

# TABLE OF CONTENTS

## Executive Summary

|      |   |       |
|------|---|-------|
| ES.1 | Forecast.....   | ES-20 |
| ES.2 | Purpose and Need.....   | ES-20 |
| ES.3 | Alternatives.....   | ES-21 |
| ES.4 | Summary of Findings .....   | ES-22 |
|      | ES.4.1 Resource Categories Dismissed .....  | ES-22 |
|      | ES.4.2 Air Quality .....  | ES-23 |
|      | ES.4.3 Climate .....  | ES-24 |
|      | ES.4.4 Noise and Noise-Compatible Land Use .....  | ES-24 |
|      | ES.4.5 Historical, Architectural, Archeological, and Cultural Resources .....                               | ES-25 |
|      | ES.4.6 Department of Transportation Act Section 4(f) .....  | ES-26 |
|      | ES.4.7 Biological Resources.....  | ES-26 |
|      | ES.4.8 Light Emissions and Visual Impacts.....  | ES-26 |
|      | ES.4.9 Hazardous Materials, Solid Waste and Pollution Prevention.....                                       | ES-27 |
|      | ES.4.10 Natural Resources and Energy Supply.....  | ES-27 |
|      | ES.4.11 Socioeconomics, Environmental Justice, and Children's<br>Environmental Health and Safety Risks..... | ES-27 |
|      | ES.4.12 Water Resources.....  | ES-29 |
|      | ES.4.13 Irreversible and Irretrievable Commitment of Resources.....   | ES-29 |
|      | ES.4.14 Cumulative Impacts .....  | ES-30 |
| ES.5 | Public Involvement and Agency Coordination .....  | ES-30 |

## Chapter 1 — Background, Project Description, and Aviation Forecasts

|     |  |      |
|-----|--|------|
| 1.1 | Background .....   | 1-1  |
|     | 1.1.1 National Environmental Policy Act Process .....                            | 1-2  |
|     | 1.1.2 Organization of this EA .....  | 1-2  |
| 1.2 | O'Hare International Airport History, Description, and Location.....             | 1-3  |
|     | 1.2.1 Location.....  | 1-4  |
|     | 1.2.2 Regional Content .....   | 1-4  |
|     | 1.2.3 Existing Airport Facilities .....  | 1-4  |
| 1.3 | Aviation Forecasts.....  | 1-8  |
|     | 1.3.1 Passenger Airlines Activity .....  | 1-8  |
|     | 1.3.2 Enplaned Passenger Forecast.....   | 1-10 |
|     | 1.3.3 Passenger Airline Operations Forecast .....                                | 1-10 |
|     | 1.3.4 Cargo Aircraft Operations Forecast .....                                   | 1-11 |
|     | 1.3.5 General Aviation and Military Aircraft Operations Forecast .....           | 1-11 |
|     | 1.3.6 Total Aircraft Operations Forecast .....                                   | 1-12 |
|     | 1.3.7 Schedule Analysis.....   | 1-12 |
|     | 1.3.8 Analysis of the Impact of Project Delays on the Forecast of Activity ..... | 1-13 |

|       |   |      |
|-------|---|------|
| 1.3.9 | COVID-19 Sensitivity Analysis.....  | 1-14 |
| 1.4   | Section 163 and Federal Approvals .....   | 1-15 |
| 1.5   | Description of Proposed Projects.....   | 1-16 |
| 1.5.1 | Terminal Projects (Group 1) .....   | 1-16 |
| 1.5.2 | On-Airport Hotels (Group 2) .....   | 1-18 |
| 1.5.3 | Airfield and Taxiway Improvements Not Required by the Terminal Projects<br>(Group 3)..... | 1-19 |
| 1.5.4 | Support Facilities Not Required by the Terminal Projects (Group 4) .....                  | 1-20 |
| 1.5.5 | Air Traffic Actions for Offset Approach Procedures for Runway 10R/28L (Group 5) .....     | 1-21 |

## **Chapter 2 — Purpose and Need**

|       |   |      |
|-------|---|------|
| 2.1   | Introduction .....  | 2-1  |
| 2.2   | Purpose of the Proposed Action .....  | 2-1  |
| 2.3   | Need for the Proposed Action.....   | 2-2  |
| 2.3.1 | Group 1: Terminal Projects.....   | 2-2  |
| 2.3.2 | Group 2: On-Airport Hotels .....  | 2-29 |
| 2.3.3 | Group 3: Airfield and Taxiway Improvements Not Required<br>by the Terminal Projects ..... | 2-33 |
| 2.3.4 | Group 4: Support Facilities Not Required by the Terminal Projects .....                   | 2-35 |
| 2.3.5 | Group 5: Air Traffic Actions for Offset Approach Procedures for Runway 10R/28L            | 2-37 |

## **Chapter 3 — Alternatives**

|       |   |      |
|-------|---|------|
| 3.1   | Introduction .....  | 3-1  |
| 3.2   | Overview of the Alternatives Screening Process .....  | 3-1  |
| 3.3   | Summary of Alternatives Conclusions .....   | 3-3  |
| 3.4   | Group 1 Alternatives Considered – Terminal Projects .....   | 3-3  |
| 3.4.1 | Identification of Group 1 Alternatives.....   | 3-4  |
| 3.4.2 | Group 1 Identification of Alternatives Carried Forward .....  | 3-25 |
| 3.5   | Group 2 Alternatives Considered – On-Airport Hotels .....   | 3-34 |
| 3.5.1 | Identification of Group 2 Alternatives .....  | 3-34 |
| 3.5.2 | Group 2 Alternatives Carried Forward .....  | 3-34 |
| 3.6   | Group 3 Alternatives Considered – Airfield and Taxiway Improvements Not Required<br>by the Terminal Projects..... | 3-34 |
| 3.6.1 | Identification of Group 3 Alternatives.....   | 3-35 |
| 3.6.2 | Group 3 Alternatives Carried Forward .....  | 3-35 |
| 3.7   | Group 4 Alternatives Considered – Support Facilities Not Required by the<br>Terminal Projects.....                | 3-35 |
| 3.7.1 | Identification of Group 4 Alternatives.....   | 3-35 |
| 3.7.2 | Group 4 Alternatives Carried Forward .....  | 3-36 |
| 3.8   | Group 5 Alternatives Considered – Air Traffic Actions for Offset Approach Procedures<br>For Runway 10R/28L .....  | 3-36 |
| 3.8.1 | Identification of Group 5 Alternatives.....   | 3-36 |
| 3.8.2 | Group 5 Projects Screening Process Overview .....   | 3-39 |
| 3.8.3 | Group 5 Projects Alternatives Evaluation .....  | 3-40 |

|       |  |      |
|-------|--|------|
| 3.9   | Summary of Alternatives Retained for Detailed Consideration..... | 3-48 |
| 3.9.1 | Description of Proposed Action Alternative.....                  | 3-48 |
| 3.9.2 | Description of No Action Alternative.....                        | 3-49 |

## **Chapter 4 — Airfield and Airspace Modeling**

|       |   |      |
|-------|---|------|
| 4.1   | TAAM Model Introduction .....               | 4-1  |
| 4.2   | TAAM Modeling Assumptions and Results ..... | 4-2  |
| 4.2.1 | General Assumptions.....                    | 4-2  |
| 4.2.2 | Interim No Action.....                      | 4-3  |
| 4.2.3 | Build Out No Action .....                   | 4-3  |
| 4.2.4 | Interim Proposed Action .....               | 4-7  |
| 4.2.5 | Build Out Proposed Action .....             | 4-7  |
| 4.2.6 | Results .....                               | 4-11 |

## **Chapter 5 — Affected Environment and Environmental Consequences**

|       |  |       |
|-------|--|-------|
| 5.1   | Introduction .....   | 5-1   |
| 5.2   | Resource Categories Dismissed from or Retained for Further Analysis..... | 5-2   |
| 5.3   | Air Quality .....  | 5-5   |
| 5.3.1 | Definition of Resource.....  | 5-5   |
| 5.3.2 | Regulatory Context.....  | 5-8   |
| 5.3.3 | Affected Environment.....  | 5-8   |
| 5.3.4 | Environmental Consequences.....  | 5-14  |
| 5.3.5 | Permits and Approval.....  | 5-41  |
| 5.3.6 | Mitigation and Minimization.....   | 5-41  |
| 5.3.7 | Cumulative Impacts .....   | 5-42  |
| 5.4   | Climate .....  | 5-44  |
| 5.4.1 | Definition of Resource.....  | 5-44  |
| 5.4.2 | Regulatory Context.....  | 5-44  |
| 5.4.3 | Affected Environment.....  | 5-46  |
| 5.4.4 | Environmental Consequences.....  | 5-49  |
| 5.4.5 | Permits and Approvals .....  | 5-55  |
| 5.4.6 | Mitigation and Minimization.....   | 5-55  |
| 5.4.7 | Cumulative Impacts .....   | 5-55  |
| 5.5   | Noise and Noise-Compatible Land Use.....                                 | 5-56  |
| 5.5.1 | Definition of Resource.....  | 5-56  |
| 5.5.2 | Regulatory Context.....  | 5-56  |
| 5.5.3 | Land Use .....   | 5-57  |
| 5.5.4 | Affected Environment.....  | 5-57  |
| 5.5.5 | Existing Condition .....   | 5-59  |
| 5.5.6 | Environmental Consequences.....  | 5-68  |
| 5.5.7 | Comparison Between No Action and Proposed Action Alternatives .....      | 5-102 |
| 5.5.8 | Construction Impacts .....   | 5-109 |
| 5.5.9 | Mitigation and Minimization.....   | 5-110 |
| 5.6   | Historical, Architectural, Archeological, and Cultural Resources .....   | 5-111 |

|        |  |       |
|--------|--|-------|
| 5.6.1  | Resources .....  | 5-111 |
| 5.6.2  | Regulatory Context.....  | 5-111 |
| 5.6.3  | Environmental Consequences.....  | 5-118 |
| 5.7    | Department of Transportation Act, Section 4(f) and Land and Water Conservation 6(f)..... | 5-125 |
| 5.7.1  | Regulatory Context.....  | 5-125 |
| 5.7.2  | Environmental Consequences.....  | 5-131 |
| 5.8    | Biological Resources .....   | 5-134 |
| 5.8.1  | Definition of Resources .....  | 5-134 |
| 5.8.2  | Regulatory Context.....  | 5-134 |
| 5.8.3  | Affected Environment.....  | 5-135 |
| 5.8.4  | Environmental Consequences.....  | 5-144 |
| 5.9    | Visual Effects .....   | 5-150 |
| 5.9.1  | Definition of Resource.....  | 5-151 |
| 5.9.2  | Regulatory Context.....  | 5-151 |
| 5.9.3  | Affected Environment.....  | 5-151 |
| 5.9.4  | Environmental Consequences.....  | 5-153 |
| 5.9.5  | Additional Considerations .....  | 5-157 |
| 5.10   | Hazardous Materials, Solid Waste, and Pollution Prevention .....                         | 5-158 |
| 5.10.1 | Definition of Resource.....  | 5-158 |
| 5.10.2 | Regulatory Context.....  | 5-159 |
| 5.10.3 | Thresholds of Significance.....  | 5-160 |
| 5.10.4 | Affected Environment.....  | 5-160 |
| 5.10.5 | Environmental Consequences.....  | 5-165 |
| 5.11   | Natural Resources and Energy Supply .....  | 5-169 |
| 5.11.1 | Definition of Resource.....  | 5-169 |
| 5.11.2 | Regulatory Context.....  | 5-169 |
| 5.11.3 | Affected Environment.....  | 5-170 |
| 5.11.4 | Environmental Consequences.....  | 5-172 |
| 5.11.5 | Permits and Approval.....  | 5-189 |
| 5.11.6 | Mitigation and Minimization.....   | 5-189 |
| 5.12   | Surface Transportation and Parking .....   | 5-189 |
| 5.12.1 | Definition of Resources .....  | 5-190 |
| 5.12.2 | Regulatory Context.....  | 5-190 |
| 5.12.3 | Affected Environment.....  | 5-191 |
| 5.12.4 | Methodology .....  | 5-193 |
| 5.12.5 | Existing Condition.....  | 5-194 |
| 5.12.6 | Environmental Consequences.....  | 5-203 |
| 5.13   | Water Resources.....   | 5-227 |
| 5.13.1 | Definition of Resources .....  | 5-227 |
| 5.13.2 | Regulatory Context.....  | 5-227 |
| 5.13.3 | Affected Environment.....  | 5-230 |
| 5.13.4 | Methodology .....  | 5-233 |
| 5.13.5 | Existing Conditions .....  | 5-238 |
| 5.13.6 | Environmental Consequences.....  | 5-239 |

|         |  |       |
|---------|--|-------|
| 5.13.7  | Build Out Proposed Action .....  | 5-242 |
| 5.14    | Environmental Justice .....  | 5-245 |
| 5.14.1  | Definition of Resource.....  | 5-245 |
| 5.14.2  | Regulatory Context.....  | 5-245 |
| 5.14.3  | Affected Environment.....  | 5-246 |
| 5.14.4  | Environmental Consequences.....  | 5-257 |
| 5.15    | Irreversible and Irretrievable Commitment of Resources .....                               | 5-268 |
| 5.15.1  | Definition of Resource Category.....   | 5-268 |
| 5.15.2  | Regulatory Context.....  | 5-269 |
| 5.15.3  | Methodology .....  | 5-269 |
| 5.15.4  | Irreversible and Irretrievable Resource Commitments Implied by the<br>Proposed Action..... | 5-269 |
| 5.15.5  | Irreversible and Irretrievable Resource Commitments by Resource Category.....              | 5-270 |
| 5.16    | Cumulative Impacts.....  | 5-272 |
| 5.16.1  | Air Quality .....  | 5-273 |
| 5.16.2  | Climate .....  | 5-283 |
| 5.16.3  | Noise and Noise-Compatible Land Use .....  | 5-285 |
| 5.16.4  | Historical, Architectural, Archeological, and Cultural Resources .....                     | 5-287 |
| 5.16.5  | Department of Transportation Act, Section (f) .....  | 5-289 |
| 5.16.6  | Biological Resources .....   | 5-289 |
| 5.16.7  | Light Emissions and Visual Impacts .....   | 5-290 |
| 5.16.8  | Hazardous Materials, Solid Waste and Pollution Prevention .....                            | 5-291 |
| 5.16.9  | Natural Resources and Energy Supply .....  | 5-292 |
| 5.16.10 | Surface Transportation and Parking .....   | 5-294 |
| 5.16.11 | Water Resources.....   | 5-295 |
| 5.16.12 | Environmental Justice .....  | 5-298 |
| 5.16.13 | Summary of Cumulative Impacts.....   | 5-299 |

## Chapter 6 — Public Involvement and Agency Coordination

|       |  |     |
|-------|--|-----|
| 6.1   | Overview.....                                | 6-1 |
| 6.1.1 | Scoping .....                                | 6-1 |
| 6.1.2 | Advanced Environmental Justice Outreach..... | 6-2 |
| 6.1.3 | Public Information.....                      | 6-2 |
| 6.1.4 | Environmental Assessment Availability .....  | 6-2 |
| 6.1.5 | Public Workshops.....                        | 6-2 |
| 6.1.6 | Public Comment Period .....                  | 6-3 |

## Chapter 7 — List of Preparers

|     |                         |     |
|-----|-------------------------|-----|
| 7.1 | List of Preparers ..... | 7-1 |
|-----|-------------------------|-----|

**Appendix A — CDA Project Description**

|                |  |       |
|----------------|--|-------|
| Attachment A-1 | Terminal Area Plan and Future Airport Layout Plan Projects:<br>Project Descriptions – Project 1-17 and Temporary Projects 1 and 2..... | A-2   |
| Attachment A-2 | Terminal Area Plan and Future Airport Layout Plan Projects:<br>Project Descriptions – Projects 19-38 .....                             | A-105 |
| Attachment A-3 | Terminal Area Plan and Future Airport Layout Plan Projects: Project Descriptions – Appendices .....                                    | A-159 |

**Appendix B — Aviation Activity Forecast Review**

|                |  |      |
|----------------|--|------|
| B.1            | Purpose.....   | B-1  |
| B.2            | Introduction and Background.....   | B-1  |
| B.3            | Scope of Work .....  | B-2  |
| B.4            | Methodology .....  | B-2  |
| B.5            | Passenger Traffic Analysis.....  | B-3  |
| B.6            | Aircraft Operations Analysis .....   | B-28 |
| B.7            | Design Day Flight Schedule Analysis.....   | B-33 |
| Attachment B-1 | Analysis of the Impact of Project Delays on the Forecast of<br>Passenger Activity .....  | B-36 |
| Attachment B-2 | Chicago Department of Aviation's Terminal Area Plan and Air Traffic<br>Actions / Environmental Assessment Annual Activity Forecast ..... | B-42 |

**Appendix C — Alternatives**

|     |   |       |
|-----|---|-------|
| C.1 | Introduction and Summary.....                   | C-1   |
| C.2 | Alternatives Considered .....                   | C-6   |
| C.3 | Description of Proposed Action Alternative..... | C-66  |
| C.4 | Description of No Action Alternative .....      | C-107 |

**Appendix D — Airfield and Airspace Modeling**

|     |  |     |
|-----|--|-----|
| D.1 | Introduction.....  | D-1 |
| D.2 | TAAM Calibration.....  | D-1 |
| D.3 | FAA Review of Air Traffic Assumptions and TAAM Simulations ..... | D-2 |
| D.4 | Weather Analysis and Operating Configurations .....              | D-3 |
| D.5 | TAAM Operational Forecast.....                                   | D-4 |

|                |   |       |
|----------------|---|-------|
| Attachment D-1 | 2018 O'Hare TAAM Model Calibration.....                         | D-5   |
| Attachment D-2 | TAP EA Simulation Data Package –Interim No Action .....         | D-108 |
| Attachment D-3 | TAP EA Simulation Data Package –Build Out No Action .....       | D-232 |
| Attachment D-4 | TAP EA Simulation Data Package –Interim Proposed Action .....   | D-437 |
| Attachment D-5 | TAP EA Simulation Data Package –Build Out Proposed Action ..... | D-597 |
| Attachment D-6 | Weather Analysis and Annualization.....                         | D-785 |
| Attachment D-7 | Chicago O'Hare Fly Quiet Program Manual .....                   | D-803 |

#### **Appendix E — Air Quality and Climate**

|                |   |       |
|----------------|---|-------|
| E.1            | Emission Inventories and Dispersion Modeling Supporting Data.....                                 | E-1   |
| Attachment E-1 | Chicago O'Hare International Airport Environmental Assessment Air Quality Modeling Protocol ..... | E-94  |
| Attachment E-2 | Clean Air Act State Implementation Plan General Conformity Determination .....                    | E-175 |

#### **Appendix F — Noise and Noise-Compatible Land Use**

|                  |   |       |
|------------------|---|-------|
| F.1              | Noise Analysis Methodology.....   | F-2   |
| F.2              | Land Use .....  | F-11  |
| F. 3             | Data Development and Noise Exposure for the Existing Condition.....         | F-16  |
| F. 4             | Data Development and Noise Exposure for the Interim No Action.....          | F-47  |
| F. 5             | Data Development and Noise Exposure for the Interim Proposed Action .....   | F-74  |
| F. 6             | Data Development and Noise Exposure for the Build Out No Action .....       | F-97  |
| F. 7             | Data Development and Noise Exposure for the Build Out Proposed Action ..... | F-119 |
| F. 8             | Construction Noise.....   | F-144 |
| F. 9             | Summary Results for All Alternatives .....                                  | F-145 |
| F.10             | Mitigation and Minimization.....  | F-146 |
| Attachment F-1   | Basics of Noise and Technology .....  | F-148 |
| Attachment F-2   | AEDT Modeling Memorandums.....  | F-154 |
| Attachment F-3   | Modeled Flight Track Use Percentages and Flight Track Exhibits .....        | F-180 |
| Attachment F-4   | Altitude Control Code Development Memorandums.....                          | F-429 |
| Attachment F-5   | Land Use and Noise-Sensitive Site Development and Results.....              | F-456 |
| Attachment F-5.2 | Noise Sensitive Sites.....  | F-459 |

|                |                                    |       |
|----------------|------------------------------------|-------|
| Attachment F-6 | Grid Point Analysis Exhibits ..... | F-515 |
| Attachment F-7 | Noise Research Program Update..... | F-518 |

## **Appendix G — Historical, Architectural, Archeological, and Cultural Resources**

|                |   |        |
|----------------|---|--------|
| Attachment G-1 | Architecture/History Survey Report for Terminal Area Plan and Air Traffic Actions Environmental Assessment (April 2021) and State Historic Preservation Office Correspondence ..... | G-2    |
| Attachment G-2 | Determinations of Eligibility and State Historic Preservation Office Correspondence ....  | G-115  |
| Attachment G-3 | Effect Documentation.....   | G-842  |
| Attachment G-4 | Section 106 Consultation.....   | G-1145 |

## **Appendix H — DOT Section 4(f) Assessment**

|     |   |      |
|-----|---|------|
| H.1 | Applicable Regulatory Requirements.....                                       | H-1  |
| H.2 | Purpose and Need and Alternatives .....                                       | H-3  |
| H.3 | Inventory of Section 4(f) Properties and Methods for Identifying Impacts..... | H-7  |
| H.4 | Impacts to Section4(f) Resources .....  | H-30 |

## **Appendix I — Biological Resources**

|                  |   |       |
|------------------|---|-------|
| I.1              | Background.....   | I-1   |
| I.2              | Botanical Resources .....   | I-1   |
| I.3              | Wildlife Resources .....  | I-7   |
| Attachment I-1   | Wildlife Hazard Management Plan (Revised 2018).....   | I-17  |
| Attachment I-2   | Wildlife Hazard Assessment Annual Report (2018).....  | I-146 |
| Attachment I-3.1 | Wetland Delineation Report (Abbreviated) – Floristic Quality Summary for Wetlands – Revised ..... | I-193 |
| Attachment I-3.2 | U.S. Army Corps of Engineers Approved Jurisdictional Determination.....                           | I-197 |
| Attachment I-4   | Consultation – U.S. Fish & Wildlife Service and Illinois Department of Natural Resources .....    | I-216 |
| Attachment I-5   | Correspondence .....  | I-235 |

## **Appendix J — Hazardous Materials, Solid Waste, and Pollution Prevention**

|                |   |      |
|----------------|---|------|
| Attachment J-1 | Underground Storage Tanks Located at O'Hare.....                | J-2  |
| Attachment J-2 | Open Leaking Underground Storage Tank Incidents at O'Hare ..... | J-13 |

Attachment J-3 C&D Debris Disposal and PFAS Memo ..... J-15

### **Appendix K — Surface Transportation and Parking**

|                |   |       |
|----------------|---|-------|
| K.1            | O'Hare International Terminal Area Analysis ..... | K-1   |
| K.2            | On-Airport Terminal Analysis.....                 | K-7   |
| K.3            | Off-Airport Area-Wide Analysis .....              | K-49  |
| Attachment K-1 | Hourly Profiles.....                              | K-125 |

### **Appendix L — Water Resources**

|                |                                 |      |
|----------------|---------------------------------|------|
| L.1            | Introduction.....               | L-1  |
| L.2            | Resources .....                 | L-1  |
| L.3            | Scenarios to be Evaluated ..... | L-1  |
| L.4            | Impact Analysis .....           | L-2  |
| Attachment L-1 | Wetland Delineation Report..... | L-13 |

### **Appendix M — Socio-Economic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks**

Attachment M-1 Terminal Area Plan – Environmental Justice (EJ) Analysis ..... M-2

### **Appendix N – COVID-19 Sensitivity Analysis: Aviation Activity Forecasts**

|     |   |      |
|-----|---|------|
| N.1 | Noise Sensitivity Analysis .....                  | N-23 |
| N.2 | Air Quality and Climate Sensitivity Analysis..... | N-24 |
| N.3 | Surface Transportation Sensitivity Analysis ..... | N-25 |

### **Appendix O – Public Scoping Comments**

|     |                                    |      |
|-----|------------------------------------|------|
| O.1 | Organization Scoping Comments..... | O-1  |
| O.2 | Comments from Individuals .....    | O-37 |

### **Appendix P – Public Involvement**

|     |  |     |
|-----|--|-----|
| P.1 | Introduction.....                            | P-1 |
| P.2 | Scoping .....                                | P-2 |
| P.3 | Advanced Environmental Justice Outreach..... | P-2 |
| P.4 | Public Information.....                      | P-3 |
| P.5 | Environmental Assessment Availability .....  | P-3 |
| P.6 | Public Workshops.....                        | P-3 |

|                |  |       |
|----------------|--|-------|
| P.7            | Public Comment Period .....                                      | P-3   |
| Attachment P-1 | Copies of Scoping Materials.....                                 | P-5   |
| Attachment P-2 | Copies of Advanced Environmental Justice Outreach Materials..... | P-118 |
| Attachment P-3 | Notices of Availability for the Draft EA .....                   | P-223 |
| Attachment P-4 | Public Workshop Materials .....                                  | P-241 |
| Attachment P-5 | Public Comment Submissions and FAA Responses .....               | P-396 |

# LIST OF EXHIBITS

## Executive Summary

|               |   |       |
|---------------|---|-------|
| Exhibit ES-1  | Terminal Projects (Set 1 of 3) - O'Hare Global Terminal and Satellite Terminal Projects.....            | ES-5  |
| Exhibit ES-2  | Terminal Projects (Set 2 of 3) - O'Hare Global Terminal and Satellite Terminal Temporary Projects ..... | ES-6  |
| Exhibit ES-3  | Terminal Projects (Set 3 of 3) - O'Hare Global Terminal 5 Projects .....                                | ES-7  |
| Exhibit ES-4  | On-Airport Hotels.....  | ES-8  |
| Exhibit ES-5  | Airfield and Taxiway Improvements Not Required by the Terminal Projects (Set 1 of 2) .....              | ES-9  |
| Exhibit ES-6  | Airfield and Taxiway Improvements Not Required by the Terminal Projects (Set 2 of 2) .....              | ES-10 |
| Exhibit ES-7  | Support Facilities Not Required by the Terminal Projects (Set 1 of 3).....                              | ES-11 |
| Exhibit ES-8  | Support Facilities Not Required by the Terminal Projects (Set 2 of 3).....                              | ES-12 |
| Exhibit ES-9  | Support Facilities Not Required by the Terminal Projects (Set 3 of 3).....                              | ES-13 |
| Exhibit ES-10 | 2.5 Degree Offset Approaches for Existing East Flow .....   | ES-14 |
| Exhibit ES-11 | 2.5 Degree Offset Approaches for Existing West Flow .....   | ES-15 |
| Exhibit ES-12 | Approaches Without Offset for No Action East Flow .....   | ES-16 |
| Exhibit ES-13 | Approaches Without Offset for No Action West Flow .....   | ES-17 |
| Exhibit ES-14 | 2.5 Degree Offset Approaches for Proposed Action East Flow .....  | ES-18 |
| Exhibit ES-15 | 2.5 Degree Offset Approaches for Proposed Action West Flow .....  | ES-19 |

## Chapter 1 – Background, Project Description, and Aviation Forecasts

|              |   |      |
|--------------|---|------|
| Exhibit 1-1  | Runway Layout for Existing Condition.....   | 1-6  |
| Exhibit 1-2  | Terminal Projects (Set 1 of 3) - O'Hare Global Terminal and Satellite Terminal Projects.....            | 1-25 |
| Exhibit 1-3  | Terminal Projects (Set 2 of 3) - O'Hare Global Terminal and Satellite Terminal Temporary Projects ..... | 1-26 |
| Exhibit 1-4  | Terminal Projects (Set 3 of 3) - O'Hare Terminal 5 Projects.....  | 1-27 |
| Exhibit 1-5  | On-Airport Hotels.....  | 1-28 |
| Exhibit 1-6  | Airfield and Taxiway Improvements Not Required by the Terminal Projects (Set 1 of 2) .....              | 1-29 |
| Exhibit 1-7  | Airfield and Taxiway Improvements Not Required by the Terminal Projects (Set 2 of 2).....               | 1-30 |
| Exhibit 1-8  | Support Facilities Not Required by the Terminal Projects (Set 1 of 3).....                              | 1-31 |
| Exhibit 1-9  | Support Facilities Not Required by the Terminal Projects (Set 2 of 3).....                              | 1-32 |
| Exhibit 1-10 | Support Facilities Not Required by the Terminal Projects (Set 3 of 3).....                              | 1-33 |
| Exhibit 1-11 | 2.5 Degree Offset Approaches for Existing East Flow .....   | 1-34 |
| Exhibit 1-12 | 2.5 Degree Offset Approaches for Existing West Flow .....   | 1-35 |
| Exhibit 1-13 | Approaches Without Offset for No Action East Flow .....   | 1-36 |
| Exhibit 1-14 | Approaches Without Offset for No Action West Flow .....   | 1-37 |

|              |  |      |
|--------------|--|------|
| Exhibit 1-15 | 2.5 Degree Offset Approaches for Proposed Action East Flow ..... | 1-38 |
| Exhibit 1-16 | 2.5 Degree Offset Approaches for Proposed Action West Flow.....  | 1-39 |

**Chapter 2 – Purpose and Need**

|             |   |      |
|-------------|---|------|
| Exhibit 2-1 | Existing Terminal 2 – Checkpoint 5 Layout .....                                 | 2-8  |
| Exhibit 2-2 | Rotunda Flood Plan and Column Locations .....                                   | 2-14 |
| Exhibit 2-3 | Existing Condition Terminal Gate Layout and Airline Allocation .....            | 2-19 |
| Exhibit 2-4 | Existing Terminal 2 Taxilanes .....   | 2-24 |
| Exhibit 2-5 | Hotel and Convention Center Locations in the Study Area.....                    | 2-32 |
| Exhibit 2-6 | Existing Bravo Holdpad and Temporary United Airlines Employee Parking Lot ..... | 2-34 |
| Exhibit 2-7 | Main Arrival Runways and Separation Distances.....                              | 2-38 |
| Exhibit 2-8 | Approach Operational Scenarios .....  | 2-40 |

**Chapter – Alternatives**

|             |   |      |
|-------------|---|------|
| Exhibit 3-1 | O'Hare On-Airport Alternatives by Geographical Directions.....                    | 3-7  |
| Exhibit 3-2 | Constrained vs. Land Available for Development within the Airport Boundary .....  | 3-17 |
| Exhibit 3-3 | Land Where Opportunities May Exist to Meet the Purpose and Need by Direction..... | 3-18 |
| Exhibit 3-4 | Main Arrival Runways and Separation Distances.....                                | 3-37 |
| Exhibit 3-5 | 2.5 Degree Offset Approaches for East Flow .....                                  | 3-42 |
| Exhibit 3-6 | 2.5 Degree Offset Approaches for West Flow .....                                  | 3-43 |
| Exhibit 3-7 | Approaches Without Offset for East Flow.....                                      | 3-45 |
| Exhibit 3-8 | Approaches Without Offset for West Flow .....                                     | 3-46 |

**Chapter 4 – Airfield and Airspace Modeling**

|             |  |      |
|-------------|--|------|
| Exhibit 4-1 | Interim No Action Simulated Operating Conditions.....          | 4-5  |
| Exhibit 4-2 | Build Out No Action Simulated Operating Conditions.....        | 4-6  |
| Exhibit 4-3 | Interim Proposed Action Simulated Operating Conditions.....    | 4-9  |
| Exhibit 4-4 | Build Out Proposed Action Simulated Operating Conditions ..... | 4-10 |

**Chapter 5 – Affected Environment and Environmental Consequences**

|                |   |      |
|----------------|---|------|
| Exhibit 5.3-1  | Dispersion Modeling Receptor Locations.....   | 5-11 |
| Exhibit 5.5-1  | Existing Condition Arrival Runway Use .....   | 5-61 |
| Exhibit 5.5-2  | Existing Condition Departure Runway Use.....  | 5-62 |
| Exhibit 5.5-3  | Existing Condition Model Tracks .....   | 5-63 |
| Exhibit 5.5-4  | Noise Exposure Contours for Existing Condition and Noise Sensitive Facilities ..... | 5-67 |
| Exhibit 5.5-5  | Interim No Action Arrival Runway Use.....   | 5-70 |
| Exhibit 5.5-6  | Interim No Action Departure Runway Use.....   | 5-71 |
| Exhibit 5.5-7  | Interim No Action Model Tracks .....  | 5-75 |
| Exhibit 5.5-8  | Noise Exposure Contours for Interim No Action and Noise Sensitive Facilities.....   | 5-76 |
| Exhibit 5.5-9  | Build Out No Action Arrival Runway Use.....   | 5-78 |
| Exhibit 5.5-10 | Build Out No Action Departure Runway Use .....                                      | 5-79 |
| Exhibit 5.5-11 | Build Out No Action Model Tracks.....   | 5-80 |
| Exhibit 5.5-12 | Noise Exposure Contours for Build Out No Action and Noise Sensitive Facilities..... | 5-84 |
| Exhibit 5.5-13 | Interim Proposed Action Arrival Runway Use.....                                     | 5-86 |

|                |   |       |
|----------------|---|-------|
| Exhibit 5.5-14 | Interim Proposed Action Departure Runway Use .....  | 5-87  |
| Exhibit 5.5-15 | Interim Proposed Action Model Tracks.....   | 5-88  |
| Exhibit 5.5-16 | Noise Exposure Contours for Interim Proposed Action<br>and Noise Sensitive Facilities .....   | 5-92  |
| Exhibit 5.5-17 | Build Out Proposed Action Arrival Runway Use .....  | 5-95  |
| Exhibit 5.5-18 | Build Out Proposed Action Departure Runway Use .....  | 5-96  |
| Exhibit 5.5-19 | Build Out Proposed Action Model Tracks.....   | 5-97  |
| Exhibit 5.5-20 | Noise Exposure Contours for Build Out Proposed Action<br>and Noise Sensitive Facilities .....   | 5-101 |
| Exhibit 5.5-21 | Comparison of Noise Exposure Contours for Interim No Action<br>and Interim Proposed Action .....  | 5-103 |
| Exhibit 5.5-22 | Interim No Action and Interim Proposed Action DNL Change.....   | 5-104 |
| Exhibit 5.5-23 | Comparison of Noise Exposure Contours for Build Out No Action<br>and Build Out Proposed Action.....   | 5-105 |
| Exhibit 5.5-24 | Potential Significant Impact Area Build Out Condition .....   | 5-106 |
| Exhibit 5.6-1  | Historic Places and Sites (Sheet 1 of 2) .....  | 5-114 |
| Exhibit 5.6-2  | Historic Places and Sites (Sheet 2 of 2) .....  | 5-115 |
| Exhibit 5.7-1  | Park and Forest Preserve Land .....   | 5-128 |
| Exhibit 5.7-2  | Historic Places and Sites (Sheet 1 of 2) .....  | 5-129 |
| Exhibit 5.7-3  | Historic Places and Sites (Sheet 2 of 2) .....  | 5-130 |
| Exhibit 5.8-1  | Existing Condition Land Cover at O'Hare International Airport .....   | 5-138 |
| Exhibit 5.8-2  | Land Cover at O'Hare International Airport – Build Out Proposed Action.....   | 5-149 |
| Exhibit 5.10-1 | IEPA CERCLIS Database Sites Located Near and/or On Airport Property .....   | 5-161 |
| Exhibit 5.12-1 | Study Area – On/Off Airport Intersection Nodes.....   | 5-192 |
| Exhibit 5.12-2 | Transportation Facilities.....  | 5-195 |
| Exhibit 5.12-3 | LOS Existing Condition.....   | 5-202 |
| Exhibit 5.12-4 | LOS Interim No Action .....   | 5-213 |
| Exhibit 5.12-5 | LOS Interim Proposed Action .....   | 5-214 |
| Exhibit 5.12-6 | LOS Build Out No Action .....   | 5-224 |
| Exhibit 5.12-7 | LOS Build Out Proposed Action.....  | 5-225 |
| Exhibit 5.13-1 | Existing Water Resources at O'Hare International Airport .....  | 5-231 |
| Exhibit 5.13-2 | Wetlands and Waters of the U.S. Existing Conditions.....  | 5-234 |
| Exhibit 5.13-3 | Wetlands and Waters of the U.S. Existing Conditions.....  | 5-235 |
| Exhibit 5.13-4 | FEMA Floodplains with Proposed Action.....  | 5-236 |
| Exhibit 5.13-5 | FEMA Floodplains with Proposed Action.....  | 5-237 |
| Exhibit 5.13-6 | Wetland Impacts with Interim Proposed Action and Build Out Proposed Action .....  | 5-241 |
| Exhibit 5.14-1 | Areas of Environmental Justice Concern with Respect to Race<br>and Ethnicity within the Project Area .....                                  | 5-254 |
| Exhibit 5.14-2 | Areas of Environmental Justice Concern with Respect to Income/Poverty<br>Status within the Project Area .....                               | 5-255 |
| Exhibit 5.14-3 | Areas of Environmental Justice Concern with Respect to Both Race/Ethnicity<br>and Income/Poverty Status within the Project Area .....       | 5-256 |
| Exhibit 5.14-4 | Census Blocks with Areas of Environmental Justice Concern with<br>Respect to Race and Ethnicity Intersecting Areas Potentially Experiencing |       |

|                |  |       |
|----------------|--|-------|
|                | a Significant Noise Impact from Build Out Proposed Action.....   | 5-261 |
| Exhibit 5.14-5 | Census Blocks with Areas of Environmental Justice Concern with Respect<br>To Income and Poverty Intersecting Areas Potentially Experiencing a<br>Significant Noise Impact from Build Out Proposed Action ..... | 5-262 |
| Exhibit 5.14-6 | Households Potentially Experiencing Significant Noise Impacts and Areas of<br>Environmental Concern with Respect to Race/Ethnicity.....  | 5-266 |
| Exhibit 5.14-7 | Households Potentially Experiencing Significant Noise Impacts and Areas of<br>Environmental Concern with Respect to Poverty and Income.....  | 5-267 |

# LIST OF TABLES

## **Executive Summary**

|            |                       |      |
|------------|-----------------------|------|
| Table ES-1 | Proposed Action ..... | ES-2 |
|------------|-----------------------|------|

## **Chapter 1 – Background, Project Description and Aviation Forecasts**

|           |  |      |
|-----------|--|------|
| Table 1-1 | Existing Condition Airfield Runways (2018) ..... | 1-5  |
| Table 1-2 | O'Hare's Total Aircraft Operations Forecast..... | 1-14 |
| Table 1-3 | Proposed Action .....                            | 1-23 |

## **Chapter 2 – Purpose and Need**

|            |  |      |
|------------|--|------|
| Table 2-1  | O'Hare Terminal Facility Requirements in Square Feet .....   | 2-5  |
| Table 2-2  | Terminal 2 (And Associated Concourses) Check-In and Security Screening<br>Space Requirements in Square Feet..... | 2-6  |
| Table 2-3  | Terminal 2 (And Associated Concourses) Commercial Space Requirements in<br>Square Feet.....                      | 2-10 |
| Table 2-4  | Terminal Core (Terminals 1, 2, And 3) Commercial Storage Space Requirements<br>in Square Feet .....              | 2-17 |
| Table 2-5  | CDA Analysis of Gate Frontage Requirements in Linear Feet .....  | 2-22 |
| Table 2-6  | O'Hare Existing Gate Capabilities .....  | 2-22 |
| Table 2-7  | CDA Analysis of Gate Count Requirements .....  | 2-23 |
| Table 2-8  | Roadway Level of Service Ranges .....  | 2-25 |
| Table 2-9  | Terminal 5 Roadway Levels of Service, Departures Level Peak .....  | 2-26 |
| Table 2-10 | Terminal 5 Roadway Levels of Service, Arrivals Level Peak.....   | 2-27 |
| Table 2-11 | Intersection Levels of Service Ranges.....   | 2-27 |
| Table 2-12 | Bessie Coleman Drive/Balmoral Avenue Intersection Levels of Service.....   | 2-28 |
| Table 2-13 | Curbside Level of Service Ranges.....  | 2-28 |
| Table 2-14 | Projected Curbside Utilization and Level of Service of Existing Facilities.....                                  | 2-29 |
| Table 2-15 | O'Hare Total Operating Revenues 2017–2019 In Thousands of Dollars .....  | 2-30 |
| Table 2-16 | Hotel and Convention Halls in The Study Area .....   | 2-31 |
| Table 2-17 | Terminal Core Annual Delivery Volume in Cubic Feet .....   | 2-36 |
| Table 2-18 | Simultaneous Hourly Arrival Rates for VFR Conditions .....   | 2-42 |

## **Chapter 3 – Alternatives**

|           |   |      |
|-----------|---|------|
| Table 3-1 | Range of Alternatives Considered .....  | 3-4  |
| Table 3-2 | Alternatives Screening Process Criteria .....   | 3-10 |
| Table 3-3 | Summary of Alternatives Screening Analysis Results.....                               | 3-27 |
| Table 3-4 | Alternatives Screening Process Criteria .....   | 3-40 |
| Table 3-5 | TAAM Arrival Delay Averages for Proposed Action and No Action (Offset) For IFR...3-41 |      |
| Table 3-6 | Summary of Alternatives Screening Analysis Results.....                               | 3-47 |

|           |  |      |
|-----------|--|------|
| Table 3-7 | Summary of Proposed Action Alternative ..... | 3-48 |
|-----------|--|------|

## **Chapter 4 – Airfield and Airspace Modeling**

|           |  |      |
|-----------|--|------|
| Table 4-1 | TAAM Modeled Operating Conditions.....             | 4-4  |
| Table 4-2 | TAAM Average Delay Per All Airport Operations..... | 4-11 |

## **Chapter 5 – Affected Environment and Environmental Consequences**

|              |   |      |
|--------------|---|------|
| Table 5.2-1  | FAA Order 1050.1F Environmental Impact Categories and Recommended Analyses.....                           | 5-4  |
| Table 5.3-1  | National Ambient Air Quality Standards.....   | 5-5  |
| Table 5.3-2  | IEPA Air Pollutant Monitoring Data.....   | 5-9  |
| Table 5.3-3  | Emissions Inventor –Criteria Air Pollutants: Existing Condition .....                                     | 5-12 |
| Table 5.3-4  | Dispersion Modeling Results: Existing Condition .....   | 5-13 |
| Table 5.3-5  | Emissions Inventory–Hazardous Air Pollutants: Existing Condition .....                                    | 5-15 |
| Table 5.3-6  | Emissions Inventory–Criteria Air Pollutants/Operational: Interim No Action.....                           | 5-17 |
| Table 5.3-7  | Dispersion Modeling Results–Macroscale: Interim No Action.....  | 5-18 |
| Table 5.3-8  | Dispersion Modeling Results–Microscale: Interim No Action .....   | 5-18 |
| Table 5.3-9  | Emissions Inventory–Hazardous Air Pollutants: Interim No Action.....                                      | 5-20 |
| Table 5.3-10 | Emissions Inventory–Criteria Air Pollutants/Operational: Build Out No Action .....                        | 5-22 |
| Table 5.3-11 | Dispersion Modeling Results–Macroscale: Build Out No Action .....   | 5-23 |
| Table 5.3-12 | Dispersion Modeling Results–Microscale: Build Out No Action .....   | 5-24 |
| Table 5.3-13 | Emissions Inventory–Hazardous Air Pollutants: Build Out No Action.....                                    | 5-25 |
| Table 5.3-14 | Emissions Inventory–Criteria Air Pollutants/Construction: Years 1-3 .....                                 | 5-27 |
| Table 5.3-15 | Emissions Inventory–Criteria Air Pollutants/Operational: Interim Proposed Action .....                    | 5-28 |
| Table 5.3-16 | Change in Criteria Air Pollutant Emissions Inventory –Interim Condition .....                             | 5-29 |
| Table 5.3-17 | Dispersion Modeling Results–Macroscale: Interim Proposed Action .....                                     | 5-30 |
| Table 5.3-18 | Dispersion Modeling Results–Microscale: Interim Proposed Action .....                                     | 5-30 |
| Table 5.3-19 | Emissions Inventory–Hazardous Air Pollutants: Interim Proposed Action.....                                | 5-32 |
| Table 5.3-20 | Emissions Inventory–Criteria Air Pollutants/Construction: Years 4-10 .....                                | 5-34 |
| Table 5.3-21 | Emissions Inventory–Criteria Air Pollutants/Operational: Build Out<br>Proposed Action .....               | 5-34 |
| Table 5.3-22 | Change in Criteria Air Pollutant Operational Emissions Inventory–Build<br>Out Condition.....              | 5-36 |
| Table 5.3-23 | Dispersion Modeling Results–Macroscale: Build Out Proposed Action .....                                   | 5-37 |
| Table 5.3-24 | Dispersion Modeling Results–Microscale: Build Out Proposed Action .....                                   | 5-37 |
| Table 5.3-25 | Emissions Inventory–Hazardous Air Pollutants: Build Out Proposed Action .....                             | 5-39 |
| Table 5.3-26 | Cumulative Emissions–Criteria Air Pollutants/Construction:<br>Proposed Action and Baseline Projects ..... | 5-43 |
| Table 5.4-1  | GHG Emissions Inventory: Existing Condition.....  | 5-48 |
| Table 5.4-2  | GHG Emissions Inventory: Construction .....   | 5-49 |
| Table 5.4-3  | GHG Emissions Inventory: Interim No Action.....   | 5-50 |
| Table 5.4-4  | GHG Emissions Inventory: Build Out No Action .....  | 5-50 |
| Table 5.4-5  | GHG Emissions Inventory: Interim Proposed Action .....  | 5-51 |
| Table 5.4-6  | Change in GHG Emissions: Interim Condition .....  | 5-52 |
| Table 5.4-7  | GHG Emissions Inventory: Build Out Proposed Action .....  | 5-54 |

|               |   |       |
|---------------|---|-------|
| Table 5.4-8   | Change in GHG Emissions: Build Out Condition .....  | 5-54  |
| Table 5.4-9   | Cumulative GHG g Emissions: Construction:<br>Proposed Action and Baseline Projects .....            | 5-56  |
| Table 5.5-1   | Aircraft DNL Thresholds and Impact Categories.....  | 5-57  |
| Table 5.5-2   | Data Sources for The Existing Condition.....  | 5-59  |
| Table 5.5-3   | Annual Flight Operations for the Existing Condition.....  | 5-60  |
| Table 5.5-4   | Noise Exposure for the Existing Condition.....  | 5-65  |
| Table 5.5-5   | Data Sources for the Interim and Build Out Conditions .....   | 5-68  |
| Table 5.5-6   | Annual Flight Operations for the Interim No Action .....  | 5-69  |
| Table 5.5-7   | Noise Exposure for the Interim No Action.....   | 5-73  |
| Table 5.5-8   | Annual Flight Operations for the Build Out No Action .....  | 5-77  |
| Table 5.5-9   | Noise Exposure for the Build Out No Action5.....  | 5-82  |
| Table 5.5-10  | Annual Flight Operations for the Interim Proposed Action .....                                      | 5-85  |
| Table 5.5-11  | Noise Exposure for the Interim Proposed Action.....   | 5-90  |
| Table 5.5-12  | Annual Flight Operations for the Build Out Proposed Action.....                                     | 5-93  |
| Table 5.5-13  | Noise Exposure for The Build Out Proposed Action .....  | 5-99  |
| Table 5.5-14  | Operations and Noise Exposure Results for Interim and Build Out<br>Conditions and Alternatives..... | 5-108 |
| Table 5.6-1   | Identified Historic Properties .....  | 5-117 |
| Table 5.6-2   | Summary of Effect Finding for On-Airport Historic Properties.....                                   | 5-122 |
| Table 5.6-3   | Summary of Effect Finding for Off-Airport Historic Properties .....                                 | 5-123 |
| Table 5.8-1   | Existing Condition Land Cover at O'Hare .....   | 5-137 |
| Table 5.8-2   | Common Species Observed at O'Hare.....  | 5-139 |
| Table 5.8-3   | Mammals Observed During 2018 Nocturnal Mammal Surveys<br>and 2019 Wetland Delineation .....         | 5-140 |
| Table 5.8-4   | Listed Species.....   | 5-141 |
| Table 5.8-5   | Land Cover Type for Interim No Action and Interim Proposed Action .....                             | 5-146 |
| Table 5.8-6   | Land Cover Type for Interim and Build Out No Action and Proposed Action .....                       | 5-148 |
| Table 5.9-1   | Intensity of Light at Varying Aircraft Distances .....  | 5-154 |
| Table 5.10-1  | Regional Landfill Capacity and Life Expectancy for Chicago Metropolitan Area.....                   | 5-164 |
| Table 5.11-1  | Natural Resource and Energy Suppliers.....  | 5-170 |
| Table 5.11-2  | Estimated Baseline (2018) Annual Natural Resources and Energy Use .....                             | 5-171 |
| Table 5.11-3  | Baseline Mobile Source Fuel Use .....   | 5-172 |
| Table 5.11-4  | Interim No Action Energy Use –Mobile Sources .....  | 5-174 |
| Table 5.11-5  | Interim No Action Energy and Natural Resource Use –Stationary Sources.....                          | 5-174 |
| Table 5.11-6  | Interim Proposed Action Construction Materials .....  | 5-176 |
| Table 5.11-7  | Interim Proposed Action Water Use .....   | 5-178 |
| Table 5.11-8  | Interim Proposed Action Energy Use –Stationary Sources .....  | 5-180 |
| Table 5.11-9  | Interim Proposed Action Mobile Fuel Use .....   | 5-181 |
| Table 5.11-10 | Build Out No Action Energy Use –Mobile Sources.....   | 5-182 |
| Table 5.11-11 | Build Out No Action Energy and Natural Resource Use –Stationary Sources.....                        | 5-182 |
| Table 5.11-12 | Build Out Proposed Action Construction Materials .....  | 5-184 |
| Table 5.11-13 | Build Out Proposed Action Water Use .....   | 5-186 |
| Table 5.11-14 | Build Out Proposed Action Energy Use –Stationary Sources.....                                       | 5-188 |

|               |  |       |
|---------------|--|-------|
| Table 5.11-15 | Build Out Proposed Action Mobile Fuel Use .....  | 5-189 |
| Table 5.12-1  | LOS and V/C Ratios for Terminal Roadway Segments, Existing Condition.....  | 5-196 |
| Table 5.12-2  | Airport Roadway Intersections, Existing Condition .....  | 5-198 |
| Table 5.12-3  | LOS and V/C Ratios for Terminal Roadway Segments,<br>Interim No Action and Interim Proposed Action.....  | 5-204 |
| Table 5.12-4  | Airport Roadway Intersections, Interim No Action and Interim Proposed Action.....  | 5-208 |
| Table 5.12-5  | LOS and V/C Ratios for Terminal Roadway Segments, Build Out<br>No Action and Build Out Proposed Action.....  | 5-216 |
| Table 5.12-6  | Roadway Intersections, Build Out No Action and Build Out Proposed Action .....   | 5-220 |
| Table 5.14-1  | Selected Demographic Characteristics (Race/Ethnicity) for the<br>Reference Community (Cook & DuPage Counties, IL)<br>and the Primary Study Area.....                                     | 5-252 |
| Table 5.14-2  | Selected Demographic Characteristics (Income/Poverty) for the<br>Reference Community (Cook & DuPage Counties, IL)<br>and the Primary Study Area.....                                     | 5-253 |
| Table 5.14-3  | Demographic Characteristics (Race/Ethnicity) of Census Blocks Experiencing a<br>Potentially Significant Impact from the Build Out Proposed Action.....                                   | 5-259 |
| Table 5.14-4  | Selected Demographic Characteristics (Income/Poverty) for Areas<br>of Census Block Groups Experiencing a Potentially Significant Impact<br>from the Build Out Proposed Action.....       | 5-260 |
| Table 5.14-5  | Estimated Population Counts (Race/Ethnicity) for Areas of<br>EJ Concern for Race/Ethnicity Experiencing a Potentially Significant Impact<br>from the Build Out Proposed Action.....      | 5-264 |
| Table 5.14-6  | Estimated Population Counts (Race/Ethnicity) For Areas of<br>EJ Concern for Poverty and Income Experiencing a Potentially Significant<br>Impact from the Build Out Proposed Action ..... | 5-265 |
| Table 5.16-1  | Cumulative Projects List .....   | 5-273 |

**Chapter 7 – List of Preparers**

|           |                         |     |
|-----------|-------------------------|-----|
| Table 7-1 | List of Preparers ..... | 7-1 |
|-----------|-------------------------|-----|

# LIST OF FIGURES

## **Chapter 1 — Background, Project Description, and Aviation Forecasts**

|            |   |      |
|------------|---|------|
| Figure 1-1 | Existing Terminal Facilities at O'Hare .....                | 1-7  |
| Figure 1-2 | CDA Passenger Aircraft Operations Forecast vs FAA TAF ..... | 1-11 |

## **Chapter 2 — Purpose and Need**

|             |   |      |
|-------------|---|------|
| Figure 2-1  | Existing O'Hare Terminal Complex .....  | 2-2  |
| Figure 2-2  | Passenger Queues at Terminal 2, Checkpoint 5 .....  | 2-7  |
| Figure 2-3  | Daily Maximum Wait Times at Terminal 2, Checkpoint 5 (July/August 2019) .....                         | 2-9  |
| Figure 2-4  | Total Hours Exceeding Target Maximum Wait Time at Terminal 2, Checkpoint 5 (July/August 2019) .....   | 2-9  |
| Figure 2-5  | Terminal 2 Holdrooms .....  | 2-11 |
| Figure 2-6  | Walkways between the Rotunda and Terminal 2 (on left) and the Rotunda and Terminal 3 (on right) ..... | 2-15 |
| Figure 2-7  | Walkway from Rotunda to Concourse G .....   | 2-15 |
| Figure 2-8  | Rotunda Storage Room and Apron Level Exterior Access Door .....                                       | 2-16 |
| Figure 2-9  | Average Taxi-In Time (in Minutes), 2018 .....   | 2-17 |
| Figure 2-10 | Non-aeronautical Revenues by Category in Thousands of Dollars .....                                   | 2-31 |
| Figure 2-11 | Processes for Moving Goods from Landside to Airside .....   | 2-36 |

## **Chapter 3 — Alternatives**

|            |  |      |
|------------|--|------|
| Figure 3-1 | Alternatives Screening Process .....   | 3-2  |
| Figure 3-2 | Alternatives Evaluation Overview .....                                       | 3-14 |
| Figure 3-3 | Simultaneous Independent Approaches to Closely Spaced Parallel Runways ..... | 3-38 |
| Figure 3-4 | Simultaneous Dependent Approaches .....                                      | 3-39 |

## **Chapter 5 — Affected Environment and Environmental Consequences**

|               |   |       |
|---------------|---|-------|
| Figure 5.14-1 | Examples of Census Geographical Units ..... | 5-248 |
|---------------|---|-------|