CHAPTER 2

FOCUS OF THE WRITTEN RE-EVALUATION

2.1 BACKGROUND LEADING TO THE PROPOSED INTERIM FLY QUIET

Since 2005, the City of Chicago Department of Aviation (CDA) has undertaken a continuous program to modernize O'Hare, known as the O'Hare Modernization Program (OMP). The OMP was designed to facilitate a primarily east-west air traffic flow. The OMP runway projects completed as of January 2019 include:

- Extension to Runway 10L/28R
- New Runway 9L/27R
- New Runway 10C/28C
- New Runway 10R/28L

New Runway 9C/27C is scheduled to be commissioned in November 2020, and the extension to Runway 9R/27L is scheduled to be completed in December 2021.

During preparation of the O'Hare Modernization Environmental Impact Statement (EIS), FAA received comments concerning noise, as well as requests to alter the existing nighttime[1] preferential runway use program (called Fly Quiet). FAA's 2005 Record of Decision (ROD) for the EIS (Section 9.1) indicated that changes or modifications in the Fly Quiet were possible:

> At this point it is not reasonable to either assume that there would be a new Fly Quiet Program or speculate about what a new Fly Quiet Program would be. FAA will, however, give consideration to suggestions for changes in the Fly Quiet Program developed by the ONCC and requested of the FAA by the City of Chicago. It is FAA's understanding that it is the City [of] Chicago's intent to continue the existing Fly Quiet Program, except as affected by runway decommissioning. The Fly Quiet Program will be modified by ONCC in the future only if needed; such modification would be done in consultation with the FAA and the City of Chicago Department of Aviation. Modification requiring FAA action would be subsequent to its prior approval, and any necessary environmental review.

Over time, as new runways were commissioned,[2] the number of noise complaints has increased substantially. As a result, the CDA, the O'Hare Noise Compatibility Commission (ONCC), airlines, and FAA have examined ways to improve the voluntary Existing Fly Quiet to reduce noise concerns.

In September 2015, ONCC formed an ad hoc Fly Quiet Committee to review, modify, and make recommendations regarding nighttime noise abatement procedures at O'Hare. The ad hoc Fly Quiet Committee was formed following the CDA's recommendations to investigate options to modify the Existing Fly Quiet, which were announced during meetings with Fair Allocation in Runways (FAiR) in summer 2015.

[1] "Nighttime" refers to the period between 10:00:00 p.m. and 06:59:59 a.m.
[2] "Commissioned" refers to a newly constructed runway being approved for operation and opened for use.

ONCC developed and oversaw three Proposed Interim Fly Quiet Runway Rotation Plan tests to collect data on possible alternative groupings of runways to be used (called configurations) that could provide near-term relief to the most impacted communities surrounding O'Hare. ONCC defined the timeframe of the Proposed Interim Fly Quiet as the time between the Runway 15/33 decommissioning and the Runway 9C/27C commissioning (which is expected in November 2020). After the CDA announced the earlier date for the decommissioning of Runway 15/33 (March 2018), the period was changed to the time between its potential FAA approval through Runway 9C/27C commissioning. The proposed changes to the Existing Fly Quiet would not be permanent. Proposed Interim Fly Quiet Runway Rotation Plan tests were:

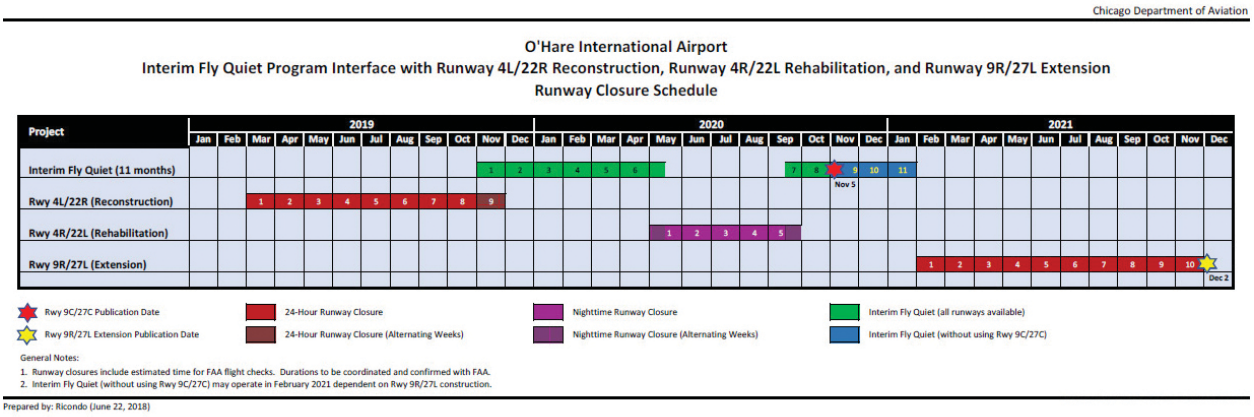
> **Test 1** occurred from the night of July 6, 2016 through the morning of December 25, 2016. Its purpose was to evaluate a condition proposed to be in place until Runway 15/33 permanently closed.
>
> **Test 2** occurred from the night of April 30, 2017 through the morning of July 23, 2017. Its purposes were to test the capabilities of different runway use configurations identified in response to FAA comments on Test 1 as well as to test new runway use configurations not included in Test 1.
>
> **Test 3** occurred from the night of July 23, 2017 through the morning of October 15, 2017. Its purpose was to test a condition that could be in place between Runway 15/33 decommissioning and Runway 9C/27C commissioning.

The results of all three tests are reflected in the Proposed Interim Fly Quiet request to FAA prepared by the CDA.[3] The Proposed Interim Fly Quiet recommendation made by ONCC, and requested by the CDA for FAA National Environmental Policy Act (NEPA) review, is the same runway use configuration and sequence of configurations used in Test 3.

The Proposed Interim Fly Quiet would be a temporary program beginning soon after the requested FAA approval through early 2021, when Runway 9R/27L is closed for extension construction. It is expected that significant runway construction, maintenance, and/or pavement rehabilitation on Runways 4L/22R and 4R/22L would impact the Proposed Interim Fly Quiet during the 2019 and 2020 construction seasons, respectively. It is not anticipated that the Proposed Interim Fly Quiet would occur during these construction periods. The Existing Fly Quiet would occur during the construction periods (see **Figure 2-1**).

[3] CDA, Proposed Interim Fly Quiet Runway Rotation, February 15, 2018, available at https://oharenoise.org/about-oncc/newsroom/43-2018/201-interim-fly-quiet-ifq-proposal-submitted-to-faa

FIGURE 2-1
PROPOSED INTERIM FLY QUIET RUNWAY CLOSURE SCHEDULE



2.2 FLY QUIET NIGHTTIME RUNWAY USE MODIFICATIONS

2.2.1 Existing Fly Quiet

Since the late 1960s, FAA and the City of Chicago have implemented a voluntary nighttime noise abatement program at O'Hare that includes the use of nighttime preferential runways and flight paths. As a further step in reducing nighttime aircraft noise, in June 1997, the CDA reached an agreement with airlines operating at O'Hare and FAA to use voluntary noise abatement flight procedures. Pursuant to the agreement, the CDA, FAA, and airlines have implemented the Fly Quiet Program (Fly Quiet) to reduce the impacts of nighttime aircraft noise on neighborhoods surrounding O'Hare.

As a voluntary program, Fly Quiet encourages pilots and air traffic controllers to use designated nighttime preferential runways and flight paths. The program is implemented by the airlines, the CDA, and FAA, as wind, weather, and operational conditions allow, and includes:

- Preferential runways[4]
- Preferential departure flight tracks
- Arrival and departure profiles

FAA considers 10:00:00 p.m. to 6:59:59 a.m. to be nighttime hours for noise analysis purposes.[5] It is the CDA's goal that Fly Quiet occur during the entire nine-hour nighttime period; however, due to wind, weather, operational conditions, air travel demand, and flight schedules, Fly Quiet typically occurs for fewer than nine hours. Because of this, the term Fly Quiet Mode, reflecting the time in Existing Fly Quiet, starts each night on or after 10:00 p.m., once demand and other conditions allow for restricting operations to one departure runway and one arrival runway and the use of preferential flight tracks.[6] This typically

[4] CDA controls which runways are open at O'Hare.
[5] See Chapter 3.1.1
[6] https://www.flychicago.com/SiteCollectionDocuments/Community/Noise/OHare/FQ/ORDFlyQuietManual2018.09.pdf

occurs from 10:30 p.m. to 5:30 a.m. Fly Quiet Mode ends each morning when operational demand increases, additional runways are needed, and preferential flight tracks can no longer be used.

The following describes the components of the Existing Fly Quiet.

- The Existing Fly Quiet is voluntary in nature.
- Preferential Runways
    - O'Hare currently operates seven runways that are used at different times. Runway use depends primarily on prevailing wind conditions on the airfield as well as on other weather conditions, airfield conditions, and air traffic conditions.
    - When feasible, the preferential runways should be implemented between 10:00 p.m. and 6:59 a.m. to minimize the effects of nighttime noise on the surrounding communities. Unless weather, runway closures, or loss of navigational aids dictate otherwise, FAA utilizes the following runways (listed in no particular order) as shown in **Exhibit 2-1**:
        - Runway 10L/28R
        - Runway 9R/27L
        - Runway 4L/22R
        - Runway 4R/22L[7]
    - Any runway may be closed by the CDA on any given night for routine safety inspections.
- Preferential Departure Flight Tracks/Paths
    - Between 10:00 p.m. and 6:59 a.m., the preferred departure nighttime tracks (paths over the ground) direct aircraft over less populated areas to limit noise exposure on the surrounding communities. **Exhibit 2-2** shows the existing nighttime preferential departure flight paths. The following paths are part of this program:
        - Runways 4L, 9R, 10L, 27L – Fly runway heading until reaching 3,000 feet mean sea level (MSL).
        - Runway 4R – Fly runway heading for one mile then right turn heading 090° until 3,000 feet MSL (following the Kennedy Expressway).
        - Runway 22L – Make left turn heading 180° until 3,000 feet MSL (following the Tri-State Tollway).
        - Runway 28R – Make right turn heading 290° until 3,000 feet MSL.

[7] https://www.flychicago.com/SiteCollectionDocuments/Community/Noise/OHare/FQ/ORDFlyQuietManual2018.09.pdf

Chicago O'Hare International Airport

Written Re-Evaluation of the O'Hare Modernization Environmental Impact Statement for the Interim Fly Quiet Runway Rotation Plan

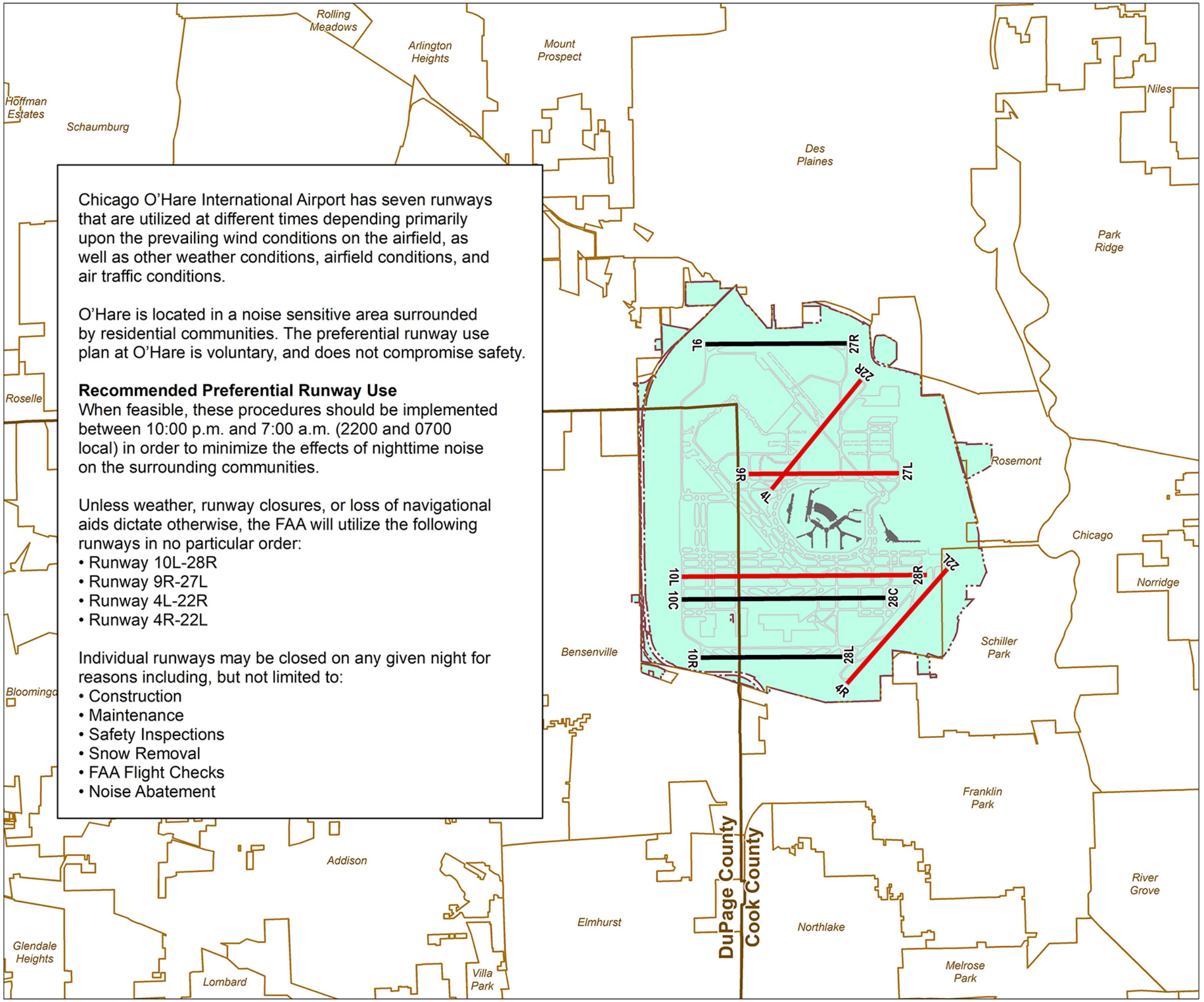
Chicago O'Hare International Airport has seven runways that are utilized at different times depending primarily upon the prevailing wind conditions on the airfield, as well as other weather conditions, airfield conditions, and air traffic conditions.

O'Hare is located in a noise sensitive area surrounded by residential communities. The preferential runway use plan at O'Hare is voluntary, and does not compromise safety.

Recommended Preferential Runway Use
When feasible, these procedures should be implemented between 10:00 p.m. and 7:00 a.m. (2200 and 0700 local) in order to minimize the effects of nighttime noise on the surrounding communities.

Unless weather, runway closures, or loss of navigational aids dictate otherwise, the FAA will utilize the following runways in no particular order:
- Runway 10L-28R
- Runway 9R-27L
- Runway 4L-22R
- Runway 4R-22L

Individual runways may be closed on any given night for reasons including, but not limited to:
- Construction
- Maintenance
- Safety Inspections
- Snow Removal
- FAA Flight Checks
- Noise Abatement



Source: CDA 2018 Fly Quiet Manual

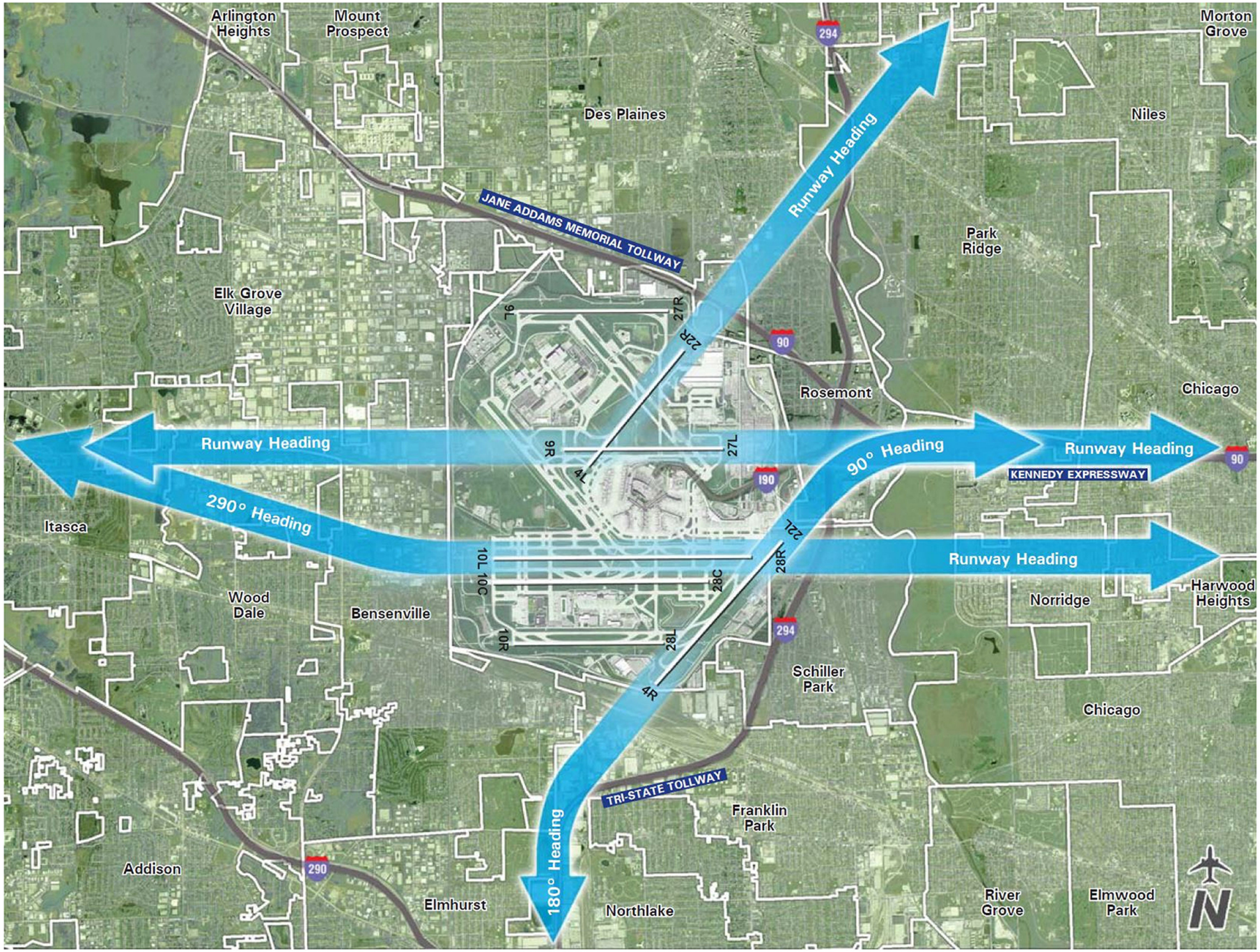
Airport Boundary
Fly Quiet Preferential Runways
Non-Preferential Runways
County Boundary
Community Boundary

0 1 2
Miles

Existing Fly Quiet Preferential Runways

▶ Exhibit 2-1

This page was intentionally left blank.



Source: CDA 2018 Fly Quiet Manual

Chicago O'Hare International Airport

Written Re-Evaluation of the O'Hare Modernization Environmental Impact Statement for the Interim Fly Quiet Runway Rotation Plan

Existing Recommended Nighttime Departure Procedures

During 10 p.m. to 7 a.m. (2200-0700 local) The preferred routes direct aircraft over less-populated areas in an effort to limit the effects of noise on the surrounding communities.

4L, 9R, 10L, 27R	Fly runway heading until 3,000 feet MSL.
4R	Fly runway heading for 1 mile then right turn heading 090° until 3,000 feet MSL (following the Kennedy Expressway).
22L	Make left turn heading 180° until 3,000 feet MSL (following the Tri-State Tollway).
28R	Make right turn heading 290° until 3,000 feet MSL.

0 1 2
Miles

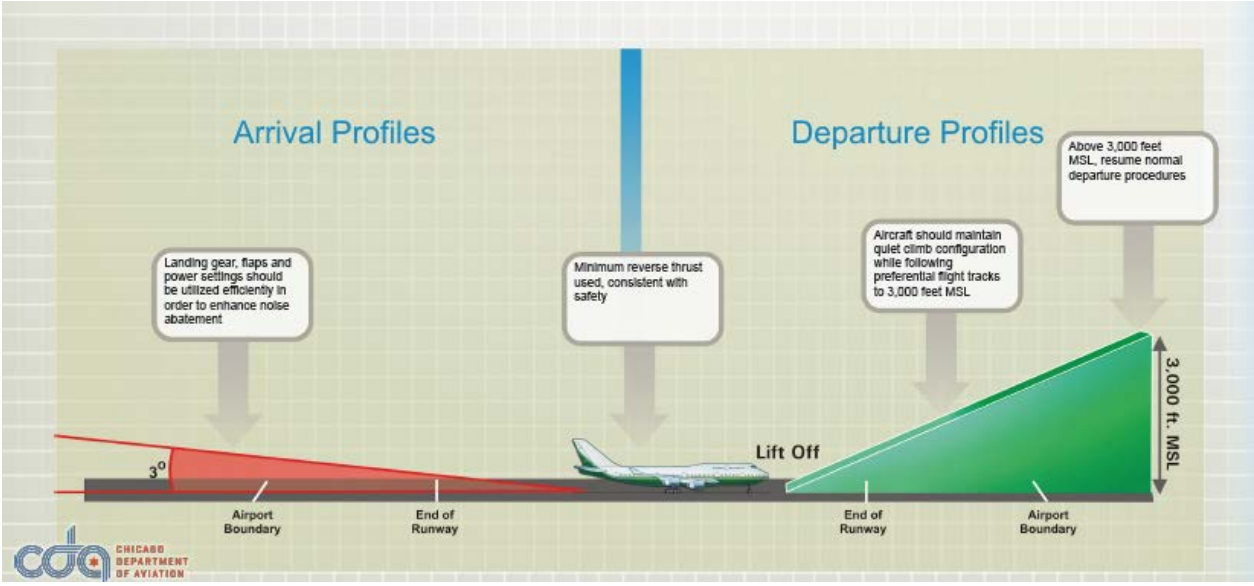
Existing Fly Quiet Departure Flight Paths

▶ Exhibit 2-2

This page was intentionally left blank.

- Arrival Descent and Departure Climb Profiles
    - Existing Fly Quiet includes the following nighttime arrival and departure profiles for noise abatement between 10:00 p.m. and 6:59 a.m., as shown in **Figure 2-2**. These procedures are advisory in nature.
        - **Descent:** Aircraft should not be lower than 4,000 feet MSL when turning on final approach.
        - **Arrival Reverse Thrust:** Limit the use of reverse thrust.
        - **Departure:** Maintain quiet climb configuration to 3,000 feet MSL.

FIGURE 2-2
EXISTING FLY QUIET ARRIVAL AND DEPARTURE PROCEDURES



SOURCE: https://www.flychicago.com/SiteCollectionDocuments/Community/Noise/OHare/FQ/ORDFlyQuietManual2018.09.pdf

- Ground Run-Up Procedures
    - The Ground Run-Up Enclosure (located on the Scenic Hold Pad) is a structure that uses acoustical dampening materials to reduce the noise impacts of operation of an engine at high power for extended periods for maintenance tests.
    - Alternate run-up locations can be used when the Ground Run-Up Enclosure is in use or winds are not conducive for run-ups in the Ground Run-Up Enclosure.

2.2.2 Proposed Interim Fly Quiet

The purpose of the Proposed Interim Fly Quiet is to implement a balanced, cost-effective plan to reduce the impact of aircraft noise over noise-sensitive land uses.[8] ONCC's and the CDA's general goals and objectives are to:

- Provide near-term noise exposure relief.
- Reduce impacts and provide noise relief to the highest impacted communities.
- Provide predictability via a published rotation schedule that informs citizens, to the extent possible, of relief periods.

The Proposed Interim Fly Quiet would not alter the location of the preferential flight tracks or the arrival/departure profiles. Only the nighttime runway use would change during the Proposed Interim Fly Quiet period.

There are six runway operating configurations in the Proposed Interim Fly Quiet. The CDA's Proposed Interim Fly Quiet request is for FAA to implement the configurations when conditions allow. For safety reasons, aircraft depart and land into the wind. For any given time, therefore, runway configurations are based on wind direction. These configurations are designed so that:

- No more than two runways are used in each configuration.
- Either only the east/west runways or only the "diagonal" runways (Runways 4L/22R and 4R/22L) are in use.
- Departure and arrival operations occur on as many different runways as feasible.

Runway operating configurations without Runway 10L/28R may still include departure operations on Runway 10L/28R by pilots specifically requesting this longer runway due to aircraft operational requirements.

Exhibit 2-3 identifies the Proposed Interim Fly Quiet runway operating configurations. Runway operating configurations K, L, and M are east flow arrival configurations (for winds from the east) while runway operating configurations H, I, and O are west flow arrival configurations (for winds from the west). Of the three east flow arrival runway operating configurations, two use only east/west runways and one uses only diagonal runways. Similarly, there are three west flow arrival runway operating configurations, two using only east/west runways and one using only diagonal runways.

Proposed east flow configurations are:

- Configuration K arrives Runway 10L and departs Runway 9R.
- Configuration L arrives Runway 4R and departs Runway 4L.
- Configuration M arrives Runway 10C and departs Runway 10L.

Proposed west flow configurations are:

- Configuration H arrives Runway 27L and departs Runway 28C.

[8] Noise-sensitive land uses are defined in Appendix C.4.7.

- Configuration I arrives Runway 22R and departs Runway 22L.
- Configuration O arrives Runway 28C and departs Runway 28R.

If FAA needs to assign an intersection departure, the CDA requests FAA assign departures[9] closest to the end of the runway to allow for the greatest runway length possible. Unless the runway is closed, airline requests for Runway 10L/28R would be accommodated with advance notice of two or more hours to the CDA's Airfield Operations Division. The CDA would give permission with less than two hours' notice during weeks in which diagonal runways are selected. If Runway 10L/28R is closed, Runway 10C/28C would be made available.

The runway operating configurations for the Proposed Interim Fly Quiet are proposed for use, when possible, in an eight-week repeating schedule. Important characteristics of the schedule are:

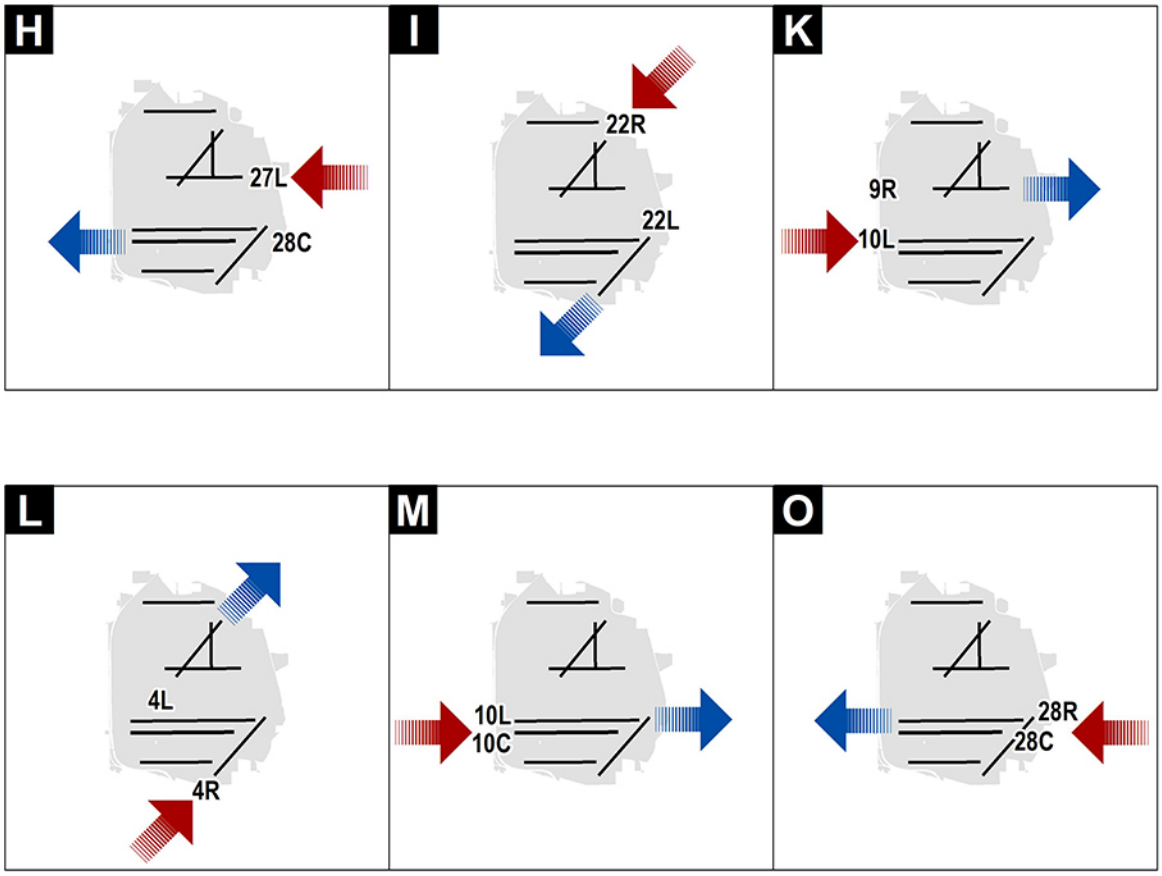
- For each week, a primary runway operating configuration would be designated with an alternate (secondary) configuration designated to provide additional wind coverage if needed.
- Two runways would be proposed per week to minimize the disruption caused by nighttime runway maintenance and construction.
- The runway operating configurations would also be used to alternate between configurations using east/west-oriented runways and diagonal runways.

The proposed weekly configuration cycles for the Proposed Interim Fly Quiet, illustrated in **Exhibit 2-4,** are as follows:

- Week 1: The primary runway operating configuration would be east flow arrival configuration K (arrivals on Runway 10L and departures on Runway 9R) with west flow arrival configuration H (arrivals on Runway 27L and departures on Runway 28C) serving as the secondary configuration.
- Week 2: The primary runway operating configuration would be east flow arrival configuration L (arrivals on Runway 4R and departures on Runway 4L) with west flow arrival configuration I (arrivals on Runway 22R and departures on Runway 22L) serving as the secondary configuration. The use of a diagonally-orientated configuration would minimize additional effects on the communities affected during the prior week.
- Week 3: The primary runway operating configuration would be east flow arrival configuration M (arrivals on Runway 10C and departures on Runway 10L) with west flow arrival configuration O (arrivals on Runway 28C and departures on Runway 28R) serving as the secondary configuration. The use of an east/west-orientated configuration would minimize additional effects on the communities affected during the prior week.
- Week 4: The primary runway operating configuration would be east flow arrival configuration L (arrivals on Runway 4R and departures on Runway 4L) with west flow arrival configuration I (arrivals on Runway 22R and departures on Runway 22L) serving as the secondary configuration. The use of a diagonally-orientated configuration would minimize additional effects on the communities affected during the prior week.

[9] Intersection departures are often used where the runway is long enough that the full length is not needed by a particular aircraft and the aircraft can begin its departure roll at a taxiway intersection rather than at the runway end.

This page was intentionally left blank.



Notes

- Flights that require additional runway length should contact CDA Airfield Operations Division at a minimum of 2 hours prior to arrival or departure.
- Alternative runways may be used to allow for construction, snow removal, runway maintenance, runway inspection, and strong winds.
- Available runways are determined by CDA.

Arrival

Departure

Source: https://www.flychicago.com/docs/ifq%20submittal%20final.pdf

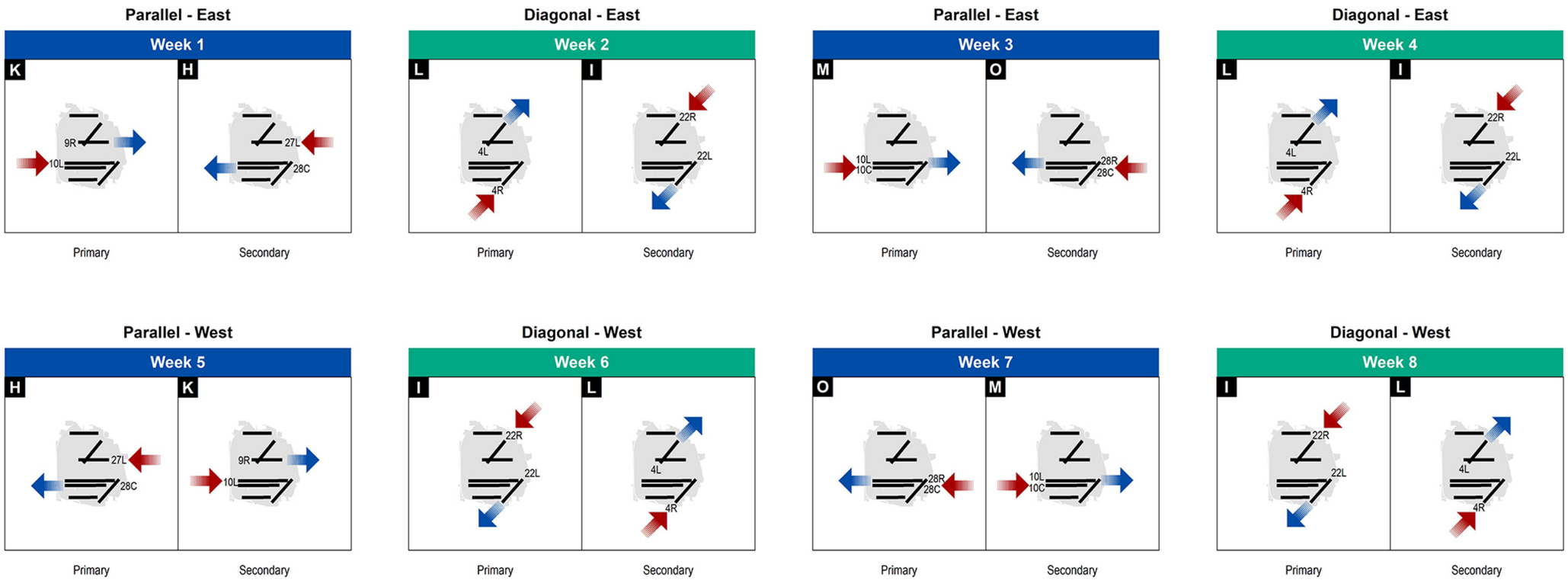
Chicago O'Hare International Airport
Written Re-Evaluation of the O'Hare Modernization Environmental Impact Statement for the Interim Fly Quiet Runway Rotation Plan

Proposed Interim Fly Quiet Configurations (Nighttime Only)

▶ Exhibit 2-3

This page was intentionally left blank.

The graphic below outlines the Proposed Interim Fly Quiet Runway Rotation. For each week, a primary and secondary runway use configuration is provided to accommodate potential changes in wind direction. The runway use configurations have been defined and approved by the O'Hare Noise Compatibility Commission (ONCC) to balance noise exposure to the extent possible. Special procedures have been defined to accommodate aircraft that require specific runways.



Each weekly period would begin on Sunday evening at 10 p.m. or after when demand allows for one arrival and one departure runway.

Notes

- Flights that require additional runway length should contact CDA Airfield Operations Division at a minimum of 2 hours prior to arrival or departure.
- Alternative runways may be used to allow for construction, snow removal, runway maintenance, runway inspection, and strong winds.
- Available runways are determined by CDA.

Arrival
Departure

Source: https://www.flychicago.com/SiteCollectionDocuments/Community/Noise/OHare/FQ/ORDFlyQuietManual2018.09.pdf

This page was intentionally left blank.

- Week 5: The primary runway operating configuration would be west flow arrival configuration H (arrivals on Runway 27L and departures on Runway 28C) with east flow arrival configuration K (arrivals on Runway 10L and departures on Runway 9R) serving as the secondary configuration. The use of an east/west orientated configuration would minimize additional effects on the communities affected during the prior week.
- Week 6: The primary runway operating configuration would be west flow arrival configuration I (arrivals on Runway 22R and departures on Runway 22L) with east flow arrival configuration L (arrivals on Runway 4R and departures on Runway 4L) serving as the secondary configuration. The use of a diagonally-orientated configuration would minimize additional effects on the communities affected during the prior week.
- Week 7: The primary runway operating configuration would be west flow arrival configuration O (arrivals on Runway 28C and departures on Runway 28R) with east flow arrival configuration M (arrivals on Runway 10C and departures on Runway 10L) serving as the secondary configuration. The use of an east/west-orientated configuration would minimize additional effects on the communities affected during the prior week.
- Week 8: The primary runway operating configuration would be west flow arrival configuration I (arrivals on Runway 22R and departures on Runway 22L) with east flow arrival configuration L (arrivals on Runway 4R and departures on Runway 4L) serving as the secondary configuration. The use of a diagonally-orientated configuration would minimize additional effects on the communities affected during the prior week.

The CDA requests that the Proposed Interim Fly Quiet commence soon after a potential FAA approval. The Proposed Interim Fly Quiet will not be implemented during the runway closures, noted earlier, that are expected to be necessary to reconstruct Runway 4L/22R and rehabilitate Runway 4R/22L. Consequently, if approved, the Proposed Interim Fly Quiet could begin in November 2019 through mid-May 2020 (discontinuing during the rehabilitation of 4R/22L) and resume in mid-September 2020 until the end of January 2021. The Proposed Interim Fly Quiet would be in place for approximately 11 months (see **Figure 2-1** for details).

2.2.3 Revised Interim Fly Quiet 1 and 2

Appendix C documents the development of two additional alternatives designed to test nighttime rotation patterns with potential to reduce impact on Environmental Justice communities surrounding O'Hare. **Section C.2.5** provides information on the Revised Interim Fly Quiet 1, which consists of a six-week rotation while **Section C.2.6** provides information on the Revised Interim Fly Quiet 2, which consists of a 20-week rotation. Both Revised Interim Fly Quiet 1 and 2 result in decreased use of the diagonal runways and increased use of the parallel runways.

2.2.4 Post Interim Fly Quiet

As noted in the prior sections, the Proposed Interim Fly Quiet is intended to be an interim program and not permanent. Once Runway 9R/27L is closed for construction of the runway extension in spring 2021, the CDA and FAA anticipate that nighttime operations at O'Hare would return to the Existing Fly Quiet described in **Section 2.2.1**. Thus, if approved, the Proposed Interim Fly Quiet is expected to operate from November 2019 through January 2021, excluding construction periods for Runways 4L/22R and 4R/22L.

ONCC is considering development of a new Fly Quiet, but that proposal, if created, would be subject to its own NEPA review.

2.3 WHY A WRITTEN RE-EVALUATION IS APPROPRIATE

The Existing Fly Quiet, first established in 1997, was identified in the EIS (Section 7.1.1.2) as an existing abatement strategy for addressing noise impacts associated with aircraft operations at O'Hare. The proposed modifications to the Existing Fly Quiet (the current nighttime runway rotation schedule) are described in **Section 2.2.2** and in **Section 2.2.3**. Given the proposed modifications to the Existing Fly Quiet, FAA has examined its NEPA responsibilities under FAA Order 1050.1F, Environmental Impacts: Policies and Procedures[10] and FAA Order 5050.4B, Chapter 14 National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions[11] to identify the most appropriate means of disclosing interim environmental effects resulting from changes to the nighttime runway rotation.

FAA Order 1050.1F paragraph 9-2 states:

> 9-2. Written Re-Evaluation. A written Re-Evaluation is a document used to determine whether the contents of a previously prepared environmental document (i.e., a draft or final EA or EIS) remain valid or a new or supplemental environmental document is required. There is no specified format for a written Re-Evaluation. A written Re-Evaluation should be concise, and the level of analysis should be commensurate with the potential for environmental impacts of a nature or extent not evaluated in the EA or EIS.
>
> a. Written Re-Evaluation Required. Unless a decision has been made to prepare a new or supplemental EA or EIS, the responsible FAA official must prepare a written Re-Evaluation:
>
> (1) If required under Paragraph 8-2.b or 9-1 of this Order; or
>
> (2) Before further FAA approval may be granted for an action if, after the FAA has approved an EA or EIS for the action:
>
> (a) There are changes to the action, or new circumstances or information, that could trigger the need for a supplemental EA or EIS (see Paragraphs 9-2.c and 9-3); or
>
> (b) All or part of the action is postponed beyond the time period analyzed in the EA or EIS.
>
> b. Other Circumstances. The responsible FAA official may also prepare a written Re-Evaluation in other circumstances, including, for example, where there is a lack of clear and convincing evidence that major steps toward implementation of the proposed action have commenced.
>
> c. Supplemental EA or EIS Not Required. A new or supplemental EA or EIS need not be prepared if a written Re-Evaluation indicates that:
>
> (1) The proposed action conforms to plans or projects for which a prior EA and FONSI have been issued or a prior EIS has been filed and there are no substantial changes in the action that are relevant to environmental concerns;

[10] Federal Aviation Administration, FAA Order 1050.1F; Washington, DC, effective July 16, 2015, Paragraph 9-2 and following, pg. 9-1.
[11] Federal Aviation Administration, FAA Order 5050.4B; Washington, DC, effective April 28, 2006. Paragraphs 1401.b and 1401.c, page 14-1 and following.

(2) Data and analyses contained in the previous EA and FONSI or EIS are still substantially valid and there are no significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts; and

(3) Pertinent conditions and requirements of the prior approval have been, or will be, met in the current action.

FAA Order 1050.1F then goes on to define "significant information" in paragraph 9-3:

> Significant information is information that paints a dramatically different picture of impacts compared to the description of impacts in the EA or EIS.

FAA Order 5050.4B, paragraph 1401c (2) states:

> Substantial Changes in the Proposed Action. If substantial changes in an action occur, the responsible FAA official should determine if the changes are relevant to environmental concerns. That determination should focus on the affected environment and anticipated impacts due to changes in the proposed action or proposed mitigation. The official must decide if the resultant environmental impacts present significant new circumstances or information relevant to those environmental concerns bearing on the proposed action or impacts. The official should use his or her professional judgment to determine if a written Re-Evaluation is needed.

Based on the Orders, FAA considered how to address its NEPA responsibilities for the Proposed Interim Fly Quiet discussed in **Section 2.1.** The modifications to the nighttime runway use program do not affect the final airfield layout (the Build Out) of the OMP, as originally envisioned in the EIS. Because the Proposed Interim Fly Quiet does not affect the Build Out airfield development, it also does not affect the environmental impacts associated with the Build Out. No other federal approvals are required to construct the Build Out as reflected in the Final EIS and ROD. Construction in support of the Build Out has been continuous from the approval of the ROD in 2005.

For the reasons above, FAA concludes that a Re-Evaluation is an appropriate means of analyzing and disclosing potential interim environmental effects from the Proposed Interim Fly Quiet. FAA prepared this Re-Evaluation for the primary purposes of analyzing and disclosing to the public the environmental effects of the Proposed Interim Fly Quiet. If it is approved, FAA and the CDA would implement the Proposed Interim Fly Quiet.

FAA will release the Draft Re-Evaluation for public and agency review for a 45-day comment period from January 14, 2019 through February 27, 2019. During the comment period, FAA will hold four public workshops on consecutive days from February 4-7, 2019. Each workshop will include opportunities for members of the public to interact with FAA personnel and subject matter experts on noise, air quality, and other technical areas addressed in the Re-Evaluation. Attendees also will have opportunities to submit comments on the Draft Re-Evaluation either in writing or orally to a court reporter. During the public comment period, the public may submit comments electronically, via mail or fax.

2.4 IMPACT ANALYSIS APPROACH

The following sections summarize the overall approach used to address the environmental effects examined in this Re-Evaluation. The Re-Evaluation uses this approach to be consistent with the analyses conducted in the EIS, but also to disclose environmental impacts that may result from the Proposed Interim Fly Quiet. The analysis begins with a review of the EIS's aviation forecasts and FAA's most recent Terminal Area Forecast (TAF) (2017). This is important because the forecasts account for the level of activity,

associated aircraft fleet mix, and time of their operation. These factors are foundational for key environmental analyses—particularly of noise and air quality.

This Re-Evaluation also analyzes and discloses runway use associated with implementation of the Proposed Interim Fly Quiet, since its implementation would affect aircraft noise and air quality. The primary approach used to quantify runway use and airfield operational performance is through airport and airspace modeling, which is discussed in this section. Since the EIS and ROD were completed, FAA has released a new model (Aviation Environmental Design Tool, abbreviated AEDT 2d) that was used in this Re-Evaluation for noise and air quality.

In preparing this Re-Evaluation, FAA determined that several environmental resources do not require re-evaluation because the changes in nighttime runway use from the Proposed Interim Fly Quiet described in **Section 2.2** would not alter the project effects disclosed in the EIS. Because the Build Out for the OMP has not changed, this Re-Evaluation does not address the following resources:

- **Coastal Resources:** The EIS noted that there is no coastal zone management plan for the O'Hare area, as the closest water body is Lake Michigan. No changes in the coastal zone management plan have occurred that would affect O'Hare's area.
- **Farmlands:** No land on the airport property, in the acquisition areas, or within proposed aviation easements is used as farmland.
- **Biotic Communities/Threatened Species:** Impacts of the OMP on biotic communities (plants, fish, and wildlife) are disclosed in the EIS. Potential disturbances of biotic communities within the construction impact area were noted. These biotic communities are not exceptional and are fragmented, such that FAA concluded that these communities contain common, highly adaptive urban species that will continue to exist in the vicinity of O'Hare.
- **Floodplains:** The EIS found that no significant encroachment of floodplains would exist from construction of the OMP, which has not changed. Thus, no re-evaluation is warranted. No changes in floodplain designations have occurred relative to the remaining airfield construction.
- **Hazardous Materials, Pollution Prevention, and Solid Waste:** As the Build Out remains unchanged, the hazardous materials, pollution prevention, and solid waste do not require re-evaluation. No additional hazardous waste sites that would be affected by the remaining development have been identified. No changes in solid waste are expected.
- **Light Emissions and Visual Impacts:** As the Build Out remains unchanged, the associated light emissions and visual impacts do not require re-evaluation.
- **Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks:**[12]
    - **Socioeconomic Impacts:** This sub-category will not be affected by the Proposed Interim Fly Quiet. Implementation of the Proposed Interim Fly Quiet would not involve acquisition of real estate, relocation of residents or community businesses, disruption of local traffic patterns, loss in community tax base, or changes to the fabric of the community.

[12] This category includes three sub-categories. The Environmental Justice category is discussed in Section 2.5 and in Section 3.5.

- **Children's Environmental Health and Safety Risks**: This sub-category would not be affected by the Proposed Interim Fly Quiet. Implementation of the Proposed Interim Fly Quiet would not involve products or substances with which a child is likely to be exposed, come into contact, ingest, or use. Furthermore, the Proposed Interim Fly Quiet would not result in a local increase in emissions that would have the potential to affect children's health. Accordingly, there would be no increase in environmental health and safety risks that could disproportionately affect children.

- **Social/Secondary (Induced) Impacts:** The OMP has and will continue to generate secondary (induced) impacts, as disclosed in the EIS. These impacts are primarily jobs, payroll, and economic contribution, which will be greatest upon completion of the Build Out. Community-based tax impacts associated with acquisition have already occurred and have been mitigated in accordance with the ROD.

- **Construction:** The phasing of the OMP was modified as reflected in the 2015 and 2020 Interim Conditions described in the 2015 Re-Evaluation document. No construction is proposed for the Proposed Interim Fly Quiet.

- **Water Quality:** Total impervious surface area will not change with the Proposed Interim Fly Quiet. Water quality impacts associated with the OMP development were discussed in the EIS.

- **Wetlands:** The EIS noted that 154.2 acres of wetlands would be filled by the Build Out of the OMP. All wetlands are being filled in accordance with the U.S. Army Corps of Engineers permit file number 200301000, authorization dated December 19, 2005. No wetlands will be filled as a result of implementation of the Proposed Interim Fly Quiet.

- **Wild and Scenic Rivers:** The EIS found no impacts to wild and scenic rivers. Implementation of the Proposed Interim Fly Quiet would have no potential to affect this resource.

The primary direct effects of the Proposed Interim Fly Quiet would be to noise and air quality. Because noise and air quality would be affected, FAA then considered the impact of the changes relative to:

- **Climate:** Since the completion of the EIS, FAA has issued guidance in Order 1050.1F and associated Desk Reference as to how climate is to be addressed. The 2015 Re-Evaluation addressed the effects of development on climate. This Re-Evaluation addresses the effects of the Proposed Interim Fly Quiet on climate**.** See **Section 3.3** and **Appendix F.**

- **Historic, Architectural, Archaeological, and Cultural Resources:** Effects of the Proposed Interim Fly Quiet on noise and their corresponding effects on Historic, Architectural, Archeological, and Cultural Resources are noted in **Appendix C.**

- **DOT 4(f) Resources:**[13] Effects of the Proposed Interim Fly Quiet on noise, air quality, and corresponding effects on DOT Section 4(f) resources are noted in **Appendix C.**

- **Natural Resources and Energy Supply:** While aircraft-related energy consumption would change with the Proposed Interim Fly Quiet, those conditions are now described for both energy and

[13] DOT Section 4(f) refers to the Department of Transportation Act of 1966 [re-codified at 49 U.S.C. § 303(c)] [herein referred to as "Section 4(f)"]. Lands considered potentially eligible as Section 4(f) include publicly-owned parks, recreation areas, and wildlife and waterfowl refuges of national, state, or local significance and public or private historic sites of national, state, or local significance.

resulting greenhouse gas (GHG) emission/climate in **Section 3.3**. All other natural resource conditions are described in the EIS.

- **Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks (Children's Health):** Effects of the Proposed Interim Fly Quiet on environmental justice communities are described in **Section 3.5** and **Appendix D**.

The review begins with a review of the aviation activity forecasts and is followed by both the airport and airspace simulation models and the air quality/noise model used in the analysis supporting this Re-Evaluation.

2.4.1 Forecasts

Aviation activity forecasts are an integral element of the NEPA evaluation process and are the basis of the analysis for several key environmental resources. For example, the level of activity, aircraft fleet mix, and distribution of operations over a 24-hour period have notable effects on aircraft noise and air quality, which then influence the environmental effects.

Several data sources exist for aircraft activity levels and associated forecasts. Airport sponsors prepare this information and FAA releases a high-level forecast referred to as the TAF. In anticipation of the evaluation of interim noise abatement procedures, the CDA developed the Proposed Interim Fly Quiet flight schedules in summer 2017 and performed airport and airspace simulation modeling based on 2016 summer conditions. In 2017 and 2018, FAA reviewed these flight schedules for airfield and airspace simulation modeling and compared them to actual activity levels for 2017-18 and airfield throughput information for O'Hare. This review was designed to determine whether the activity levels and models were appropriate to use for evaluating the effects of the Proposed Interim Fly Quiet.

FAA's review found that by 2018, aviation activity was materially higher than the CDA had predicted in its flight schedules. FAA concluded that the CDA's Proposed Interim Fly Quiet flight schedules needed to be updated to reflect the following unpredicted events discussed in more detail in **Appendix B:**

- General economic growth that appeared to be increasing the demand for air transportation of passengers and cargo at O'Hare
- A profitable United States airline industry, which encouraged the airlines to invest in new aircraft to modernize and expand their fleets
- A return to a banked schedule, in which pronounced waves of flight arrivals and departures are followed by periods of limited activity by hub airlines American Airlines and United Airlines, which increased the amount of connecting traffic at O'Hare
- A recovery of the air freight market, which drove significant increases in demand globally and at O'Hare

In addition, FAA wanted to confirm that the flight schedules used to evaluate the Proposed Interim Fly Quiet were appropriate, given that the Proposed Interim Fly Quiet period will not run for a consecutive 12-month period (see **Section 2.1**); the Proposed Interim Fly Quiet will run for a total of 11 non-consecutive months (a set of months outside the peak summer period that, when added, result in an 11-month period). While passenger activity peaks in the summer, cargo and general aviation activity peak in the winter. Further update to the Proposed Interim Fly Quiet flight schedules ensured that forecast aircraft operations reflected activity levels occurring outside of the summer months.

Finally, FAA wanted to confirm that the flight schedules used to evaluate the Proposed Interim Fly Quiet were appropriate, given that the Proposed Interim Fly Quiet Mode period would occur between 10:30 p.m. and 5:30 a.m. The proposed period is a subset of the nighttime hours because it can occur only when activity levels are low enough to use one arrival and one departure runway. Because the Proposed Interim Fly Quiet Mode period is a subset of the nighttime hours, additional analysis and review were required to ensure that sufficient aircraft operations were included during that period of the Proposed Interim Fly Quiet flight schedules.

FAA engaged its third-party contractor to perform a formal review and assessment of the flight schedule and models that the CDA had developed for Proposed Interim Fly Quiet to determine whether the forecast activity levels were appropriate for evaluating the interim conditions with respect to NEPA requirements. This section summarizes this review, which is fully documented in **Appendix B**.

One of the first steps in preparing the Re-Evaluation was to consider if and how much of the forecast data underlying the EIS could be used to represent the Proposed Interim Fly Quiet. Validation of the underlying data would ensure consistency with the EIS and FAA's NEPA guidelines. Specifically, FAA Order 5050.4B, Paragraph 706.b.(3) states: "Forecasts should be within 10 percent of FAA TAF for the five-year analytical period, and within 15 percent for the ten-year analytical period."[14]

The CDA based the draft flight schedule for the Proposed Interim Fly Quiet on a typical day from summer 2016. Some aspects of typical activity have since changed at O'Hare, including more commercial passenger and cargo aircraft activity—particularly in the nighttime from 10:00 p.m. to 6:59 a.m., including from 10:30 p.m. to 5:30 a.m.[15] when the Proposed Interim Fly Quiet Mode will be in effect.

Based on the review, modifications to the CDA activity schedules were necessary. The CDA released a revised design day flight schedule memorandum (see **Appendix B**) that addressed the comments from FAA third-party consultants. This modification to the design day flight schedule was supported by the CDA, as is indicated by the letter that follows the memorandum.

Recommendations for Passenger Activity

First, a comparison of passenger activity levels from 2016 to 2018 was conducted. During the peak period day in July 2016, there were 216 scheduled passenger operations in the nighttime. That number increased to 257 scheduled passenger operations in the nighttime in the peak period day in July 2018. However, the Proposed Interim Fly Quiet would not occur in the summer. The typical number of scheduled passenger operations during the nighttime of the Proposed Interim Fly Quiet months in 2018 was 211. There were only 191 nighttime passenger operations in the July 2016 flight schedule. Therefore, a minimum of 20 passenger flights should be added to the CDA's flight schedule from a forecasting perspective. FAA, in consultation with the CDA, decided that nighttime operations should represent approximately 10 percent of total operations, consistent with current and historical data. Therefore, 32 nighttime passenger operations were added to the forecast for a total of 223 passenger nighttime operations.

Recommendations for Cargo Activity

In July 2016, there were 33 nighttime cargo operations and 29 daytime cargo operations in the CDA design day flight schedule; it is typical at O'Hare for cargo operations to be relatively evenly split between day and night periods. From 2014 to 2017, cargo operations at O'Hare have increased an average of 7.9 percent annually, from 15,433 operations to 19,083. Between 2016 and 2018, the CDA completed new cargo facilities

[14] Federal Aviation Administration, FAA Order 5050.4B, para. 706.b(3)
[15] Fly Quiet mode can occur only when activity levels are low enough for one arrival and one departure runway to be used.

at O'Hare, and these facilities can accommodate additional cargo processing. In the first six months of 2018, cargo activity at O'Hare increased as measured by both CDA activity statistics and Airport Noise Management System (ANMS) data. Unlike passenger operations, cargo operations activity peaks in the winter, which is during the Proposed Interim Fly Quiet period. Since 2016, cargo operations during the equivalent Proposed Interim Fly Quiet period have increased by a total of 200 operations, requiring the addition of one incremental daily nighttime cargo flight to the CDA flight schedule.

Recommendations for Adjustments to Nighttime Activity Levels (10:00 p.m. – 6:59 a.m.)

Typically, nighttime activity (10:00 p.m. – 6:59 a.m.) represents approximately 10 percent of total activity at O'Hare. To achieve this ratio, and to adequately reflect the increases in passenger activity described above, the nighttime period of the CDA flight schedule was modified to include 223 passenger flights, 34 cargo flights, and four general aviation flights, which is 9.9 percent of the total daily flights (2,636) in the flight schedule. Furthermore, 34 flights were moved from daytime to nighttime to better reflect current activity levels at O'Hare.

Recommendations for Adjustments to the Proposed Interim Fly Quiet Mode Activity Levels (10:30 p.m. – 5:29 a.m., a subset of the nighttime)

In the evaluation of aircraft noise, one nighttime flight is roughly equal to ten daytime flights due to the sound level weighting associated with the Day-Night Average Sound Level (DNL) (see **Section 3.1.1**). Nighttime activity and the day/night split of activity impact noise modeling and air quality analysis. There were typically 54 scheduled passenger operations during the equivalent Proposed Interim Fly Quiet Mode hours of the Proposed Interim Fly Quiet months[16] in 2016. That number increased to 64 scheduled passenger operations during the Proposed Interim Fly Quiet Mode hours in the Proposed Interim Fly Quiet months in 2018. As a result, ten flights were added to the CDA flight schedule for the Proposed Interim Fly Quiet to reflect these increases in activity.

These variances are illustrated in **Table 2-1**.

TABLE 2-1
ADJUSTMENTS TO DESIGN DAY FLIGHT SCHEDULE

	2017 CDA Design Day Flight Schedule	Proposed Interim Fly Quiet Flight Schedule	Difference
Daytime			
Passenger	2,331	2,299	-32
Cargo	29	28	-1
General Aviation	49	48	-1
Subtotal Daytime	*2,409*	*2,375*	*-34*
Nighttime			
Passenger	191	223	32
Cargo	33	34	1
General Aviation	3	4	1

[16] See Section 2.1 and Figure 2.1.

	2017 CDA Design Day Flight Schedule	Proposed Interim Fly Quiet Flight Schedule	Difference
Subtotal Nighttime	*227*	*261*	*34*
Interim Fly Quiet Period			
Passenger	71	81	10
Cargo	28	28	
General Aviation	1	1	
Subtotal Interim Fly Quiet Period	*100*	*110*	*10*

Source: CDA and InterVISTAS.

2.4.2 Modeling

The evaluation of environmental conditions associated with the Proposed Interim Fly Quiet required the use of computerized airport/airspace, noise, and air quality models, which are described in the following sections.

2.4.2.1 Airport and Airspace Simulation Modeling

Simulation modeling is used to assist airport operators, users, and FAA in understanding operational issues in the airfield and airspace environments. It enables rapid analysis of how operations might differ from current conditions due to changes to airfield infrastructure (e.g., runways, taxiways, gates, etc.) as well as changes to air traffic procedures and associated airspace. Simulation results became inputs to models used to evaluate noise and air quality impacts during environmental analysis. The models and processes used to develop inputs for the Existing Fly Quiet and the Proposed Interim Fly Quiet are described below.

TAAM – Total Airspace and Airport Modeler

The Total Airspace and Airport Modeler (TAAM)[17] was used to obtain detailed flight information for the impact analysis for the Existing and Proposed Interim Fly Quiet. TAAM is an industry standard, rule-based, fast-time simulation model used for analysis of operational changes for airport and airspace improvement projects. For each arrival and departure flight, the model keeps track of key factors such as taxi times, runway use, flight path, height above ground, and engine type, among others. These operational records provide key inputs to subsequent analyses of noise exposure, emissions levels, fuel burn, and other environmental factors. This Re-Evaluation employed the same TAAM modeling process that was developed for the EIS and the 2015 Re-Evaluation. An FAA Air Traffic Workgroup, consisting of senior FAA Air Traffic representatives from Chicago Air Traffic Control facilities (O'Hare Air Traffic Control Tower, Elgin TRACON, and Aurora Center), was assembled to review and ultimately accept all configurations modeled.[18]

Wherever practical, to maintain consistency of modeling approach between the EIS and the Existing Fly Quiet, the input, assumptions, and methodology used in the EIS were kept constant for this Re-Evaluation analysis. However, since the TAAM version 2.0 used in the EIS is no longer supported, this Re-Evaluation used the current version of the modeling tool, TAAM Version v2017.2.1, which has additional capabilities

[17] TAAM is a product of Jeppesen.

[18] The Air Traffic Workgroup is comprised of representatives from O'Hare Tower (ORD ATCT), Chicago TRACON (C90), Chicago ARTCC (ZAU), the National Air Traffic Controllers Association (NATCA), FAA Chicago Airports District Office (CHI-ADO), FAA's third-party contractor HMMH, and Ricondo & Associates, Inc.

to accommodate complex operating procedures at O'Hare. Differences between the versions are documented in **Appendix A.**

Appendix A also presents a statistical comparison of outputs from the two versions, contrasting key performance factors on the same test case: a commonly used runway configuration when O'Hare traffic is in west flow under Visual Flight Rules (VFR). Test results indicate only minor differences, thereby supporting use of the newer version without sacrificing consistency of approach.

Both the Existing and the Proposed Interim Fly Quiet inputs were developed from one set of TAAM simulations. The Proposed Interim Fly Quiet night operations were further modified as described below.

TAAM Data Post Processing and Methodology for Proposed Interim Fly Quiet

Daytime operations and runway use for the Proposed Interim Fly Quiet remain the same as those for the Existing Fly Quiet. As was described in **Section 2.2.2,** Proposed Interim Fly Quiet would only involve changing the interim nighttime preferential runway use configurations. The same level of activity would occur during the nighttime hours under both the Existing Fly Quiet and the Proposed Interim Fly Quiet; the only differences between the two cases would be that the Proposed Interim Fly Quiet runway use rotation discussed in **Section 2.2.2** would be implemented during the specified months. Consequently, changes to the noise and air quality input data for nighttime operations were required to reflect the modified configurations during the Proposed Interim Fly Quiet period. **Appendix A.7** details modifications made to the Existing Fly Quiet data to normalize it to reflect changes specific to nighttime operations.

As described in **Section 2.1,** between July 2016 and October 2017, FAA and the CDA tested various runway use configurations for feasibility**.** Data obtained during these tests (as well as during periods when the tests were not occurring) was then used to develop a Runway Use Process to compute annualized night operations. The Runway Use Process was developed jointly between an FAA third-party contractor, FAA, and the CDA, using information obtained from the tests.

The Runway Use Process consists of adjusted flight schedules for each week of rotation along with a weighting factor for each week. The CDA Runway Use Process is an Excel Workbook with worksheets for each configuration adjusted for nightly nighttime runway closures and average weather conditions. Each configuration receives a weighting based on the number of weeks of occurrence and a final worksheet with all configurations combined. This process is documented in **Appendix A**. The workbook combines the six configurations using the weighting factors to provide a final set of nighttime operations for the Proposed Interim Fly Quiet.

In addition to incorporating the Proposed Fly Quiet configurations, the data was further modified as disclosed below:

- Averaging and validating the sample data to ascertain average start/stop times when the rotation plan was in effect, discarding data on those dates when the plan was begun significantly later than normal or ended significantly earlier than normal. Average operations by aircraft type and runway assignment were then calculated on the remaining data.
- Annualizing the operations and applying average historical wind conditions (the most recent ten years, the same as with TAAM) with data obtained from National Climatic Data Center to adjust runway use. In applying average wind conditions, it is assumed that winds requiring an aircraft to take off or land with a tailwind of greater than five knots or a crosswind of greater than 20 knots would necessitate a runway change for operational and safety considerations.

- Adjusting the data for typical non-wind occurrences and conditions, such as unscheduled airfield maintenance (e.g., snow removal, emergency repairs), scheduled airfield construction, equipment certification (e.g., flight checks of navigational equipment), and other events such as thunderstorms or occurrences away from the airfield environs that affect specific runway assignments.
- Assigning annual rotation factors which cumulatively add to 100 percent and encompass all nighttime operations and equal the Existing Fly Quiet operational levels analyzed.

The data was then further adjusted to reflect annual conditions by re-allocating a small number of operations to runways predicted to have zero operations from the TAAM modeling and Runway Use Process, prior to use in the noise model.

Using data from the Runway Use Process, the CDA used an FAA-supported runway exit analysis tool[19] to determine runway exit locations for arriving aircraft. This data, along with nighttime taxiway diagrams approved by FAA, was used by the CDA to determine taxi distances and times for each operation. The resulting data set was an annualized schedule of night operations including aircraft type, runway use, and taxi time for input into the noise and air quality analyses (see **Appendix A** for more details).

2.4.2.2 Noise and Air Quality Modeling Methodology

The EIS and the 2015 Re-Evaluation used Integrated Noise Model (INM) modeling software to prepare noise contours and to calculate noise exposure and other supplemental noise metrics. FAA's Emissions and Dispersion Modeling System (EDMS) was used in the EIS and 2015 Re-Evaluation to evaluate air pollutant and pollutant precursor emissions. In the intervening years, FAA released a combined noise and emissions model, the Aviation Environmental Design Tool (AEDT), and requires its use for analyses undertaken as part of compliance NEPA analyses.[20]

The AEDT uses a database of aircraft noise and performance characteristics to predict DNL values based on average annual daily numbers of aircraft operations, airport operating conditions, aircraft performance, and flight patterns. AEDT also calculates total air pollutant/pollutant precursor emissions from aircraft engines for air quality analyses, enables the prediction of noise and air quality impacts in the immediate airport environment, and includes updated databases for newer aircraft models. In addition to using AEDT to calculate air pollutant emissions, the USEPA's approved model, AERMOD, must be used for atmospheric dispersion modeling.

2.4.2.3 Noise

Noise exposure levels from the Existing Fly Quiet and the Proposed Interim Fly Quiet are analyzed in this Re-Evaluation. Consistent with FAA policy, the analysis follows the modeling procedures used in the EIS and the 2015 Re-Evaluation but uses the AEDT, which is now required. Metrics and modeling processes are kept consistent between the EIS, the 2015 Re-Evaluation, and this Re-Evaluation. As with the EIS and 2015 Re-Evaluation, the 65, 70, and 75 DNL[21] contours were produced as outputs. Similar to the EIS and 2015 Re-Evaluation, the results also include DNL calculations at noise-sensitive sites (schools, libraries, etc.).

[19] Runway Exit Design Interactive Model (REDIM).

[20] FAA policy requiring use of AEDT for aircraft noise analysis under NEPA and for airport compatible land-use planning was published at 80 FR 28753 (May 15, 2015).

[21] DNL refers to the Day-Night Average Sound Level, the metric required in FAA Order 1050.1E for the consideration of aircraft noise exposure in NEPA documents. The DNL represents the average annual aircraft noise exposure reflecting a cumulative A-weighted sound level over a 24-hour period, including a sound level weighting for aircraft events between 10:00 p.m. and 6:59 a.m.

This section briefly summarizes the methodology and model inputs leading to the results reported later in **Chapter 3** and discussed in detail in **Appendix C.**

FAA Orders 5050.4B and 1050.1F provide guidance on the technical approach used in FAA noise analysis. These orders specify the noise metric that must be used (DNL), the noise model that must be used to compute the noise (AEDT), and the metrics that are applied to different land uses to determine when noise is significant or requires mitigation. Residential and some other noise-sensitive land uses are generally considered compatible with noise exposure levels less than a DNL of 65 decibels (dB). Compatibility guidelines for other land uses are listed in **Appendix F**, Table F-1 of the EIS, and in **Appendix C, Attachment C-3** of this document**.**

For this Re-Evaluation, noise contours are reported using the required noise metric DNL. FAA has embarked on a multi-year Noise Research Program that is updating the scientific evidence on the relationship between aircraft noise exposure and its effects on communities around airports. The results of the research are currently under review by FAA, DOT, and other federal agencies. For more details see **Appendix C, Attachment C-5.**

Noise Modeling Versus Noise Monitoring Data

Since 1996, the CDA has used the ANMS to observe the amount of noise generated by O'Hare aircraft over the surrounding communities. ANMS collects, analyzes, and processes data from several sources of information, including a network of 36 permanent noise monitors[22] near O'Hare and cross-references noise measurements with FAA radar data. That information is used to share data in monthly and quarterly reports to disclose past noise levels to the public.[23]

FAA is frequently asked why modeling was used to create the noise contours for both the EIS and the 2015 Re-Evaluation rather than simply using data from the noise monitors surrounding O'Hare. The EIS, the 2015 Re-Evaluation, and this Re-Evaluation analyzed future conditions in accordance with NEPA and FAA implementing orders. Noise monitors integrated into the ANMS record existing noise levels; they cannot, however, predict future noise levels, a requirement for assessing impacts from the Proposed Interim Fly Quiet under NEPA.

In this Re-Evaluation, AEDT was used to calculate the potential future level of aircraft noise. As explained in **Appendix C**, AEDT uses a database of aircraft noise characteristics to predict DNL based on the types and number of aircraft operations, average annual day operating conditions, average aircraft performance, and aircraft flight patterns.

The ANMS is used to provide information on past noise levels, while AEDT is used to predict future noise levels.

2.4.2.4 Air Quality

This section summarizes the modeling approach to the air quality analysis. Detailed methodology and results are reported in **Chapter 3** and discussed in detail in **Appendix E.** The objective of the air quality analysis in this Re-Evaluation is to disclose potential air quality impacts associated with implementation of the Proposed Interim Fly Quiet. The air quality analysis is based on the methodologies and protocols developed for the EIS and the 2015 Re-Evaluation, adjusted as necessary to reflect current regulatory conditions, ambient conditions (i.e., updates to meteorological and background concentrations), and the

[22] Four new monitors have been installed since the 2015 Re-Evaluation.
[23] https://www.flychicago.com/community/ORDnoise/ANMS/pages/default.aspx

required use of evaluation tools such as AEDT. This analysis is limited to the differences in nighttime operations between the Proposed Interim Fly Quiet and the Existing Fly Quiet.

The air quality analysis was assembled, analyzed, and presented in accordance with FAA Order 1050.1F,[24] FAA Order 5050.4B,[25] and FAA Aviation Emissions and Air Quality Handbook.[26] Additionally, FAA provides guidance in the Environmental Desk Reference for Airport Actions,[27] which summarizes applicable special purpose laws. Its function is to help FAA integrate the compliance of NEPA and any applicable special purpose laws (including those pertaining to air quality). The air quality analysis was accomplished using the latest version of FAA's AEDT (Version 2d)[28] and the USEPA's approved dispersion model, AERMOD (Version 16216r).[29,30]

Two types of air quality analyses were prepared: an emissions inventory, which documents the total emissions that would result from the airport operations associated with the Proposed Interim Fly Quiet, and dispersion modeling, which evaluates the potential for the Proposed Interim Fly Quiet to cause or contribute to exceedances of the NAAQS. The emissions inventory provides an indication of the change in the amount of air pollutant and pollutant precursor emissions that will be produced with the Proposed Interim Fly Quiet, while dispersion modeling provides predicted concentrations of ambient pollutant levels that can be directly compared to the NAAQS.

The emissions inventory was prepared to evaluate total loads of carbon monoxide (CO), nitrogen oxides (NO_x), sulfur oxides (SO_x), volatile organic compounds (VOC), particulate matter less than 10 micrometers (coarse particulate, or PM_{10}), and particulate matter less than 2.5 micrometers (fine particulate, or $PM_{2.5}$). Lead is discussed in **Section 3.2.** Ozone (O_3) was addressed through an analysis of this pollutant's precursors, VOC and NO_x. The dispersion analysis was performed to predict ambient (outdoor) pollutant concentrations of CO, nitrogen dioxide (NO_2) which is formed from emissions of NO_x, sulfur dioxide (SO_2) which is formed from emissions of SO_x, PM_{10}, and $PM_{2.5}$. Dispersion analysis was not performed for the pollutant O_3 because determining the effect of an individual project on regional levels of O_3 is not considered reasonable; computer models used to assess this pollutant do not support comparisons between modeling results at specific locations and the NAAQS. The Clean Air Act General Conformity Rule was also addressed because the area that encompasses O'Hare is a nonattainment area for O_3. Hazardous air pollutant (HAP) and GHG emissions attributable to the Proposed Interim Fly Quiet were also addressed.

2.5 ENVIRONMENTAL JUSTICE

This section summarizes the Environmental Justice (EJ) analysis for the Proposed Interim Fly Quiet, including the analytical approach and data sources used. The purpose of EJ analysis is to ascertain whether adverse

[24] FAA, Order 1050.1F, Environmental Impacts: Policies and Procedures, July 16, 2015, https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.current/documentnumber/1050.1

[25] FAA, NEPA Implementing Instructions for Airport Actions, April 2006, https://www.faa.gov/airports/resources/publications/orders/environmental_5050_4/

[26] FAA, Aviation Emissions and Air Quality Handbook, January 2015, https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/.

[27] FAA, Environmental Desk Reference for Airport Actions, October 2007, https://www.faa.gov/airports/environmental/environmental_desk_ref/

[28] FAA, Aviation Environmental Design Tool (AEDT) Users Guide, September 2017, https://aedt.faa.gov/

[29] USEPA Preferred/Recommended Models, AERMOD Modeling System, https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models

[30] Title 40 CFR Part 51, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions; Final Rule, http://www.epa.gov/ttn/scram/guidance/guide/appw_05.pdf

impacts are borne disproportionately by minority or low-income populations, or both (EJ populations). Communities or areas within which EJ populations reside are referred to as "areas of EJ concern."

The results of noise modeling for the Proposed Interim Fly Quiet, performed using the AEDT, indicated the presence of potentially significant noise impacts as measured under FAA's NEPA guidance. Based on the results of the EJ screening tools within AEDT, more detailed demographic analysis of the affected population was warranted to determine the extent, if any, to which disproportionate noise impacts on EJ populations may be present.

While AEDT is useful for screening, FAA guidance recommends a more robust geographical analysis to quantify the details and extent of disproportionate impact of the Proposed Interim Fly Quiet. While the EJ analysis framework was being developed, the CDA created two alternatives, referred to as Revised Interim Fly Quiet 1 and Revised Interim Fly Quiet 2, with the expectation that these alternatives might have less of an impact on EJ populations than the Proposed Interim Fly Quiet. In fact, when the full analysis of how impacts from each alternative were distributed spatially, and the varied impacts to EJ populations were determined, it was clear that the Proposed Interim Fly Quiet had the least impact on EJ populations. The full EJ analysis is presented in **Appendix D** and the results for Proposed Interim Fly Quiet are presented in **Section 3.5.**

Implementation of the Proposed Interim Fly Quiet would alter aircraft noise exposure around O'Hare. The EJ analysis examines only noise effects on EJ populations. With respect to the other environmental impact categories examined in detail in this Re-Evaluation document, consideration was also given to the effect of the Proposed Interim Fly Quiet on air quality and climate. The Proposed Interim Fly Quiet would not change the number of aircraft operations, aircraft fleet mix, support equipment activities or change surface traffic volumes or traffic operating conditions. Its effects would be limited to a change in which runways are used during the nighttime hours during a limited number of months and associated, aircraft taxi times. This change would not materially affect aircraft-related emissions.

Consequently, EJ analysis was only conducted with respect to effects on the noise environment.

2.5.1 Background and Regulatory Guidance

Title VI of the Civil Rights Act requires FAA to ensure that no person is excluded from participation in, denied the benefits of, or subjected to discrimination under any program or activity receiving federal financial assistance on account of his or her race, color, or national origin. The USEPA defines Environmental Justice as the "fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."[31] Demographic data is used in this Re-Evaluation to assess potential impacts to minority and low-income populations under environmental justice considerations.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, the accompanying Presidential Memorandum, and DOT Order 5610.2(a), Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, provide guidance for the Federal government, including FAA, with regard to Environmental Justice compliance. FAA must provide (1) meaningful public involvement by minority and low-income populations and (2) analysis, including demographic analysis, which identifies and addresses potential impacts on those populations that may be disproportionately high and adverse.

[31] EPA, "Environmental Justice": https://www.epa.gov/environmentaljustice/learn-about-environmental-justice.epa.gov/environmentaljustice

When identifying populations, the DOT and FAA rely upon the standards and definitions for demographic data collection established by the Office of Management and Budget.[32] In these standards, the definition of minority population has two aspects: race and ethnicity.

On race, the standards have five categories for data: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White.

- **American Indian or Alaska Native.** A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.
- **Asian.** A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
- **Black or African American.** A person having origins in any of the black racial groups of Africa. Terms such as ''Haitian'' or ''Negro'' can be used in addition to ''Black or African American.''
- **Native Hawaiian or Other Pacific Islander.** A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- **White.** A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

The standards have two categories for ethnicity: Hispanic or Latino, or, Not Hispanic or Latino.

- **Hispanic or Latino.** A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race. The term, ''Spanish origin,'' can be used in addition to ''Hispanic or Latino.''

Ethnicity is a characteristic which may define minority status, in addition to race. A minority is person whose race is other than white, whose ethnicity is Hispanic or Latino, or both.

Additionally, DOT Order 5610.2(a) provides definitions pertaining to income and poverty status.

- **Low-Income** means a person whose median household income as at or below the Department of Health and Human Services (HHS) poverty guidelines.
- **Low-Income Population** means any readily identifiable group of low-income persons who live in geographic proximity, and if circumstances warrant, geographically dispersed / transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy, or activity.

HHS updates and publishes poverty guidelines annually.

The two basic questions an EJ analysis answers are:

- Would implementation of the Proposed Interim Fly Quiet have adverse effects that are predominantly borne by an EJ population? (for this evaluation, the term Fifty Percent analysis[33] is used)
- Would implementation of the Proposed Interim Fly Quiet have adverse effects on an EJ population that are appreciably more severe or greater in magnitude than the adverse effects that would be

[32] 62 FR 58782, *Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity* (October 30, 1997).

[33] Federal Interagency Working Group on Environmental Justice & NEPA Committee *Promising Practices for EJ Methodologies in NEPA Reviews* March 2016, page 24; DOT Order 5610.2(a), Appendix; 1050.1F *Desk Reference*, page 12-11.

suffered by non-EJ populations? (for this evaluation, the term Meaningfully Greater analysis[34] is used)

EJ analysis involves studying how impacts from the Proposed Interim Fly Quiet are distributed geographically and whether these impacts are experienced differently by the populations specifically identified in the previously mentioned EJ guidance.

2.5.2 Methodology and Data Sources

This section outlines the approach taken to identify areas of EJ concern, assess how impacts from the Proposed Interim Fly Quiet are distributed geographically, and whether any such differences in impact distribution would cause EJ populations to predominately or disproportionately bear adverse effects associated with implementation of the Proposed Interim Fly Quiet.

Methodology

The methodology involved seven steps:

- Identification and procurement of data sources suitable for the demographic analyses required.
- Identification and selection of an appropriate "reference community" whose demographic characteristics would provide a benchmark for identifying the presence of potential EJ areas of concern within the project area that may warrant more detailed analysis.
- Identification and selection of an appropriate "community of comparison" whose demographic characteristics would provide the basis assessing whether effects from implementing the Proposed Interim Fly Quiet would be borne predominately by EJ populations (Fifty Percent test) or would be appreciably more severe or greater in magnitude on EJ populations (Meaningfully Greater test).
- Identification of the geographical extents to be used for screening, detailed demographic analysis, and comparison of impacts.
- Analysis of how significant impacts are distributed geographically and identification of specific EJ communities residing in areas where significant impacts would occur.
- Detailed demographic analysis and characterization of those populations residing in areas experiencing potentially significant effects.
- Comparison of impacts on specific areas of EJ concern with those experienced by populations residing in the broader area that also would potentially experience a significant impact to assess whether impacts are disproportionately borne by EJ populations.

Data Sources

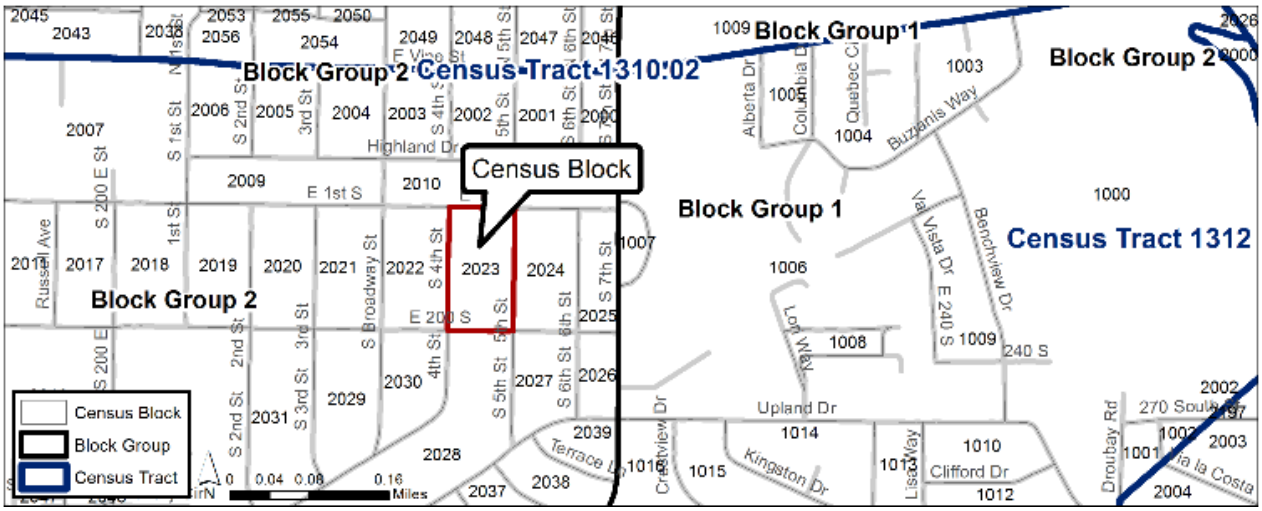
Demographic data used for EJ analyses, which are readily available from the U.S. Census Bureau, are either from the most recent decennial census (2010 Census) or from the 2012–2016 American Community Survey (2016 ACS). The 2010 Census data has a finer degree of granularity (down to the census block) but does not capture income/poverty data. Beginning in 2005, a recurring five-year rolling ACS sampling program was implemented replacing the "long form" questionnaire of the 2010 Census. The ACS is a sampling as opposed to a survey of all persons, and it surveys economic characteristics in addition to population counts. Prior to

[34] Federal Interagency Working Group on Environmental Justice & NEPA Committee *Promising Practices for EJ Methodologies in NEPA Reviews* March 2016, page 25; DOT Order 5610.2(a), Appendix; 1050.1F *Desk Reference*, page 12-11.

2010, previous decennial census enumerations employed a "long form" questionnaire, which captured income and poverty level data from approximately 15 percent of respondents. The EIS Re-Evaluation relied on the 2000 Census for its population and demographic analyses.

The most recent rolling five-year ACS dataset is from 2016; however, it lacks the degree of granularity that the 2010 Census has for minority populations, only extending down to the census block group rather than to the block. **Figure 2-3** illustrates how the census tracts, census block groups, and census blocks relate. The smallest unit of measure is the census block; multiple census blocks are aggregated into census block groups, and ultimately census blocks are aggregated to form census tracts.

FIGURE 2-3
EXAMPLES OF CENSUS GEOGRAPHICAL UNITS



Source: U.S. Census Bureau, https://www.census.gov/geo/reference/webatlas/blocks.html.

For developing detailed estimates of low-income populations, the 2016 Poverty Guidelines published by HHS—which correspond to the 2012–16 ACS dataset—were used. These are reproduced below at **Table 2-2**. Consistent with the practice employed in the EIS, HHS poverty guidelines were adjusted upward by 150 percent to reflect the higher cost of living in the Chicago region.[35] The two columns to the right in **Table 2-2** indicate those adjustments. An additional source of data, used for developing detailed estimates of populations potentially experiencing a significant noise impact, is the CDA's Residential Sound-Insulation Program (RSIP) data. Poverty guidelines are also rounded up to the next interval at which the U.S. Census Bureau reports household income (e.g., $29,999 or $34,999) for estimating number of households below the poverty level.

[35] 2005 OMP EIS, §5.21.3, page 5.21-4.

TABLE 2-2
US DEPARTMENT OF HEALTH AND HUMAN SERVICES POVERTY GUIDELINES FOR THE 48 CONTIGUOUS STATES AND THE DISTRICT OF COLUMBIA (2016) AND PROPOSED INTERIM FLY QUIET PROJECT AREA POVERTY CRITERIA

Persons in Family / Household Size	Published Poverty Guideline for 48 Contiguous States and DC (HHS 2016)	Guideline Increase per Family Member (HHS 2016)	Proposed IFQ Project Area Poverty Criteria (150% of HHS)	Proposed IFQ Project Area Poverty Criteria Increase per Family Member
1	$11,880.00	N/A	$17,820.00	N/A
2	$16,020.00	$4140.00	$24,030.00	$6,210.00
3	$20,160.00	$4140.00	$30,240.00	$6,210.00
4	$24,300.00	$4140.00	$36,450.00	$6,210.00
5	$28,440.00	$4140.00	$42,660.00	$6,210.00
6	$32,580.00	$4140.00	$48,870.00	$6,210.00
7	$36,730.00	$4150.00	$55,095.00	$6,225.00
8	$40,890.00	$4160.00	$61,335.00	$6,240.00

Note: Poverty Guidelines for fractional household sizes would use the lower whole number, adding a straight-line interpolation of the fractional increase per family member.
Source: HHS 2016, 81 Federal Register 4036.

2.6 MITIGATION

In the ROD, as a part of the approval, FAA required the CDA to implement a series of mitigation measures. **Table 2-3** lists those commitments. Throughout the implementation of the OMP, FAA has continued to monitor the CDA's progress in complying with its mitigation commitments. **Table 2.3** also summarizes the mitigation progress, which has largely been completed, with some portions ongoing.

TABLE 2-3
MITIGATION COMMITMENTS

Commitment	Description	Status
Noise and Land Use		
Residential Sound Insulation for Build Out 65 DNL Contour	Sound-insulate all eligible residences within the 65 DNL Build Out noise contour.	All potentially eligible residences have been sent information on the Residential Sound Insulation Program. The status of the sound insulation is: • Of the 6,168 potentially eligible residences, 4,787 have been completed • 1,381 remaining eligible residences—not all have or may choose to sign up In addition, the CDA and ONCC have offered sound insulation to potentially eligible residences through "block rounding": • 835 residences complete due to "block rounding" • 285 residences in process due to "block rounding"—not all have or may choose to sign up
School Sound Insulation for Build Out 65 DNL Contour	Sound-insulate Socrates St. Sava Academy School.	Completed, 2007.
Update Noise Contour after Build Out	After Build Out occurs, the CDA will produce a 65 DNL Build Out +5 forecast contour for the forecast operations five years in the future from Build Out.	No action necessary until Build Out is complete.
Future Updated Sound Insulation Program after Build Out	After Build Out occurs, the CDA will produce a 65 DNL Build Out +5 forecast contour. This contour would then be used to sound-insulate all eligible residences and schools within the updated Build Out +5 forecast 65 DNL contour noted above.	No action necessary until Build Out is complete.
Continuation of ONCC to oversee noise mitigation efforts around O'Hare	Continue to support ONCC.	In consultation with ONCC.
Continued use of the Ground Run-Up Enclosure (GRE) during engine run-up testing	Work with the airlines to use the GRE during run-ups.	Complete and ongoing. Provide quarterly reports to ONCC and the airlines on GRE use and promote the use of it. The GRE has been relocated as approved in the EIS.

Commitment	Description	Status
Continue Existing Fly Quiet	Continue existing Fly Quiet except as affected by runway decommissioning.	Ongoing. Provide quarterly reports to ONCC and work with FAA to promote its use.
Social		
Implement Relocation Plan	Follow Uniform Relocation Act to assist displaced residents and businesses in relocating to new properties outside the proposed acquisition areas.	Completed. The relocation plan for OMP land acquisition was completed prior to initiation of land acquisition activities in accordance with the Uniform Relocation Act.
Formulate Relocation Plan	Prepare relocation plan.	Completed.
Assist non-English-speaking residents with relocation	Provide Spanish translator throughout process (land acquisition).	Completed.
Advisory services	Provide advisory services to those immediately adjacent to the acquisition areas.	Completed.
Property tax liability reimbursement to school districts	Commitment through the O'Hare Modernization Act to provide school or community college districts with reimbursement of tax liability of the acquired parcels through 2009, not to exceed $20 million.	Completed.
Construction		
Off-Road Vehicles: 100 percent Use of Ultra Low Sulfur Diesel Fuel (ULSD) in advance of 2010 requirements	Contractors must use ULSD fuel for all diesel-powered vehicles and equipment (both mobile and stationary) with engine HP ratings of 50 HP or more utilized on-site for a minimum of 14 consecutive days.	Completed and ongoing.
Use newer, cleaner, more fuel-efficient engines, or best available retrofit technology, in lieu of older diesel engines during construction to the extent practicable and feasible	Use best available retrofit technology as approved by USEPA and/or Corrective Action Review Board (CARB) for off-road diesel construction equipment during construction to the extent practical and feasible.	Ongoing.

Commitment	Description	Status
Retrofits of off-road vehicles used on site	All but the newest models of off-road diesel-powered vehicles and equipment (both mobile and stationary) with engine HP ratings of 50 HP or more must install and/or retrofit with emissions control devices consisting of diesel oxidation catalysts, diesel particulate filters, or similar retrofit equipment-control technology for equipment used on site for a minimum period of 14 consecutive calendar days.	Completed and ongoing.
Construction vehicle idling	Idling of diesel-powered vehicles and equipment shall not be permitted during periods of non-active use.	Ongoing.
Use of alternatively fueled/clean buses/light duty vehicles	Contractors are encouraged to use cleaner (i.e., alternatively fueled) vehicle options and/or any other measures that may assist in reducing air quality emissions.	Ongoing.
Soil Erosion and Sedimentation Controls (SESC) implementation	Soil erosion and sediment controls will be required on all contracts requiring earth-disturbing activities.	Ongoing.
Stormwater Pollution Prevention Plan (SWPP) implementation	A SWPP will be formulated for the project and all contractors will be required to adhere to its requirements.	Ongoing.

Commitment	Description	Status
Adhere to construction Best Management Practices (BMP) and sustainable design principles	Submit schedules for accomplishing erosion control. Develop and submit Recycling and Salvage Plan for erosion and dust control on haul roads and at borrow pits. Submit plan for disposal of waste materials. Develop and submit Construction and Demolition Waste Management Plan. Develop and submit Pollution Prevention Plan. Develop and Submit Spill Prevention and Mitigation Plan and Hazardous Waste Disposal Plan. Develop and submit Air Pollution Control Plan. Develop and submit Fuel and Lubricants Control Plan. Ensure all water quality control facilities remain in service during construction. Provide temporary flood storage capacity for use until the project is completed. Provide pavement recycling and salvage and demolition of structures and infrastructure that would result in salvage of construction materials. Require mufflers for construction equipment. For earth haul away from the airport, reduce daily haul trips.	Ongoing.
Ensure Continuous Airfield Operation	Airfield Operation-Construction Operations Phasing Plan	Ongoing.
Outreach		
Post construction-related information on OMP website	Communication outreach to general public.	Ongoing.
Issue traffic alert bulletins to OMP website alert subscribers	Announce construction traffic reports with daily morning and afternoon traffic reports on local AM radio stations.	Ongoing.
Communicate construction information to airport travelers	Display construction traffic information on signage near the airport.	Ongoing.
Communicate construction information to area residents, travelers, and interested parties	Distribute information to area City Halls and libraries as well as providing construction information kiosks at the airport. Continue to issue *O'Hare Modernization News* newsletter to residents and businesses near O'Hare and post it to the OMP website.	Ongoing.

Commitment	Description	Status
Hold meeting with delivery companies, ground transportation companies, and airlines to discuss construction activities	Communication outreach for elected officials, area businesses, and local governments.	The newsletter is posted to the OMP website.
Communicate construction information to area residents, travelers and interested parties	Hold public hearings to discuss construction activities and answer questions.	Ongoing.
Fire & Safety Communications	Work with area police and fire departments, notifying them of any road closures or heavy construction traffic.	Ongoing.
Media Communications	Work with local radio stations and affiliates to include O'Hare Modernization construction updates during morning and afternoon traffic alerts.	Ongoing.
Broadcast continuous construction traffic reports on dedicated O'Hare AM radio station	Announce construction traffic reports with daily morning and afternoon traffic reports on local AM radio stations.	Ongoing.
Release O'Hare Modernization construction project outlook report to local media outlets at start of construction season	Provides advance notice of any modifications to existing streets and intersections and provides information regarding truck haul routes in use.	Ongoing.
Communicate construction information to area residents, travelers, and interested parties	Work with City of Chicago's Traffic Management Authority to post regular traffic updates. Hold press conferences and issue press releases in conjunction with construction changes and milestones. Coordinate special events to announce project completion.	Ongoing.
Air Quality		
Continue use of Best Management Practices (BMPs)	As outlined in City's BMP Manual and in Section 5.6.5 of the Final EIS.	Ongoing.
Provide Fuel Hydrant System access at all future aircraft gates	Eliminate tanker fuel trucks.	Completed.
Provide Pre-Conditioned Air (PCA) at all future constructed gates	Eliminate use of aircraft on-board auxiliary power units.	Completed.
Encourage provision of PCA at all existing gates	Eliminate use of aircraft on-board Auxiliary Power Units. Potential project funded through Voluntary Airport Low Emissions Program (VALE) application.	Completed.

Commitment	Description	Status
Minimize aircraft idling time	Continue the use of aircraft idle reduction times at gates.	Ongoing.
Ground Service Equipment (GSE) retrofit: Minimize number of gasoline-powered vehicles on airfield	Encourage retrofitting existing GSE or replacing/converting GSE to electric power or alternative fuels to the extent practicable and feasible.	Ongoing.
Power at existing gates; minimize aircraft idling time	Provide gate power and electrified connections at all existing gates for aircraft use.	Ongoing.
Incorporate sustainable design features and minimize energy consumption	Incorporate energy-efficient features into the specifications for new and existing buildings.	Ongoing.
Minimize construction vehicle idling time	Require that contractors limit the time that construction vehicles idle to the extent practicable and feasible.	Ongoing.
Minimize vehicle idling time	Implement diesel-idling restrictions for delivery vehicles.	Ongoing. City Vehicle Idling Management Policy does not allow the vehicle to idle for a period of more than five minutes in a 60-minute period.
Minimize fuel vapor emissions	Continue use of Stage II vapor recovery for refueling (GSE and aircraft).	Ongoing. Continue use of Stage II vapor recovery.
GSE Retrofit: Minimize number of gasoline-powered vehicles on airfield and at airport	Encourage the use of alternative-fueled and best available retrofit technology as approved by USEPA and CARB for internal/bus shuttle transport and for GSE.	Ongoing.
Consolidated Joint Use Facility (JUF) Project: Minimize number of commercial shuttle buses	Provide a centralized rental car facility with connection to the Airport Transit System (ATS).	Ongoing. Revised and evaluated in JUF/Consolidated rental car facility (CONRAC) Re-Evaluation.
ATS Extension: Minimize number of commercial shuttle buses	Extend the ATS to new and existing facilities.	Ongoing. Revised and evaluated in JUF/CONRAC Re-Evaluation.
Minimize number of construction vehicle trips off-site	Lower off-site construction haul trips (and overall emissions) by utilizing on-site materials and balancing earthwork and excavation to the maximum extent possible.	Ongoing.
Reimburse Illinois Environmental Protection Agency (IEPA) for Installation of hazardous air pollutants (HAPs)-capable air quality monitors	Reimburse IEPA for the cost of purchase and installation of three HAPs-capable air quality monitors to be located in the airport environs.	No action necessary until Build Out is complete.

Commitment	Description	Status
Sustainability		
Incorporate sustainable design features and minimize energy consumption	Use active/passive solar energy where practical and feasible.	Solar-thermal panels are installed on aircraft rescue and firefighting (ARFF) station 3.
Incorporate sustainable design features and minimize energy consumption	Use green building design and other sustainable design goals with energy efficiency features for new and existing buildings and lighting systems. Use low volatile organic compound emissions paints and solvents during construction of OMP-related buildings and terminals. Provide preferred parking for public and employees traveling to/from the airport in alternatively fueled vehicles or hybrids, in vanpools/carpools, and for rental car fleets using alternatively fueled vehicles.	Ongoing. City issued the Sustainable Design Manual (SDM or SAM) in 2003, with updates in 2009, 2010, 2011, 2012, 2013, and 2014.
Continue use of BMP	As outlined in City's BMP manual and in EIS Section 5.6.5.	Completed. Requirements have been incorporated into all contracting and bidding documents. Ongoing.
Incorporate sustainable design features and minimize energy consumption	Incorporate energy-efficient features into the specifications for new and existing buildings.	Ongoing.
Incorporate sustainable design features and minimize energy consumption	Use green building design and other sustainable design goals with energy efficiency features for new and existing buildings and lighting systems.	See SDM/SAM note above.
Incorporate sustainable design features and minimize energy consumption	Use low volatile organic compound emissions paints and solvents during construction of OMP-related buildings and terminals.	Completed.
Incorporate sustainable design features and minimize energy consumption	Provide preferred parking for public and employees traveling to/from the airport in alternatively fueled vehicles or hybrids, in vanpools/ carpools, and for rental car fleets using alternatively fueled vehicles.	Ongoing.
Adhere to construction BMP and sustainable design principles	Develop and submit construction and demolition waste management plan.	Completed.
Adhere to construction BMP and sustainable design principles	Develop and submit recycling and salvage plan.	Completed.

Commitment	Description	Status
Adhere to construction BMP and sustainable design principles	Pavement recycling and salvage and demolition of structures and infrastructure that would result in salvage of construction materials.	Completed.
Historic Sites & DOT 4(f)		
Schwerdtfeger farmstead	Complete requirements for HABS documentation.	Completed in consultation with Illinois Historic Preservation Division (IHPD).
Green Street School	FAA has indicated that this property does not need to be acquired; nine feet of chimney removed to meet FAA obstruction requirements.	Impact minimized. No acquisition required.
Gas station	Prepare a marketing plan to market the gas station to a party that would move it from its existing site. Prepare HABS documentation.	Completed in consultation with IHPD.
Locally historic properties (residential sound insulation): Sound insulation of locally important historic properties	Sound insulation, including window repair and replacement, will comply with the standards for the treatment of historic buildings (U.S. Department of Interior, National Park Service, 1995).	Ongoing, in coordination with IHPD.
St. Johannes Cemetery	Map of the cemetery, photographic recordation, dis-internment / reinternment.	Completed in consultation with IHPD.
Rest Haven Cemetery	Prior to installing, an archaeologist hired by the City will work in consultation with the State Historic Preservation Office (SHPO) to determine whether any graves are located within a 50-foot perimeter of the current cemetery property. Install visual screen, benches, and blast fence. City will provide unrestricted access to the cemetery 7:00 a.m. to 5:00 p.m., seven days a week.	Completed in consultation with IHPD.

Commitment	Description	Status
Schuster Park	Acquisition and replacement in-kind of the recreational resource. The replacement of the recreational resource would occur in consultation with the Bensenville Park District to ensure that the recreational uses meet local needs—or identify other options for securing replacement property through working with the Bensenville Park District, the Illinois Department of Natural Resources (IDNR), and the National Park Service (NPS).	Completed.
Bretman Park	Mitigation for this Section 4(f) property will include acquisition of Bretman Park at fair market value.	Completed.
Permits		
Silver Creek	Existing intergovernmental agreement with the Village of Bensenville & DuPage County limits acquisition of the property to the condemnation process.	Completed.
City of Chicago's General Stormwater Permit for Small Municipal Separate Storm Sewer Systems (MS4)	Compliance with City's National Pollutant Discharge Elimination System (NPDES) General Permit No. ILR40 for Discharges MS4, which incorporates by reference NPDES General Permit No. ILR10 for Stormwater Discharges from Construction Site Activities. The primary compliance mechanism is preparation of a Stormwater Pollution Prevention Plan (SWPPP). Adherence to conditions/requirements of the MS4 permit.	Completed and ongoing (MS4).
DuPage Stormwater Management Permit: Annual reporting requirements	Requires identifying current construction season anticipated development of impervious surfaces and detention (i.e., net benefit). Requires quantification of net benefit. Looks forward into the construction season. Subsequent annual reports will look at past anticipated efforts (actual vs. planned) and look forward. Future copies of the annual report will include pre-construction and post-construction data. Submittals can be modified as plans/activities are revised.	Ongoing.

Commitment	Description	Status
SESC plan	DuPage County Department of Economic Development and Planning sediment and erosion control requirements.	Ongoing. Compliance monitored by Kane DuPage Soil and Water Conservation District (KDSWCD).
Section 404 Permit: Update wildlife management plan	Update existing wildlife management plan with project implementation. Consult with United States Department of Agriculture (USDA) wildlife control specialists and FAA.	Completed.
Wetland mitigation	Provide mitigation for wetlands and Waters of the U.S. (WUS) dredged/disturbed by construction.	Wetland mitigation of jurisdictional wetlands and WUS completed. Mitigation of non-jurisdictional wetland (City/Cook County) nearly complete.
IEPA Section 401 Permit: BMP	IEPA 401 Water Quality Certification requires the incorporation of BMP that will result in the protection of surface water resources.	City indicates that all BMP are being followed.
IDNR-Office of Water Resources (OWR) floodway construction permit	Construction must comply with plans approved by IDNR; any modification/design change must be approved by IDNR.	Completed.
Conditional letter of map revision (CLOMR)	Willow-Higgins Creek relocation; Bensenville ditch relocation.	Willow-Higgins CLOMR submitted to IDNR 8/16/2004 (CLOMR issued).
North Cook County Soil and Water Conservation District (NCCSWCD) OMP-wide SESC	Individual submittals must comply with standards set in the airport-wide manual.	Compliance monitored by NCCSWCD with reporting of weekly compliance reports. Internal tracking and monitoring of compliance conducted through field inspections.
Individual SESC	Contractors must sign storm water pollution prevention plan and keep on site in accordance to comply with the provisions of the NPDES permit number ILR 10, issued by the IEPA. Contractor must install, maintain, and replace soil and erosion control measures as described in the contract documents or at the discretion of the NCCSWCD Director.	Compliance monitored by NCCSWCD with reporting of weekly compliance reports. Internal tracking and monitoring of compliance conducted through field inspections.
KDSWCD OMP-wide SESC approval	Individual submittals must comply with standards set in the airport-wide manual.	Compliance monitored by KDSWCD with reporting of weekly compliance reports. Internal tracking and monitoring of compliance conducted through field inspections.

Commitment	Description	Status
Individual SESC	Contractors must sign storm water pollution prevention plan and keep on site in accordance to comply with the provisions of the NPDES permit number ILR 10, issued by the IEPA. Contractor must install, maintain, and replace soil and erosion control measures as described in the contract documents or at the discretion of the KDSWCD Director.	Compliance monitored by KDSWCD with reporting of weekly compliance reports. Internal tracking and monitoring of compliance conducted through field inspections.
NPDES OMP-wide permit	Discharge only at permitted outfalls; monitor and report on water quality regularly.	Ongoing.
NPDES Joint Action Water Agency (JAWA) permit	Discharge only at permitted outfalls; monitor and report on water quality regularly.	Completed.

Acronyms and Abbreviations

ATS – Airport Transit System
BMP - Best Management Practices
CDA - Chicago Department of Aviation
CLOMR - Conditional Letter of Map Revision
GSE - Ground Support Equipment
HAPs – Hazardous Air Pollutants
IDNR - Illinois Department of Natural Resources
IDNR-OWR – Illinois Department of Natural Resources – Office of Water Resources
IEPA - Illinois Environmental Protection Agency
IHPD - Illinois Historic Preservation Division, formerly IHPA
JAWA - Joint Action Water Agency
JUF – Joint Use Facility
JUF/CONRAC – Consolidated Joint Use Facility Project
KDSWCD - Kane DuPage Soil and Water Conservation District
MS4 - Municipal Separate Storm Sewer Systems
NCCSWCD - North Cook County Soil and Water Conservation District
NPDES - National Pollution Discharge Elimination System
OMP - O'Hare Modernization Program
ONCC - O'Hare Noise Compatibility Commission
SDM or SAM – O'Hare Sustainable Design Manual or Sustainable Airport Manual
SESC - Soil Erosion and Sedimentation Controls
SHPO - State Historic Preservation Officer
ULSD - Ultra Low Sulfur Diesel Fuel
SWPPP - Storm Water Pollution Prevention Plan

Source: City of Chicago, October 2018. FAA October 2018.

This page was intentionally left blank.