reconfigure existing vertical circulation and replace escalators
Terminal 2 ATS Station Bridge Replacement	Construct pedestrian bridge (approximately 10,000 square foot footprint) Integrate with existing and proposed buildings (Terminal 2 ATS station and OGT)

Facility	Scope of Work
Service Roadway	Construct roadway pavement (approximately 130,000 square feet) Integrate with proposed roadways
Demolish Existing Terminal 2 ATS Station Bridge	Demolish pedestrian bridge (approximately 4,400 square foot footprint)
Demolish Existing Apron and Taxiways	Demolish apron and taxiway pavement: Concourse B Apron; approximately 310,000 square feet Concourse E Apron; approximately 790,000 square feet Concourse F Apron; approximately 680,000 square feet Concourse G Apron; approximately 60,000 square feet Taxiway A; approximately 99,000 square feet Taxiway A10; approximately 3,000 square feet Taxiway B; approximately 76,000 square feet

Satellite 1 Concourse and Associated Apron and Taxiway Pavement (CDA Project 2)

The Satellite 1 Concourse and Associated Apron and Taxiway Pavement project would consist of a four-level (one level below grade) airside satellite concourse building surrounded by aircraft parking positions. The Satellite 1 project would replace sections of several taxiways with the new concourse building that would connect to the existing south end of Concourse C. Satellite 1 would support a range of airside concourse functions, including 11 to 21 aircraft gates, passenger holdrooms, baggage handling systems and make-up areas, various passenger amenities, and circulation space. Satellite 1 would be an international and domestic concourse facility with MARS-configured gates.

MARS-configured gates would meet the need to accommodate a range of aircraft sizes and types in existing and future airline fleets. The flexible gates would help accommodate the continued trend in airline up-gauging, serving airlines that are transitioning flights from smaller aircraft to larger aircraft and providing additional ADG-V and ADG-VI gates at the airport. They also allow for multiple configurations of narrowbody and widebody aircraft, allowing airlines to accommodate daily, hourly, seasonal, and future fleet mixes. Satellite 1 would increase the availability of gates that can serve either domestic or international arrivals. Flexible, interchangeable gates (i.e., "swing" gates) installed at Satellite 1 could operate as international or domestic gates as demand dictates. This improved gate flexibility would help reduce the imbalance of demand for departure gate use at core terminals and arrival gate use at Terminal 5 from international flights.

The new facility would meet the need to integrate domestic and international airline and airline partner screening and operations. Satellite 1 is anticipated to reduce passenger connection times by improving integration of international arrivals and domestic connections. It would also reduce the need to tow aircraft from Terminal 5 to core terminals. The proposed layout of Satellite 1 is intended to improve aircraft circulation between gates and aircraft movement areas by providing more flexible flow-through dual taxilanes to both the north and south airfields.

Details concerning the Satellite 1 Concourse and Associated Apron and Taxiway Pavement project are provided in **Table C-17**.

TABLE C-17
CONCOURSE AND ASSOCIATED APRON AND TAXIWAY PAVEMENT PROJECT COMPONENTS

Facility	Scope of Work
Satellite 1 Concourse	Construct passenger concourse facility (approximately 300,000 square feet); rectangular shape, 45 feet high above the apron, rising to 65 feet in a triangular node with an apex at approximately 75 feet high Integrate with Terminal 1 Concourse C Remove approximately 70 feet of the west wall at the southern end of Concourse C (approximately 8,800 square feet) Close 6 gates (Gates C1, C2, C3, C4, C6, C8) Maintain southern end of Concourse C, including the domed roof
Satellite 1 Apron	Construct apron pavement for 11 to 21 gates (approximately 2,600,000 square feet) Construct 2 ADG V taxilanes - Between Satellite 1 and Satellite 2 Concourse - Between Satellite 1 and OGT Concourse Construct 2 ADG V taxilane bridges - Between Satellite 1 and Satellite 2 Concourse - Between Satellite 1 and OGT Concourse Integrate with existing, future, and proposed apron and taxiways - Terminal 1 Concourse C Apron - Taxiway A, B, K - OGT Apron - Satellite 2 Apron - Taxiways A and B Reconfiguration
Taxiway L4	Construct taxiway pavement (approximately 60,000 square feet)
Service Roadway	Construct roadway pavement (approximately 230,000 square feet) Integrate with proposed Airside Service Roadways
Demolish Pavement	Existing Terminal 1, Concourse C Apron (approximately 830,000 square feet of apron pavement) Existing Tank Farm Road (approximately 38,000 square feet of apron pavement) Existing Taxiway A; approximately 250,000 square feet of apron pavement Existing Taxiway B; approximately 430,000 square feet of apron pavement Existing Taxiway J; approximately 5,000 square feet of apron pavement Existing Taxiway K; approximately 49,000 square feet of apron pavement Existing Taxiway L; approximately 12,000 square feet of apron pavement Existing Taxiway SS; approximately 140,000 square feet of apron pavement Existing Taxiway T; approximately 430,000 square feet of apron pavement Existing Taxiway T8; approximately 56,000 square feet of apron pavement Existing Taxiway T9; approximately 35,000 square feet of apron pavement

Satellite 2 Concourse and Associated Apron Pavement (CDA Project 3)

The Satellite 2 Concourse and Associated Apron Pavement project would replace sections of several taxiways with a new three-level (one of which is below-grade) airside satellite concourse building. The Satellite 2 project would support a range of airside concourse functions, including 24 aircraft gates, passenger hold rooms, baggage handling systems and make-up areas, various passenger amenities, and circulation space. In conjunction with the proposed OGT (CDA Project 1), Satellite 2 would replace gates eliminated during the proposed Terminal 2 Demolition.

Satellite 2 would provide facility improvements needed to meet modern passenger needs, including additional accessible and inclusive facilities and services, amenities, and concessions. The facility would

also improve passenger experience via integration of new technologies and enhanced circulation. Improved baggage handling systems and supporting infrastructure would improve baggage circulation between terminals to better meet passenger expectations.

Details concerning the Satellite 2 Concourse and Associated Apron and Taxiway Pavement project are provided in **Table C-18**.

TABLE C-18
SATELLITE 2 CONCOURSE AND ASSOCIATED APRON PAVEMENT PROJECT COMPONENTS

Facility	Scope of Work
Satellite 2 Concourse	Construct concourse building (approximately 270,000 square feet); rectangular shape, approximately 30 feet high with a triangular node
Satellite 2 Apron	Construct apron pavement for 24 gates (approximately 1,700,000 square feet) Construct 1 ADG V taxilane - Between Satellite 2 and Satellite 1 Concourse Construct 1 ADG V taxilane bridge Construct 1 ADG III pushback area west of Satellite 2 Integrate with existing, future, and proposed apron and taxiways - Taxiway A, K - Satellite 1 Apron - Taxiways North of Satellite 2
Service Roadway	Construct roadway pavement (approximately 160,000 square feet) Integrate with proposed Airside Service Roadways
Demolish Pavement	Existing Penalty Box Hold Pad; 3,000 square feet of taxiway pavement Existing Tank Farm Road; 17,000 square feet of taxiway pavement Existing Taxiway J; approximately 50,000 square feet of apron pavement Existing Taxiway K; approximately 77,000 square feet of apron pavement Existing Taxiway SS; approximately 310,000 square feet of apron pavement Existing Taxiway T; approximately 240,000 square feet of apron pavement Existing Taxiway T6; approximately 22,000 square feet of apron pavement Existing Taxiway T7; approximately 48,000 square feet of apron pavement Existing Taxiway T8; approximately 12,000 square feet of apron pavement

Terminal 1 Concourse B Northeast End Expansion (CDA Project 4)

The Concourse B Northeast End Expansion project would replace an existing landside tenant surface parking lot with a terminal building expansion that would integrate with existing Terminal 1 and Concourse B. It would maintain roof alignment with roof heights of existing adjacent facilities. The configuration of the existing Concourse B gates that extend from the northeast side of the concourse and curve to mimic the bend in the main terminal roadway would remain intact at concourse level, while the existing lower roadway level would be integrated with the proposed expansion. The Concourse B Northeast End Expansion would meet the need to provide updated facilities that meet industry-recommended standards and modern customer service expectations. It would support a range of terminal functions, including check-in facilities, security screening, airline office space, various passenger amenities, and circulation space.

The expansion would provide more check-in space and accommodate updated Transportation Security Administration (TSA) screening technology, meeting the need for additional and larger security checkpoints and processing areas that will enhance passenger circulation.

Details concerning the Concourse B Northeast End Expansion project are provided in **Table C-19**.

TABLE C-19
CONCOURSE B NORTHEAST END EXPANSION PROJECT COMPONENTS

Facility	Scope of Work
Terminal 1, Concourse B Expansion	Construct expansion (approximately 41,000 square feet) Integrate with existing Terminal 1 and - Remove approximately 110 feet of Terminal 1 windows and/or façade - Maintain roof alignment with adjacent Terminal 1 roof height at base of existing sloped skylights Integrate with Terminal 1 Concourse B - Remove approximately 500 feet of Concourse B (northeast end) windows and/or façade - Maintain roof alignment with adjacent Concourse B roof height at base of existing sloped skylights
Demolish Terminal 1, Tenant Surface Parking Lot	Demolish approximately 32,000 square feet of landside surface parking lot pavement

Terminal 3 Concourse L Stinger One-Gate Addition and Associated Apron Expansion (CDA Project 5)

The Concourse L Stinger One-Gate Addition project would demolish the existing AT&T Building to provide aircraft parking apron pavement for one new aircraft gate position. It would also provide apron area for Ground Support Equipment (GSE) staging and parking.

Details concerning the Concourse L Stinger One-Gate Addition and Associated Apron Expansion project are provided in **Table C-20**.

TABLE C-20
CONCOURSE L STINGER ONE-GATE ADDITION AND ASSOCIATED APRON EXPANSION PROJECT COMPONENTS

Facility	Scope of Work
Terminal 3, Concourse L Stinger One-Gate Addition Apron	Construct apron pavement (approximately 24,000 square feet) One gate Integrate with future apron pavement associated with the Terminal 3 Concourse L Two-Gate Addition
Demolish AT&T Building	Demolish approximately 12,000 square foot building (approximately 105 feet by 105 feet) Demolish 13,000 square feet of associated pavement

Consolidated Baggage, Pedestrian/Moving Walkway, and Utility Tunnel (CDA Project 6)

The Consolidated Tunnel project would connect the proposed O'Hare Global Terminal, Satellite 1, and Satellite 2 with a one-level tunnel beneath the associated apron. The Consolidated Tunnel would include rights-of-way for baggage handling systems, utility corridors, motorized vehicle rights-of-way, and circulation space for conveying passengers, utilities, and baggage between the proposed O'Hare Global Terminal, Satellite 1, and Satellite 2. Passengers would access the Consolidated Tunnel from the below-grade levels of the proposed OGT, Satellite 1, and Satellite 2. The tunnel would meet the need for increased

circulation space for both passengers and baggage between terminals. It would enhance passenger level of service and provide interconnected facilities for both domestic and international passengers.

The Consolidated Tunnel is anticipated to be 4,400 linear feet long. The Consolidated Tunnel would be approximately 200 feet wide and 40 feet deep on a single level. Construction access passageways would account for approximately 36 feet of the tunnel width (18 feet on each side). The tunnel would require approximately 1,300,000 cubic yards of excavation.

Details concerning the Consolidated Baggage, Pedestrian/Moving Walkway, and Utility Tunnel project are provided in **Table C-21**.

TABLE C-21
CONSOLIDATED BAGGAGE, PEDESTRIAN/MOVING WALKWAY, AND UTILITY TUNNEL PROJECT COMPONENTS

Facility	Scope of Work
Consolidated Baggage, Pedestrian/Moving Walkways, and Utility Tunnel	Construct 200-foot-wide tunnel that would include 3 sections: *Consolidated Tunnel Section 1 (between OGT and Satellite 1) 820-foot-long tunnel under the OGT 980-foot-long tunnel under apron *Consolidated Tunnel Section 2 (between Satellite 1 and Satellite 2) 400-foot-long Satellite 1 shell space for pedestrian access 900-foot-long tunnel under apron 400-foot-long Satellite 2 shell space for pedestrian access *Consolidated Tunnel Section 3 (between Satellite 2 and future Taxiways A and B Relocation) 900-foot-long tunnel under apron and taxiways Integrate with proposed facilities: OGT, Satellite 1 Concourse, Satellite 2 Concourse

Terminal 5 Curbside Addition and Interior Reconfiguration (CDA Project 7)

Terminal 5 Curbside Addition and Interior Reconfiguration would renovate and expand the existing Terminal 5. The Terminal 5 Reconfiguration would renovate existing spaces, including the passenger check-in hall, FIS, baggage handling systems and supporting infrastructure, meeter-greeter reception space, circulation areas, security screening, commercial space, passenger and airline employee support facilities, hold rooms, and mechanical, electrical, and plumbing (MEP) engineering systems.

The Terminal 5 Reconfiguration would provide facilities to support airline needs associated with the integration of domestic and international airline and airline partner screening and operations. The Terminal 5 Reconfiguration would reorganize and expand the existing building to meet future demand resulting from increased domestic operations and decreased international operations as airlines move international operations to the proposed OGT (CDA Project 1). The Terminal 5 Reconfiguration would modify the terminal interior spaces on the penthouse, mezzanine, concourse, apron, and lower levels. It would add two (2) approximately 24,000 square foot building additions along the curb-facing sides of the existing structure (48,000 total square feet of proposed terminal building) and expand the check-in hall by 15,000 square feet.

Details concerning the Terminal 5 Curbside Addition and Interior Reconfiguration project are provided in **Table C-22**.

TABLE C-22
TERMINAL 5 CURBSIDE ADDITION AND INTERIOR RECONFIGURATION PROJECT COMPONENTS

Facility	Scope of Work
Terminal 5 West Addition (Curb Facing Side)	Construct terminal building addition (24,000 square foot footprint) Add security screening checkpoint Integrate with landside facing exterior wall of existing Terminal 5, Concourse M (west) - Remove approximately 900 feet of windows and/ or façade (apron level and concourse level) - Replace the existing moving walkway with 2 bidirectional moving walkways
Terminal 5 East Addition (Curb Facing Side)	Construct terminal building addition (24,000 square foot footprint) Add security screening checkpoint Expand sterile corridor Integrate with landside facing exterior wall of existing Terminal 5, Concourse M (east) - Remove approximately 1,200 feet of windows and/or façade (apron level and concourse level) - Replace the 2 existing moving walkways with 4 bidirectional moving walkways
Terminal 5 Interior Reconfiguration	Reconfigure/ optimize terminal building interior to serve the anticipated increase of domestic operations and decrease of international operations at Terminal 5 Renovate/repurpose/reconfigure existing and future Terminal 5 interior spaces (approximately 600,000 square feet) Construct check-in hall expansion (approximately 15,000 square foot footprint)

Terminal 5 Roadway Improvements (CDA Project 8)

Terminal 5 Roadway Improvements would reconfigure the existing Terminal 5 access roadway network to increase roadway capacity, replacing existing roadways and demolishing certain areas. It would also enhance the existing access roadway network, including a viaduct to Interstate 190. Vehicles would continue to access Terminal 5 via I-190, Bessie Coleman Drive, and Balmoral Avenue.

Terminal 5 Roadway Improvements would consist of new pavement and modifications to the existing Terminal 5 access roadway network. The roadway improvements are needed to increase the capacity of the Terminal 5 access roadway network to meet current and future demand. Additional roadway capacity will improve access to Terminal 5 and reduce congestion in existing roadway segments and intersections.

The project would require demolition of existing structures, including the Former Delta Cargo building (approximately 33,000 square feet) and the Outside Plumber Shop (approximately 1,500 square feet). Existing airside pavement used for GSE storage (approximately 130,000 square feet), landside roadway pavement (approximately 100,000 square feet), and surface parking lot pavement (approximately 100,000 square feet) would also be demolished, including sections of the Terminal 5 Exit Roadway, Old Cargo Road, and pavement surrounding the Former Delta Cargo building.

The project would involve constructing a surface parking lot of approximately 500 surface parking spaces. The surface parking area would replace existing parking to be removed with the proposed Phase 2 garage and the Terminal 5 Hotel Facility and Pedestrian Bridge (CDA Project 25).

Details concerning the Terminal 5 Roadway Improvements project are provided in **Table C-23**.

TABLE C-23
TERMINAL 5 ROADWAY IMPROVEMENTS PROJECT COMPONENTS

Facility	Scope of Work
Southbound Bessie Coleman Drive	Expand southbound Bessie Coleman Drive (construct approximately 1,700 square feet of roadway pavement) Reconfigure and integrate with existing southbound Bessie Coleman Drive (north of the Terminal 5 entry roadway) Restripe for 1 additional southbound lane (4 lanes total)
Terminal 5 Entry Roadway	Expand Terminal 5 entry roadway (construct approximately 17,000 square feet of roadway pavement) - Construct 1 additional inbound lane along Terminal 5 entry roadway (approximately 6,000 square feet) - Construct 1 recirculation lane from Terminal 5 exit roadway (approximately 11,000 square feet) Construct surface parking lot pavement (150,000 square feet) Integrate with existing Terminal 5 entry roadway - Reconfigure/restripe for 1 additional inbound lane (3 lanes total)
Terminal 5 Exit Roadway	Expand Terminal 5 exit roadway (construct approximately 180,000 square feet of roadway pavement) - Configure pavement for 5 total outbound lanes, diverging to Bessie Coleman Drive (2 lanes) and eastbound I-190 and Balmoral Ave (3 lanes) - Construct 2 recirculation lanes to Balmoral Avenue Construct 2 outbound lanes to eastbound I-190Construct bridge to reduce the volume of outbound traffic through the signalized intersection Demolish pavement (approximately 330,000 square feet of pavement): - GSE Staging Area - Existing Terminal 5 Exit Roadway - Old Cargo Road - Terminal 5 On-Ramp to I-190 (eastbound) Demolish existing buildings: - Former Delta Cargo Demolition (approximately 32,000 square foot footprint and approximately 100,000 square feet of associated pavement) - Outside Plumber Shop (approximately 1,400 square foot footprint) Integrate with existing roadways: - Terminal 5 Exit Roadway - Balmoral Avenue - I-190 (eastbound)

Terminal 5 Curbside Expansion (CDA Project 9)

Terminal 5 Curbside Expansion would increase capacity of the existing upper and lower-level curbside roadways, supplementing existing curbside roadways with pavement restriping, additional lanes, and enlarged sidewalks.

The expansion of Terminal 5 upper and lower-level curbside roadways is needed to improve traffic flow from the passenger drop-off and pick-up process. The upper curbside roadway expansion would increase the Terminal 5 curbside capacity to meet anticipated demand; the lower-level reconfiguration is anticipated to widen the outer curbside sidewalk by approximately 25 feet, reducing the crowding of passengers on the curbside. The project would consist of new pavement and modifications to the existing Terminal 5 upper level and lower-level curbside roadways. It would provide approximately 100,000 square feet of new roadway pavement and reconfigure/restripe approximately 76,000 square feet of existing roadway pavement.

Details concerning the Terminal 5 Curbside Expansion project are provided in **Table C-24**.

TABLE C-24
TERMINAL 5 CURBSIDE EXPANSION PROJECT COMPONENTS

Facility	Scope of Work
Upper-Level Departures Curbside	Expand Terminal 5 upper-level curbside roadway (construct approximately 75,000 square feet of roadway pavement: 4 lanes, including sidewalk for outer curbside) Integrate with existing Terminal 5 roadways: - Inbound to the upper-level curbside - Outbound from the upper-level curbside - Reconfigure/restripe approximately 18,000 square feet of existing roadway for 1 additional outbound lane (2 lanes total)
Lower-Level Arrivals Curbside	Expand Terminal 5 lower-level curbside roadway (construct approximately 25,000 square feet of roadway pavement: 1 lane) Demolish roadway pavement (approximately 23,000 square feet) Reconfigure approximately 58,000 square feet of existing lower-level curbside - Convert outer curb parking lane into sidewalk - Convert innermost through lane into parking lane Integrate with existing Terminal 5 roadways - Inbound to the lower-level curbside; reconfigure/restripe for 1 additional inbound lane (3 lanes total) - Outbound from the lower-level curbside; reconfigure/restripe for 1 additional outbound lane (2 lanes total)

Terminal 5 Parking Garage Phase 2 (CDA Project 26)

The proposed Parking Garage Phase 2 would provide a 900-space 7-level elevated parking structure, extending west from the future Phase 1 parking garage (not part of this EA). It would support the forecast demand for parking at Terminal 5 with convenient on-airport long-term and hourly public parking options. It would provide domestic airlines operating in Terminal 5 with a range of parking offerings for customers like those provided in Terminals 1, 2, and 3. The parking facility would provide an additional source of non-aeronautical revenue for the CDA. The footprint is anticipated to be approximately 55,000 square feet (approximately 150 feet wide by 450 feet long).

Details concerning the Terminal 5 Parking Garage Phase 2 project are provided in **Table C-25**.

TABLE C-25
TERMINAL 5 PARKING GARAGE PHASE 2 PROJECT COMPONENTS

Facility	Scope of Work
Terminal 5 Parking Garage Phase 2	Construct 7-level parking garage expansion (approximately 55,000 square foot footprint) Integrate with future Terminal 5 Parking Garage–Phase 1 Integrate with proposed surface lot
Existing Public Parking Lot D	Demolish surface parking lot pavement (approximately 52,000 square feet)

Taxiways K and L Extension (CDA Project 16)

Taxiways K and L Extension would replace sections of five existing taxiways with new taxiway pavement, providing parallel Airplane Design Group V/Taxiway Design Group 6 taxiways. The taxiway extension would connect to the existing Taxiways A and B and improve aircraft operations in the south airfield by

providing a parallel taxiway system from the south runways to the terminals. The taxiway extensions would connect the existing and future Taxiways K and L to the proposed OGT (CDA Project 1), which would include aircraft parking positions with gate frontage for Airplane Design Group V aircraft. The Taxiways K and L Extension would provide approximately 260,000 square feet of new taxiway pavement.

The Taxiways K and L Extension would connect the future Taxiways K and L Extension (between Taxiway SS and Taxiway A11; CDA Baseline Project B35) east of former Taxiway A11 to the existing Taxiways A and B west of Taxiway A13. The Taxiways K and L Extension would replace Taxiway A12 with a connector taxiway west of Taxiway A13. The proposed Taxiway K Extension would tie into the proposed OGT-associated apron east of the OGT; the taxiway separation would be 750 feet north of the existing Taxiway N. The proposed Taxiway L Extension taxiway separation would be 426 feet north of the existing Taxiway N and 298 feet south of the proposed Taxiway K Extension. The Taxiways K and L Extension would require demolition of approximately 290,000 square feet of taxiway pavement, including sections of Taxiways A and B and A13.

Details concerning the Taxiways K and L Extension project are provided in **Table C-26**.

TABLE C-26
TAXIWAYS K AND L EXTENSION PROJECT COMPONENTS

Facility	Scope of Work
Taxiway K	Construct taxiway pavement (approximately 160,000 square feet) Integrate with existing, future, and proposed apron and taxiways: - Taxiway A - Taxiway K - OGT Apron (CDA Project 1)
Taxiway L	Construct taxiway pavement (approximately 100,000 square feet) Integrate with existing and future taxiways: - Taxiway A - Taxiway L
Demolish Pavement	Taxiway A; demolish approximately 180,000 square feet of taxiway pavement Taxiway A13; demolish approximately 26,000 square feet of taxiway pavement Taxiway B; demolish approximately 84,000 square feet of taxiway pavement

Taxiways North of Satellite 2 (CDA Project 17)

Taxiways North of Satellite 2 would replace sections of four existing taxiways and the Penalty Box Hold Pad with new taxiway pavement, providing parallel Airplane Design Group V/Taxiway Design Group 6 taxiways. The parallel runways are anticipated to provide approximately 620,000 square feet of new taxiway pavement and demolish approximately 650,000 square feet of existing pavement.

The proposed taxiways would improve aircraft circulation between aircraft gates and aircraft movement areas, providing more flexible flow-through to the north and south airfields with dual taxilanes sized for parallel Airplane Design Group V operations. The proposed taxiways would connect the future Taxiways A and B Relocation to the existing Taxiways A and B at the Penalty Box Hold Pad; this connection would enable aircraft taxi movements into and around proposed Satellite 1 (CDA Project 2) and Satellite 2 (CDA Project 3), improving aircraft maneuverability.

The proposed taxiway connections would be aligned perpendicular to the future Taxiways A and B Relocation. The taxiway separation would be approximately 250 feet. Future Taxiway U would be extended 700 feet from Taxiway SS to the future Taxiways A and B Relocation. The northernmost taxiway would extend and connect across the future Taxiways A and B Relocation, aligning with the proposed Taxiway U extension.

Details concerning the Taxiways North of Satellite 2 project are provided in **Table C-27**.

TABLE C-27
TAXIWAYS NORTH OF SATELLITE 2 PROJECT COMPONENTS

Facility	Scope of Work
Taxiways North of Satellite 2	Construct taxiway pavement (approximately 620,000 square feet) Integrate with existing and future taxiways: - Existing and future Taxiway B - Taxiway A - Taxiway U
Demolish Pavement	Penalty Box Hold Pad; demolish approximately 76,000 square feet of taxiway pavement Tank Farm Road; demolish approximately 18,000 square feet of roadway pavement Taxiway J; demolish approximately 160,000 square feet of taxiway pavement Taxiway SS; demolish approximately 200,000 square feet of taxiway pavement Taxiway T; demolish approximately 65,000 square feet of taxiway pavement Taxiway T5; demolish approximately 93,000 square feet of taxiway pavement Taxiway A; demolish approximately 20,000 square feet of taxiway pavement Taxiway B; demolish approximately 14,000 square feet of taxiway pavement

Taxiways A and B Reconfiguration (CDA Project 29)

Taxiways A and B Reconfiguration would replace sections of two existing taxiways with new taxiway pavement, increasing centerline separation to provide parallel Airplane Design Group V/Taxiway Design Group 6 taxiways. Reconfiguration is needed to provide FAA-standard[57] taxiway separation of 267 feet between Taxiways A and B and to realign the taxiway network to be parallel to Runway 4L/22R. The project is anticipated to provide approximately 780,000 square feet of new taxiway pavement.

The Taxiways A and B Reconfiguration would connect the proposed Taxiways North of Satellite 2 (CDA Project 17) to proposed Taxiway G (CDA Project 30) on parallel alignments to Runway 4L/22R. The taxiway separation would be 267 feet with Taxiway B (the taxiway closest to Runway 4L/22R) sited 400 feet from the runway centerline. The Taxiways A and B Reconfiguration includes the relocation of Taxiway A2, relocation of Taxiway A4, and reconfiguration of Taxiway A3.

Details concerning the Taxiways A and B Reconfiguration project are provided in **Table C-28**.

[57] FAA AC 150/5300-13A (Change 1), *Airport Design*

TABLE C-28
TAXIWAYS A AND B RECONFIGURATION PROJECT COMPONENTS

Facility	Scope of Work
Taxiway A	Construct taxiway pavement (approximately 250,000 square feet) Integrate with existing and proposed apron and taxiways: - Taxiway A - Terminal 1 Concourse C Apron - Satellite 1 Apron (CDA Project 2) - Satellite 2 Apron (CDA Project 3) - Taxiway G (CDA Project 30) - Taxiways North of Satellite 2 (CDA Project 17)
Taxiway B	Construct taxiway pavement (approximately 530,000 square feet) Integrate with existing and proposed apron, runway, and taxiways Runway 4L/-22R (via connector taxiway) Taxiway B Taxiway G (CDA Project 30) Taxiways North of Satellite 2 (CDA Project 17)
Demolish Pavement	• Penalty Box Hold Pad; demolish approximately 130,000 square feet of taxiway pavement • Taxiway A; demolish approximately 140,000 square feet of taxiway pavement • Taxiway A2; demolish approximately 23,000 square feet of taxiway pavement • Taxiway A3; demolish approximately 62,000 square feet of taxiway pavement • Taxiway A4; demolish approximately 27,000 square feet of taxiway pavement • Taxiway A5; demolish approximately 13,000 square feet of taxiway pavement • Taxiway B; demolish approximately 185,000 square feet of taxiway pavement • Runway 4L/22R; demolish approximately 5,600 square feet of runway shoulder pavement Terminal 1, Concourse C Apron; demolish approximately 130,000 square feet of apron pavement

Taxiway G (CDA Project 30)

Taxiway G would replace sections of existing Taxiway H with new taxiway pavement, increasing centerline separation from Runway 9R/27L to 400 feet (becomes Taxiway G). Taxiway G would consist of one ADG V/Taxiway Design Group 6 taxiway, providing approximately 700,000 square feet of new taxiway pavement.

Taxiway G is needed to support taxiing flow and movements parallel to the future Runway 9R/27L Extension (CDA Baseline Project B9) and to meet the runway separation design standard for runway centerline to parallel taxiway centerline of 400 feet established in FAA AC 150/5300-13A (Change 1), Airport Design. Taxiway G would extend from future Taxiway T and Taxiway A1 with a runway separation of 400 feet south of Runway 9R/27L and taxiway separation of 324 feet north of the proposed Taxiway H (CDA Project 31).

Included with Taxiway G are sections of three connector taxiways to proposed parallel Taxiway H, reconstruction of adjacent Taxiways A and B segments aligning to the proposed Taxiways A and B Reconfiguration (CDA Project 29), and a connection to the Terminal 1 apron between Concourses B and C. The proposed Taxiways A and B Reconfiguration associated with Taxiway G would improve safety.

Details concerning the Taxiway G project are provided in **Table C-29**.

TABLE C-29
TAXIWAY G PROJECT COMPONENTS

Facility	Scope of Work
Taxiway G	Construct taxiway pavement (approximately 700,000 square feet) Realign existing service road (12,000 square feet) parallel to Taxiway H Integrate with existing, future, and proposed taxiways: • Taxiway A • Taxiway B • Taxiway H • Taxiway J • Taxiway G • Taxiways A and B Reconfiguration (CDA Project 29) • Taxiways H and J (connector taxiways; CDA Project 31)
Demolish Pavement	• Taxiway A; demolish approximately 60,000 square feet of taxiway pavement • Taxiway A2; demolish approximately 31,000 square feet of taxiway pavement • Taxiway B; demolish approximately 56,000 square feet of taxiway pavement • Taxiway E; demolish approximately 35,000 square feet of taxiway pavement • Taxiway H; demolish approximately 330,000 square feet of taxiway pavement • Taxiway J; demolish approximately 71,000 square feet of taxiway pavement • Taxiway G; demolish approximately 160,000 square feet of taxiway pavement

Taxiways H and J (CDA Project 31)

Taxiways H and J would replace sections of 5 existing taxiways with new taxiway pavement, providing two parallel ADG VI/ Taxiway Design Group 7 taxiways. Taxiways H and J would meet the need to provide sufficient taxiway connection to efficiently accommodate existing and future airline fleets.

The project would provide FAA standard parallel taxiway centerline separations south of Runway 9R/27L. Taxiways H and J are anticipated to provide approximately 480,000 square feet and 270,000 square feet, respectively, of new taxiway pavement. The taxiways would extend the future parallel taxiways associated with the future Runway 9R/27L Extension (CDA Baseline Project B9), standardizing the centerline separations of the proposed parallel taxiways and proposed Taxiway G (CDA Project 30).

Taxiway H would extend east from the Taxiway T/Taxiway T3 intersection to Runway 4L/22R. The taxiway separation would be 324 feet south of the proposed Taxiway G (CDA Project 30), as specified in FAA AC 150/5300-13A (Change 1), Airport Design, on the same alignment as a parallel taxiway associated with the future Runway 9R/27L Extension. Taxiway J would extend east from Taxiway SS to existing Taxiway J. The taxiway separation would be 324 feet south of the proposed Taxiway H, as specified in FAA AC 150/5300-13A (Change 1), Airport Design, on the same alignment as a parallel taxiway associated with the future Runway 9R/27L Extension. Included with Taxiways H and J are sections of three connector taxiways from Taxiway H to proposed parallel Taxiway G; two of the connector taxiways would continue the north-south alignment south to the future Taxiways A and B Relocation (CDA Baseline Project B62).

Details concerning the Taxiways H and J project are provided in **Table C-30**.

TABLE C-30
TAXIWAYS H AND J PROJECT COMPONENTS

Facility	Scope of Work
Taxiway H	Construct taxiway pavement (approximately 480,000 square feet) Integrate with future and proposed taxiways: - Taxiways A and B Relocation - Taxiway H (associated with the future Runway 9R/27L Extension) - Taxiway G via connector taxiways (CDA Project 30) - Taxiway J
Taxiway J	Construct taxiway pavement (approximately 270,000 square feet) Reuse taxiway pavement (approximately 59,000 square feet) Integrate with future and proposed taxiways: - Taxiways A and B Relocation - Taxiway J - Taxiway H
Demolish Pavement	Taxiway E; demolish approximately 42,000 square feet of runway shoulder pavement Taxiway J; demolish approximately 120,000 square feet of taxiway shoulder pavement Taxiway J2; demolish approximately 200,000 square feet of taxiway shoulder pavement Taxiway SS; demolish approximately 110,000 square feet of taxiway shoulder pavement Taxiway A; demolish approximately 5,700 square feet of taxiway shoulder pavement Taxiway B; demolish approximately 45,000 square feet of taxiway shoulder pavement Taxiway H; demolish approximately 140,000 square feet of taxiway shoulder pavement

Terminal 1 Concourse C Expansion (North) (CDA Project 33)

The Concourse C North project would integrate with existing Terminal 1 Concourse C and provide space for an airline lounge area, holdrooms, commercial space, and MEP engineering systems. The Concourse C North project would help meet modern customer service expectations by providing a range of airside terminal functions, including aircraft gates, passenger holdrooms, various passenger amenities, and circulation space.

The Concourse C North Expansion would consist of a 2-level expansion of the existing terminal building on the apron and concourse levels. The expansion footprint would be approximately 16,000 square feet (250 feet by 65 feet). The Concourse C North Expansion would be located between Gates C20 and C24, modifying up to 315 feet of the Concourse C façade and would adjoin to the Concourse C northwest façade. The west elevation of the proposed expansion would align with the west elevation of the existing Concourse C holdroom area. The proposed expansion roof height would align with the adjacent Concourse C roof height at base of existing sloped skylights.

The project would require demolition of existing Terminal 1 Concourse C apron pavement (approximately 16,000 square feet). The expansion would require the relocation of passenger loading bridges and downgauging of aircraft parking at Gates C22 and C24, restricting use of these gates to aircraft no longer than 104 feet.

Details concerning the Terminal 1 Concourse C Expansion project are provided in **Table C-31**.

TABLE C-31
TERMINAL 1 CONCOURSE C EXPANSION PROJECT COMPONENTS

Facility	Scope of Work
Terminal 1, Concourse C North Expansion	Construct approximately 16,000 square foot expansion
Terminal 1, Concourse C	Remove and/or modify up to 315 feet of Concourse C façade between Gates C20 and C24 (apron and concourse levels) to tie in with the expansion Reduce size of 2 gates (Gates C22 and C24) to aircraft no longer than 104 feet Maintain roof height with adjacent Concourse C roof height at based of existing sloped skylights
Terminal 1, Concourse C Apron	Demolish apron pavement (approximately 16,000 square feet)

Two (2) temporary projects are described below.

Temporary Walkway/Extended Jetway from Concourse C (CDA Project T1)

The proposed Temporary Walkway/Extended Jetway from Concourse C project would relocate two Terminal 1 Concourse C gates to enable construction of proposed Satellite 1 and provide an enclosed temporary walkway during proposed Satellite 1 construction. It would consist of an approximately 20,000square foot (approximately 500 feet long by 40 feet wide) temporary concourse-level walkway. The walkway would be approximately 30 feet wide and 20 feet high where it would connect to Concourse C at Gate C8. The expansion would extend west, north of the proposed Satellite 1 footprint.

The Temporary Extended Jetway would be comprised of a steel frame, metal siding, and carpeting over a poured concrete deck supported by spread footing foundations over existing apron and taxiway pavement. The Temporary Extended Jetway is anticipated to accommodate 6 gates on existing apron and taxiway pavement. The expected service life of the Temporary Extended Jetway is three years. The Temporary Extended jetway would be removed after completion of proposed Satellite 1.

Details concerning the Temporary Walkway/Extended Jetway from Concourse C project are provided in **Table C-32**.

TABLE C-32
TEMPORARY WALKWAY/EXTENDED JETWAY FROM CONCOURSE C PROJECT COMPONENTS

Facility	Scope of Work
Temporary Extended Jetway	Construct temporary walkway/extended jetway (approximately 20,000square foot footprint) Integrate with existing Terminal 1 Concourse C Temporarily close Gates C6 and C8

Temporary Heating and Refrigeration Facility (CDA Project T2)

The proposed Temporary H&R Facility would support the proposed O'Hare Global Terminal, Satellite 1, and Satellite 2 and include administrative and support spaces and an accompanying landside surface parking lot with construction of a temporary facility. The project would consist of a building and pavement on an undeveloped, approximately 64,000 square foot site west of the future Taxiways A and B Relocation at the proposed Consolidated Tunnel Section 3 entrance.

The Temporary H&R Facility would support the proposed Satellites 1 and 2 (CDA Projects 2 and 3, respectively) during construction, when they would be disconnected from main service. The system would also provide redundancy of the overall airport heating and cooling system, including connections to existing Terminals 1 and 3. The expected service life of the Temporary H&R Facility is 7 years. The Temporary H&R Facility would be removed when the proposed West H&R Facility (CDA Project 10) is operational. The equipment from the temporary facility may either be used in future airport developments, depending on the operating condition, or disposed of and/or recycled in accordance with federal, state, and local regulations.

Details concerning the Temporary Heating and Refrigeration Facility project are provided in **Table C-33**.

TABLE C-33
TEMPORARY HEATING AND REFRIGERATION FACILITY PROJECT COMPONENTS

Facility	Scope of Work
Temporary H&R Facility	Construct H&R facility (approximately 44,000 square foot footprint; 125 feet by 350 feet)
Temporary H&R Facility Surface Parking Lot	Construct roadway pavement, including a surface parking lot and access roadway connecting to existing airside service roadways (approximately 20,000 square feet) Integrate with existing airside service roadway

Group 2 – On-Airport Hotel Projects

Two on-airport non-aeronautical projects are described in this section.

Multimodal Facility (MMF) Hotel, Mixed-Use Development, and Detention Basin Relocation (CDA Project 22)

The proposed MMF Hotel and Mixed-Use Development project would include construction of a new multi-level building complex west of the MMF. It would include a hotel and shell space for mixed-use development, a surface parking lot, access roadway pavement, and detention basins. The MMF Hotel and Mixed-Use Development would use approximately 180,000 square feet of land.

The project would provide travelers with a mid-range on-airport hotel option with direct pedestrian connections to the MMF and the MMF ATS Station and connections to the regional bus system and METRA regional commuter railroad station. It would support landside operations and tenants with a new and modern mixed-use building complex and provide a source of non-aviation-related revenue for the CDA.

Construction would require demolition of a detention basin associated with the MMF. Existing MMF roadways would provide access to the site. The access roads and adjacent surface parking lot would be located within the proposed development. Two basins would be constructed, one north and one south of the hotel, to replace the demolished detention basin. The proposed detention basins would be designed

and managed in accordance with FAA AC 150/5200-33B, Hazardous Wildlife Attractants on or Near Airports. Stormwater discharge would be accommodated through an existing 78-inch storm sewer that discharges into Willow-Higgins Creek.

Details concerning the MMF Hotel and Mixed-Use Development project are provided in **Table C-34**.

TABLE C-34
MMF HOTEL AND MIXED-USE DEVELOPMENT PROJECT COMPONENTS

Facility	Scope of Work
MMF Hotel and Mixed-Use Development	Construct multi-level building (approximately 43,000 square feet)
MMF Hotel Surface Parking Lot	Construct surface parking lot pavement and access roadways (approximately 55,000 square feet) Integrate with existing MMF access roadways
MMF Detention Basin Relocation	Demolish existing detention basin (approximately 62,000 square feet) Construct North Basin (approximately 70,000 square feet) Construct South Basin (approximately 12,000 square feet)

Terminal 5 Hotel Facility and Pedestrian Bridge (CDA Project 25)

The proposed Terminal 5 Hotel project would construct a new multi-level building on the northwest section of existing public parking Lot D, including associated pavement for access roadways. The existing Terminal 5 access roadway network and the proposed Terminal 5 Roadway Improvements project would provide access to the site. The hotel would connect to the future Terminal 5 Parking Garage, and ultimately Terminal 5, via a pedestrian bridge.

The proposed project would provide travelers with a high-end on-airport hotel option with convenient access to the terminals, the CTA Blue Line, and the MMF via the ATS. The Terminal 5 Hotel would provide the CDA with an additional source of non-aeronautical revenue via additional hotel rooms and meeting rooms capable of hosting large events and conferences.

The Terminal 5 Hotel would be constructed in an area currently designated for collateral development; it would use approximately 132,000 of the total 175,000 square foot collateral development area. The Terminal 5 Hotel would require demolition of approximately 63,000 square feet of existing surface parking pavement in public parking Lot D.

Details concerning the Terminal 5 Hotel Facility and Pedestrian Bridge project are provided in **Table C-35.**

TABLE C-35
TERMINAL 5 HOTEL FACILITY AND PEDESTRIAN BRIDGE PROJECT COMPONENTS

Facility	Scope of Work
Terminal 5 Hotel Facility and Pedestrian Bridge	Construct multi-level building (approximately 77,000 square feet) Construct pedestrian bridge (approximately 5,000 square feet) Integrate with future Terminal 5 Parking Garage–Phase 1 (CDA Baseline Project B42e)
Proposed Access Roadway	Construct access roadway (approximately 50,000 square feet) Integrate with existing Terminal 5 entry roadway

Facility	Scope of Work
Existing Public Parking Lot D	Demolish surface parking lot pavement (approximately 63,000 square feet)

Group 3–Airfield and Taxiway Improvements Not Required by the Terminal Projects

The Airfield and Taxiway Improvements group consists of six projects briefly described in the following section. These projects are not required for construction or operation of any of the projects listed in **Section A.3.1** above. These projects are needed to meet various FAA design standards and improve efficiency and reduce occupancy of runways.

Bravo Hold Pad Conversion (CDA Project 20)

The proposed Bravo Hold Pad Conversion project would replace the temporary United Airlines Temporary Employee Parking Lot with a hold pad, i.e., airfield pavement for holding aircraft. The temporary employee parking area would be relocated to the proposed West Employee Parking Garage. The Bravo Hold Pad Conversion would meet the need for aircraft parking with access to the airfield taxiway and runway system.

The Bravo Hold Pad Conversion converts approximately 890,000 square feet of the existing Bravo Pad and temporary United Airlines Employee Parking Lot into airfield hardstand pavement. The project is estimated to provide up to six ADG III parking positions (net increase of four positions) and a single ADG III taxiway extending from Taxiway B southeast. It would connect to the existing Taxiway B along 1,200 feet to the northeast, from the Taxiway B bridge across I-190 to the future Taxiway PP. The hardstand aircraft parking positions would be sited approximately 190 feet southeast of the Taxiway B centerline. The associated ADG III taxiway would wrap along the southwest and southeast edges of the Bravo Pad. The airside service roadway network would be reconstructed around the Bravo Pad to the southwest, southeast, and northeast. Construction would include drainage infrastructure including deicing fluid collection, storage tanks, and control systems.

Details concerning the Bravo Hold Pad Conversion project are provided in **Table C-36**.

TABLE C-36
BRAVO HOLD PAD CONVERSION PROJECT COMPONENTS

Facility	Scope of Work
Bravo Holdpad Conversion	Convert/repurpose pavement from parking lot into airfield pavement: - Demolish approximately 890,000 square feet of surface course pavement; reuse base - Demolish approximately 2,300 linear feet of fence - Demolish two bus shelters (approximately 6,300 square feet) Construct hold pad pavement (approximately 625,000 square feet) Construct approximately 960 linear feet of fence Demolish Bravo Hold Pad pavement (approximately 160,000 square feet) Integrate with proposed Taxiway B Relocate employee parking to the West Employee Parking Garage (CDA Project 12)
	Construct taxiway pavement (approximately 205,000 square feet) Integrate with existing Taxiway B Integrate with future Taxiway PP Integrate with Bravo Hold Pad

Facility	Scope of Work
Airside Service Roadway/ Equipment Staging Area	Construct roadway and staging area pavement (approximately 260,000 square feet) Demolish sections of the existing airside service roadway pavement (approximately 10,000 square feet) Integrate with airside service roadways; reroute around the proposed Bravo Hold Pad

Runway 28R Blast Pad Expansion (CDA Project 24)

The proposed Runway 28R Blast Pad Expansion project would widen the blast pad from 150 to 220 feet and reduce its length from 430 to 400 feet.

The project is needed for the blast pad to conform to ADG V standards as specified in FAA AC 150/5300-13A (Change 1), Airport Design. The Runway 28R Blast Pad Expansion would support aircraft utilizing the future Terminal 5 Expansion (CDA Baseline Project B42), as well as the domestic flights resulting from the co-location of domestic and international operations. The Runway 28R Blast Pad Expansion would require demolition of existing unusable airfield pavement east of the existing blast pad, including 1,200 square feet of existing Taxiway Y shoulder pavement, (approximately 13,000 square feet) and existing Taxiway Y5 pavement (approximately 22,000 square feet). The existing Runway 28R Approach Lighting System (ALSF-II) would be removed and reinstalled for the blast pad pavement.

Details concerning the Runway 28R Blast Pad Expansion project are provided in **Table C-37**.

TABLE C-37
RUNWAY 28R BLAST PAD EXPANSION PROJECT COMPONENTS

Facility	Scope of Work
Runway 28R Blast Pad	Expand existing blast pad pavement (approximately 58,000 square feet) Integrate with existing runway and taxiway: - Runway 10L/28R (existing blast pad) - Taxiway Y
Existing Runway 28R	Demolish unusable airfield pavement and Taxiway Y shoulder pavement (approximately 13,000 square feet) Remove and reinstall the approach lighting system for blast pad pavement
Existing Taxiway Y5	Demolish taxiway pavement (approximately 22,000 square feet)

Runway 9L/27R Exit Taxiways (CDA Project 23)

Runway 9L/27R Exit Taxiways would connect Runway 9L/27R to Taxiways C and M1 with new taxiway pavement, providing two ADG V/Taxiway Design Group six high-speed exit taxiways. High-speed exit taxiways would reduce the distance from the touchdown zone to the runway exit, improving taxi flow. This project would meet the need to improve efficiency and reduce occupancy of runways.

The Runway 9L Exit Taxiway centerline point of tangency with the runway centerline would be 5,100 feet from the runway threshold; the taxiway would continue with a 400-foot parallel separation from the runway, as specified in FAA AC 150/5300-13A (Change 1), Airport Design, and tie into existing Taxiway M1. The Runway 27R Exit Taxiway centerline point of tangency with the runway centerline would be 5,100 feet from the runway threshold; the taxiway would tie into existing Taxiway C. Both high-speed exit

taxiways would conform to the standard 1,500-foot exit radius and 30-degree exit angle specified in FAA AC 150/5300-13A (Change 1), Airport Design.

Details concerning the Runway 9L/27R Exit Taxiways project are provided in **Table C-38**.

TABLE C-38
RUNWAY 9L/27R EXIT TAXIWAYS PROJECT COMPONENTS

Facility	Scope of Work
Runway 9L High-Speed Exit Taxiway to Taxiway M1	Construct taxiway pavement (approximately 235,000 square feet) Integrate with existing runway and taxiway: - Runway 9R/27L - Taxiway M1
Runway 27R High-Speed Exit Taxiway to Taxiway C	Construct taxiway pavement (approximately 170,000 square feet) Integrate with existing runway and taxiway: - Runway 9R/27L - Taxiway C
Demolish Pavement	Runway 9R/27L; demolish approximately 31,000 square feet of runway shoulder pavement Taxiway C; demolish approximately 23,000 square feet of taxiway shoulder pavement Taxiway M1; demolish approximately 6,000 square feet of taxiway shoulder pavement

Taxiways P, V, and Y Reconfiguration (CDA Project 32)

Taxiways P, V, and Y Reconfiguration would replace existing sections of four taxiways to accommodate Airplane Design Group (ADG) VI operations. The Taxiways P, V, and Y Reconfiguration would support airfield operations with reconstructed taxiways to reduce irregular geometry by creating a standard 90-degree intersection at the Taxiway Y crossing of Runway 10L/28R. This project will provide geometric modifications to accommodate taxiway movements associated with Runways 10L/28R and 4R/22L and Terminal 5.

The Taxiways P, V, and Y Reconfiguration would reconstruct the Runway 28R Hold Pad to form the eastern sections of Taxiways LL, N, and V. The new eastern extensions of Taxiways V and N would be designed and built for ADG V. The new east extension of Taxiway LL would be designed and built for ADG VI. The east extensions of proposed Taxiways LL and V would integrate with the future Taxiway LL–Phase 2 (CDA Baseline Project 78a) and the east extension of proposed Taxiway N would integrate with future Taxiway N Realignment (CDA Baseline Project 78b).

The project would reconstruct Taxiway P at the intersection with Taxiway Y. From Taxiway RR to Runway 10L/28R, Taxiway Y would be reconstructed and sited east of its existing alignment, configured to align perpendicularly to the Runway 28R threshold.

The Taxiways P, V, and Y Reconfiguration would provide approximately 1,300,000 square feet of new or reconstructed taxiway pavement and demolish approximately 1,600,000 square feet of existing taxiway pavement, including sections of the Runway 28R Hold Pad, Taxiways N, P, V, Y, and Y4, and Runway 10L/28R shoulder pavement. The existing Runway 28R hold pad, approximately 475,000 square feet, would be demolished to accommodate north-south and east-west taxi routes.

Details concerning the Taxiways P, V, and Y Reconfiguration project are provided in **Table C-39**.

TABLE C-39
TAXIWAYS P, V, AND Y RECONFIGURATION PROJECT COMPONENTS

Facility	Scope of Work
Taxiway Y	Construct taxiway pavement, including eastern extensions of Taxiways LL and N (approximately 920,000 square feet) Integrate with existing runway/taxiways, proposed taxiways, and future taxiways: - Runway 10L/28R - Taxiway P - Taxiway V - Taxiway Y - Taxiway Y4 - Taxiway LL–Phase 2 - Taxiway N Realignment
Taxiway V	Construct taxiway pavement (approximately 380,000 square feet) Integrate with existing runway and proposed taxiways Runway 4R/22L Taxiway LL–Phase 2
Demolish Pavement	Runway 10L/28R; demolish approximately 7,000 square feet of runway shoulder pavement Runway 28R Hold Pad; demolish approximately 475,000 square feet of taxiway pavement Taxiway N; demolish approximately 265,000 square feet of taxiway pavement Taxiway P; demolish approximately 30,000 square feet of taxiway pavement Taxiway V; demolish approximately 197,000 square feet of taxiway pavement Taxiway Y; demolish approximately 520,000 square feet of taxiway pavement Taxiway Y4; demolish approximately 65,000 square feet of taxiway pavement

Taxiway T Demolition (CDA Project 37)

Taxiway T Demolition would support airfield operations by eliminating an irregular taxiway intersection between existing Taxiways P and P6 and reducing the risk of an incursion or aircraft accidentally crossing Runway 10C/28C.

Taxiway T was constructed to provide access to the Southeast Cargo area during the construction of Runway 10C/28C and is no longer needed. The existing pavement is an "inadvisable co-location" of Taxiway T with high-speed Taxiway P6, as defined in FAA AC 150/5300-13A (Change 1), Airport Design. The Taxiway T Demolition would remove approximately 35,000 square feet of taxiway pavement between Taxiways P and P6.

Details concerning the Taxiway T Demolition project are provided in **Table C-40**.

TABLE C-40
TAXIWAY T DEMOLITION PROJECT COMPONENTS

Facility	Scope of Work
Taxiway T Demolition	Demolish taxiway pavement between Taxiway P and Taxiway P6 (approximately 35,000 square feet)

Taxiway DD Realignment (CDA Project 38)

Taxiway DD Realignment would realign the southernmost portion of Taxiway DD and easternmost portion of Taxiway Q.

The existing intersection of Taxiway DD and Taxiway Q does not meet design standards defined in FAA AC 150/5300-13A (Change 1), Airport Design. Proper taxiway design does not provide direct access from apron to runway without a turn. The Taxiway DD realignment would support airfield operations by eliminating the inadvisable taxiway intersection configuration and realigning the taxiway to create a turn prior to accessing Runway 10C/28C from the South-Central Cargo Apron. The Taxiway DD Realignment would add approximately 120,000 square feet of taxiway pavement between existing Taxiways D and Q, and the South-Central Cargo Apron.

Details concerning the Taxiway DD Realignment project are provided in **Table C-41**.

TABLE C-41
TAXIWAY DD REALIGNMENT PROJECT COMPONENTS

Facility	Scope of Work
Taxiway DD Realignment	Construct taxiway pavement between Taxiway DD and Taxiway Q (approximately 120,000 square feet) Demolish existing taxiway pavement (120,000 square feet)

Group 4 – Support Facilities Not Required by the Terminal Projects

The Support Facilities group consists of nine projects described in this section. These projects are not required for construction or operation of any of the projects listed in **Section A.3.1** above. These projects would meet the need to consolidate and relocate employee parking and screening, goods processing, and commercial vehicle holding away from the terminal core to preserve space for revenue-generating activities.

West Heating and Refrigeration Facility (CDA Project 10)

The West H&R Facility would increase O'Hare heating and refrigeration capacity to support the proposed O'Hare Global Terminal, Satellite 1, and Satellite 2 with construction of a proposed plant on an undeveloped site on the western side of O'Hare property. The site would be approximately 1,300 feet west and 1,000 feet south of the future extended Runway 9R threshold (Baseline Project B9).

Besides the plant, the facility would also include administrative and support spaces and an accompanying landside surface parking lot. The proposed West Employee Landside Access (CDA Project 13) roadways would provide access to the site. The West H&R Facility would require approximately 130,000 square feet of land.

Details concerning the West Heating and Refrigeration Facility project are provided in **Table C-42**.

TABLE C-42
WEST HEATING AND REFRIGERATION FACILITY PROJECT COMPONENTS

Facility	Scope of Work
West Heating and Refrigeration (H&R) Facility (Draft Future ALP Facility S3)	Construct heating and refrigeration facility (approximately 98,000 square foot footprint; 180 feet by 540 feet)
West H&R Facility Surface Parking Lot	Construct roadway pavement, including a surface parking lot and access roadway (approximately 32,000 square feet) Integrate with proposed West Employee Landside Access (CDA Project 13)

West Employee Screening Facility (CDA Project 11)

The proposed West Employee Screening Facility would support employee security screening, circulation space, and shell space for support functions and interior expansion through a new building on an undeveloped site on the western side of O'Hare property. It would be approximately 650 feet west and 2,000 feet north of the Runway 10L threshold. The footprint is anticipated at approximately 346,000 square feet.

The West Employee Screening Facility would support the screening of employees accessing the terminal core and provide efficient movement of airport employees accessing the airport from the west side. Screened employees would be transported via airside buses to the Central Terminal Area (Existing Terminals 1, 2/OGT, and 3) and Terminal 5. The West Employee Screening Facility would accommodate three levels, one of which would be below grade.

The proposed West Employee Landside Access roadways (CDA Project 13) would provide access to the upper and lower-level curbside roadways adjacent to the West Employee Screening Facility. The West Employee Screening Facility would also include access to the West Employee Ground Transportation Facility and Parking Garage (CDA Project 12) through an indoor landside connection.

Details concerning the West Employee Screening Facility are provided in **Table C-43**.

TABLE C-43
WEST EMPLOYEE SCREENING FACILITY PROJECT COMPONENTS

Facility	Scope of Work
West Employee Screening Facility (Draft Future ALP Facility T1)	Construct screening building facility (approximately 346,000 square foot footprint) Integrate with the proposed West Employee Parking Garage through an interior landside connection (CDA Project 12)
West Employee Screening Facility Curbside	Construct roadway curbside pavement (approximately 82,000 square feet): - Upper-level curbside (4 lanes) - Lower-level curbside (4-lane inner curb, 2-lane outer curb) - Tie-in curbside roadways with the proposed West Employee Landside Access (CDA Project 13) Construct weather canopy (approximately 35,000 square feet) Construct roadway pavement for bus turnaround (approximately 11,000 square feet)
Existing Service Road West of Central Deicing Facility	Demolish roadway pavement (approximately 9,600 square feet) Reconstruct roadway pavement around building (approximately 13,000 square feet)

West Employee Ground Transportation Facility and Parking Garage (CDA Project 12)

The proposed West Employee Parking Garage would encompass an eight-level elevated parking structure with approximately 14,000 spaces on an undeveloped site on the western side of O'Hare property to replace the temporary United Airlines Parking Lot and other parking locations. The project would provide parking for airport employees and support efficient movement of employees accessing the airport from the west side. The West Employee Parking Garage footprint is anticipated to be approximately 740,000 square feet (approximately 600 feet by 1,500 feet, less irregular geometry). It would be located approximately 750 feet west and 1,200 feet south of the future extended Runway 9R threshold (Baseline Project B9).

Details concerning the West Employee Ground Transportation Facility and Parking Garage project are provided in **Table C-44**.

TABLE C-44
WEST EMPLOYEE GROUND TRANSPORTATION FACILITY AND PARKING GARAGE PROJECT COMPONENTS

Facility	Scope of Work
Elevated Parking Structure (Draft Future ALP Facility L2)	Construct 8-level parking garage (approximately 740,000 square foot footprint), providing 14,000 parking spaces Relocate employee parking from the future United Airlines Temporary Employee Parking Lot due to the proposed Bravo Hold Pad Conversion (CDA Project 20) and Commercial Vehicle Holding Area Expansion (CDA Project 21) Provide parking access for airport employees, which may include airline, TSA, and airport-related tenant employees
Access Roadways	Construct roadway pavement for employee access (approximately 170,000 square feet) Exterior ramp to garage Integrate with proposed western facilities: - West Employee Screening Facility (upper and lower-level curbside roadways; CDA Project 11) - West Employee Landside Access (roadways; CDA Project 13)

West Employee Landside Access (CDA Project 13)

The proposed West Employee Landside Access would enable roadway access to proposed facilities on the western side of O'Hare. Facilities served include the proposed West H&R Facility, West Employee Screening Facility, West Employee Parking Garage, and related support facilities (associated collateral land development). The West Employee Landside Access would provide connections between the west facilities and off-airport roadways including York Road, future Illinois Route 390, and future Interstate 490 (O'Hare West Bypass). The West Employee Landside Access would allow for efficient movement of airport employees accessing the airport from the west. The project is anticipated to provide approximately 800,000 square feet of new roadway pavement.

Details concerning the West Employee Landside Access are provided in **Table C-45**.

TABLE C-45
WEST EMPLOYEE LANDSIDE ACCESS PROJECT COMPONENTS

Facility	Scope of Work
West Employee Landside Access	Construct roadway pavement (approximately 800,000 square feet) Retain an approximately 810,000 square foot proposed collateral development area for additional development Integrate with proposed western facilities: - West H&R Facility (CDA Project 10) - West Employee Screening Facility (upper and lower-level curbside roadways (CDA Project 11) - West Employee Parking Garage (CDA Project 12)

West Landside Detention Basins (CDA Project 14)

The proposed West Landside Detention Basins would increase O'Hare's stormwater detention capacity by 86 acre-feet of stormwater across three detention basins on undeveloped sites comprising approximately 400,000 square feet of land area on the western side of the airport property.

The West Landside Detention Basins would provide stormwater drainage capacity to support proposed west landside facilities including the West H&R Facility (CDA Project 10), West Employee Screening Facility (CDA Project 11), West Employee Parking Garage (CDA Project 12), and West Employee Landside Access (CDA Project 13).

Stormwater discharge from the basins would be controlled by an outlet control structure and would discharge directly to Willow Creek. The basins would be designed to handle stormwater runoff from approximately 3,750,000 square feet (86 acres) of impervious surface. The West Landside Detention Basins would be designed and managed in accordance with FAA AC 150/5200-33BC, Hazardous Wildlife Attractants on or near Airports.

Details concerning the West Landside Detention Basins project are provided in **Table C-46**.

TABLE C-46
WEST LANDSIDE DETENTION BASINS PROJECT COMPONENTS

Facility	Scope of Work
West Landside Detention Basin 1	Construct basin with approximately 49 acre-feet of storage capacity (approximately 232,000 square foot footprint) Located approximately 220 feet west and 650 feet north of the Runway 10L threshold
West Landside Detention Basin 2	Construct basin with approximately 28 acre-feet of storage capacity (approximately 115,000 square foot footprint) Located approximately 700 feet west and 840 feet south of the future extended Runway 9R threshold (Baseline Project B9)
West Landside Detention Basin 3	Construct basin with approximately 9 acre-feet of storage capacity (approximately 50,000 square foot footprint) Located approximately 400 feet west and 1,000 feet south of the future extended Runway 9R threshold

Airside Service Roadways (CDA Project 15)

To maintain airside roadway connectivity between various proposed and existing airside facilities (the O'Hare Global Terminal, Satellite 1, and Satellite 2), the proposed Airside Service Roadways would reconfigure the existing airside service roadway network. The project would improve airfield functionality by providing access to the proposed West Employee Screening Facility (CDA Project 11) and increase safety by reducing at-grade service road intersections with taxiways.

The Airside Service Roadways would consist of approximately 512,000 square feet of new pavement for reconfiguring and supplementing existing airside roadways. This project would require demolition and replacement of a section of existing Tank Farm Road pavement (approximately 12,000 square feet). Existing Tank Farm Road traffic would be re-routed around the future Taxiways A and B Relocation (CDA Baseline Project B62), proposed Satellite 1 (CDA Project 2), proposed Satellite 2 (CDA Project 3), and proposed Taxiways North of Satellite 2 (CDA Project 17).

Details concerning the Airside Service Roadways project(s) are provided in **Table C-47**.

TABLE C-47
AIRSIDE SERVICE ROADWAYS PROJECT COMPONENTS

Facility	Scope of Work
South Terminal Area Perimeter Service Roadway	Construct roadway pavement (approximately 137,00 square feet) Construct grade-separated service roadways (approximately 46,000 square feet) under: - Future Taxiways A and B Relocation - Taxilane between OGT Apron and future Taxiway K - Taxilanes between the Satellite 1 Apron and existing and future Taxiway K - Taxilane between the Satellite 2 Apron and existing Taxiway K Integrate with proposed apron and roadway projects: - Midfield service roadway - OGT Apron - Satellite 1 Apron - Satellite 2 Apron
Taxiway N Parallel Service Roadway	Construct roadway pavement (approximately 230,000 square feet) Integrate with existing, future, and proposed roadways and taxiways: - Tank Farm Road - Future service road west of CDF - Proposed Midfield Service Roadway - Taxiway AA - Taxiway L1 - Taxiway BB - Taxiway CC - Taxiway L2 - Taxiway DD - Taxiway L3
Midfield Service Roadway	Construct roadway pavement (approximately 87,000 square feet) Integrate with existing, future, and proposed roadways and taxiways: - Taxiway K - Taxiway L - Future Tank Farm Road - Future Taxiway U - Proposed South Terminal Area Perimeter Service Roadway - Proposed Taxiway N Parallel Service Roadway

Facility	Scope of Work
Terminal 3 –Terminal 5 Connector Service Roadway	Construct roadway pavement (approximately 24,000 square feet) Integrate with existing roadways and taxiways: - Service road around the central terminal area - Service road around Terminal 5 - Taxiway A (south of Taxiway A19) - Taxiway B (south of Taxiway A19)
Oversized Vehicle Service Roadway	Construct roadway pavement (approximately 34,000 square feet) Integrate with existing, future, and proposed roadways and taxiways: - Tank Farm Road west of future Taxiways A and B Relocation - Proposed Midfield Service Roadway - Proposed OGT Apron (CDA Project 1) - Proposed Satellite 2 Apron (CDA Project 3) - Future Taxiways A and B Relocation
Future Tank Farm Road Relocation, between future Taxiways J and U	Demolish and replace approximately 12,000 square feet of roadway pavement

Aircraft Rescue and Firefighting Station 4 Relocation (CDA Project 19)

The proposed Aircraft Rescue and Firefighting (ARFF) Station 4 Relocation would construct a new building and associated pavement across Taxiway Z from the future United Airlines Ground Equipment Maintenance Building (the latter is not part of the EA). The ARFF Station 4 Relocation project would provide a garage building with administrative and support spaces, airside pavement, and an accompanying landside surface parking lot. The ARFF Station 4 Relocation would require approximately 67,000 square feet of land.

Functions of the existing ARFF Station 4 would be relocated from the existing facility near the C Pad to the proposed site. Existing Hangar Road would provide landside access to the site and Taxiway Z would provide airside access. The relocated station would meet emergency vehicle response time requirements and best practices.

Details concerning the Aircraft Rescue and Firefighting Station 4 Relocation are provided in **Table C-48**.

TABLE C-48
AIRCRAFT RESCUE AND FIREFIGHTING STATION 4 RELOCATION PROJECT COMPONENTS

Facility	Scope of Work
Aircraft Rescue and Fire Fighting (ARFF) Station 4	Construct ARFF building (approximately 18,000 square foot footprint) Integrate with Taxiway Z: Construct airside access roadway pavement to Taxiway Z (approximately 26,000 square feet) Integrate with Hangar Road: Construct landside pavement for surface parking lot and access to Hangar Road (approximately 23,000 square feet)
Existing ARFF Station 4	Demolish building (approximately 145 feet by 75 feet; approximately 8,700 square foot footprint)

Commercial Vehicle Holding Area Expansion (CDA Project 21)

The proposed Commercial Vehicle Holding Area (CVHA) Expansion would reconfigure the existing CVHA to increase holding area capacity. Vehicles would continue to access the CVHA via Bessie Coleman Drive. The project would require approximately 172,000 square feet of space.

Details concerning the CVHA project are provided in **Table C-49**.

TABLE C-49
COMMERCIAL VEHICLE HOLDING AREA EXPANSION PROJECT COMPONENTS

Facility	Scope of Work
Commercial Vehicle Holding Area (CVHA)	Construct surface parking lot pavement (approximately 12,000 square feet) Demolish approximately 580 linear feet of fence Integrate with existing CVHA surface parking lot
United Airlines Temporary Employee Parking Lot	Convert United Airlines Temporary Employee Parking Lot pavement (approximately 160,000 square feet) Relocate United Airlines employee parking to the proposed West Employee Parking Garage (CDA Project 12)

Centralized Distribution and Receiving Facility (CDA Project 35)

The Centralized Distribution and Receiving Facility (CDRF) project would support goods processing, storage, and distribution away from the terminal area via a new building on an undeveloped site in the western area of airport property. It would also include a new pavement area encompassing airside and landside surface parking lots, access roadways, and truck docks. The CDRF goods and recyclables processing would be contained in the building with no outside storage. It is anticipated to require approximately 330,000 square feet of land, accessible from West Cargo Road on the landside and an airside service roadway southwest of the Runway 10C threshold.

This facility would meet the need to process goods away from the terminal core and improve flexibility for deliveries. It would also enhance security of landside roadways and reduce traffic congestion in the terminal core area. The CDRF would consolidate packaged goods delivery and recyclables removal operations away from the terminal core area. The CDRF would enhance security by isolating inspection and screening of delivered goods away from the terminal area, reducing the volume of unscreened vehicles standing near the terminal buildings. The CDRF would have landside access which would allow goods to be delivered and recyclables to be removed landside, minimizing the need to screen vehicles for airside access.

The CDRF is anticipated to handle airside and landside recyclables that originate at the terminal areas and are generated by the operators of concessions outlets (retail, food, and beverage). Typical recyclables generated by concessionaires include newspapers, magazines, empty kegs and bottles, grease, and cardboard. These recyclables would be processed through a fully enclosed structure at the CDRF. Stormwater would be temporarily stored in a new detention basin and discharged by gravity though a proposed outlet pipe to the Bensenville Ditch.

Details concerning the CDRF project are provided in **Table C-50**.

TABLE C-50
CENTRALIZED DISTRIBUTION AND RECEIVING FACILITY PROJECT COMPONENTS

Facility	Scope of Work
Centralized Distribution and Receiving Facility (CDRF; Draft Future ALP Facility S15)	Construct building (Approximately 75,000 square foot footprint)
CDRF Airside Surface Parking Lot	Construct pavement for airside parking, truck docks, and access roadway, integrate with existing airside service roadway (approximately 64,000 square feet)
CDRF Landside Surface Parking Lot	Construct pavement for landside parking, truck docks, and access roadway, integrate with existing West Cargo Road approximately 140,000 square feet)
CRDF Air Operations Area (AOA) Fence Relocation	Demolish approximately 790 feet of existing AOA fence Install approximately 160 feet of AOA fence
Detention Basin	Construct approximately 48,000 square foot detention basin (approximately 3.5 acre-feet)

Group 5–Air Traffic Actions for Offset Approach Procedures for Runway 10R/28L

The proposed air traffic actions include retaining the existing 2.5 degree offset (angled) approaches to Runways 10R and 28L. With only 3,100 feet between Runway 10R/28L and its adjacent parallel runway 10C/28C, the final approach courses to Runways 10R and 28L must be offset from their extended centerline to allow independent simultaneous approaches to Runways 10R and 10C or to Runways 28L and 28C.

Refer to **Exhibits C-5 and C-6**

C.4 DESCRIPTION OF NO ACTION ALTERNATIVE

The No Action Alternative is defined as maintaining the existing O'Hare facilities with improvements that have already been planned and approved by the FAA and for which the NEPA process has been completed. The No Action Alternative was included in the EA as required, although it does not address the purpose and need of the project. By maintaining most or all the existing terminal core, terminal facilities would continue to not meet modern passenger needs. They would not integrate domestic and international airline and airline partner screening and operations. They would continue to not provide sufficient gate frontage, gate flexibility, and taxiway connections necessary to efficiently accommodate existing and future airline fleets. Additionally, ground access to Terminal 5 would remain insufficient.

The list of projects contained in the No Action Alternative is provided in **Table C-51**.

TABLE C-51
PROJECTS PROCESSED SEPARATELY FROM THIS EA

CDA Project Number	Project Name	Start	Finish
B1	Hilton Hotel Renovation (Interior)	2020	2022
B2	Airport Transit System (ATS) Lot E Station Canopy Demolition	2020	2020
B3	Airside Service Road Bridge Across I-190	2025	2025
B4	Building 519 Demolition (Former Burlington Building)	2019	2019
B5	Building 521 Renovation for Airport Police	2018	2019
B6	Detention Basin South of Runway 9L/27R and West of ARFF Training Facility	2025	2027
B7	I-190 Corridor Reconfiguration Near Interchange with Mannheim Road (with Relocation of the 90-Inch Joint Action Water Agency (JAWA) Water Main)	2020	2020
B8	Runway 9C/27C Construction	2016	2020
B9	Runway 9R/27L Extension	2019	2021
B10	Runway 15-33 Decommissioning	2018	2018
B11	Main Fuel Farm Expansion (Two Additional Fuel Tanks)	2027	2029
B12	Delta Cargo Building Construction (Draft Future ALP Facility S6)	2027	2028
B13	Airport Transit System (ATS) Building Expansion (ALP Building 522) and Maintenance Track Relocation	2016	2017
B14	Airport Transit System (ATS) Track Extension to Multimodal Facility (MMF)	2016	2019
B15	Northeast Cargo Phase 3 (Draft Future ALP Building 838)	2020	2021
B16	Northeast Cargo Taxilane Construction (Parallel to Taxiway NN) *	2020	2020
B17	Emergency and Standby Power System Generator Building (Draft Future ALP Building 491) and Switchgear Building (Draft Future ALP Building 492)	2017	2019
B18	Airport Maintenance Complex (AMC) Expansion (Draft Future ALP Building 512)	2016	2017
B19	Airport Rescue and Firefighting (ARFF) Station 1 Modifications (Draft Future ALP Facility S4; ALP Building 602)	2017	2018
B20	Runway 10C/28C Runway Status Lights (RWSL) Equipment Building (Draft Future ALP Building 052)	2017	2017
B21	North Airfield Airport Surface Detection Equipment Model X (ASDE-X) Installation	2017	2018
B22	Terminal 3 Concourse L Extension "Stinger" (5 Gates)	2016	2018
B23	Miami Beach Lift Station Relocation and Upgrade (ALP Building 231)	TBD	TBD
B24	American Airlines Ground Equipment Maintenance (GEM) Building (Draft Future ALP Building 764)	2017	2018
B25	American Airlines Hazardous Material Storage Building (Draft Future ALP Building 766)	2017	2018
B26	American Airlines Maintenance Hangar 2 (Draft Future ALP Building 767)	2017	2018
B27	American Airlines Truck Wash Building (Draft Future ALP Building 765)	2017	2017
B28	Low Level Windshear Alert System (LLWAS) 1 Relocation (West of North Detention Basin)	2017	2019

CDA Project Number	Project Name	Start	Finish
B29	Central Deicing Facility (CDF)	2017	2019
B29a	CDF Crossfield Taxiways	2017	2019
B29b	CDF Ramp Control Tower (Draft Future ALP Building 103)	2018	2018
B29c	CDF South Airport Surveillance Radar (ASR-9) Relocation	2017	2018
B29d	CDF Taxiway J Construction (North of CDF to Taxiways A and B)	2017	2019
B29e	CDF Taxiway Z Construction (North of Runway 9R to Future Taxiway J)	2017	2019
B30	Foreign Object Debris (FOD) Disposal Area Relocation (NE Corner of Fuel Farm near ALP Building 794)	2017	2018
B31	United Airlines Facility Maintenance (FMS) Building (Draft Future ALP Building 772)	2017	2018
B32	United Airlines Ground Equipment Maintenance (GEM) Building (Draft Future ALP Building 771)	2017	2018
B33	United Airlines Widebody Hangar 5/5A (Draft Future ALP Building 775)	2017	2018
B34	Airport Rescue and Firefighting (ARFF) Station 2 Relocation (Draft Future ALP Building 802)	2018	2019
B35	Taxiways K and L Extension and Associated Improvements (Between Taxiway SS and Taxiway A11)	2020	2022
B35a	Lift Station 18 Relocation (Existing Location is South of Taxiway T10, West of Taxiway T, North of Taxiway N; to be Relocated Approximately 200 Feet Southeast)	2020	2021
B35b	Tank Farm Road Relocation	2020	2021
B35c	Taxiways K and L Extension (Between Taxiway SS and Taxiway A11)	2020	2022
B36	United Airlines 180-Day Storage Building (Draft Future ALP Building 774)	2018	2018
B37	United Airlines Move Team and Provisioning (AOS) Building (Draft Future ALP Building 773)	2018	2018
B38	Detention Basin North of Temporary United Airlines Parking Lot	2018	2018
B39	United Airlines Temporary Employee Parking Lot Relocation to Bravo Pad	2018	2018
B40	East Airfield Lighting Control Vault (EALCV) Construction (Draft Future ALP Building 888)	2018	2019
B41	Runway 9C/27C Taxiway Modifications	2017	2021
B41a	Airside Service Road Connector Across Taxiway Z (Oversized GSE Road)	2018	2018
B41b	Distance Measuring Equipment (DME) Relocation Site (Draft Future ALP Building 069)	2018	2019
B41c	Fuel Line Relocation	2017	2019
B41d	Ground Run-Up Enclosure (GRE) Relocation (Draft Future ALP Facility S2; ALP Building 761)	2017	2017
B41e	Guard Post 2 Relocation (ALP Building 705; at Oversized GSE Road over Taxiway Z)	2018	2019
B41f	Hangar Road Relocation	2018	2021
B41g	National Weather Service Weather Station Main and Backup Sites Relocations	2017	2018
B41h	Runway 9C End Elevation Increase (4.9 Feet)	2018	2020

CDA Project Number	Project Name	Start	Finish
B41i	Runway 9C/27C NAVAID Shelters (Draft Future ALP Buildings 041, 049, 053, and 055)	2020	2020
B41j	Salt Dome Demolition (ALP Building 860) and Future Service Road Realignment (Near 27C End)	2018	2018
B42	Terminal 5 Expansion *	2019	2022
B42a	Guard Post 11 Relocation (Draft Future ALP Building 559)	2019	2020
B42b	Taxiway V Realignment (Gate M20 East)	2019	2021
B42c	Terminal 5 Core Expansion	2020	2021
B42c(i)	Core Expansion 1 (Between Gates M7 and M8)	2020	2021
B42c(ii)	Core Expansion 2 (Between Gates M9 and M10)	2020	2021
B42c(iii)	Core Expansion 3 (Between Gates M11 and M12)	2020	2021
B42d	Terminal 5 East Expansion and Associated Apron Pavement	2019	2021
B42e	Terminal 5 Parking Garage - Phase I	2020	2022
B42e(i)	Roadway Ramp Widening (Between Balmoral Avenue and I-190)	2019	2021
B42f	Triturator Relocation (ALP Building 525; Draft Future ALP Building 535; Draft Future ALP Facility S5)	2019	2020
B42g	Underground Storm Sewer Pipeline (Southeast of Terminal 5 Apron to South Detention Basin)	2019	2019
B43	Temporary Bus Staging Area to Support Multimodal Facility Until ATS Guideway Extension is Complete (East of 22L End and Mannheim Road Near Snow Dump)	2018	2018
B44	Multi-Fuel Facility/Chicago Travel Plaza (Draft Future ALP Building 840)	2019	2019
B45	Aeroterm/Air Canada Cargo Building Parking Lot West Expansion (ALP Building 515)	2018	2019
B46	United Parcel Service Parking Lot Improvements (South Cargo Area)	2019	2019
B47	Runway 4L/22R Reconstruction	2019	2019
B47a	Runway 22R Localizer Relocation (Clear of Taxiways North of Satellite 2)	2019	2019
B47b	Taxiway NN Fillet Modification	2019	2019
B48	Runway 4R/22L Rehabilitation and Rehabilitation of Taxiways Y, Y1, Y2, Y3, Y4, and V *	2020	2027
B48a	Runway 4R Blast Pad Expansion	2027	2027
B48b	Runway 22L Blast Pad Expansion	2027	2027
B48c	Taxiway Y3 Fillet Modification (East of South Detention Basin and West of Runway 4R/22L)	2020	2020
B48d	Taxiway Y5 Demolition (East of Runway 28R End)	2020	2020
B49	Central Deicing Facility (CDF) Support Facilities/Pavement Area Modifications	2018	2019
B49a	CDF Truck Rack Facility (Draft Future ALP Building 116)	2018	2019
B49b	CDF United Airlines Deicing Administrative Building (Draft Future ALP Building 117)	2018	2019
B49c	CDF American Airlines Deicing Administrative Building (Draft Future ALP Building 118)	2018	2019

CDA Project Number	Project Name	Start	Finish
B50	Multimodal Facility (MMF) ALP Revisions	2015	2018
B50a	MMF Vehicle Service Center/Quick Turn Around (QTA; Draft Future ALP Building 820)	2015	2018
B50b	MMF Quick Turn Around (QTA) Support Building (Draft Future ALP Building 822)	2015	2018
B50c	MMF Customer Service Center (Parking Structure; Draft Future ALP Building 830)	2015	2018
B50d	Basin Modifications in Parking Lots E and F and MMF Ramp C	2015	2018
B50e	Airport Transit System (ATS) Support Building in Lot F (Draft Future ALP Building 821)	2016	2018
B50f	Traction Power Substation Building in Lot E (Draft Future ALP Building 823)	2016	2018
B51	Revisions to Pavement Removal Associated with Former Runway 14L/32R (Includes New Taxilane C5 Pavement to Hold Aircraft)	2017	2020
B52	Runway 9R/27L Runway Status Lights (RWSL) Equipment Building (Draft Future ALP Building 003)	2019	2019
B53	Chicago Police Canine Facility Relocation (Draft Future ALP Facility L8; Draft Future ALP Building 799)	2019	2021
B54	Fuel Farm Administration and Control Building Construction and Pump Pad Replacement (West of Main Fuel Farm) (Draft Future ALP Facility S1)	2020	2021
B55	Rental Car Vehicle Storage/Maintenance Lots Revisions (Draft Future ALP Facilities L3-L7)	2019	2020
B55a	Revisions to Rental Car Vehicle Storage/Maintenance Lots	2019	2020
B55b	Cell Phone Parking Lot Relocation	2019	2019
B55c	Crash Lot Relocation	2019	2019
B56	Runway 9R/27L Taxiway Modifications *	2020	2021
B56a	Taxiway H Rehabilitation and Taxiway H2 Rehabilitation	2021	2021
B56b	Taxiway H Relocation 30 Feet South to Resolve Modification of Standards (MOS)	2020	2021
B56c	Taxiway G (Between Taxiway Z and County Line)	2020	2021
B56d	Taxiway J (Between Taxiway Z and County Line)	2020	2021
B56e	Runway 9R/27L (Between Future Taxiway Z and County Line)	2020	2021
B56f	Taxiway G (Between County Line and Existing Taxiway H)	2020	2021
B56g	Taxiway J (Between County Line and Existing Taxiway J)	2020	2021
B56h	Runway 9R/27L (Between County Line and Existing Runway 9R-27L)	2020	2021
B56i	Existing Taxiway J Fillet Modification (South of Existing Runway 9R Threshold)	2020	2021
B56j	High-Speed Exit Taxiway (Off Runway 27L onto Existing Taxiway H)	2020	2021
B56k	Taxiway A1 Fillet Modification (Between Runway 9R/27L and Existing Taxiway H)	2020	2021
B56l	Taxiway TT (On North and South Sides of Runway 9R/27L)	2020	2021
B56m	Taxiway PP Realignment (Between Taxiway PP2/Future Taxiway E and Bravo Pad)	2020	2021
B56n	Tank Farm Road Relocation	2020	2021

CDA Project Number	Project Name	Start	Finish
B57	Lee Street Improvements (I-90 Exit Ramp), Higgins/Patton Intersection Improvements, Johnson Road Improvements, and Building 850 Parking Lot Relocation	2021	2023
B58	North Employee/Long-Term Parking Lot Improvements (North of the Aviation Administration Building (ALP Building 804))	2020	2020
B59	Terminal 3 Concourse L Stinger Two-Gate Addition and Associated Apron Pavement	2021	2023
B59a	Former AT&T Garage (Existing CDA Storage) Demolition (ALP Building 466)	2021	2023
B59b	City Substation Building Demolition (ALP Building 451) (*Formerly TAP Project 5b*)	2021	2023
B60	Northwest Suburban Municipal Joint Action Water Agency (NSMJAWA) Generator Building (Draft Future ALP Building 944)	2020	2021
B61	Release and Sale of Property at 1900 Elmhurst Road	2021	2021
B62	Taxiways A and B Relocation *	2021	2025
B62d	Construction of New Taxiways A and B (North/South)	2022	2023
B62e	Taxiways A and B Rehabilitation between Taxiway A1 and Taxiway A12 (West)	2024	2025
B62f	Taxiways A and B Rehabilitation between Taxiways A13 and A16 (South)	2022	2022
B62g	Taxiways A and B Rehabilitation between Taxiway A19 and Taxiways A and B Bridges (East)	2024	2024
B62h	Demolition of Taxiways R, SS, T, T5, T7, T8	2022	2023
B62i	Taxiway A and B Rehabilitation between Taxiways A16 and A19 (South)	2023	2023
B63	South Detention Basin Expansion	2021	2022
B63a	West Side Expansion to Taxiway F	2021	2022
B63b	North Side Expansion to Taxiway RR	2021	2022
B63c	Demolition of Taxiway HH (South of Taxiway RR)	2021	2021
B63d	Demolition of Taxiway JJ (from Taxiway HH to Taxiway JJ1)	2021	2021
B63e	Central Detention Basin to South Detention Basin Connection Tunnel	2021	2023
B63f	Central Detention Basin Pump Station Demolition	2021	2022
B64	Central Detention Basin Fill	2023	2023
B65	Relocation of Remote Transmitter/Receiver U (RTR-U)/Low Level Windshear Alert System (LLWAS) 16/Remote Unit (RU) 11/Airport Surface Detection Equipment Model X (ASDE-X)/Fixed-Target Reflector (FTR) (ALP Building 062) (Including Decommissioning/Demolition)	2021	2023
B66	Terminal 1 Concourse C Airline Lounge Expansion (South; Gate C10)	2020	2021
B68	Taxiway YY Rehabilitation (in the Northwest Maintenance Hangar Area) *	2022	2023
B69	Runway 10L/28R Rehabilitation *	2025	2025
B70	Rehabilitation of Taxiways S, S1, S2, S3, and the Southeast Cargo Taxilane *	2023	2024
B72	Taxiway N Rehabilitation from Taxiway SS to EE (North of Runway 10L/28R) *	2024	2024
B73	Taxiway G Resurfacing (Between Taxiway SS and Taxiway EE) *	2025	2025

CDA Project Number	Project Name	Start	Finish
B75	Terminal 5 Parking Garage - Phase I Relocation and Pedestrian Bridge Replacement	2020	2022
B76	Northeast Cargo Snow Removal Pad	2019	2019
B77	Runway 4L/22R Unidirectional Operations Changes	2020	2020
B78	Revisions to the Alignment of Future Taxiways LL (Phase II) and N *	2021	2022
B78a	Taxiway LL - Phase 2 (Between Taxiway EE and Taxiway Y)	2021	2022
B78b	Taxiway N Realignment (Between Taxiway N5 and Taxiway Y)	2021	2022
B79	Airport Maintenance Complex (AMC) Expansion (Northeast) (Draft Future ALP Facility S9), Salt Storage Relocation (ALP Building 501), and Detention Basin [*Formerly Future ALP (Independent Utility) Project 18*]	2021	2022
B80	South Airfield Airport Surface Detection Equipment Model X (ASDE-X) Augmentation Tower [*Formerly Future ALP (Independent Utility) Project 34*]	2021	2021
B81	West Airfield Lighting Control Vault (WALCV) (Draft Future ALP Facility S11) [*Formerly Future ALP (Independent Utility) Project 36*]	2021	2022

Source: CDA List of Proposed and Baseline Projects, revised July 24, 2020
*The project (or portions thereof) is listed on the draft O'Hare Airport Capital Improvement Plan (ACIP) for years 2021 to 2025 (submitted by the CDA to the FAA on June 1, 2020).