US Department of Transportation
Federal Aviation Administration
Great Lakes Region
Chicago Airports District Office

FINAL Environmental Assessment

CHICAGO ROCKFORD INTERNATIONAL AIRPORT

Rockford, Illinois

The Greater Rockford Airport Authority, of Winnebago County, in conjunction with the Illinois Department of Transportation, Division of Aeronautics, proposes the following airport development items:

Northwest Cargo Development: Construct, light and mark a northwest air cargo apron expansion. The project includes grading, drainage, storm sewer modifications, expansion and upgrades to the existing detention facilities, additional detention facilities to accommodate additional impervious surfaces, and truck parking facilities.

Midfield Cargo Development: Construct taxiways, apron, and associated airfield infrastructure. The project includes grading, drainage, storm sewers, detention facilities to accommodate proposed impervious surfaces, employee and truck parking facilities, and access roads and intersection improvements to accommodate a new one million square foot cargo facility.

This Environmental Assessment (EA) is submitted for review in accordance with the following public law requirements: Section 102(2)(C) of the *National Environmental Policy Act of 1969* (PL 91-190, 42 U.S.C. 4321 et seq.); the *Federal Aviation Act of 1958* (Recodified as 49 U.S.C. Section 40101 et seq.); the *Airport Airway Improvement Act of 1982* (Recodified as 49 U.S.C. Section 47101 et seq., PL 97-238, as amended by the *Airport and Airway and Capacity Expansion Act of 1987*); Section 4(f) of the *Department of Transportation Act of 1966* recodified at Section 303c, as amended; Sections 401 and 404 of the *Clean Water Act of 1972*, (P.L. 107-303); Section 7(c) of the *Endangered Species Act of 1973*, as amended; *Fish and Wildlife Coordination Act of 1934*, as amended; *Migratory Bird Treaty Act of 1918*, as amended; *Clean Air Act of 1970*, as amended; *National Historic Preservation Act of 1966*, as amended, and other laws as applicable. Additionally, the format and subject matter included in this report conform to the requirements and standards of the Federal Aviation Administration (FAA) as set forth in FAA *Order 1050.1F, Environmental Impacts: Policies and Procedures* and FAA *Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*. This assessment was also prepared pursuant to the requirements of *Executive Order 11990, Protection of Wetlands*; *Executive Order 11998, Floodplain Management*; Title V of Public Law 97-248; and other laws as applicable.

The Federal Aviation Administration's proposed actions include: (a) issue an environmental finding to allow approval of the Airport Layout Plan (ALP) for the Sponsor's Proposed Action for the development listed above; (b) issue final airspace determinations for the development listed above; (c) issue a final determination of potential airspace obstructions to navigable airspace per an aeronautical study outlined under 14 CFR Part 77; and (d) issue a final certification that the proposed aeronautical development is reasonably necessary for use in air commerce or for national defense.

This environmental assessment becomes a Federal document when evaluated and signed by the responsible FAA official.

Amy B. Hanson
Responsible FAA Official

11/25/19
Date

Final Environmental Assessment
for Proposed Northwest Cargo Development, Midfield Cargo Development and Associated Actions

at the

Chicago Rockford International Airport

Rockford, Illinois

November 2019

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Chapter One

PURPOSE AND NEED

Introduction

The Chicago Rockford International Airport (RFD or Airport) is a non-hub commercial service airport that accommodates service by commercial airline operators, military, cargo, general aviation, and corporate aviation needs of northern Illinois, southern Wisconsin and the Chicago Metropolitan Area. As a part of the Airport's overall development plan, construction is proposed of airside and landside facilities to accommodate growth in cargo operations by existing carriers and addition of new cargo operations at RFD.

To accommodate existing operations as well as forecast demand, the Greater Rockford Airport Authority (GRAA), as the Airport Sponsor, proposes to construct additional air cargo facilities within the following areas on existing airport property:

- Northwest Air Cargo Area located north of Runway 7/25, and
- Midfield Area located south of Runway 7/25, west of Runway 1/19, and north of Cessna Drive and Beltline Road.

RFD plans to apply for federal financial assistance under the Airport Improvement Program, as authorized by the public law requirements of the *FAA Reauthorization Act of 2018* to construct eligible portions of the proposed improvements. To receive Airport Layout Plan (ALP) approval and be eligible for federal financial assistance, the GRAA is required by the Federal Aviation Administration (FAA) to prepare an Environmental Assessment (EA) report in conformance with the applicable sections of the FAA's *Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, dated April 26, 2006 and FAA *Order 1050.1F, Environmental Impacts: Policies and Procedures*, dated July 16, 2015.

This EA has been prepared to provide information on the Sponsor's Proposed Action, evaluate reasonable alternatives, and identify, analyze, and disclose potential environmental consequences associated with the proposed development, and, if required, mitigate potential environmental impacts.

Airport Ownership

RFD is a publicly-owned airport operated by the GRAA. The GRAA is comprised of a seven-member Board of Commissioners appointed by four jurisdictions: City of Rockford, Winnebago County, Loves Park and Machesney Park, and are responsible for setting policies and ordinances governing the operations at RFD.

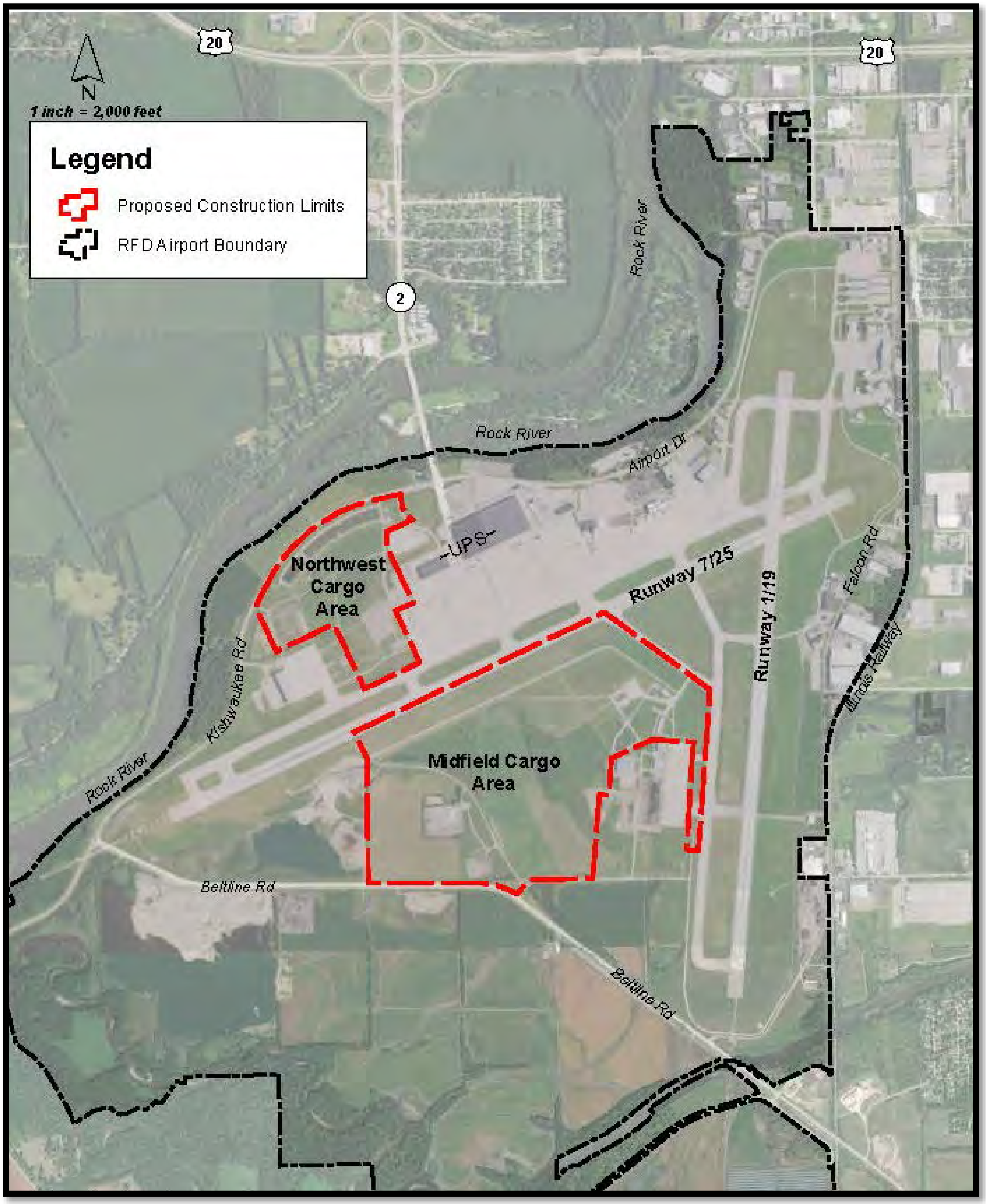
Airport Location

RFD is located in northern Illinois, in the southern part of Winnebago County, approximately 5 miles south of the Rockford Central Business District. The Airport encompasses over 3,000 acres and is generally bound by Illinois State Route 251 to the east, the Kishwaukee River to the south, the Rock River to the west, and U.S. 20 to the north. A map of the Airport within the State of Illinois, and the vicinity of the Airport within the Rockford area is depicted on Figure 1-1. Figure 1-2 depicts the location of proposed project study areas and existing Airport facilities and environs.

Figure 1-1
Location Map

Source: [182580400] ESRI USA Basemap Data 2016

Figure 1-2
Vicinity Map



Project Background

In 2017, RFD was ranked 22nd in the U.S. in terms of air cargo landed weight.[1] Air cargo activity, in particular, has seen substantial growth over the past few years at RFD, with a 73% increase in cargo landed weight since 2015 when RFD ranked 31st in the U.S. In 2018, RFD's air cargo landed weight was approximately 2.14 billion pounds, representing a 55% percent increase over the 2017 cargo landed weight.

E-commerce has been a major contributor to the additional demand for air cargo services. RFD's central U.S. location, airfield infrastructure/services, proximity to major interstate routes and large population density located within the 8-hour truck travel time has also positioned the Airport for cargo growth. The airport's 10,000-foot-long primary runway with CAT III Instrument Landing System (ILS) capabilities, along with independent airspace from Chicago O'Hare International Airport, provide cargo operators with reliable access. However, the current air cargo infrastructure at RFD is beginning to limit additional growth opportunities (especially during peak times).

Operators at RFD include United Parcel Service (UPS), Air Transport International, ABX Air, Atlas Air and other air cargo carriers. A major user of the airport, UPS, established its second largest domestic sorting hub in their world-wide network at RFD in 1994. Today, UPS remains the largest air cargo carrier at the Airport with a market share at RFD of 75% in terms of air cargo operations. UPS has recently added Boeing 747-800 freighters to their fleet at RFD. Currently, there are limited opportunities to park these aircraft without disrupting airport operations.

Since completion of the initial phase of the Northwest Air Cargo facility in 2008, RFD has experienced growth in operations by other cargo operators. Based on growing cargo demand, in 2016 Air Transport International, ABX Air, and Atlas Air initiated service at RFD to support growth fueled by e-commerce. With continued growth by both UPS and other cargo operations supporting growth in e-commerce, it is anticipated that RFD will continue to grow cargo tonnage, which is indicated by continued growth in 2018.

The current Northwest Air Cargo Apron was designed to accommodate the mix of cargo aircraft operating at RFD in 1994, which included a large percentage of Boeing 727 aircraft. To accommodate increases in volume, the carriers are now utilizing larger aircraft to accommodate demand. The change in fleet, along with increased operations, has resulted in a shortfall in available cargo aircraft parking positions at RFD. UPS has initiated a conversion within the RFD facility from a manual sorting process to an automated process that utilizes high speed conveyors and "smart labels" scanned by overhead cameras to facilitate the processing of parcels passing through the hub. These interior upgrades are expected to improve efficiencies of the UPS facility and will support the increased operations.

Aviation Demand

As a part of the NEPA process, the baseline and forecast of aviation demand was developed for the following years of analysis evaluated in this EA.

- 2017: Baseline (Existing Condition)
- 2023: Build Out (with Sponsor's Proposed Action)

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[1] Air Carrier Activity Information System (ACAIS), Calendar Year 2017. https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/?sect=collection

- 2023: No Action (NEPA requirement for comparison against the Build Alternative(s))

Baseline and demand projections were developed for the various users of the airport including air carrier, air cargo, military, and general aviation (including corporate and air taxi operations). The aviation demand as presented in Table 1-1 includes annual operations by user category and fleet mix (equipment type). Further information, including average daily departures and day/night ratios, which are used as inputs to the noise and air quality model, are presented in the full copy of the Forecast Working Paper (FWP) included in Appendix A.

Table 1-1
Aviation Demand Summary

Equipment Type	2017 Operations (*)	2023 Operations	2023 Operations (No Action)
CARGO			
Airbus 300	2045	6078	4701
Boeing 767-200	1857	64	110
Boeing 767-300	2237	7532	5818
MD-11	24	1134	905
Boeing 747-800F		1134	905
Boeing 737-800BCF		1711	1348
Boeing 757-200	3902	7256	5606
Embraer 110		18	18
Learjet 35		54	54
Dassault Falcon 20		18	18
Swearingen Metroliner 4		297	297
CARGO SUBTOTAL	10,065	25,296	19,780
GENERAL AVIATION			
C172 - Cessna Skyhawk 172/Cutlass	3053	3109	3109
H25B - BAe HS 125/700-800/Hawker 800	1680	1710	1710
SR22 - Cirrus SR 22	1544	1572	1572
BE58 - Beech 58	1499	1526	1526
PRM1 - Raytheon Premier 1/390 Premier 1	1309	1333	1333
BE20 - Beech 200 Super King	1273	1296	1296
P28A - Piper Cherokee	1237	1260	1260
EA50 - Eclipse 500	1210	1232	1232
BE33 - Beech Bonanza 33	1102	1122	1122
LJ40 - Learjet 40; Gates Learjet	1020	1039	1039
C25B - Cessna Citation CJ3	912	929	929
BE35 - Beech Bonanza 35	894	910	910
C182 - Cessna Skylane 182	795	809	809
BE9L - Beech King Air 90	677	690	690
B350 - Beech Super King Air 350	668	680	680
CL30 - Bombardier Challenger 300	623	634	634
PA24 - Piper PA-24	524	533	533

Equipment Type	2017 Operations (*)	2023 Operations	2023 Operations (No Action)
GENERAL AVIATION cont.			
C525 - Cessna CitationJet/CJ1	497	506	506
PA30 - Piper PA-30	488	496	496
C441 - Cessna Conquest	470	478	478
PA46 - Piper Malibu	461	469	469
BE40 - Raytheon/Beech Beechjet 400/T-1	424	432	432
C56X - Cessna Excel/XLS	406	414	414
LJ45 - Bombardier Learjet 45	380	387	387
C550 - Cessna Citation II/Bravo	289	294	294
PA32 - Piper Cherokee Six	280	285	285
C560 - Cessna Citation V/Ultra/Encore	253	257	257
M20P - Mooney M-20C Ranger	235	239	239
C680 - Cessna Citation Sovereign	208	211	211
PA31 - Piper Navajo PA-31	208	211	211
E55P - Embraer Phenom 300	199	202	202
E145 - Embraer ERJ-145	135	138	138
C750 - Cessna Citation X	126	129	129
B190 - Beech 1900/C-12J	126	129	129
GLF5 - Gulfstream V/G500	126	129	129
P46T - Piper Malibu Meridian	126	129	129
C206 - Cessna 206 Stationair	108	110	110
GENERAL AVIATION SUBTOTAL	25,565	26,029	26,029
COMMERCIAL PASSENGER			
MD-80	739		
Airbus 319	421	22	22
Airbus 320	878	3480	3480
Boeing 737-700	29	37	37
Boeing 737-800	80	102	102
Boeing 757-300	15	18	18
PASSENGER SUBTOTAL	2,162	3,659	3,659
MILITARY			
Messerschmitt MJ-90	258	372	372
Northrop T-38 Talon	231	334	334
Boeing KC-135 Stratotanker	180	260	260
Raytheon Texan 2	141	204	204
Sikorsky SH-60 Seahawk	141	204	204
Mitsubishi Regional Jet 90	128	185	185
Lockheed 130 Hercules	116	167	167
Embraer 190	103	148	148
Swearingen Merlin 4	90	130	130
Bombardier Q-400	77	111	111
Beechjet 400	77	111	111

Equipment Type	2017 Operations (*)	2023 Operations	2023 Operations (No Action)
MILITARY cont.			
Bombardier Learjet 35	77	111	111
Boeing E-6 Mercury	51	74	74
MILITARY SUBTOTAL	1,670	2,411	2,411
TOTAL OPERATIONS	39,462	57,395	51,879

Note (*): In 2018, the total operations at RFD were 40,458 with a further breakdown by aircraft category as follows:
- Air Cargo = 15,866
- Commercial Passenger – 3,233
- General Aviation – 20,263
- Military – 1,496

Sources: FAA ATADS, TAF, FAA TFMSC, FAA OPSNET, BTS T-100 Data, CMT Analysis

The air cargo activity levels and fleet mix projections specifically associated with the proposed projects being assessed in this EA were determined based on coordination with the specific stakeholders proposing to develop the Northwest and the Midfield air cargo development areas. Accordingly, as shown in Table 1-1, this is the only user category where operations under the 2023 No Action scenario reflect a smaller number of operations because all of the users' planned air cargo activity would not be able to be accommodated at RFD if the proposed air cargo facilities are not constructed.

Purpose and Need

The **Purpose** of the Sponsor's Proposed Action is to provide airfield and landside improvements that could accommodate growth in cargo operations by existing carriers and support the addition of new cargo operations and service by new carriers at RFD. With the forecast growth in cargo activity, the proposed project would meet the demand by providing supplemental air cargo facilities. In addition, the facilities accommodate changes in aircraft types and parking configurations.

The **Need** for the Sponsor's Proposed Action is to address the limited available apron and air cargo facilities required to accommodate the existing and projected air cargo activity at RFD.

Sponsor's Proposed Action

Table 1-2 identifies the projects included in the Sponsor's Proposed Action and the planned years of construction. Figure 1-3 depicts the proposed improvements planned in the Northwest Air Cargo area and Figure 1-4 depicts the proposed improvements in the Midfield area that are being assessed in this EA. The proposed air cargo development is consistent with the current Airport Layout Plan and the airside/landside plans of the air cargo carriers at RFD.

Table 1-2
Sponsor's Proposed Action

Northwest Air Cargo Development
(Proposed Construction Timeframe Fall 2019- Fall 2020)

- Construct, light and mark northwest air cargo apron to accommodate up to 10 wide-body aircraft parking positions (Boeing 747-800 capable)
- Construct proposed service and access roads
- Construct proposed truck parking facilities
- Grading, drainage and storm sewer improvements
- Construct new detention area to accommodate additional impervious surfaces
- Security and wildlife fencing modifications and installation

Midfield Air Cargo Development
(Proposed Construction Timeframe Spring 2020-Spring 2022)

- Construct, light and mark partial parallel taxiway to Runway 7/25, connecting taxiways and taxilane
- Construct, light and mark midfield air cargo apron to accommodate up to 12 wide-body aircraft parking positions (Boeing 767/777 capable)
- Construct new air cargo building (approximately 1 million square feet)
- Construct new ground support equipment and maintenance (GSE) buildings, covered storage and equipment staging area
- Construct, light and mark proposed truck dock and truck parking area (approximately 14 acres)
- Construct, light and mark proposed employee parking lot (approximately 16 acres)
- Construct new truck and employee entrance/access roads connecting to Beltline Road, including associated intersection improvements
- Construct new service/access roads
- Grading, drainage and utility extensions/improvements (water, storm sewer, sanitary sewer and electricity)
- Construct new detention areas to accommodate additional impervious surfaces
- Security and wildlife fencing modifications and installation

Figure 1-3
Sponsor's Proposed Action – Northwest Air Cargo Development

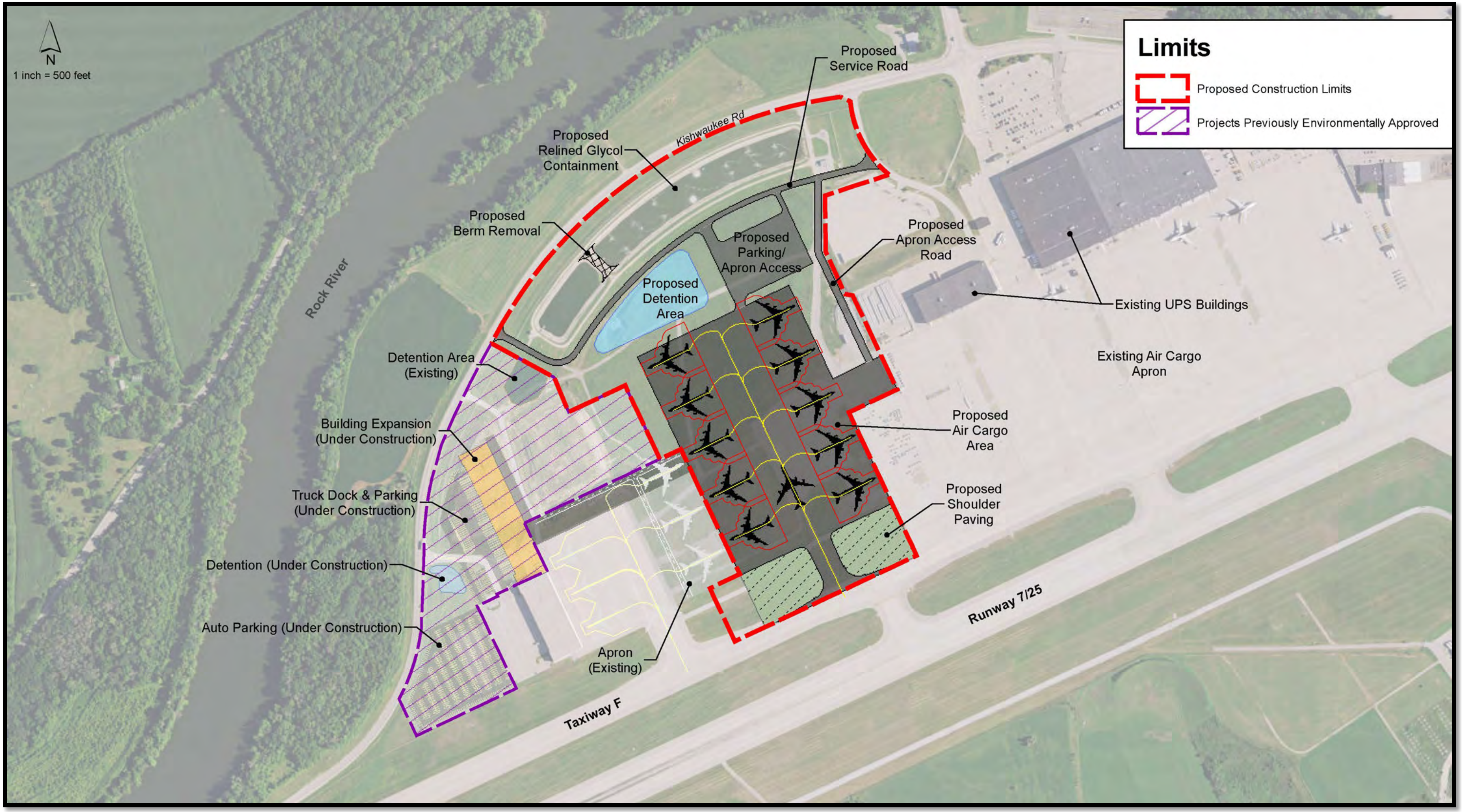
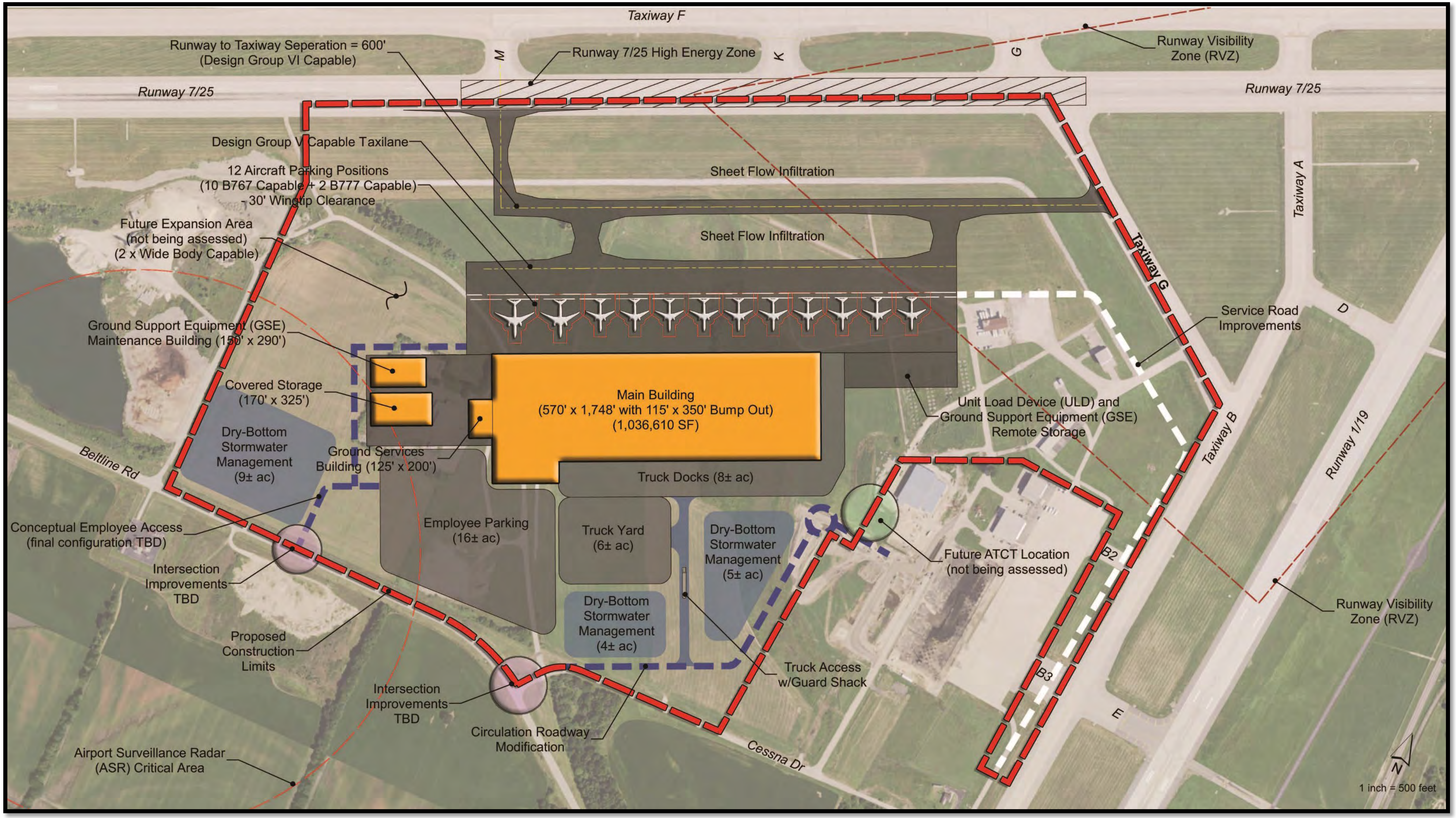


Figure 1-4
Sponsor's Proposed Action – Midfield Air Cargo Development



Requested Federal, State, and Local Actions

Actions by federal, state, and local governmental bodies are required to obtain environmental approval and/or coordination of the proposed project. The lead federal agency, the FAA, is responsible for ensuring compliance under the *National Environmental Policy Act* (NEPA) for the proposed projects. Outlined below is a list of agencies and additional actions necessary to for the proposed projects.

Federal Actions

The proposed action will require compliance by the following agencies with the indicated federal statutory or regulatory requirements:

U.S. Department of Transportation – Federal Aviation Administration

- Issue an environmental finding to allow approval of the Airport Layout Plan (ALP) for the Sponsor's Proposed Action.
- Final airspace determination (14 CFR Part 157) (49 U.S.C. 40103(b), 40113).
- Final determination of potential airspace obstructions to navigable airspace per an aeronautical study outlined under 14 CFR Part 77.
- Final certification that proposed aeronautical development is reasonably necessary for use in air commerce or for national defense (49 U.S.C. 44502(b); 14 CFR Part 169)

U.S. Fish and Wildlife Service (USFWS)

- Consultation under the *Endangered Species Act of 1973*.

State and Local Actions

Development at the Airport will require actions on the part of the following state and local agencies as identified below:

Illinois Department of Transportation (IDOT) - Division of Aeronautics

- Application for federal assistance in the construction, development, and maintenance of the facility.

Illinois Historic Preservation Agency - State Historic Preservation Officer (SHPO)

- Consultation pursuant to Section 106 of the *National Historic Preservation Act of 1966* (NHPA).

Illinois Department of Natural Resources (IDNR)

- Consultation regarding State-listed Threatened and Endangered Species and wetlands protected under the *Illinois Interagency Wetland Act of 1989* (20 ILCS 830/).

Illinois Environmental Protection Agency (IEPA)

- National Pollutant Discharge Elimination System (NPDES) Permits.

City of Rockford, Illinois

- Building permit and stormwater permit.

Winnebago County

- Right-of-way permit for Belt Line Road improvements for ingress/egress.

Chapter Two

ALTERNATIVES

General

Federal guidelines concerning this environmental review process require that all reasonable alternatives that might address the "purpose and need" be considered. The examination of alternatives is of critical importance to the environmental review process and serves to ensure that an alternative that might enhance or have a less detrimental effect on environmental quality has not been prematurely dismissed from consideration.

As stated in Chapter 1, Purpose and Need, the proposed improvements are intended to accommodate increasing demand for air cargo facilities at RFD. The primary purpose of this chapter is to identify and evaluate reasonable alternatives that could meet the purpose and need for the proposed action described in Chapter 1.

Alternatives Identified

Reasonable alternatives to the Proposed Projects, including the No-Action Alternative, were identified and evaluated in this EA in accordance with NEPA, Council on Environmental Quality (CEQ) guidance, and FAA guidance and policies, including FAA Order 1050.1F and FAA Order 5050.4B. FAA Order 5050.4B specifically states:

> *To select a preferred alternative under NEPA, the approving FAA official considers the environmental effects a proposed action and its reasonable alternatives would cause in meeting a defined purpose and need. During that process, the official also considers the safety, economic, technical, and engineering factors of those alternatives.*

Based on this guidance, the following factors were taken into consideration during the development alternative layouts for the Sponsor's Proposed Action:

- Alternatives that would accommodate the aviation demand forecast and would meet the airside/landside requirements of the air cargo carriers at RFD as presented in Chapter One, Purpose and Need
- Facility and aircraft parking layouts that would not impact the existing or future line-of-site for the airport traffic control tower
- Facility and aircraft parking layouts that would not impact safety areas, navigational aid critical area setbacks and would not be potential obstructions to air navigation
- Avoidance or minimization of impacts to environmental resources that are protected by special purpose laws (i.e. wetlands and waters of the U.S., properties eligible for protection under the National Register of Historic Places, threatened or endangered species and floodplains)
- Alternative layouts within the existing airport property limits, thereby avoiding the need for property acquisition

Sponsor's Proposed Action

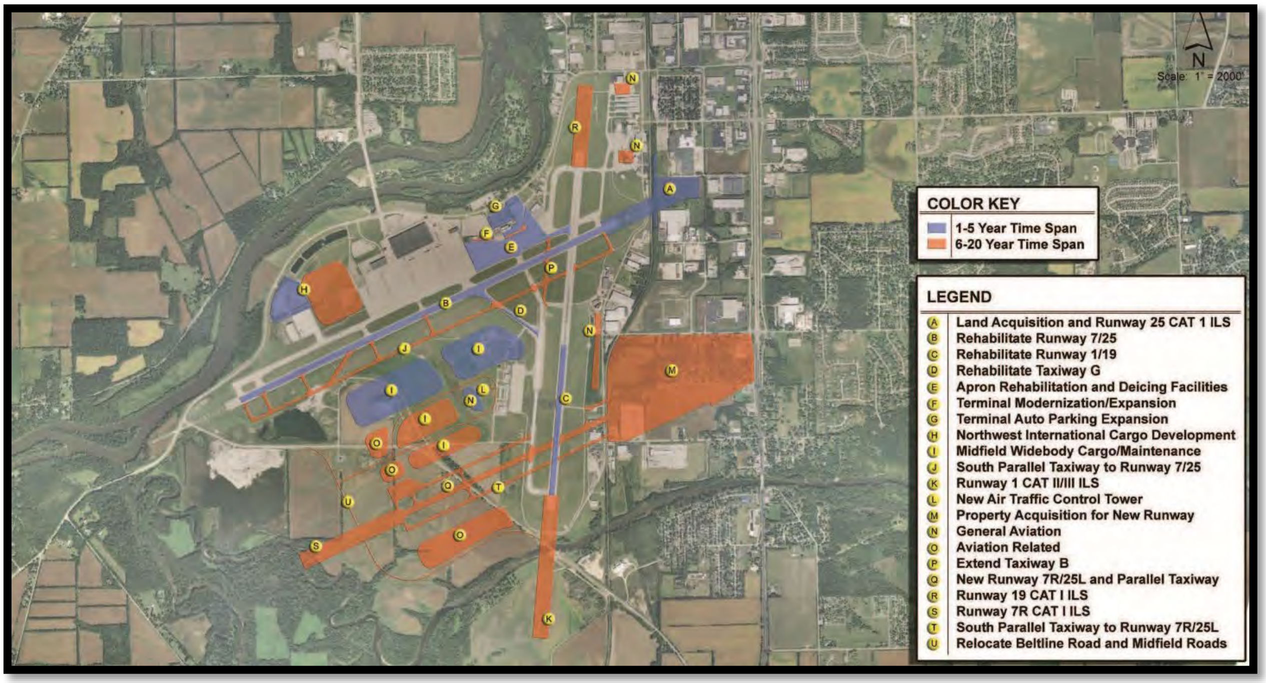
Based on these planning and design considerations, the Sponsor's Proposed Action was developed for the Northwest Air Cargo Development Area and the Midfield Air Cargo Area as presented in Chapter 1 and depicted in Exhibit 1-3 and Exhibit 1-4, respectively.

The Sponsor's Proposed Action, as presented in this EA, would meet each of the above-described factors including the facility requirements to meet the purpose and need; the safety area, line-of-site, and critical area setbacks; and the proposed facilities would not be obstructions to air navigation. Further, the Sponsor's Proposed Action would be developed within the limits of existing airport property and would not impact wetlands, waters of the U.S., sites eligible for the National Register of Historic Places, or other environmental resources requiring an analysis of avoidance or minimization alternatives.

Other Alternatives Considered

Development within the Northwest and Midfield areas at RFD has been planned for air cargo expansion since the mid-1990s and was the subject of an Environmental Assessment that was approved in 1994 Cargo expansion was further studied as part of a Master Plan Study in 2013 as shown in Figure 2-1.

Figure 2-1:
RFD 2013 Master Plan Implementation Phasing



As shown in the above Figure 2-1, there are two planned areas for expansion of air cargo development at RFD: 1) in the Northwest Quadrant, which was the subject of past environmental studies, and 2) in the midfield area at RFD (as shown in blue shading labeled as "I"). Beyond these areas, there is limited space on and around RFD where expansion for proposed air cargo facilities is feasible. Any development to the east of Runway 1/19 would require relocating roadways and a railroad, and would require substantial land acquisition with residential, commercial and industrial property relocations. Development further south in the midfield area at RFD would require relocation of Beltline Road, and new taxiways would need to be constructed to access primary Runway 7/25, the preferential runway for the wide-body aircraft used by the cargo operators. While there is a planned future parallel runway at RFD that would support additional cargo development, this runway is not being planned for implementation in the near-term.

For these reasons, the alternatives that were identified as a part of this EA process focused on the north midfield area. Two conceptual alternative layouts as shown in Figures 2-2 and 2-3 were evaluated based on the facility needs of the proposed cargo operator. Both alternative configurations would meet the purpose and need for the proposed project, as well as the other planning and design considerations identified in Chapter 1. These alternatives were further refined to achieve the required building and parking space needs of the proposed cargo operator, which evolved into the Sponsor's Proposed Action.

Figure 2-2:
Conceptual Midfield Alternative 1

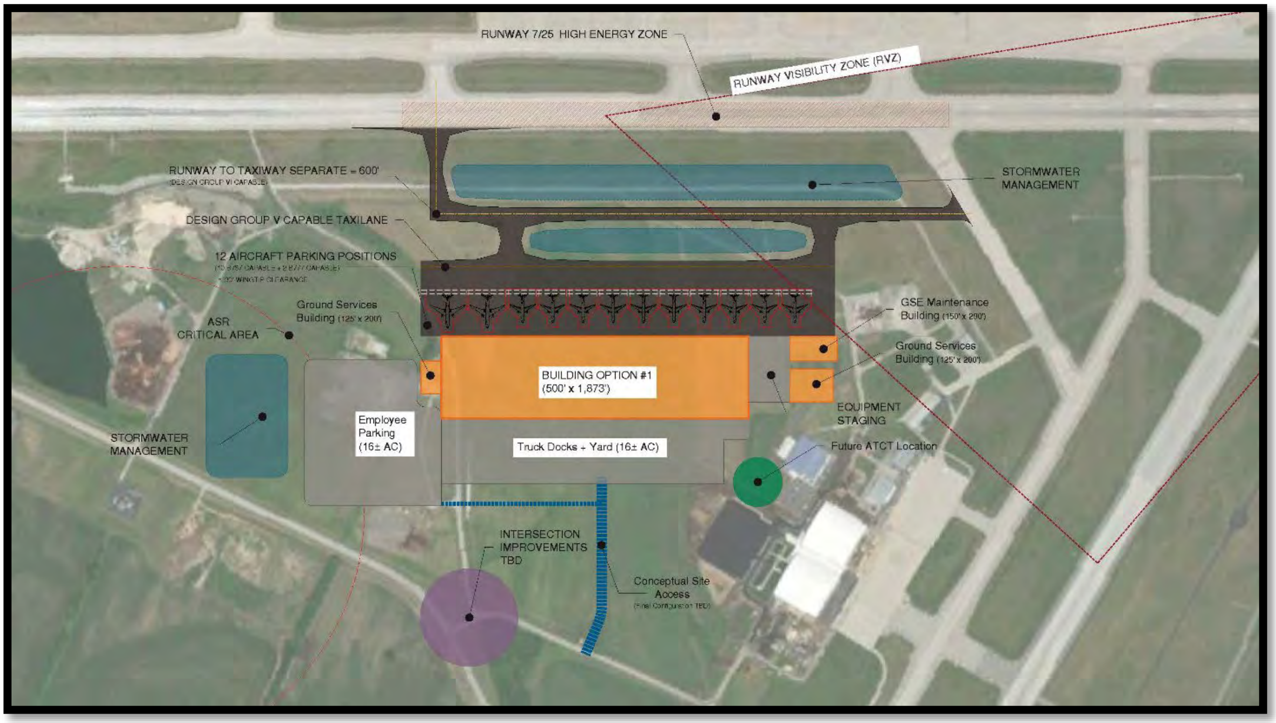
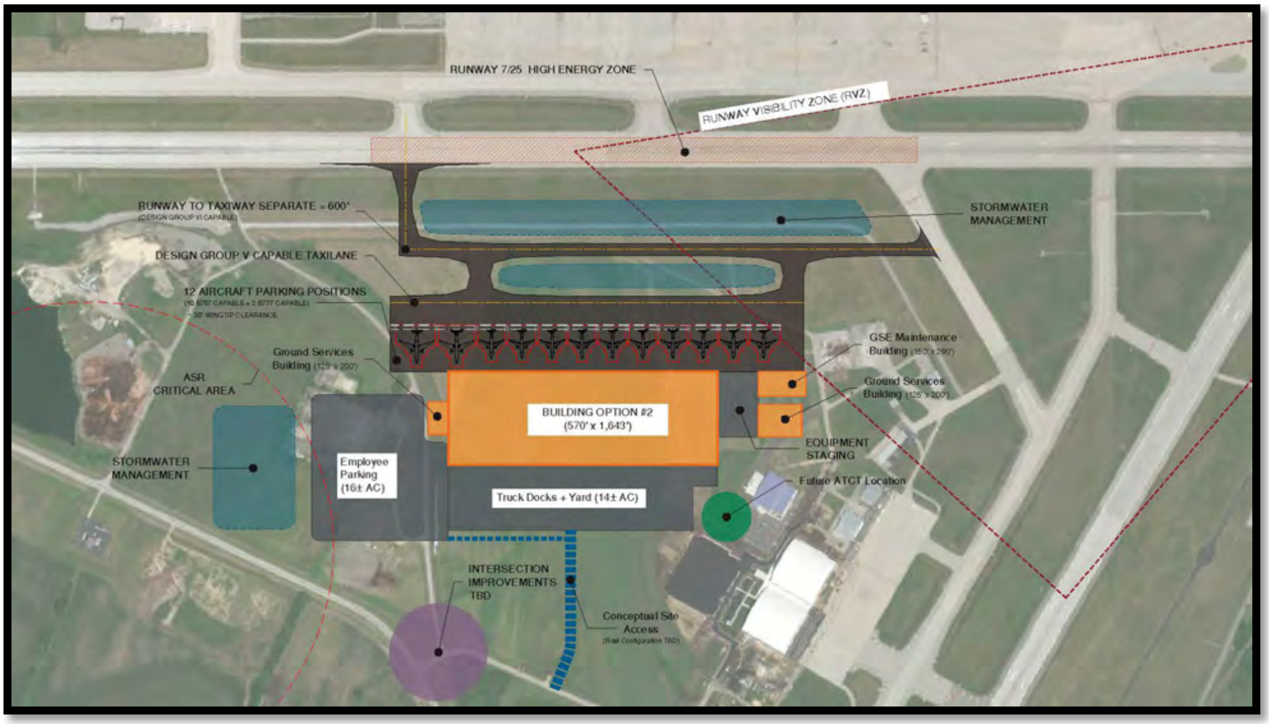


Figure 2-3:
Conceptual Midfield Alternative 2



The construction footprint for the above alternatives would be the same as the Sponsor's Proposed Action. Therefore, the impacts of these alternative air cargo facility configurations would be the same as the Sponsor's Proposed Action. However, the Sponsor's Proposed Action was chosen as the preferred alternative because it provides the most efficient ingress and egress for employees and trucks accessing the midfield area. The Sponsor's Proposed Action includes refinements made after evaluation of traffic impacts as reflected in the Traffic Impact Study included in Appendix C.

Because there are no anticipated impacts to environmental resources that are protected by Special Purpose Laws (i.e. wetlands, cultural resources, floodplains, threatened and endangered species) that would require an analysis of avoidance and/or minimization alternative, the Sponsor's Proposed Action is the only build alternative evaluated in this EA and will be compared against the No Action Alternative.

No Action Alternative

The Council of Environmental Quality (CEQ) regulations include specific directions in the consideration of alternatives. Section 1502.14(d) of said regulation states: "*Agencies shall include the alternative of no action in any environmental analysis.*" The No Action Alternative (also referred to as No Action) for this study assumes that the Airport would maintain its existing air cargo facilities with no additional airfield infrastructure or ancillary facilities developed.

The No Action Alternative is further defined as the existing Airport facilities and facilities that have already been planned and approved by FAA. Therefore, projects that have already received environmental approval and would be under construction through 2022 are included in the No Action Alternative. These are projects that would occur independently of the proposed build alternatives. This includes the following projects:

- Construct 10' Airfield Perimeter/Security Fencing – Phase 2
- Terminal Building Expansion – Phase 4: Increase security checkpoint and gate holding areas
- Expand northwest air cargo apron (Phase 2a)
- New automobile parking lot in the northwest air cargo area
- Reconstruct the terminal entrance road including relocation of Main Terminal entrance
- Phased Rehabilitation of Runway 7/25
- Rehabilitate Taxiway G

The No Action Alternative does not meet the criteria established to serve the "purpose and need" of the Airport. More specifically, the No Action Alternative would not provide the aircraft parking and air cargo facilities required to accommodate the existing and projected air cargo activity at RFD. However, Council on Environmental Quality (CEQ) Regulations and the Federal Aviation Administration's (FAA) *Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Acti*ons, prescribe the need to analyze and compare the No Action Alternative to the Sponsor's Proposed Action.

Chapter Three

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Introduction

Pursuant to the FAA's environmental orders *5050.4B, NEPA Implementing Instructions for Airport Actions*, and *1050.1F, Environmental Impacts: Policies and Procedures*, the potential impacts of the projects associated with the No Action Alternative and Sponsor's Proposed Action are described in this chapter. This combined Affected Environment and Environmental Consequences Chapter includes a description of the existing conditions and potential impacts for the following environmental resource categories:

- Noise and Noise-Compatible Land Use
- Land Use
- Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks
- Air Quality
- Climate
- Water Resources
- Department of Transportation, Section 4(f) Lands
- Historical, Architectural, Archaeological, and Cultural Resources
- Biological Resources
- Natural Resources and Energy Supply
- Visual Effects
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Cumulative Impacts

All land within the proposed project area is within the corporate limits of the City of Rockford and is currently zoned industrial. Therefore, the land is exempt from the *Farmland Protection Policy Act of 1981* and from requirements to submit a Farmland Conservation Impact Rating Form to the United States Department of Agriculture (USDA). Accordingly, farmlands are not addressed in this EA. Further, the project study area does not occur near any designated coastal zones or coastal barriers; therefore, coastal resources are not addressed in this EA.

Noise and Noise Compatible Land Use

General

Noise generated by the operation of aircraft is but one of a number of factors included in airport operations. Specific types of human activity may be incompatible with certain levels of noise. For this reason, the influence of noise from aircraft operations on land surrounding airports requires careful study by the aviation community. A fundamental fact of noise that needs to be understood is sound. Sound is a physical phenomenon which affects people and things. The sound experienced in our everyday lives is a result of bodies or objects being vibrated.

This vibration causes a motion in the surrounding air resulting in a minute variation in atmospheric pressure called "sound pressure." This sound pressure forms the basis to measure sound and is usually expressed as a sound pressure level in decibels which are dimensionless units expressing logarithmically the ratio of two values (i.e. a measured quantity and a referenced value). A decibel (dB) is defined as ten times the logarithm (to the base 10) of a power or intensity ratio. Because of the logarithmic nature of the decibel scale, a sound pressure level of 60 dB corresponds to a pressure, not 60 times the reference pressure, but 1000 times the reference pressure.[2]

Each aircraft noise "event" can be considered to begin when the noise level observed by the receiver increases above the background level and ends when the noise level returns to that of the background. Then for each aircraft operation, the maximum noise level occurring during the event may be measured and specified, using any of several noise rating scales. This maximum noise level is the first and simplest type of noise measure and is the "base" measure from which others may be determined.

When sound is measured in order to correlate to the reactions of people, it is necessary to use a measure which relates to the way human beings hear sound. This is accomplished electrically using a device called a "weighting network." One of these weighting networks was designated "A." A-weighted Sound Level has been found to correlate well with people's subjective judgment.

Different uses of the land have different sensitivities to noise. Individuals may each have different perceptions of what is an acceptable level of noise. The background or residual noise against which a specific noise is perceived varies both by location and by time of day. The location of the receiver (i.e. outdoor, indoor with windows open or closed) as well as the receiver's level of activity at a particular moment affects the perception of a noise as either intruding or not intruding. An accepted variation of the A-weighted Sound Level measurement tool is the day-night average sound level (DNL) as described below:

While people certainly respond to the noise of single events (particularly to the loudest single event in a series), the long-range effects of prolonged exposure to noise appear to best correlate with cumulative metrics. Such a unit provides a single number which is equivalent to the total noise exposure over a specified time period. Thus, cumulative noise units are based on both time and level. The day-night average sound level (DNL) specified as the noise metric for cumulative exposure under Federal Aviation Regulations (FAR) Part 150 is such a unit. Specifically, the DNL is the yearly average of the A-weighted sound level integrated over a 24-hour period. It also incorporates a 10-dB step function weighting to aircraft events between 10:00 p.m. and 7:00 a.m. to account for the increased annoyance of noise during the night hours.

One can easily describe and measure noise, which occurs at any given time (single-event) and may be read from a meter. As noted previously, the long-range effects of prolonged exposure to noise appear to best correlate with cumulative metrics. This type of measure provides a single number, which is equivalent to the total noise exposure over a specified time period. For aircraft noise, the FAA requires that the average annual DNL be found in order to determine noise compatibility planning.

Methodology

The analysis of noise exposure around RFD was prepared using the FAA's Aviation Environmental Design Tool (AEDT) Version 2d SP2. Inputs to the AEDT include runway definition, number of aircraft operations during the time period evaluated, the types of aircraft flown, the time of day when they are flown, how frequently each runway is used for arriving and departing aircraft, and the routes of flight used when

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[2] Noise Control and Compatibility Planning for Airports, FAA AC 150/5020-1, August 5, 1983, Page 11.

arriving to and departing from the runways. The AEDT calculates noise exposure for the area around an airport and outputs contours of noise exposure using the Day-Night Average Sound Level (DNL) metric. Noise exposure contours for the levels of 65, 70, and 75 DNL were calculated and represent average-annual day conditions.

Noise Analysis Input Assumptions

The AEDT input assumptions are based on the existing and forecast aircraft operations and fleet mix as presented in Chapter 1.

Runway End Utilization

Average-annual day runway end utilization was derived from the 2013 Noise Exposure Map (NEM) Update[3] and confirmed with the Air Traffic Control Tower (ATCT) personnel that runway end utilization modeled in the 2013 study is consistent with current conditions at the Airport. This data provides the average annual daily runway use for each AEDT aircraft type during day and night periods at RFD. Table 3-1 summarizes the percentage of use by each aircraft category on each of the runway ends at RFD during the daytime (7:00 a.m. to 9:59 p.m.) and nighttime (10:00 p.m. to 6:59 a.m.) for the existing (2017) scenario.

Currently, most scheduled cargo operations at RFD occur at night. During the nighttime, RFD typically operates in a configuration to take advantage of less developed areas to the south and west of RFD. In this configuration, aircraft primarily arrive from the south or southwest and land on Runway 01 or Runway 07; and primarily depart to the south and southwest from Runway 19 and Runway 25. This reverse flow configuration is possible due to the unique nature of the nighttime cargo operation in which there is one distinct arrival bank and one distinct departure bank. In addition, the larger aircraft associated with the nighttime cargo operation are generally less affected by wind conditions than smaller general aviation aircraft and thus can accept a greater tailwind velocity. This similar reverse flow configuration is anticipated under the future Proposed Action conditions as well.

Daytime operations generally adhere to similar runway use patterns; although, when mixed operations (arrivals and departures) occur simultaneously, reverse flow is typically not conducted because it would reduce the capacity of the Airport and result in complexities in air traffic control during the busier daytime activity. Furthermore, the smaller jet and propeller aircraft that normally operate during the daytime are less able to accept unfavorable wind conditions and typically must use the runway which provides the most optimal headwind.

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[3] Chicago Rockford International Airport, Noise Exposure Map Update, Landrum & Brown, November 2013.

Table 3-1
Existing (2017) Runway End Utilization

Aircraft Category	Runway End			
	01	19	07	25
Daytime Arrivals				
Cargo	28%	22%	32%	18%
Commercial	23%	13%	49%	15%
General Aviation Jets	23%	21%	32%	23%
General Aviation Props	25%	21%	32%	23%
Military	0%	28%	32%	39%
Daytime Arrivals				
Cargo	29%	10%	55%	6%
Commercial	34%	6%	46%	15%
General Aviation Jets	46%	18%	12%	24%
General Aviation Props	37%	6%	40%	17%
Military	n/a	n/a	n/a	n/a
Daytime Departures				
Cargo	10%	37%	25%	29%
Commercial	6%	29%	24%	42%
General Aviation Jets	13%	40%	22%	25%
General Aviation Props	14%	48%	17%	20%
Military	8%	42%	8%	42%
Nighttime Departures				
Cargo	1%	50%	8%	42%
Commercial	2%	25%	27%	46%
General Aviation Jets	17%	40%	27%	17%
General Aviation Props	3%	54%	23%	20%
Military	n/a	n/a	n/a	n/a

Sources: ATCT, RFD 2013 NEM Update, Landrum & Brown analysis, 2018.

The additional noise model input assumptions, including runway definition, aircraft operations, fleet mix, percentage of nighttime operations by aircraft type, aircraft trip lengths and operation profiles and flight tracks for the No Action (2017), Future (2023) No Action and Future (2023) Proposed Action is presented in Appendix B, Noise Technical Report, prepared by Landrum & Brown, Incorporated.

The following sections present the results of the noise analysis and noise compatible land uses.

Affected Environment

Existing (2017) Noise Exposure Contour

Figure 3-1 reflects the average-annual noise exposure contour at RFD during the Existing (2017) condition. Noise contours are presented for the 65, 70, and 75 DNL. DNL contours are a graphic representation of how the noise from RFD's annual average daily aircraft operations is distributed over the surrounding area. DNL represents an average sound level over the course of an average annual day.

Table 3-2 summarizes the land areas within each noise contour level for the Existing (2017) Condition. The noise contour extends from the Airport along each extended runway centerline, reflective of the flight tracks used by all aircraft. The relative distance of a contour from the Airport along each route is a function of the frequency of use of each runway end for total aircraft arrivals and departures, the type of aircraft assigned to it, and the time of day of the flight.

Table 3-2
Estimated Land Area Within Existing (2017) Condition Noise Exposure Contours

Contour Range	Airport Property Estimated Land Area (Square Miles)	Non-Airport Property Estimated Land Area (Square Miles)	Total Estimated Land Area (Square Miles)
DNL 65-70 dB	0.92	0.19	1.11
DNL 70-75 dB	0.44	0.00	0.44
DNL 75+ dB	0.36	0.00	0.36
TOTAL	1.72	0.19	1.91

Source: Landrum & Brown analysis, 2018.

To the north and northeast of the airport the noise contours are shorter due to the implementation of preferential runway use during nighttime hours[4] which directs arrival and departure operations to the south and southwest of RFD. Conversely, the noise exposure contours are longer to the south and southwest of the airport due to the greater number of nighttime arrivals to Runway 07 and Runway 01 and the greater number of nighttime departures from Runway 19 and Runway 25.

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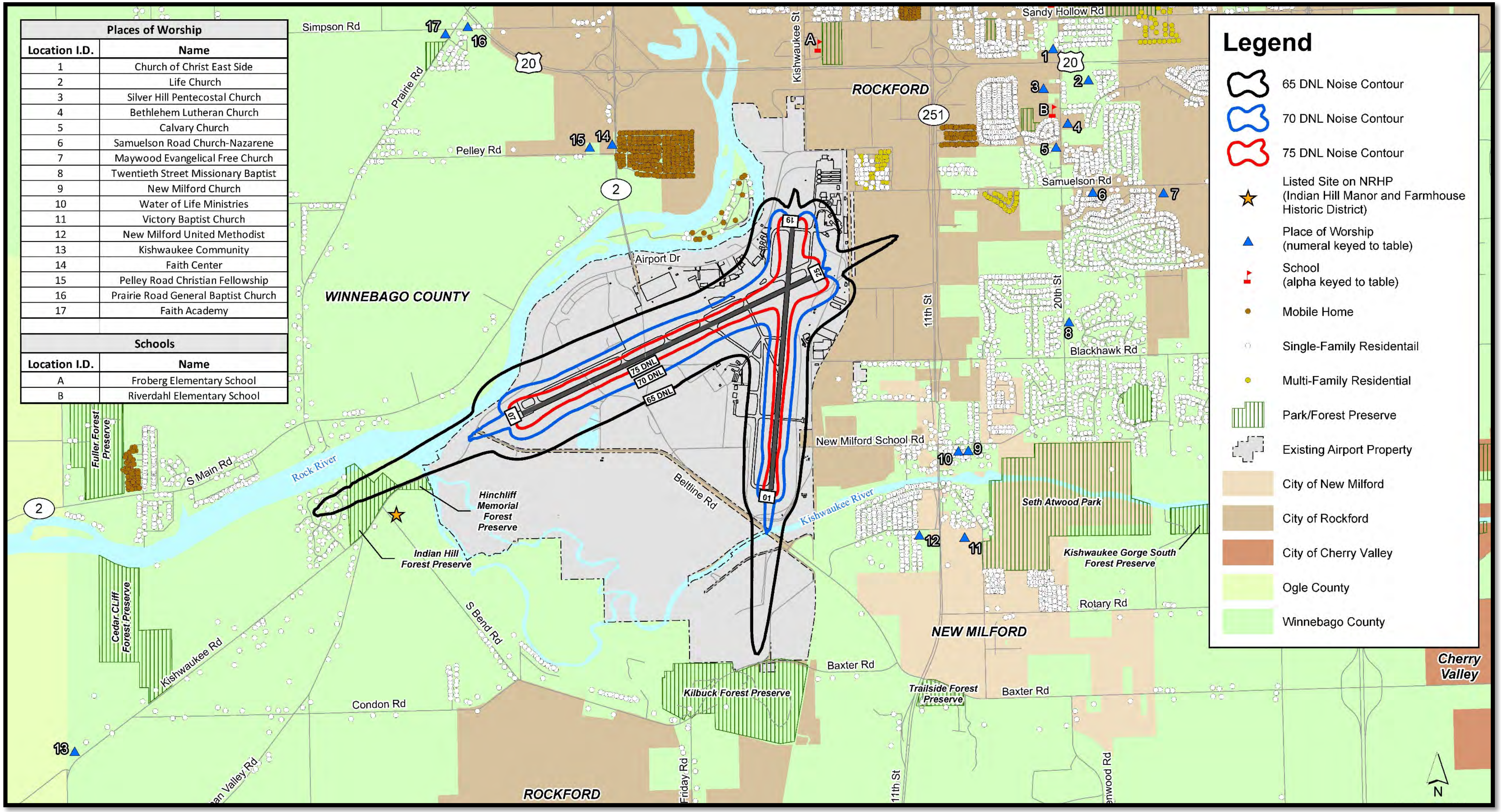
[4] An informal preferential reverse flow was recommended at RFD by Noise Abatement Measure NA-10, which was initially approved in the 1994 Noise Compatibility Program (NCP) and updated in the 2003 NCP Update. This measure recommended use of Runway 01 as the primary runway and Runway 07 as the secondary runway for nighttime (10:00 P.M. to 7:00 A.M) arrivals.

Figure 3-1
Existing (2017) Noise Exposure Contour



Places of Worship	
Location I.D.	Name
1	Church of Christ East Side
2	Life Church
3	Silver Hill Pentecostal Church
4	Bethlehem Lutheran Church
5	Calvary Church
6	Samuelson Road Church-Nazarene
7	Maywood Evangelical Free Church
8	Twentieth Street Missionary Baptist
9	New Milford Church
10	Water of Life Ministries
11	Victory Baptist Church
12	New Milford United Methodist
13	Kishwaukee Community
14	Faith Center
15	Pelley Road Christian Fellowship
16	Prairie Road General Baptist Church
17	Faith Academy

Schools	
Location I.D.	Name
A	Froberg Elementary School
B	Riverdahl Elementary School

Noise Compatible Land Use

The FAA has created guidelines regarding the compatibility of land uses with various aircraft noise levels measured using the DNL metric. These guidelines are defined in Appendix A to 14 C.F.R. Part 150. The land use compatibility table is reproduced in Table 3-3. These guidelines show the compatibility parameters for residential, public (schools, churches, nursing homes, hospitals, and libraries), commercial, institutional, and recreational land uses. All land uses exposed to noise levels below the DNL 65 dB noise contour are generally considered compatible with airport operations.

Table 3-3
Land Uses Normally Compatible with Various Noise Levels

Land Use	Yearly Day Night Average Sound Level (DNL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N

Land Use	Yearly Day Night Average Sound Level (DNL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheatres	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
(2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.
(5) Land use compatible provided special sound reinforcement systems are installed.
(6) Residential buildings require an NLR of 25.
(7) Residential buildings require an NLR of 30.
(8) Residential buildings not permitted.

Notes: 1. The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.
2. SLUCM=Standard Land Use Coding Manual.
3. Y (Yes)=Land Use and related structures compatible without restrictions.
4. N (No)=Land Use and related structures are not compatible and should be prohibited.
5. NLR=Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
6. 25, 30, or 35=Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Source: 14 CFR Part 150, Airport Noise Compatibility Planning. December 18, 1984. Appendix A, Table 1.

There are no schools, churches, nursing homes, hospitals, or libraries within the 65+ DNL contours. Summaries of the residential population and housing units affected by noise levels exceeding DNL 65 dB for the Existing (2017) noise exposure contours are provided in Table 3-4 and are depicted in Figure 3-2. In particular, eight residential housing units are located within the 65-70 DNL contour. No housing units are located within the 70 and 75 DNL noise contours.

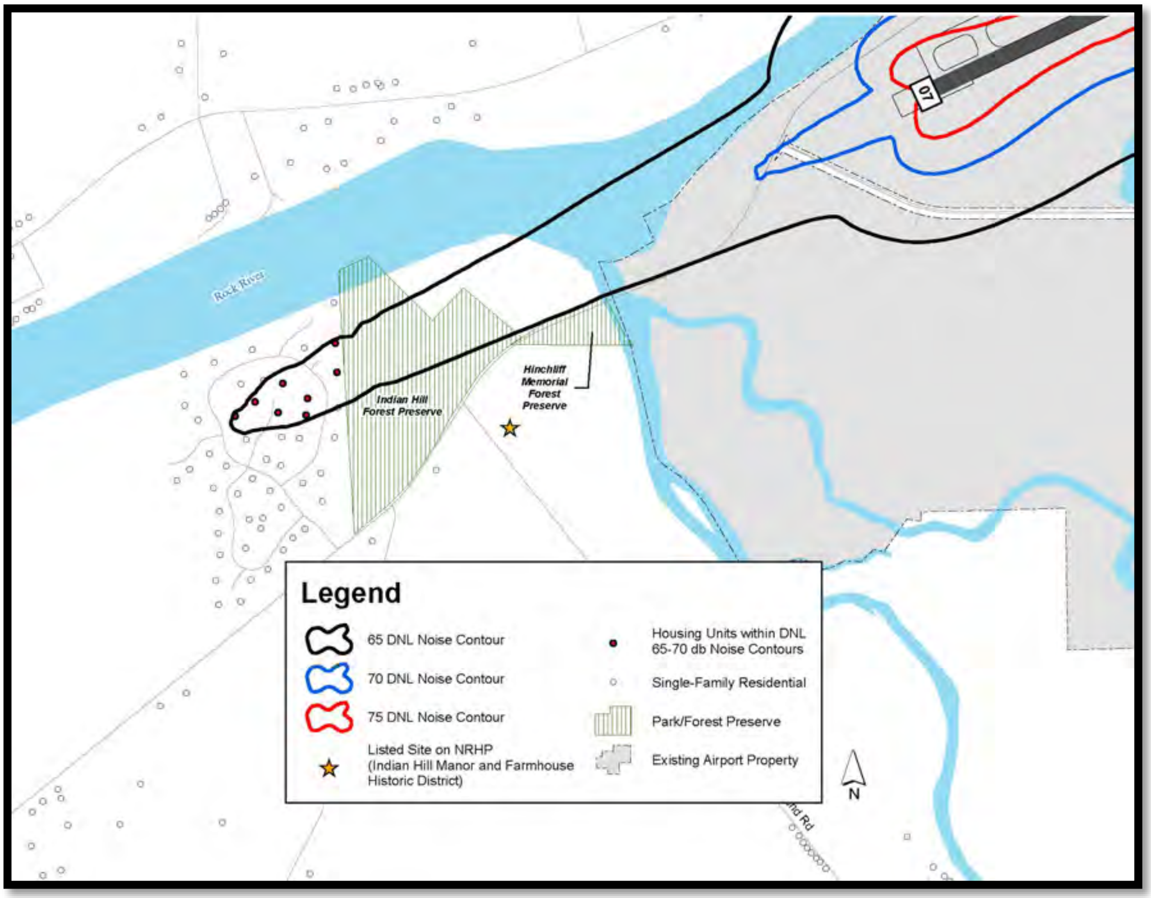
Table 3-4

Non-Compatible Land Use Housing and Population for Existing (2017) Noise Contours

Residential Land Uses	DNL 65-70 dB
Housing Units	
Single-Family Residential	8
Multi-Family Residential	0
Manufactured Housing	0
Total Housing Units	**8**
Population	
Single-Family Residential	20
Multi-Family Residential	0
Manufactured Housing	0
Total Population	**20**

Notes: Population numbers are estimates based on the 2010 United States Census average household size per number of housing units.
Source: Landrum & Brown analysis, 2018.

Figure 3-2
Housing Units Located within the DNL 65-70 dB Existing (2017) Noise Contours



Environmental Consequences

No Action Alternative

Figure 3-3 reflects the average-annual noise exposure pattern at RFD during the Future (2023) No Action condition. Noise contours are presented for the 65, 70 and 75 DNL. Table 3-5 summarizes the land areas within each noise contour level for the Future (2023) No Action.

Table 3-5
Estimated Land Area Within Future (2023) No Action Noise Exposure Contours

Contour Range	Airport Property Estimated Land Area (Square Miles)	Non-Airport Property Estimated Land Area (Square Miles)	Total Estimated Land Area (Square Miles)
65-70 DNL	1.24	0.52	1.76
70-75 DNL	0.70	0.01	0.71
75 + DNL	0.53	0.00	0.53
TOTAL	**2.47**	**0.53**	**3.00**

Source: Landrum & Brown analysis, 2018.

Noise Compatible Land Use – No Action

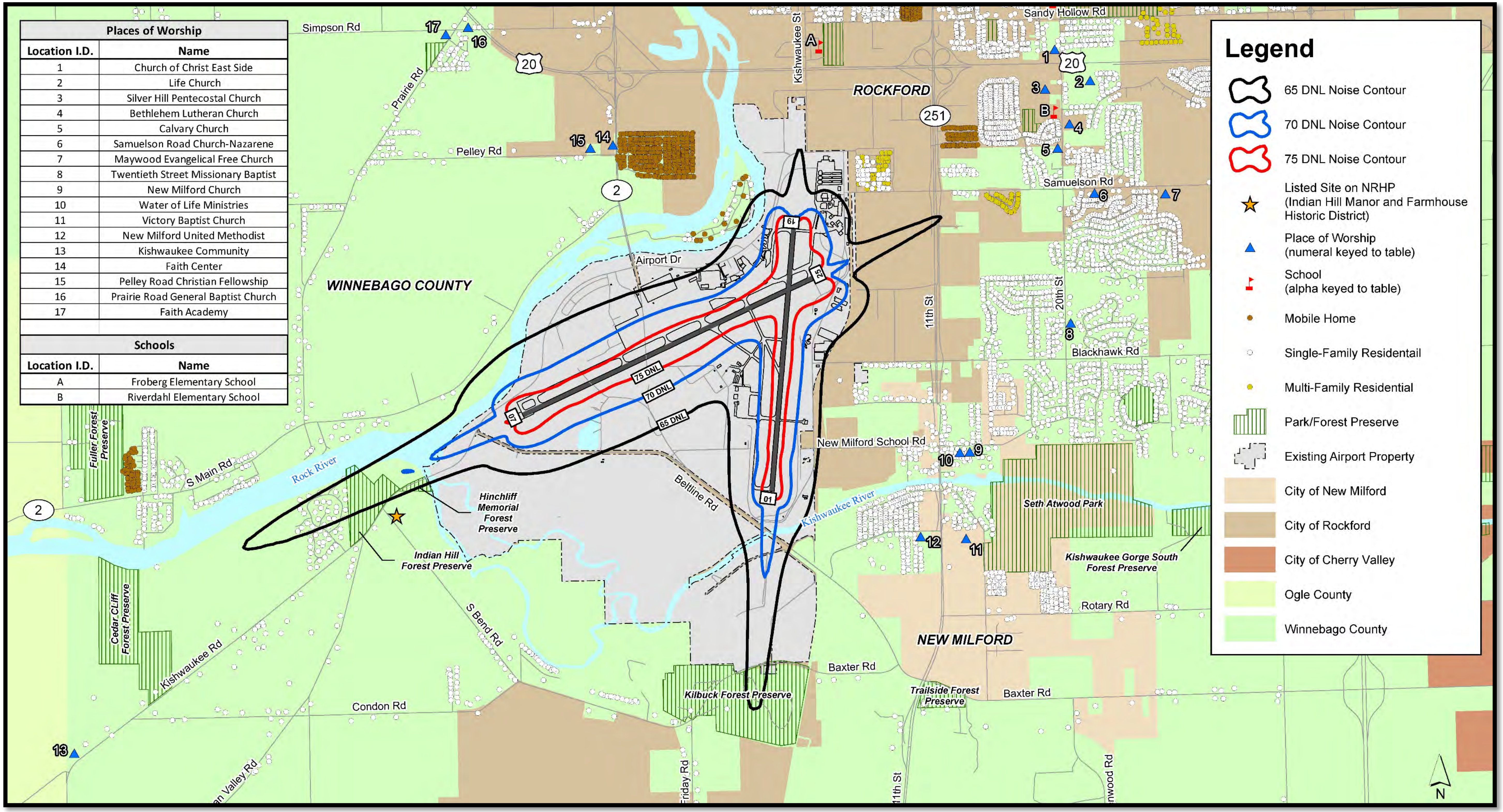
There are no schools, churches, nursing homes, hospitals, or libraries within the 65+ DNL of the Future (2023) No Action noise contours. Summaries of the residential population and housing units affected by noise levels exceeding DNL 65 dB for the Future (2023) No Action noise exposure contours are provided in Table 3-6 and are depicted in Figure 3-4. In particular, 22 residential housing units are within the 65-70 DNL contour. No housing units are located in the 70 and 75 DNL noise contours.

Table 3-6
Non-Compatible Land Use Housing and Population for Future (2023) No Action Noise Contours

Residential Land Uses	DNL 65-70 dB
Housing Units	
Single-Family Residential	22
Multi-Family Residential	0
Manufactured Housing	0
Total Housing Units	**22**
Population	
Single-Family Residential	56
Multi-Family Residential	0
Manufactured Housing	0
Total Population	**56**

Notes: Population numbers are estimates based on the 2010 United States Census average household size per number of housing units.
Source: Landrum & Brown analysis, 2018.

Figure 3-3
Future (2023) No Action Noise Exposure Contour



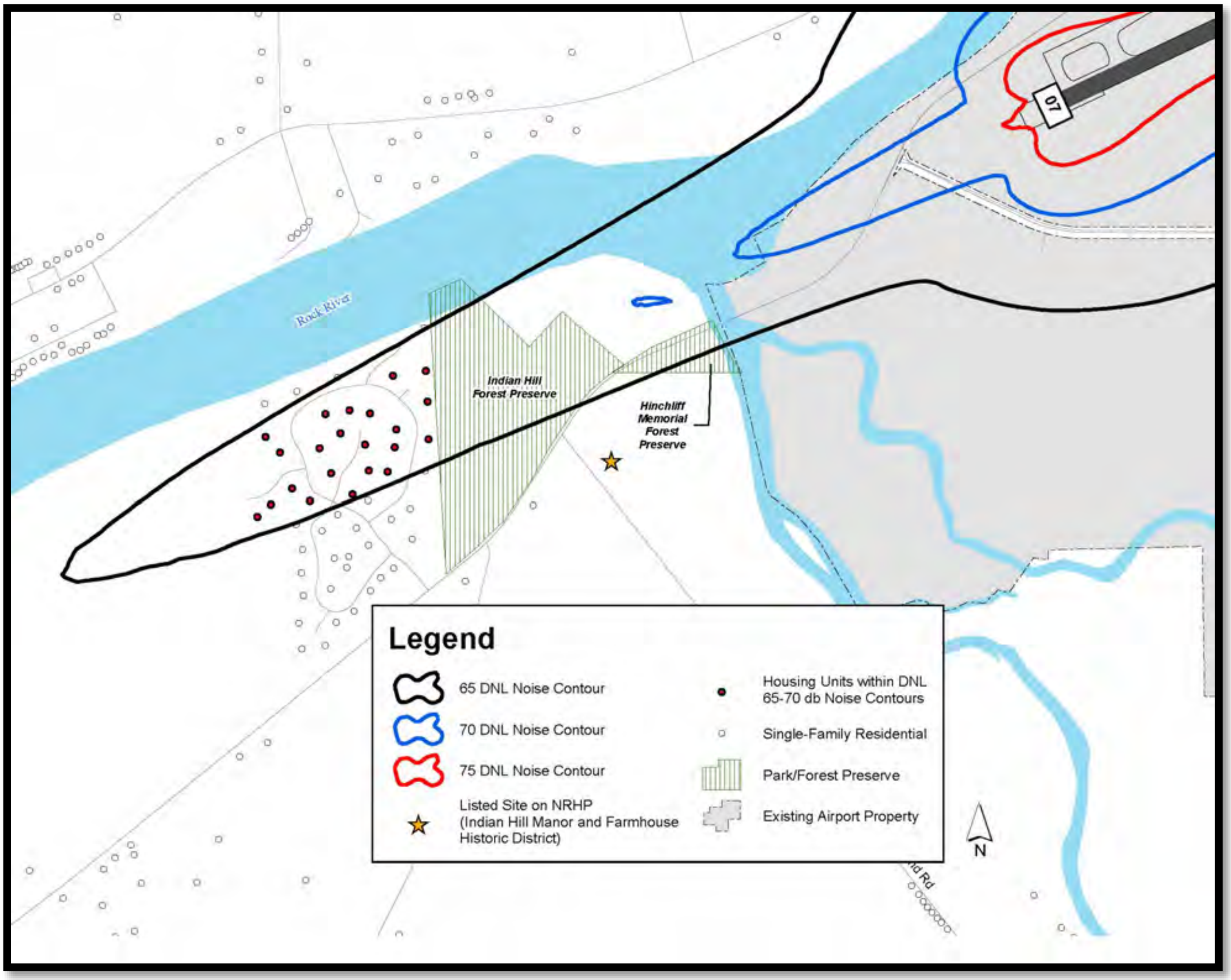
Places of Worship

Location I.D.	Name
1	Church of Christ East Side
2	Life Church
3	Silver Hill Pentecostal Church
4	Bethlehem Lutheran Church
5	Calvary Church
6	Samuelson Road Church-Nazarene
7	Maywood Evangelical Free Church
8	Twentieth Street Missionary Baptist
9	New Milford Church
10	Water of Life Ministries
11	Victory Baptist Church
12	New Milford United Methodist
13	Kishwaukee Community
14	Faith Center
15	Pelley Road Christian Fellowship
16	Prairie Road General Baptist Church
17	Faith Academy

Schools

Location I.D.	Name
A	Froberg Elementary School
B	Riverdahl Elementary School

Figure 3-4
Non-Compatible Land Use Housing and Population for Future (2023) No Action Noise Contours



Sponsor's Proposed Action

The Future (2023) Sponsor's Proposed Action Noise Exposure Contour, showing 65, 70, and 75 DNL levels, is presented on Figure 3-5. The 65+ DNL of the Future (2023) Proposed Action Noise Exposure Contour encompasses approximately 3.56 square miles.

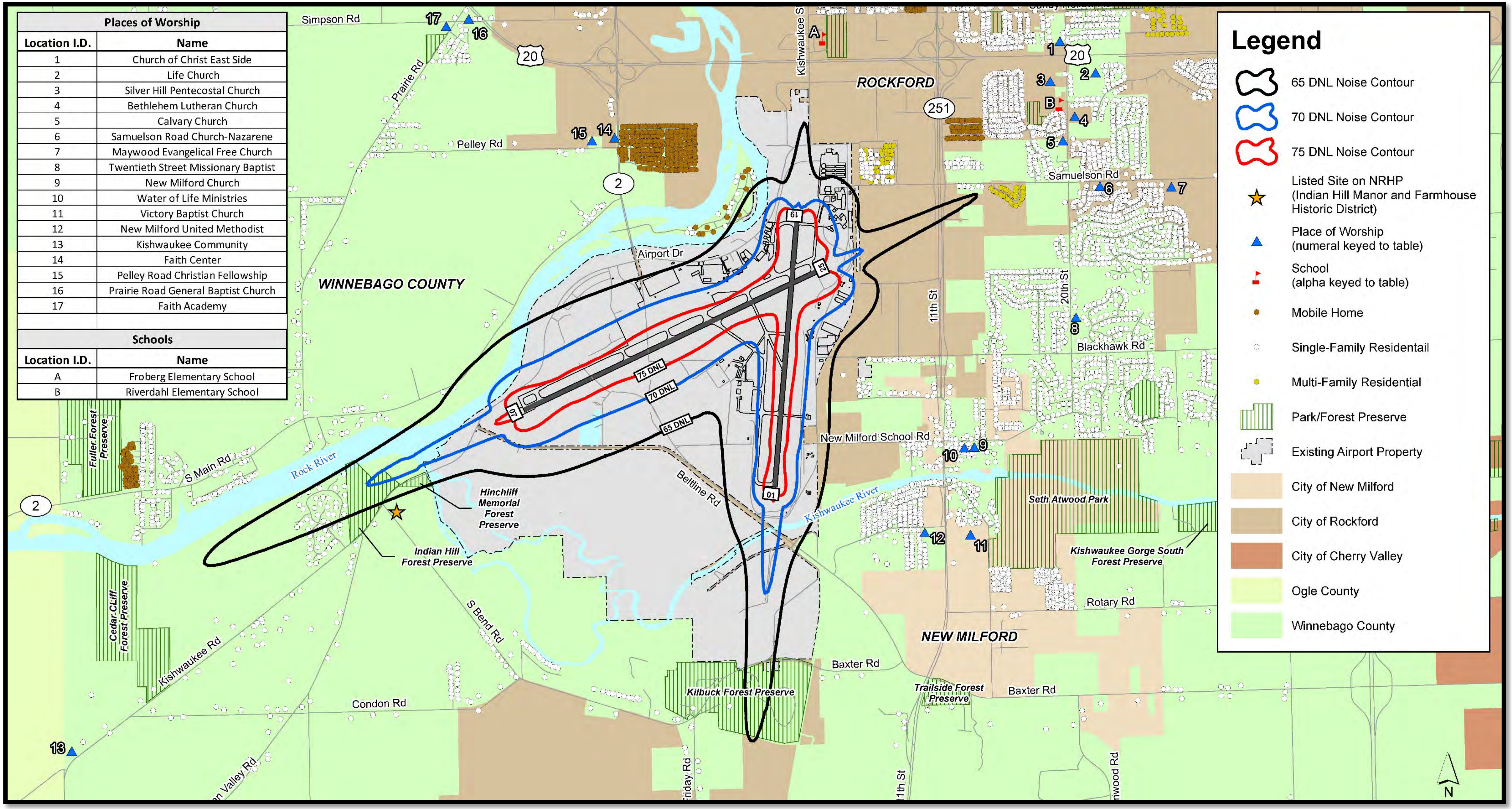
The Future (2023) Sponsor's Proposed Action Noise Exposure Contour retains a similar shape as the Future (2023) No Action Noise Exposure Contour but is larger due to the increase in aircraft operations that would occur as a result of the implementation of the Proposed Action. The primary difference in the shape of the Future (2023) Proposed Action noise contour compared to the Future (2023) No Action noise contour is due to the increase in cargo operations. Figure 3-6 shows the Future (2023) Proposed Action compared to the Future (2023) No Action. Table 3-7 summarizes the land areas within each noise contour level for the Future (2023) Proposed Action.

Table 3-7
Estimated Land Area Within Future (2023) Proposed Action Noise Exposure Contours

Contour Range	Airport Property Estimated Land Area (Square Miles)	Non-Airport Property Estimated Land Area (Square Miles)	Total Estimated Land Area (Square Miles)
65-70 DNL	1.30	0.77	2.07
70-75 DNL	0.81	0.06	0.87
75 + DNL	0.62	0.00	0.62
TOTAL	2.73	0.83	3.56

Source: Landrum & Brown analysis, 2018.

Figure 3-5
Future (2023) Proposed Action Noise Exposure Contour



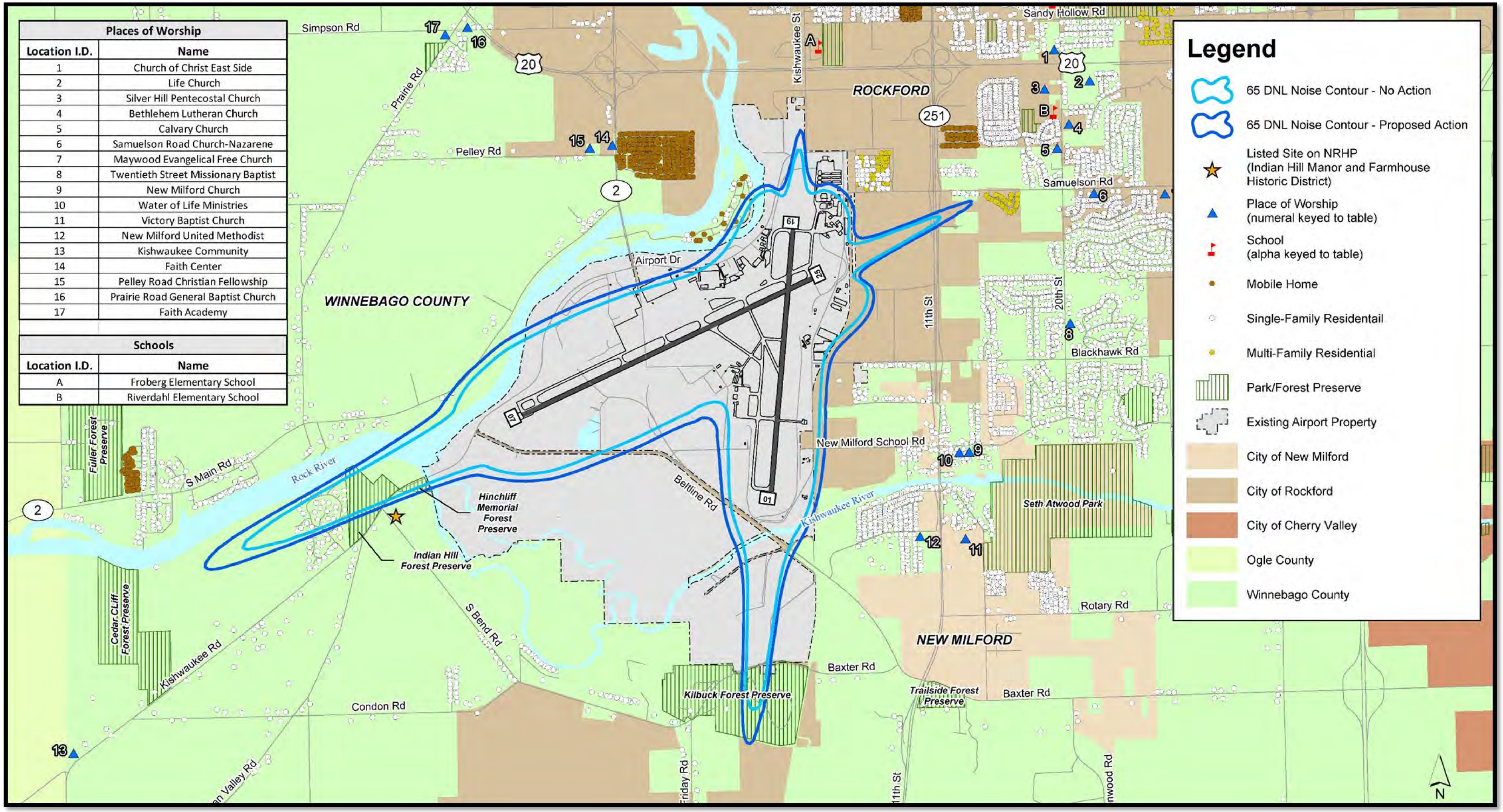
Places of Worship

Location I.D.	Name
1	Church of Christ East Side
2	Life Church
3	Silver Hill Pentecostal Church
4	Bethlehem Lutheran Church
5	Calvary Church
6	Samuelson Road Church-Nazarene
7	Maywood Evangelical Free Church
8	Twentieth Street Missionary Baptist
9	New Milford Church
10	Water of Life Ministries
11	Victory Baptist Church
12	New Milford United Methodist
13	Kishwaukee Community
14	Faith Center
15	Pelley Road Christian Fellowship
16	Prairie Road General Baptist Church
17	Faith Academy

Schools

Location I.D.	Name
A	Froberg Elementary School
B	Riverdahl Elementary School

Figure 3-6
Future (2023) No Action vs. Future (2023) Proposed Action Noise Exposure Contour



Places of Worship	
Location I.D.	**Name**
1	Church of Christ East Side
2	Life Church
3	Silver Hill Pentecostal Church
4	Bethlehem Lutheran Church
5	Calvary Church
6	Samuelson Road Church-Nazarene
7	Maywood Evangelical Free Church
8	Twentieth Street Missionary Baptist
9	New Milford Church
10	Water of Life Ministries
11	Victory Baptist Church
12	New Milford United Methodist
13	Kishwaukee Community
14	Faith Center
15	Pelley Road Christian Fellowship
16	Prairie Road General Baptist Church
17	Faith Academy

Schools	
Location I.D.	**Name**
A	Froberg Elementary School
B	Riverdahl Elementary School

The difference in area, over non-airport property, between the Future (2023) Proposed Action Noise Exposure Contour and the Future (2023) No Action Noise Exposure Contour is shown in Table 3-8.

Table 3-8
Future (2023) No Action vs. Future (2023) Proposed Action Noise Exposure Contours

Contour Range	2023 No Action (Square Miles)	2023 Proposed Action (Square Miles)	Difference (Square Miles)
65-70 DNL	1.76	2.07	+0.31
70-75 DNL	0.71	0.87	+0.16
75 + DNL	0.53	0.62	+0.09
65 + DNL	3.00	3.56	+0.56

Source: Landrum & Brown analysis, 2018.

Noise Compatible Land Use – Sponsor's Proposed Action

There are no schools, churches, nursing homes, hospitals, or libraries within the 65+ DNL of the Future (2023) Proposed Action noise contours.

Summaries of the residential population and housing units affected by noise levels exceeding DNL 65 dB for the Future (2023) Proposed Action noise exposure contours are provided in Table 3-9 and are depicted in Figure 3-7. Thirty-two housing units are in the 65 to 70 DNL noise contours. No housing units are located in the 70 and 75 DNL noise contours.

Table 3-9
Non-Compatible Land Use Housing and Population for Future (2023) Proposed Action Noise Contours

Residential Land Uses	65-70 DNL
Housing Units	
Single-Family Residential	31
Multi-Family Residential	0
Manufactured Housing	1
Total Housing Units	**32**
Population	
Single-Family Residential	99
Multi-Family Residential	0
Manufactured Housing	3
Total Population	**102**

Notes: Population numbers are estimates based on the 2010 United States Census average household size per number of housing units.
Source: Landrum & Brown analysis, 2018.

Figure 3-7
Non-Compatible Land Use Housing and Population for Future (2023) Proposed Action Noise Contours

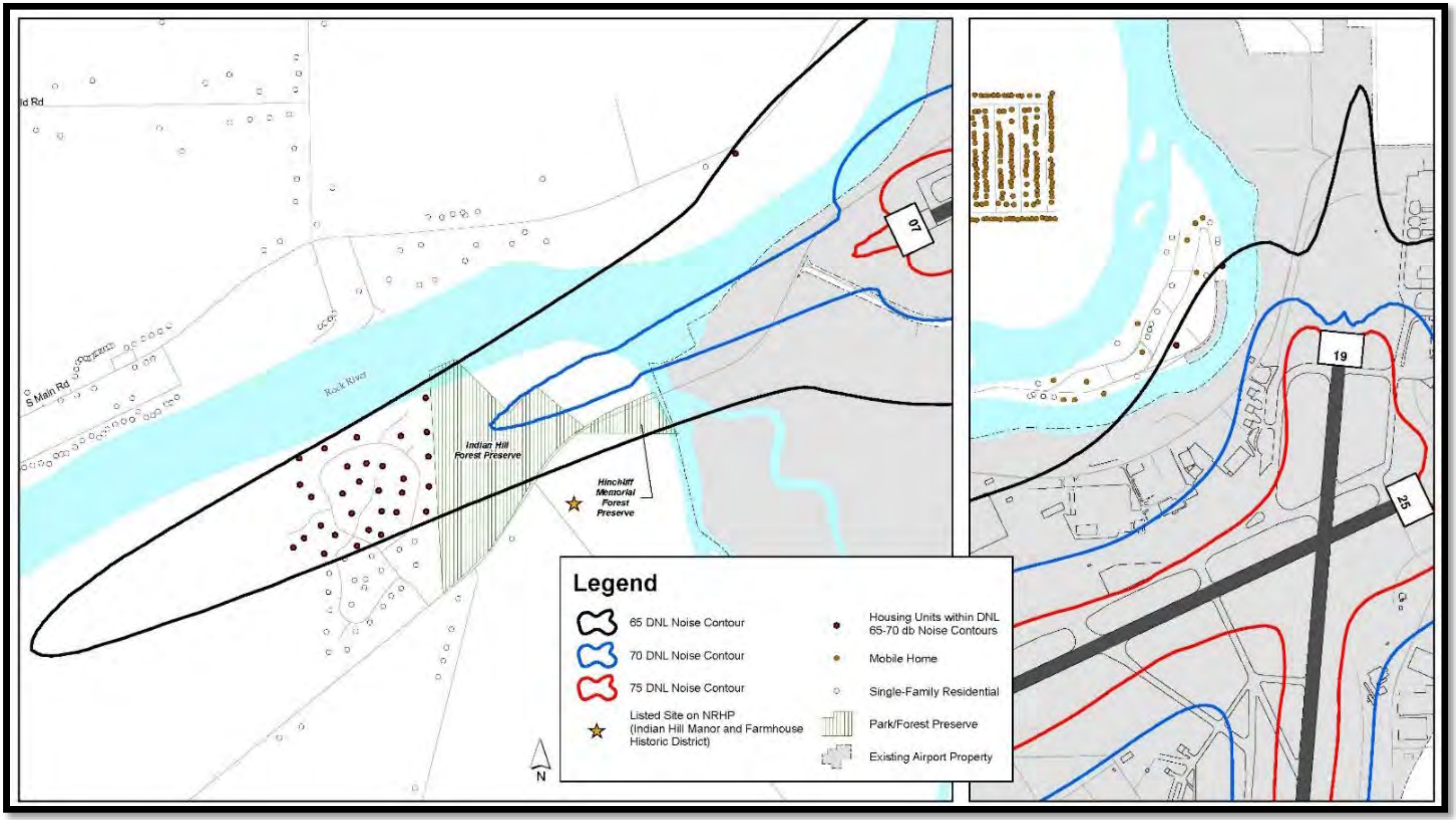


Table 3-10 provides the differences in housing and population counts between the Future (2023) No Action condition and the Future (2023) Proposed Action conditions.

Table 3-10
Non-Compatible Land Use Housing and Population for Future (2023) No Action Noise Contours vs. Future (2023) Proposed Action Noise Contours

Residential Land Uses	2023 No Action 65-70 DNL	2023 Proposed Action 65-70 DNL	Difference
Housing Units			
Single-Family Residential	22	32	10
Multi-Family Residential	0	0	0
Manufactured Housing	0	1	1
Total Housing Units	**22**	**33**	**11**
Population			
Single-Family Residential	56	99	43
Multi-Family Residential	0	0	0
Manufactured Housing	0	3	3
Total Population	**56**	**102**	**46**

Notes: Population numbers are estimates based on the 2010 United States Census average household size per number of housing units.
Source: Landrum & Brown analysis, 2018.

Comparison to Federal Threshold of Significance

A noise impact would be considered significant if there were an increase of 1.5 dB or more over noise-sensitive facilities within the 65+ DNL contour when comparing the Future No Action and Proposed Action.[5] Although there are more residential housing units included within the 65+ DNL contour in the 2023 Proposed Action than under the 2023 No Action, there are no increases of 1.5 dB within the 65+ DNL noise contour. Any increases in dB noise levels under the 2023 Proposed Action were less than the significance threshold. Thus, there are no noise-sensitive facilities within the areas of 1.5 dB increase within 65+ DNL for the Future (2023) Proposed Action. Therefore, no significant impacts would occur from implementation of the Proposed Action.

In addition to the noise exposure contours, a supplemental noise analysis, including a grid/location point analysis, was conducted to provide a greater understanding of noise conditions at locations near the Airport. This supplemental noise analysis is provided in Appendix B, Noise Technical Report, prepared by Landrum & Brown, Incorporated.

Mitigation

There are no significant noise impacts with the Proposed Action; therefore, no mitigation is required.

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[5] FAA *Order 1050.1F*, Section 4.3-3, Significant Thresholds.

Land Use

General

The previous section, Noise and Noise Compatible Land Use, focused specifically on potential land use impacts associated with aircraft noise. Compatible land use issues may also arise from acquisition, business relocations, community disruption, induced socioeconomic impacts, wetland or floodplain impacts, or critical habitat alterations associated with the proposed projects.

Land use compatibility is also evaluated in terms of land uses that may adversely affect safe airport operations, including potential wildlife attractants that may be in proximity of the airport's air operating areas. Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*, provides separation guidance for potential wildlife attractants. According to Advisory Circular 150/5200-33B, disposal sites will be considered as incompatible if located within areas established for the airports through the application of the following criteria:

- Waste disposal sites located within 10,000 feet of any Airport Operating Area (AOA) used or planned to be used by turbine-powered aircraft
- Waste disposal sites located within 5,000 feet of any AOA used only by piston-powered aircraft
- Any waste disposal site located within 5 miles of the farthest edge of the Airport's AOA that could cause hazardous wildlife movement into or across the approach or departure airspace

Affected Environment

The Airport covers approximately 3,000 acres of property for the operation of the airport, protection of runway approaches and compatible land use. The area surrounding RFD consists of industrial, commercial, single-family residential and agricultural land uses with some scattered rural residences. The area south and west of RFD is wooded and farmland with small residential subdivisions. Residential areas are located northwest and southwest of RFD. Industrial use areas are located east, northwest, and southeast of RFD. Primarily industrial and commercial areas are east of RFD.

Other land uses at RFD include previously disturbed land and mowed turf areas in the Northwest Air Cargo Development area. In the Midfield Air Cargo Development area, land uses include agriculture areas, mowed turf areas, open fallow fields and a former auto auction facility, which is currently being used for storage and remote staging for the Airport.

RFD is near the Winnebago Reclamation Service Landfill, which is located approximately 10,500 feet southeast of Runway 01/19 and the Orchard Hills Landfill is located approximately 13,500 feet south of Runway 01/19. Both landfills accept several types of waste including municipal waste, nonhazardous special waste, and asbestos. The landfills are located within the five-mile FAA threshold for consideration of aircraft bird interaction but are outside the 10,000-foot incompatibility threshold. The landfills operate in a manner to not attract or sustain hazardous bird movements from feeding, water or roosting areas into, or across the runways and/or approach and departure patterns of aircraft. By law, the landfills are required to cover the waste each night to avoid attracting birds and small mammals. The amount of additional waste generated by the proposed project facility would not cause the existing operations of the facilities to change, thereby not creating a hazard.

Environmental Consequences

No Action Alternative

The No Action Alternative does not require any land acquisition; business or residential relocations; altering any surface transportation facility; dividing or disrupting any established community; disrupting orderly, planned development; or creating an appreciable change in employment. Therefore, there would be no social impacts anticipated by the No Action Alternative.

Sponsor's Proposed Action

The Sponsor's Proposed Action will occur entirely on existing airport property. No land or easement acquisition is required for the proposed projects. Discussion regarding off-Airport land use compatibility is included in the Noise and Noise Compatible Land Use Section of this EA.

On-airport storm water management facilities allow the quick removal of surface water, including discharges related to aircraft deicing, from impervious surfaces, such as pavement and terminal/hangar building roofs. Existing on-airport detention ponds collect storm water, protect water quality, and control runoff. RFD has developed a Wildlife Hazard Management Plan (WHMP) in accordance with Part 139 and has incorporated the WHMP into the Airport Certification Manual (ACM). RFD has developed measures to minimize hazardous wildlife attractions in consultation with qualified airport wildlife biologists from the United States Department of Agriculture, Animal Plant Health Inspection Service, Wildlife Services (USDA-WS). *AC 150/5200-33B* Section 4.3(a) states that airport operators should identify hazardous wildlife attractants in the planning process for new airport development projects.

The existing treatment basin is comprised of two retention basins, a larger basin and a smaller secondary treatment and discharge basin. Based on changes in the treatment process, separate basins are no longer needed and the berm that exist between the two basins can be removed to add storage and treatment capacity within the pond. New storm water detention facilities in both the Northwest Air Cargo Development and the Midfield Cargo Development will be designed, engineered, constructed and maintained for a maximum of a 48-hour detention period after a design storm and remain completely dry between storms. Where possible, the detention basins may be steep-sided, narrow and linearly shaped. Also, all vegetation inside (bottom) or around the detention basins that provide food or cover for hazardous wildlife will be eliminated. Any seeding required within the project will use the *Illinois Standard Specifications For Construction of Airport, Division V, Item 901 – Seeding*. The development of underground storm water infiltration systems will also be considered. No significant impacts to on-Airport land uses or impacts associated with potential wildlife attractants are anticipated as a result of the proposed projects.

The proposed project is consistent with the plans, goals, policies, or controls that have been adopted for the area. For example, the following excerpt from the City of Rockford's 2020 Comprehensive Plan states:

> *"We need to continue to evaluate how we can capitalize on the location and infrastructure already in place to build on the freight traffic already going through GRA [Chicago Rockford International Airport]. With continuing congestion problems at Chicago's O'Hare Airport, the GRA has great potential to continue to grow as the*

> *freight logistics hub of the Midwest. To accomplish this, we need to determine what we and/or the GRA can do to strengthen the Airport's position as a freight terminal."*[6]

Mitigation

Neither the Sponsor's Proposed Action nor the No Action Alternative would create any significant land use impacts. Therefore, no mitigation would be required. However, as noted previously, storm water detention facilities be designed, engineered, constructed and maintained to minimize potential hazardous wildlife attractants. Any seeding required within the project will use the *Illinois Standard Specifications For Construction of Airport, Division V, Item 901 – Seeding*. The development of underground storm water infiltration systems will also be considered.

Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks

General

The character of a community is largely determined by the people that live or work there. Associated factors that contribute to the characteristics of a community are business and labor markets, transportation systems, and utilities. The geography, geology, and climate of an area are also contributing factors. Any proposed action that significantly affects individuals within a community is defined herein as a social impact.

This section evaluates potential socio-economic impacts that would result from the construction of the proposed projects. Additionally, this section presents the analysis of environmental justice and the potential impacts on children's environmental health and safety risks.

Socioeconomics

This section of the document evaluates the proposed project's effects on the social and economic characteristics of affected communities, specifically evaluating shifts in population, public service demands, roadway capacity, businesses, and economics. FAA *Order 1050.1F, Desk Reference*, Section 12.1.3 addresses the factors to be considered in determining socioeconomic impacts.

> *"The principal social impacts to be considered are those associated with relocation or other community disruption, transportation, planned development, and employment."*[7]

As noted in FAA *Order 1050.1F*, if acquisition of property or displacement of persons is involved, then 49 CFR Part 24, the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*[8] (Uniform Act), must be implemented. In addition, FAA provides guidance in FAA Advisory Circular 150/5100-17[9] and FAA *Order 5100.37B*[10] for projects that require or involve land acquisition and

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[6] City of Rockford's 2020 Comprehensive Plan, https://rockfordil.gov/wp-content/uploads/2017/07/Plan-Element-III-Transportation.pdf

[7] FAA, *Order 1050.1F, Desk Reference*, July 2015, pg. 12-4

[8] Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC 4601et seq.) (PL 91-528 amended by the Surface Transportation and Uniform Relocation Act Amendments of 1987, PL 100-117).

[9] Federal Aviation Administration (FAA) Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects, Advisory Circular 5100-17, Change 7, July 10, 2017.

[10] Federal Aviation Administration (FAA) Land Acquisition and Relocation Assistance for Airport Projects, FAA Order 5100.37B, August 1, 2005.

relocation.

Factors to consider that may be applicable to socioeconomic resources, include, but are not limited to, the following:

- Inducing substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area);
- Disrupting or dividing the physical arrangement of an established community;
- Causing extensive relocation when sufficient replacement housing is unavailable;
- Causing extensive relocation of community businesses that would cause severe economic hardship for affected communities;
- Disrupting local traffic patterns and substantially reducing the levels of service of roads serving an airport and its surrounding communities; or
- Producing a substantial change in the community tax base.

Environmental Justice

Executive Order (EO) 12898,[11] issued in 1994, requires each federal agency to include environmental justice as part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse impacts of its programs, policies, and activities on minority and/or low-income populations. *DOT Order 5610.2, Environmental Justice in Minority Populations and Low-Income Populations* establishes how DOT and its operating administrations will integrate EO 12898 with existing regulations and guidance. It states that it is the policy of DOT to promote the principles of environmental justice through the incorporation of those principles into existing agency programs, policies, and activities.[12] The order goes on to state it is DOT's policy to promote the principles of environmental justice by considering them during or as a part of the planning and decision-making processes in the development of programs, policies, and activities, using the principles of NEPA, Title VI, the *Uniform Act*, and other applicable DOT statutes, regulations, and guidance. This Order provides guidance related to environmental justice impacts as follows:

> *A "disproportionately high and adverse effect on minority and low-income populations" is defined as an adverse effect that: "(1) is predominantly borne by a minority population and/or low-income population; or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or low-income population."[13] The DOT Order also states that "[i]n making determinations regarding disproportionately high and adverse effects . . . mitigation and enhancement measures. . . and all offsetting benefits to the affected minority and low-income population may be taken into account . . ."*

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[11] Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations, February 11, 1994.

[12] U.S. Department of Transportation Order 5610.2, Environmental Justice in Minority Populations and Low-Income Populations, December 10, 1997.

[13] *U.S. Department of Transportation Order 5610.2*, Federal Register: (Volume 62, Number 72), Pages 18377-18381, April 15, 1997.

Disproportionately high and adverse human health or environmental effects on minority and low-income populations may represent a significant impact. Additional guidance for implementing EO 12898 within the NEPA process is contained in CEQ's *Environmental Justice: Guidance Under the National Environmental Policy Act*.

Children's Health and Safety Risk

Pursuant to *Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are directed, as appropriate and consistent with the agency's mission, to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. Environmental health and safety risks are defined as risks to health or safety that are attributable to products or substances that a child is likely to come in contact with or ingest. Disproportionate health and safety risks to children may represent a significant impact.

Surface Transportation Improvements

A preliminary Traffic Impact Study was completed to analyze the potential impacts on the surrounding roadway network. This study analyzed the existing conditions, potential impacts and roadway/intersection improvements that would be needed to accommodate the projected traffic levels with the proposed project. A copy of the Traffic Impact Study is included in Appendix C.

Affected Environment

Table 3-11 presents demographic characteristics for the project area[14] and Winnebago County and the State of Illinois for comparison purposes. The project area for this analysis includes the census tracts that directly abut the Airport, which also incorporate all of the areas within the noise contours generated as a part of this EA. Using U.S. Census Bureau Data,[15] an analysis was conducted of the census tracts that encompass the project study area where populations are present. Population, race and ethnicity, age, housing occupancy and poverty.

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[14] The project area falls within Census Tracts 9800, 37.06 and 37.11 within Winnebago County, Illinois.

[15] U.S. Census, American Community Survey, 2013-2017 5-Year Period Estimate.

Table 3-11
Demographic Data

Characteristic	Project Study Area		Winnebago		Illinois	
	No.	%	No.	%	No.	%
Total Population	10,777	100%	282,569	100	12,551,822	100
Race						
White Alone	9,156	85.0%	223,343	79.0%	9,043,190	72.0%
Black or African American	736	6.8%	35,184	12.5%	1,754,135	14.0%
Other Race	885	8.2%	24,042	8.5%	1,754,497	14.0%
Ethnicity/Hispanic						
Hispanic or Latino Origin (of any race)	1,278	11.9%	34,647	12.3%	2,126,247	16.9%
White Alone, not Hispanic or Latino	8,023	74.4%	198,786	70.3%	7,787,654	62.0%
Age						
Median Age	43.5	NA	39.6	NA	37.7	NA
Under 18 Years	2,529	23.5%	66,597	23.6%	2,915,860	23.2%
18-64 Years	6,305	58.5%	171,170	60.6%	7,853,023	62.6%
65 Years and Older	1,943	18.0%	44,802	15.8%	1,782,939	14.2%
Income						
Median Household Income	$55,841	NA	$51,110	NA	$61,229	NA
Persons Below Poverty Line	547	5.1%	43,159	15.3%	1,698,613	13.5%
Housing Characteristics						
Occupied Housing Units:	4,089	100	114,491	100	4,818,452	100
Owner-Occupied	3,572	87.4%	75,723	66.1%	3,185,142	66.1%
Renter-Occupied	517	12.6%	38,768	33.9%	1,633,310	33.9%

Source: U.S. Census, American Community Survey, 2013-2017 5 Year Period Estimate.

The project area was evaluated in accordance with *Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* to determine if there is a potential for disproportionate and adverse impacts to low-income or minority populations. The U.S. Census, American Community Survey (ACS), 2013-2017 indicates that residents of the project area are 85% white, 6.8% black or African American and 8.2% Other Race. The ethnicity of the project area is 11.9% Hispanic and 74.4% white alone. The ACS indicates that residents of Winnebago County are 79% white, 12.5% black or African American and 8.5% Other Race. The ethnicity of Winnebago County is 12.3% Hispanic and 70.3% white alone. The ACS indicates that residents of Illinois are 72% white, 14% black or African American and 14% Other Race. The ethnicity of Winnebago County is 16.9% Hispanic and 62% white alone.

In 2017, the median household income for the project area was $55,841, for Winnebago County it was $51,110, and for Illinois it was $61,229. Approximately 5.1% of the residents are below the poverty line within the project area, 15.3% within Winnebago County, and 13.5% within Illinois. The Health and Human Services 2017 Poverty Guidelines for a family of four is $24,600.[16]

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[16] https://aspe.hhs.gov/2017-poverty-guidelines#threshholds

The project study area does not contain a minority population of concern because the affected community is not more than 50 percent minority, nor is the minority population meaningfully greater than Winnebago County or the State of Illinois. In addition, based on the information above, the project area does not contain a low-income population.

Environmental Consequences

No Action Alternative

The No Action Alternative does not require any land acquisition; business or residential relocations; altering any surface transportation facility; dividing or disrupting any established community; disrupting orderly, planned development; or creating an appreciable change in employment. Therefore, there would be no social impacts anticipated by the No Action Alternative.

Sponsor's Proposed Action

The Sponsor's Proposed Action would be constructed entirely on existing airport property. No land acquisition; business or residential relocations; dividing or disrupting any established community; disrupting orderly, planned development; or creating an appreciable change in employment would be required. Additionally, because the Sponsor's Proposed Action would not have a significant effect on the other resource categories presented in this document, there would be no disproportionately high or adverse effects on minority, low-income populations, or children's health and safety. As noted above, the project area does not contain a minority or low-income population.

The Sponsor's Proposed Action would be consistent with orderly, planned development in the area. Therefore, neither established communities or planned development would be disrupted.

The proposed improvements would result in an estimated increase in employment of approximately 300-400 employees during normal non-peak operations and up to 900 employees during peak seasonal (4th quarter) operations during the first full year of operation. In December of 2018, the Illinois Department of Employment Security (IDES) reported an unemployment rate of 9.3% which is well above the statewide and national averages. Additionally, IDES estimated that the number of unemployed people in the workforce for the Rockford MSA was 16,000.[17] It is anticipated that the additional employees are available within the existing labor force.

Immediate benefits of the proposed improvements include a temporary increase in employment in the construction sector proportional to the employment needs for the construction projects. This increased temporary and permanent employment would result in a boost to local merchants/professionals from the sale of goods and services and would result in positive growth and an increase in the community tax base. The induced economic and employment effects likely to result from the Sponsor's Proposed Action are positive and consistent with local plans. Based on these factors, it is anticipated that the Sponsor's Proposed Action would not create any adverse socioeconomic impacts.

The traffic study found that the existing roadways around the Airport have capacity to provide sufficient level of service with the projected vehicular operations. However, there would be a need for some intersection improvements to accommodate the additional projected employee and truck trips to the

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[17] http://www.ides.illinois.gov/LMI/Local%20Area%20Unemployment%20Statistics%20LAUS/PressRelease/Local/Rockford_Nov.pdf

Midfield Air Cargo Area as described in the following Mitigation section.

Mitigation

Neither the No Action Alternative nor the Sponsor's Proposed Action would produce significant socioeconomic, environmental justice impacts or health and safety risks to children. Therefore, no mitigation would be required for these resources.

However, as noted above, there would be a need to accommodate the additional employee and truck trips by constructing proposed intersection improvements as summarized in the following bullet points and as further described in the Traffic Impact Study in Appendix C. Each of these improvements are anticipated to be constructed within the existing roadway right-of-way or on existing airport property and would be coordinated with the Winnebago County Highway Department as the design process progresses.

- **Kishwaukee Road and Beltline Road Intersection Improvements.** This existing one-way stop-controlled and channelized "T" intersection is recommended for signalization and additional channelization improvements. Channelization improvements will include southbound dual left turn lanes, two eastbound receiving lanes to accommodate the southbound dual lefts, and a continuous westbound to northbound right turn lane. See Figure 3-8 for a conceptual layout of the proposed improvements at the intersection of Kishwaukee Road and Beltline Road.

Figure 3-8
Proposed Improvements at Kishwaukee Road and Beltline Road

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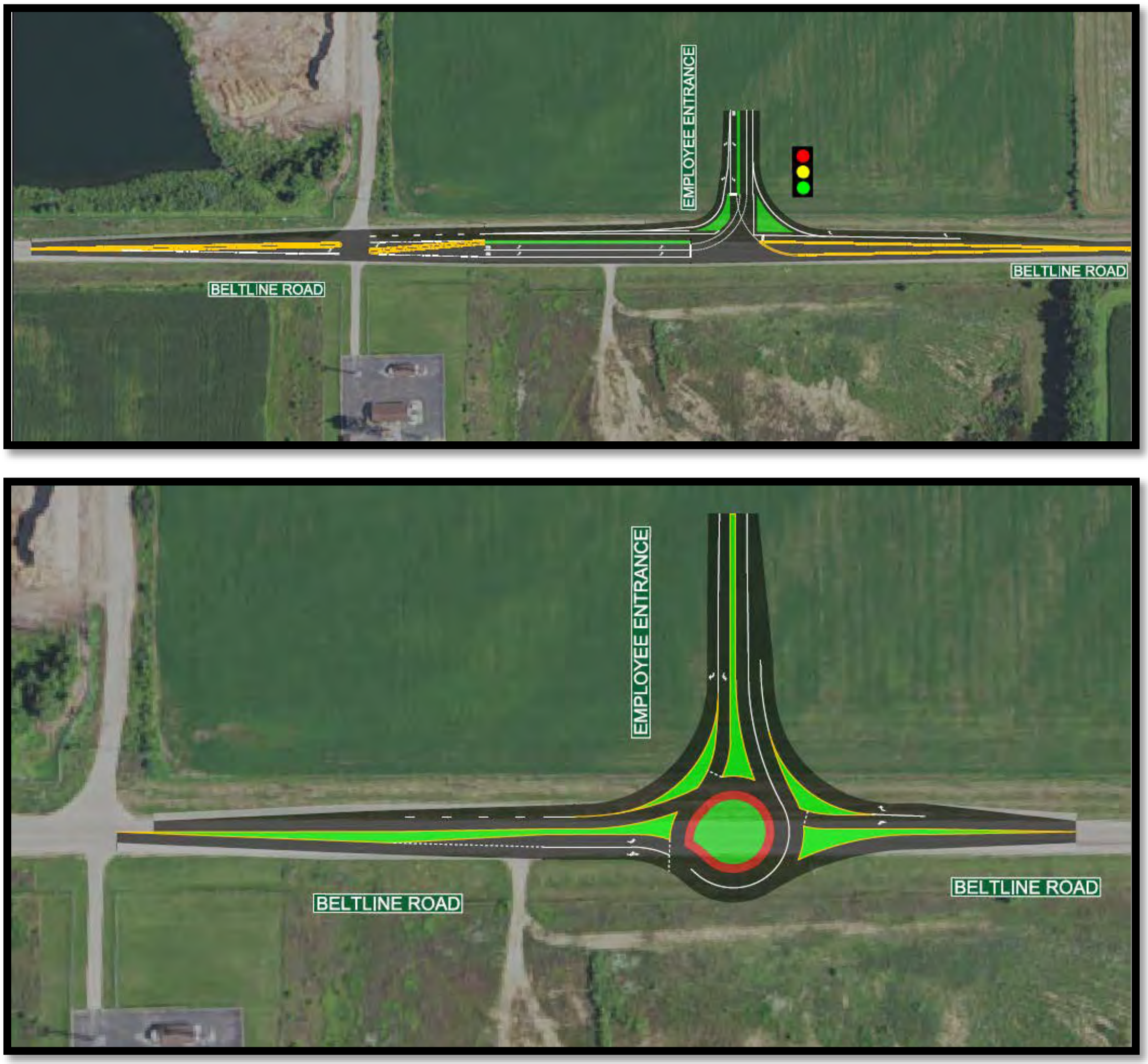
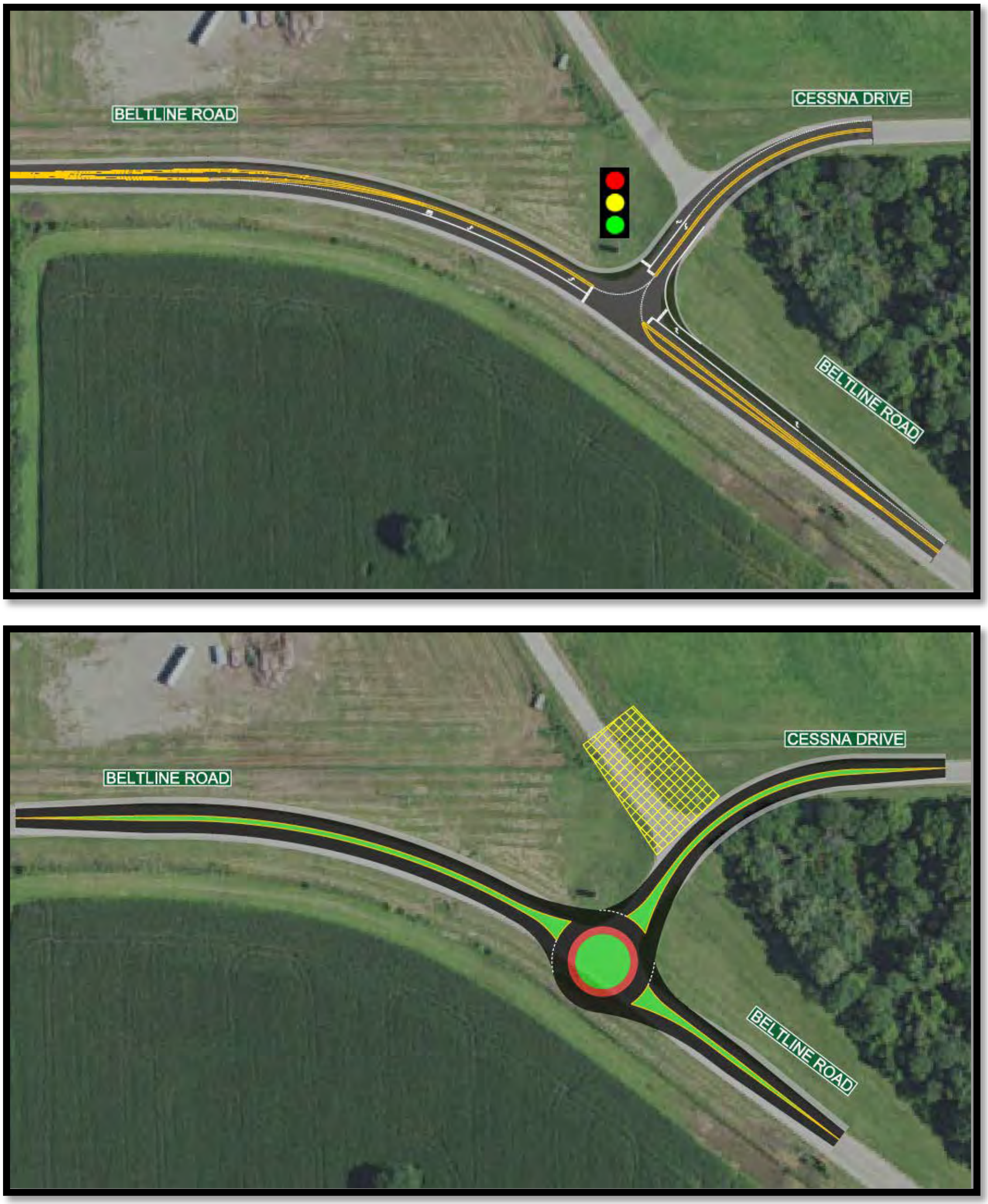
- **Kishwaukee Road/Airport Drive at Beltline Road Intersection Modifications.** This existing signalized and channelized intersection is recommended for traffic signal and channelization modifications without additional pavement. This includes remarking the east leg median to be a westbound left turn lane as well as changing the split phasing of eastbound and westbound to become concurrent protected left turns and concurrent eastbound and westbound thru movements.
- **Beltline Road at Employee Entrance Intersection Improvements.** This new facility entrance for employee parking will create a new "T" intersection access on Beltline Road west of Cessna Drive. This intersection can be traffic signal controlled with channelization or a multilane roundabout. The signalized option would have eastbound dual left turn lanes, a westbound right turn lane, and a southbound to westbound continuous right turn lane. The roundabout option would only require two eastbound lanes (left, left/thru), a westbound right turn lane, and a continuous southbound to westbound right turn lane. See Figure 3-9 for a conceptual layout of the two intersection options at the new employee entrance to the Midfield area.

Figure 3-9
Beltline Road at Employee Entrance Intersection Options



- **Beltline Road at Cessna Drive Intersection Improvement.** This existing un-channelized one-way stop-controlled "T" intersection can be a single lane roundabout or traffic signal controlled with channelization. Channelization would include a single eastbound left turn lane, single westbound right turn lane, and exclusive southbound left and right turn lanes. See Figure 3-10 for a conceptual layout of the two intersection options at Beltline and Cessna Drive.

Figure 3-10
Beltline Road at Cessna Drive Intersection Options



Air Quality

General

An airport air quality assessment requires consideration under both the *Clean Air Act of 1970*, as Amended (CAA), and the *National Environmental Policy Act of 1969*, as Amended (NEPA). These two federal laws require distinct analyses and may be separately applicable to an airport project.

The CAA establishes standards and programs to evaluate, achieve, and maintain acceptable air quality in the United States. In accordance with CAA requirements, the United States Environmental Protection Agency (EPA) established the National Ambient Air Quality Standards (NAAQS), for six common air pollutants (known as "criteria air pollutants") that are potentially harmful to human health and welfare.[18]

The EPA considers the presence of the following six criteria pollutants to be indicators of air quality:

- Carbon monoxide (CO);
- Nitrogen dioxide (NO2);
- Ground-level Ozone (O3);
- Sulfur dioxide (SO2);
- Particulate matter (PM10 and PM2.5);[19] and,
- Lead (Pb).[20]

Since 1975, lead emissions have been in decline due in part to the introduction of catalyst-equipped vehicles and the decline in production of leaded gasoline. In general, an analysis of lead is limited to projects that emit significant quantities of the pollutant (e.g., lead smelters) and is generally not applied to transportation projects. For lead, a major source, as defined by EPA for a Nonattainment New Source Review permitting program, would be emitting over 100 tons per year. Lead emissions from piston driven aircraft at RFD would be considerably lower; therefore, an analysis of lead is not included in this emissions inventory.

The NAAQS are summarized in Table 3-12. For each of the criteria pollutants, the EPA established primary standards intended to protect public health, and secondary standards for the protection of other aspects of public welfare, such as preventing materials damage, preventing crop and vegetation damage, and assuring good visibility. Areas of the country where air pollution levels consistently exceed these standards may be designated nonattainment by the EPA.

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18 EPA, 40 C.F.R. § 50, National Primary and Secondary Ambient Air Quality Standards (NAAQS).

19 PM10 and PM2.5 are airborne inhalable particles that are less than ten micrometers (coarse particles) and less than 2.5 micrometers (fine particles) in diameter, respectively

20 Airborne lead in urban areas is primarily emitted by vehicles using leaded fuels.

Table 3-12
National Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide		Primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead		primary and secondary	Rolling 3-month average	0.15 µg/m3 (1)	Not to be exceeded
Nitrogen Dioxide		Primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone		primary and secondary	8-hour	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particulate Matter	$PM_{2.5}$	Primary	1 year	12.0 µg/m^3	Annual mean, averaged over 3 years
		Secondary	1 year	15.0 µg/m^3	Annual mean, averaged over 3 years
		primary and secondary	24-hour	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24-hour	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide		Primary	1-hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.
(2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.
(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.
(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO2 standards (40 CFR 50.4(3)).

Notes: ppm is parts per million; ppb is parts per billion, and µg/m3 is micrograms per cubic meter.
Source: EPA, https://www.epa.gov/criteria-air-pollutants/naaqs-table Accessed July 2019

A nonattainment area is a homogeneous geographical area (usually referred to as an air quality control region) that is in violation of one or more NAAQS and has been designated as nonattainment by the EPA as provided for under the CAA.

A maintenance area describes the air quality designation of an area previously designated nonattainment by the EPA and subsequently re-designated attainment after emissions are reduced. Such an area remains designated as maintenance for a period up to 20 years at which time the state can apply for re-designation to attainment, provided that the NAAQS were sufficiently maintained throughout the maintenance period. Some regulatory provisions, for instance the CAA conformity regulations, apply only to areas designated as nonattainment or maintenance.

Affected Environment

RFD is located in Winnebago County, Illinois which is included in the Rockford-Janesville-Beloit Interstate Air Quality Control Region.[21] Winnebago County is in attainment of the applicable NAAQS for the criteria pollutants established by the USEPA.[22] Because the County is not designated a non-attainment or maintenance area for any of the criteria pollutants established by the EPA, a General Conformity and Transportation Conformity evaluation under the CAA is not required.

The Illinois Environmental Protection Agency established an air monitoring network around the state that measures air pollution.[23] The two air quality monitoring stations closest to the Airport are located at the Health Department in Rockford, IL and Maple Elementary School in Loves Park, Illinois. The Rockford station primarily monitors for the pollutant $PM_{2.5}$ while the Loves Park station monitors for the pollutant's ozone and $PM_{2.5}$. There were no exceedances of any of the $PM_{2.5}$ and ozone standards at either of the air quality monitoring stations in 2017.

Further information regarding air quality conformity requirements, existing air quality monitoring in the Region, Indirect Source Review requirements and air quality modeling methodology is included in Appendix D, Air Quality Technical Report, prepared by Landrum & Brown, Incorporated.

Environmental Consequences

The following sections present the results of the air quality analysis for the No Action and Sponsor's Proposed Action to determine if the implementation of the Sponsor's Proposed Action would cause either direct or indirect emissions. If there is the potential for emissions, the FAA requires a comparison of project emissions to the NAAQS. The FAA allows comparison to the Federal *de minimis* thresholds to limit the NAAQS comparison assessment to only those airports with the potential to exceed the NAAQS.

The primary sources of air emissions accounted for in the inventory data presented in this report are derived from construction and operational activities.

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[21] USEPA, 40 CFR Part 81, Section 81.7114, Rockford-Janesville-Beloit Air Quality Control Region, data current as of July 1st, 2002.

[22] USEPA, Green Book National Area and County-Level Multi-Pollutant Information, As of January 31, 2019.

[23] 2017 Air quality Report, Illinois Environmental Protection Agency, 2017. Available on-line: https://www2.illinois.gov/epa/topics/air-quality/air-quality-reports/Documents/2017%20Annual%20Air%20Quality%20Report%20Final.pdf

Construction Activities

Temporary impacts would result from construction activities associated with the Proposed Action. Air pollutants would be emitted by construction equipment and fugitive dust generated during construction of the proposed development, as well as during clearing and grading of the site. The Northwest Air Cargo Development and Midfield Air Cargo Development are anticipated to be completed and operational by 2023.

Construction estimates (including phase durations and estimated quantities) for the Proposed Action were based on the preliminary engineering data provided by the air cargo service provider. The construction phasing plans identified multiple phases proposed to occur over 4 years, beginning in 2019. The Sponsor's Proposed Action construction phases, elements, and estimated footprints are detailed in Table 3-13.

Table 3-13
Sponsor's Proposed Action Construction Activities

Phase	Activity	Duration (Months)	Dimensions	Unit
	Northwest Air Cargo Development			
1	Clearing & Site Grading	5	17.2	acres
2	Service Road Construction	3	3,200	square feet
3	Apron Construction	22	31.2	acres
4	Parking Lot Construction	3	3.7	acres
5	Detention Area Construction	3	1.2	acres
6	Existing Glycol Containment Area Modification	3	7.6	acres
	Midfield Air Cargo Development			
1	Clearing and Site Grading	5	96.3	acres
1	Building Construction	36	1,130,000	square feet
1	Ramp Construction	8	16.8	acres
1	Taxi Lane Construction	5	15	acres
1	Service Road Construction	6	700,000	square feet
1	Employee Parking Construction	6	30	acres
1	Detention Area Construction	6	18	acres

Source: Air cargo service provider, 2018; Landrum & Brown analysis, 2019.

A construction emissions inventory was prepared to reflect the use of construction equipment and vehicles attributed to the Proposed Action. Construction equipment and total hours of use, load factors and horsepower attributes for each construction activity were developed based on the dimensions for each development area. The annual construction emissions inventory is provided in Table 3-14.

Table 3-14
Sponsor's Proposed Action Construction Emissions

Activity / Year	Annual Emissions (Short Tons)					
	CO	VOC	NO_X	SO_X	$PM_{2.5}$	PM_{10}
Federal *de minimis* threshold	**100**	**100**	**100**	**100**	**100**	**100**
Construction - 2019	10.1	1.7	6.0	0.02	0.4	2.0
Construction - 2020	23.1	3.2	13.9	0.07	0.7	3.8
Construction - 2021	28.5	5.1	19.4	0.1	1.0	7.4
Construction - 2022	4.9	0.2	0.3	0.01	0.01	0.3

Note: Numbers may not sum due to rounding.
Source: Landrum & Brown analysis, 2019.

As shown in Table 3-14, there are no exceedances of the established *de minimis* threshold throughout the years of construction. Construction of the Proposed Action would result in the highest emissions during the second and third construction years in 2020 and 2021 when a majority of the building construction, apron construction, pavement placement, and rough grading would take place. This can be attributed to the Northwest Air Cargo Development and Midfield Air Cargo Development construction activities occurring simultaneously.

Operational Activities

This section presents the analysis of operational air quality emissions from the implementation of the Sponsor's Proposed Action in 2023 compared to the No Action in 2023. The year 2023 is used as a basis for analysis because 2023 is the first projected full implementation year of the proposed air cargo facility developments.

No Action Alternative

This section discusses the methodology and the emission inventory for the Future (2023) No Action Alternative. The Airport Environmental Design Tool (AEDT) Version 2d was used to estimate operational activity emissions resulting from aircraft, auxiliary power units (APUs), and ground support equipment (GSE). Since the No Action condition does not require the construction and operation of new facilities, only aircraft operations and associated support operations were modeled.

The number and type of aircraft operations directly affect emissions. Under the Future (2023) No Action Alternative, the Airport would accommodate approximately 51,138 annual aircraft operations as presented in Chapter 1 and further described by aircraft type and engine model in the Air Quality Technical Report in Appendix D.

Some aircraft use APUs while parked to operate the heating, air conditioning, and electric systems. The APU can also be used to 'start up' or restart the aircraft engines before departing. APU usage causes emissions and is under the control of the pilot; therefore, APU use and emissions can vary greatly from one aircraft to another. AEDT defaults were used to model APU usage by aircraft at the Airport.

Typical GSE includes air conditioning, air start, baggage tractors, and belt loaders, which support airport operations. The annual GSE usage under the Future (2023) No Action Alternative was estimated based on the projected aircraft activity level. Default GSE for each aircraft type and operation were modeled in AEDT.

The operational emissions inventory for the Future (2023) No Action Alternative is provided in Table 3-15.

Table 3-15
Operational Emissions Inventory – Future (2023) No Action Alternative

Source	Annual Emissions (Short Tons Per Year)					
	CO	VOC	NO_X	SO_X	$PM_{2.5}$	PM_{10}
Aircraft	282.1	61.9	201.7	17.1	1.5	1.5
APUs	1.9	0.2	4.3	0.4	0.4	0.4
GSE	19.2	0.8	2.2	0.2	0.1	0.1
Total	**303.2**	**63.0**	**208.2**	**17.6**	**2.0**	**2.0**

Note: Numbers may not sum due to rounding.
Source: Landrum & Brown analysis, 2019.

Sponsor's Proposed Action

This section discusses the methodology and the emission inventory for the Future (2023) Sponsor's Proposed Action Alternative. The AEDT was used to estimate operational activity emissions resulting from aircraft, APUs, and GSE. Additionally, ground access vehicles were modeled in the Sponsor's Proposed Action as the project includes the construction and operation of new facilities.

As a result of implementing the Sponsor's Proposed Action, it is anticipated that there would be an increase in the number of aircraft operating at RFD over the No Action. Under the Future (2023) Sponsor's Proposed Action Alternative, the Airport would accommodate approximately 56,654 annual aircraft operations as presented in Chapter 1 and further described by aircraft type and engine model in the Air Quality Technical Report in Appendix D.

Like in the No Action Alternative, the annual APU and GSE usage for the Future (2023) Sponsor's Proposed Action Alternative was estimated based on the aircraft activity level. AEDT defaults were used to model APU usage at the Airport.

The Future (2023) Proposed Action Alternative would require ground access vehicles (GAVs), including employee vehicles and delivery trucks, to service the sortation facilities in the Northwest Air Cargo Development and Midfield Air Cargo Development. The Midfield Air Cargo Development is a proposed new development that would require new employee vehicles and delivery trucks. Because the Northwest Cargo Development is an expansion to an existing facility supported by employees, it was assumed that only delivery trucks would be required to support the expansion. The daily GAV activity for the Future (2023) Sponsor's Proposed Action Alternative and modeling methodology is provided in the Air Quality Technical Report in Appendix D.

The operational emissions inventory for the Future (2023) Sponsor's Proposed Action Alternative is provided in Table 3-16.

Table 3-16
Operational Emissions Inventory – Future (2023) Sponsor's Proposed Action Alternative

Source	Annual Emissions (Short Tons Per Year)					
	CO	VOC	NO_X	SO_X	$PM_{2.5}$	PM_{10}
Aircraft	321.9	70.8	250.7	20.9	1.7	1.7
APUs	2.2	0.2	5.0	0.5	0.5	0.5
GSE	22.7	0.9	2.6	0.2	0.2	0.2
GAVs	45.5	5.9	27.9	0.1	1.1	1.3
Total	**392.3**	**77.8**	**286.2**	**21.7**	**3.5**	**3.7**

Notes:
1. Operational activities were modeled under the assumption that the development was operational during 365 days in 2023 to account for the maximum annual operational emissions.
2. Numbers may not sum due to rounding.
Source: Landrum & Brown analysis, 2019.

Summary of Air Quality Analysis

The results of the emission inventory prepared for the Future (2023) Sponsor's Proposed Action Alternative were compared to the results of the Future (2023) No Action Alternative of the same future year to disclose the potential increase in emissions caused by the Sponsor's Proposed Action. The comparison of the emission inventories, which included an inventory of construction and operational emissions, were used for this air quality assessment as required under the CAA (including the 1990 Amendments) and NEPA.

Table 3-17 presents the increase in emissions due to the implementation of the Future (2023) Sponsor's Proposed Action Alternative. As previously stated, general conformity does not apply to this study because Winnebago County is in attainment of the applicable NAAQS for the criteria pollutants established by the USEPA. The net emissions are compared to the *de minimis* thresholds to determine if the Sponsor's Proposed Action has the potential to create any new violation of the NAAQS, delay the attainment of any NAAQS, or increase the frequency or severity of any existing violation of the NAAQS.

The air quality assessment demonstrates that the Sponsor's Proposed Action would not cause an increase in air emissions above the federal *de minimis* thresholds. Therefore, the Sponsor's Proposed Action conforms to the CAA and NEPA and would not create any new violation of the NAAQS, delay the attainment of any NAAQS, nor increase the frequency or severity of any existing violations of the NAAQS. As a result, no adverse impact on local or regional air quality is expected by construction or operation of the Sponsor's Proposed Action. No further analysis or reporting is required under the CAA or NEPA.

Table 3-17
Annual Emissions

Source	Annual Emissions (Short Tons Per Year)					
	CO	VOC	NO_X	SO_X	$PM_{2.5}$	PM_{10}
Federal de minimis threshold	100	100	100	100	100	100
2019						
Proposed Action - Construction	10.1	1.7	6.0	0.02	0.4	2.0
2019 Proposed Action Net Emissions	+10.1	+1.7	+6.0	+0.02	+0.4	+2.0
2020						
Proposed Action - Construction	23.1	3.2	13.9	0.07	0.7	3.8
2020 Proposed Action Net Emissions	+23.1	+3.2	+13.9	+0.07	+0.7	+3.8
2021						
Proposed Action - Construction	28.5	5.1	19.4	0.1	1.0	7.4
2021 Proposed Action Net Emissions	+28.5	+5.1	+19.4	+0.1	+1.0	+7.4
2022						
Proposed Action - Construction	4.9	0.2	0.3	0.01	0.01	0.3
2022 Proposed Action Net Emissions	+4.9	+0.2	+0.3	+0.01	+0.01	+0.3
2023						
Aircraft - No Action	282.1	61.9	201.7	17.1	1.5	1.5
APUs – No Action	1.9	0.2	4.3	0.4	0.4	0.4
GSE – No Action	19.2	0.8	2.2	0.2	0.1	0.1
Future (2023) No Action Subtotal	*303.2*	*63.0*	*208.2*	*17.6*	*2.0*	*2.0*
Aircraft - Proposed Action	321.9	70.8	250.7	20.9	1.7	1.7
APUs – Proposed Action	2.2	0.2	5.0	0.5	0.5	0.5
GSE – Proposed Action	22.7	0.9	2.6	0.2	0.2	0.2
GAVs – Proposed Action	45.5	5.9	27.9	0.1	1.1	1.3
Future (2023) Proposed Action Subtotal	*392.3*	*77.8*	*286.2*	*21.7*	*3.5*	*3.7*
2023 Proposed Action Net Emissions	+89.1	+14.8	+78	+4.1	+1.5	+1.7

Notes:
1. Operational activities were modeled under the assumption that the development was operational during 365 days in 2023 to account for the maximum annual operational emissions.
2. Numbers may not sum due to rounding.
Source: Landrum & Brown analysis, 2019.

Mitigation

Neither the Sponsor's Proposed Action nor the No Action Alternative would result in any significant air quality impacts. Construction activities associated with the No Action and the Sponsor's Proposed Action would result in temporary emissions from construction equipment, trucks, and fugitive dust emissions from site demolition and earthwork. The impacts would occur only within the immediate vicinity of the construction sites and would be minimized through best management practices to reduce emissions, particularly fugitive particle emissions, during construction.

While the annual emissions from construction equipment would not equal or exceed the applicable *de minimis* thresholds defining insignificant and negligible emissions, the Sponsor's Proposed Action would result in a short-term increase of airborne fugitive dust emissions from vehicle movement and soil excavation in and around the construction site. All possible best management practices should be taken to reduce fugitive dust emissions by adhering to guidelines included in FAA *Advisory Circular (AC), Standards for Specifying Construction of Airports*.[24] Methods of controlling dust and other airborne particles could include, but may not be limited to, the following:

- Exposing the minimum area of erodible earth;
- Applying temporary mulch with or without seeding;
- Using water sprinkler trucks;
- Using covered haul trucks;
- Using dust palliatives or penetration asphalt on haul roads; and,
- Using plastic sheet coverings.

The Sponsor would also be responsible for obtaining any air quality permits required by local jurisdictions, if applicable.

Climate

General

Research has shown that an increase in green house gas (GHG) emissions is significantly affecting the Earth's climate. These conclusions are based on scientific record that includes substantial contributions from the United States Global Change Research Program (USGCRP), mandated by congress in the Global Change Research Act to "assist the Nation and the world to understand, assess, predict, and respond to human-induced and natural processes of global change."[25]

In 2009, based primarily on scientific assessments of the USGCRP, the National Research Council, and the Intergovernmental Panel on Climate Change (IPCC), the United States Environmental Protection Agency (USEPA) issued a finding deeming it reasonable to assume that changes in climate caused by elevated concentrations of GHG in the atmosphere endanger the health and welfare of current and future generations.[26] By summer 2016, the USEPA acknowledged that scientific assessments by that time "highlight the urgency of addressing the rising concentration of carbon dioxide (CO_2) in the atmosphere" and formally announced that GHG emissions from certain classes of aircraft engines contribute to climate change.[27,28]

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[24] FAA Advisory Circular (AC),150/5370-10H, Standards for Specifying Construction of Airports, December 21, 2018.

[25] Global Change Research Act of 1990, Pub. L. 101-606, Sec 103, November 16, 1990, http://www.globalchange.gov.

[26] Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the clean Air Act, 74 Fed. Reg. 66496 (December 15, 2009).

[27] USEPA, Final Rule for Carbon Pollution Emission Guidelines for Existing Stationary Sources Electric Utility Generating Units, 80 Fed. Reg. 64661, 64677 (October 23, 2015).

[28] USEPA finalized findings that GHG emissions from certain classes of engines used in aircraft contribute to air pollution that causes climate change endangering public health and welfare under section 231(a) of the Clean Air Act.

The most prevalent GHG at airports[29] are CO_2, methane (CH_4), and nitrous oxide (N_2O). GHG emissions are typically reported in units of metric tons (MT) of carbon dioxide equivalents (CO_{2e}).[30]

Worldwide emissions of GHG in 2014 were 45.7 billion tons of CO_{2e} per year.[31] This value includes ongoing emissions from industrial and agricultural sources. In 2016, the United States emitted about 6,511 million metric tons of CO_{2e}. Total U.S. emissions have increased by 2.4 percent from 1990 to 2016, and emissions decreased from 2015 to 2016 by 1.9 percent (126.8 million metric tons of CO_{2e}). The decrease in total GHG emissions between 2015 and 2016 was driven in large part by a decrease in CO_{2e} emissions from fossil fuel combustion. The decrease in CO_{2e} emission from fossil fuel combustion was a result of multiple factors, including substitution from coal to natural gas and other non-fossil energy sources in the electric power sector; and warmer winter conditions in 2016 resulting in decreased demand for heating fuel in the residential and commercial sectors.[32]

Of the five major sectors nationwide - residential and commercial, industrial, agriculture, transportation and electricity – electricity accounts for the highest fraction of GHG emissions (approximately 28 percent), closely followed by transportation (approximately 28 percent) and by industry (approximately 22 percent).[33] The most recent USEPA data indicate that in 2016, aircraft accounted for 9.1 percent of U.S. transportation GHG emissions and 2.6 percent of total U.S. GHG emissions.[34]

Although there are no federal standards for aviation-related GHG emissions, it is well established that GHG emissions affect climate.[35] Following procedures detailed in FAA's 1050.1F Desk Reference, FAA's policy is that GHG emissions should be quantified in a NEPA document when there is reason to quantify emissions for air quality purposes or when changes in the amount of aircraft fuel used are computed/reported. Because air pollutant/pollutant precursor emissions and fuel burn were estimated for the Future (2023) No Action and Future (2023) Proposed Action at RFD, GHG inventories were also prepared.

Methodologies, Assumptions and Data Descriptions

The GHG emissions inventory for the Future (2023) No Action Alternative was prepared using the same sources and methodology as described in this report for the Future (2023) No Action Alternative

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[29] Six GHGs are identified in the Kyoto Protocol: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluocarbons (PFCs), and sulfur hexafluoride (SF_6). The later three primary GHGs do occur at airports, but to a far lesser extent, and therefore are not included in the analysis.

[30] CO2e are calculated as the product of the mass emitted of a given GHG and its specific Global Warming Potential (GWP) While methane (CH_4) and nitric oxides (N_2O) have much higher GWP than CO_2, CO_2 is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO_{2e}. One ton of CO_2 is equivalent to one ton of CO_{2e}.

[31] Climate analysis Indicator Tool. Accessed July 20, 2018, at http://cait.wri.org/

[32] USEPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016, April 2018, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2016

[33] USEPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016, April 2018, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2016

[34] USEPA, Regulations for Greenhouse Gas Emissions from Aircraft, June 2018, https://epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-aircraft

[35] FAA, An Environmental Desk Reference for Airports Actions, October 2007. http://www.faa.gov/airports/environmental/environmental_desk_ref/

emissions of criteria pollutants. AEDT was used to determine CO_2 from aircraft operating during the landing take-off cycles (LTOs) at the Airport. GHG emissions from aircraft operating during cruise operations were not included in this analysis.

The Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different gases by converting each gas amount to a carbon dioxide equivalent (CO_{2e}). GWPs provide a common unit of measure, which allows for one emissions estimate of these different gases. CO_2 has a GWP of one because it is the gas used as the reference point. Methane does not last as long in the atmosphere as CO_2; however, it absorbs much more energy. Therefore, one ton of methane has 28 times more heat capturing potential than one ton of carbon dioxide. The amount of methane emissions would be multiplied by 28 to determine its CO_{2e} value. Nitrous oxides last in the atmosphere far longer than CO_2. The amount of nitrous oxides emissions would be multiplied by 265 to determine its CO_{2e} value. The 100-year time horizon Global Warming Potentials (GWP) for CO_2, CH_4 and N_2O reported in the IPCC Fifth Assessment Report, 2014 (AR5)[36] was utilized in the calculations of CO_{2e} reported in this assessment.

Climate Change Analysis Results

Using the methodologies, assumptions and data described previously, the estimated GHG emissions levels from the No Action and Proposed Action – represented in terms of MT of CO_{2e} – are presented.

Using AEDT, the estimated fuel burn for the Future (2023) No Action is 3,493,325 gallons and the fuel burn for the Future (2023) Proposed Action is 4,279,668 gallons.

Table 3-18 shows the calculated annual GHG emissions from aircraft operations for the Future (2023) No Action Alternative. GHG emission are provided in metric tons.

Table 3-18
Future (2023) No Action Alternative GHG Emissions

METRICS	GHG POLLUTANT EMISSIONS (METRIC TONS)		
	CO_2	CH_4	N_2O
GWP_{100}			
2023			
Aircraft – No Action	41,721.2	--	--
CO_{2e}			
CO_{2e} Net Emissions	**41,721.2**		

Notes:
1. CO_2 = Carbon Dioxide, CO2e = Carbon Dioxide equivalent, CH_4 = Methane, N_2O = Nitrous Oxide,
2. GHG emissions for stationary sources, GSE, and APUs are not reported because AEDT does not have the capability of calculating GHG emissions for these emission sources.
3. Numbers may not sum due to rounding.
Source: Landrum & Brown analysis, 2019.

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[36] https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf

Table 3-19 shows the annual GHG emissions from aircraft operations for the Future (2023) Proposed Action Alternative. GHG emission are provided in metric tons.

Table 3-19

Future (2023) Proposed Action Alternative GHG Emissions

METRICS	GHG POLLUTANT EMISSIONS (METRIC TONS)		
	CO_2	CH_4	N_2O
GWP_{100}			
2023			
Aircraft – Proposed Action	56,342.00	--	--
CO_{2e}	56,342.00	--	--
2023 CO_{2e} Net Emissions	**56,342.0**		

Notes:
1. GHG emissions for stationary sources, GSE, and APUs are not reported because AEDT does not have the capability of calculating GHG emissions for these emission sources.
2. Numbers may not sum due to rounding.
Source: Landrum & Brown analysis, 2019.

Based on the analysis presented with the implementation of the Proposed Action, there would be an increase in GHG emissions due to additional aircraft operations. The Proposed Action would result in an increase of 786,342 gallons of fuel burn and 14,620.8 metric tons of CO2e. This level of emissions, compared to the 6,511 million metric tons of CO_{2e} within the U.S. during 2016, indicates that the Proposed Action emissions would represent 0.0002 percent of total GHG emissions generated in the U.S.

Mitigation Measures

The FAA has not identified specific factors to consider in making a significance determination for GHG emissions; therefore, no mitigation measures are required to mitigate the potential increase in GHGs attributed to the Proposed Action. However, for NEPA reviews of proposed FAA actions that would result in increased emissions of GHGs, consideration should be given to whether there are areas within the scope of a project where such emissions could be reduced. GHG emissions reduction can come from measures such as changes to more fuel-efficient equipment, delay reductions, use of renewable fuels, and operational changes. The Greater Rockford Airport Authority will continue to ensure that the Airport and its tenants are operating in an environmentally responsible and sustainable way.

Water Resources

General

FAA *Order 1050.1F Desk Reference*, Chapter 14 defines water resources as the following:

> *"Water resources are surface waters and groundwater that are vital to society; they are important in providing drinking water and in supporting recreation, transportation and commerce, industry, agriculture, and aquatic ecosystems. Surface water, groundwater,*

> *floodplains, and wetlands do not function as separate and isolated components of the watershed, but rather as a single, integrated natural system."*

Wetlands, floodplains, surface water, groundwater, and wild and scenic rivers each need to be evaluated as parts of a whole to determine any potential impacts to the water resources relevant to a project.

Besides being a basis for life, water provides an essential ingredient for many ecosystems. The chemical, physical and biological characteristics of water determine its particular quality. The *Federal Water Pollution Control Act*, as amended by the *Clean Water Act* (CWA) *of 1977*, provides the authority to establish water quality standards, to control discharges into surface and subsurface waters, to develop waste treatment management plans and practices, and to issue permits for discharges of dredged or fill material.

As contained in the *Guidance Manual for the Preparation of NPDES Permit Applications for Storm Water Discharges Associated with Industrial Activity* published by the USEPA, the *Federal Water Pollution Act* (also known as the CWA), as amended in 1977, requires NPDES permits for stormwater discharges associated with industrial activity.

Wetlands

Wetlands, as defined in federal *Executive Order 11990 - Protection of Wetlands*, are:

> *"…those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats and natural ponds."*

Wetlands also include estuarine areas, tidal overflows, and shallow lakes and ponds with emergent vegetation. Furthermore, the wetland ecosystem includes those areas that affect or are affected by the wetland itself e.g., adjacent uplands or regions upstream and downstream. Areas covered with water for a short time such that there is no effect on moist soil vegetation are not included within the definition of wetlands, nor are the permanent waters of streams, reservoirs, and deep lakes. Three criteria are required for an area to be considered a wetland: hydrophytic vegetation, hydric soils, and wetland hydrology. The hydrophytic vegetation criterion is met when the dominant vegetation in an area is composed of 50 percent or higher species that are specifically adapted to living under waterlogged conditions. Hydric soils are soils that exhibit characteristics indicative of long-term saturated or inundated conditions. Wetland hydrology is present if an area sustains a level of soil saturation or inundation sufficient in duration to result in the dominance of hydrophytic vegetation. The term "Waters of the United States," as defined in 33 CFR Part 328, constitutes:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;

- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadow, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs (a)(1)-(4) of this section;
- The territorial seas;
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1)-(6) of this section.

Floodplains

Floodplains perform many important functions included in wildlife habitat, food chain support, nutrient retention and removal, and erosion control. Regulatory floodplains are those with a designated 100-year floodplain that are mapped on National Flood Insurance Rate Maps by the Federal Emergency Management Agency (FEMA). Longitudinal encroachment of transportation projects on designated floodplains requires a formal review under *Executive Order 11988, Floodplain Management*.

Executive Order 11988 directs federal agencies to "take actions to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare and restore and preserve the natural and beneficial value served by floodplains." *U.S. DOT Order 5650.2, Floodplain Management* and Protection contain procedures for implementing the Executive Order and establish a policy of avoiding actions within the 100-year floodplain. Floodplains are defined in *Executive Order 11988, Floodplain Management*, as:

> *"the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year;" i.e., the area that would be inundated by a 100-year flood.*

The National Flood Insurance Program (NFIP) criteria include minimum standards for adoption of floodplain management regulations by local communities enrolled in the program. In support of the NFIP, the Federal Insurance Administration publishes Flood Insurance Rate Maps, which delineate the limits of all floodplains and usually any floodways. In certain circumstances where no detailed flood studies were performed, the Flood Maps were created utilizing approximate methods. State and local governments may adopt floodplain management regulations that vary from those developed by NFIP, as long as they exceed the minimum standards developed by NFIP. The IDNR, Office of Water Resources (OWR) controls development within the floodway of a stream of a watershed with a tributary area of one square mile or greater, through their Part 700 regulations. OWR has developed standards that are more stringent than those required by NFIP.

Surface Waters

Surface waters are identified by the visible presence of water on the surface. Common examples of surface waters would include streams, rivers, lakes, ponds, estuaries, and oceans.[37] FAA *Order 1050.1F, Desk Reference* describes potential direct impacts to surface waters as "*permanent infrastructure, or temporary construction located on a surface water resource*." FAA *Order 1050.1F*

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[37] FAA *Order 1050.1F Desk Reference*, Section 14.3, July 2015, pg. 14-19.

Desk Reference also describes potential indirect impacts as, "*sedimentation or petro-chemical spills from construction activities.*"

Ground Water

FAA *Order 1050.1F, Desk Reference*, Section 14.4 defines groundwater as subsurface water that occupies the space between sand, clay, and rock formations. The term aquifer is used to describe the geologic layers that store or transmit groundwater, such as to wells, springs, and other water sources. The U.S. Environmental Protection Agency's National Sole Source Aquifer Database (last updated July 7, 2016) was reviewed; there are no sole source aquifers in Illinois.

Wild and Scenic Rivers

The *Wild and Scenic Rivers Act* was created by congress to protect rivers with exceptionally natural, cultural, and recreational values. Section 7 of the *Wild and Scenic Rivers Act* prohibits Federal assistance to projects which would depreciate the value of a wild and scenic river. No wild or scenic rivers exist within the proposed project area; therefore, no impacts to these resources would occur due to the proposed project.

Affected Environment

Wetlands and Regulated Surface Waters

The proposed project study areas were investigated for the presence of regulated surface water resources. On-site wetland areas encountered were delineated using standard methods sanctioned by the United States Army Corps of Engineers in the Corps of Engineers Wetlands Delineation Manual (1987) and 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region and the United States Department of Agriculture *National Food Security Act Manual* (1994 and 1996).

On August 27, 2018 ENCAP, Inc. performed an investigation of the Northwest Air Cargo Development project area to identify regulated surface water resources on, or within 100 feet of the site. No wetlands or other waters of the U.S. were identified within or directly adjacent to the project area. A copy of the Negative Wetland Findings Report, dated September 11, 2018, is included in Appendix E.

On August 23 and 27, 2018 ENCAP, Inc. performed an investigation of the Midfield Air Cargo Development project area. Three wetlands totaling approximately 1.27 acres were identified in the project study area for the Midfield Air Cargo Development. One of the wetlands is considered a farmed wetland and totals 1.15 acres on-site. The limits of the farmed wetland were identified using protocol established by the U.S. Department of Agriculture. Two non-farmed wetlands were identified on-site and total approximately 0.12 acres. Figure 3-11 depicts the wetlands identified in proximity of the Midfield Air Cargo Development study area. Appendix E includes a copy of the Wetland Delineation Report for the Midfield Air Cargo Development area.

Floodplains

As noted in the Land Use section of this EA, development within the Northwest and Midfield areas at RFD has been planned since the mid-1990s and was the subject of an Environmental Assessment that was approved in 1994. As part of the long-term planned development program at RFD, a comprehensive Master Drainage Study was also completed in 1994. The Master Drainage Study was completed to accommodate future developments since a portion of the planned midfield development area at RFD was identified within the 100-year floodplain of the Kishwaukee River. Therefore, as part of the Master Drainage Study, a proposed conditions hydraulic analysis was completed to evaluate the floodplain and floodway boundaries based on the proposed development conditions and to determine the potential change in upstream or downstream flooding.

As an outcome of the Master Drainage Study, the Federal Emergency Management Administration (FEMA) issued a Conditional Letter of Map Revision (CLOMR) for the proposed improvements outlined in the report, including the change in the floodplain boundary. A copy of the CLOMR and associated correspondence from Winnebago County is provided in Appendix E.

It was acknowledged in the CLOMR documentation that the planned development at RFD would take place over a number of years and that Winnebago County, as the local regulatory agency, would review individual aspects of the work for compliance with local ordinances and in compliance with the CLOMR. It was further noted that when all of the development is completed, the Airport would submit documentation associated with the final request for map revision. Following completion of the overall airport development program, the FEMA Flood Insurance Rate Maps would then be updated accordingly.

Figure 3-12 depicts the limits of the 100-year floodplain in proximity of the Northwest Air Cargo Development based on the current FEMA Flood Insurance Rate Map and Figure 3-13 depicts the proposed limits of the 100-year floodplain Midfield Air Cargo Development area based on the approved-reference CLOMR.

Surface and Ground Water

Three rivers (Rock, Pecatonica and Kishwaukee) and several creeks flow through Winnebago County. The Airport is located at the confluence of the Rock and Kishwaukee Rivers in the southern part of Winnebago County. Rock River flows north to south, the Kishwaukee flows southwest.

The runoff from the Airport is conveyed offsite by a series of pavement edge drains, inlets, and manholes, and discharged through underground storm sewers and open ditches to surrounding natural drainage courses, eventually discharging into the Rock and Kishwaukee Rivers bordering RFD on three sides.

The deep glacial outwash and underlying Cambrian aquifers of the Rock and Kishwaukee River Valley are the main sources of water for the larger industries and municipalities in Winnebago County. The proposed project is not expected to impact any groundwater resources. Rainwater infiltration and groundwater flow conditions would not be affected during construction or operations. There are no sole source aquifers in Illinois.

Approximately 7.5 miles of the Rock River in the vicinity of the Airport are considered to be impaired water bodies under Section 303(d) of the CWA. Waters are considered to be impaired when an applicable water quality standard is not being attained. The segments of the Rock River in proximity of the Airport have been determined to be "Not Supporting" for fish consumption. Major potential causes of impairment for fish consumption include mercury and polychlorinated biphenyls (PCBs). These are not the types of impairments that are historically attributed to airports. The potential sources of impairment could include atmospheric deposition of toxics and other unknown sources from other upstream flow regimes.

> *"USEPA regulations at 40 CFR Part 130.7(b)(4) require establishing a priority ranking of 303(d) listed waters for the development of TMDLs that accounts for the severity of pollution and the designated uses. The prioritization of Illinois Section 303(d) List was*

> *done on a watershed basis instead of on individual water body segments…" "Developing prioritization for severity of pollution at the watershed scale provides Illinois with the ability to address watershed issues at a manageable level and document improvements to a watershed's health."*[38]

Based on the IEPA established priority ranking of such waters for the development of Total Maximum Daily Load (TMDL) calculations, the Rock River in the vicinity of the Airport was categorized as "Medium Priority," which are watersheds with no approved or ongoing TMDLs. The TMDL calculations would be used to develop an implementation plan specifying limits for pollutant discharges and recommending best management practices (BMPs). The TMDL calculations for the Rock River in the vicinity of the Airport will not likely be developed until after 2021 under the current prioritization.

RFD currently controls stormwater pollution through BMPs specified in multiple environmental regulatory documents developed specifically for airport operations and its users. These documents include: the Spill Prevention Control and Countermeasure Plan (SPCCP), the Stormwater Pollution Prevention Plan (SWPPP), and NPDES. The preparation and implementation of these documents are regulated by the USEPA, IEPA, and FAA to ensure compliance with federal and state water quality regulations and contain specific operational and facility management actions to prevent and control the potential for discharge of pollutants into surface and groundwater within existing operational areas of RFD.

In addition to BMP's, the Airport also utilizes an integrated storm sewer system and treatment ponds to collect and isolate stormwater contaminated with aircraft deicing fluids associated with passenger and air cargo operations. The current storm sewer system utilizes monitors to detect and divert contaminated storm water into the existing treatment ponds. A second structure allows the outflow of contaminated water in the treatment ponds to be directed to the local Publicly Owned Treatment Works (POTW) for treatment as a back-up measure if the on-site treatment ponds are at capacity. Uncontaminated storm water exits the property to the Rock River through an existing drainage culvert located under Kishwaukee Road.

Wild and Scenic Rivers

The National Wild and Scenic Rivers System was reviewed to determine the nearest Wild and Scenic River or a Study (Candidate) River in the vicinity of the Sponsor's Proposed Action. The nearest such river is the Middle Fork of the Vermilion River, located approximately 200 miles to the southeast. A 17-mile section of the Kishwaukee River from its mouth with the Rock River to Beaver Creek is listed on the Nationwide Rivers Inventory (NRI) as having outstanding scenic and recreational values. This NRI segment of the Kishwaukee River is located south of the Airport.

Two small sections of Kishwaukee River (under Beltline Road along the approach to Runway 1 and at the mouth of the Rock River along the approach to Runway 7) are located within the 65-70 DNL noise contours for the Existing (2017) Condition. Land use compatibility guidelines identified in FAR Part 150 indicates that water recreation below 80 DNL are generally compatible.

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[38] Illinois Integrated Water Quality Report and Section 303 (d) List, *Clean Water Act* Sections 303(d), 305(b) and 314, Water Resource Assessment Information and List of Impaired Waters, Volume I: Surface Water, Illinois Environmental Protection Agency Bureau of Water, Draft 11/14/2018.

Environmental Consequences

No Action Alternative

The No Action Alternative assumes that no new facilities associated with the Sponsor's Proposed Action would be constructed. There would be no impacts to wetlands or floodplains, and there would be no new impervious surfaces beyond those projects that have already received environmental approval and that would occur independent of the Sponsor's Proposed Action.

Two small sections of the Kishwaukee River (under Beltline Road along the approach to Runway 1 and at the mouth of the Rock River along the approach to Runway 7) are located within the 65-75 DNL noise contours for the Future (2023) No Action Alternative. No sections of this River would be impacted by noise levels greater than 75 DNL. Land use compatibility guidelines identified in FAR Part 150 indicates that water recreation below 80 DNL are generally compatible.

Sponsor's Proposed Action

Wetlands

As depicted in Figure 3-11, three wetlands were identified within the study limits of the Midfield Air Cargo Development area. However, no impacts to these wetlands or other waters of the U.S. are anticipated as a result of the Sponsor's Proposed Action. A copy of the State Wetland Impact Evaluation (WIE) Form, which documents that there will be no impacts to wetlands, is included in Appendix E.

Floodplains

The City of Rockford participates in the National Flood Insurance Program (NFIP). As required by the NFIP, all new development, including paving, excavating, filling, storage of materials and construction and placement of structures in a floodplain require local permits. Based on the FEMA floodplain map, as shown in Figure 3-12, no encroachment of the 100-year floodplain is anticipated within the Northwest Air Cargo Development area.

Figure 3-13 depicts the proposed floodplain limits based on the approved CLOMR for the Midfield Air Cargo Development area.

All proposed stormwater management facilities required as part of the Sponsor's Proposed Action will be designed to accommodate the modified development as a part of the detailed design process. Proposed stormwater management facilities will be designed in compliance with the CLOMR and in coordination with state and local regulatory agencies, as required. Therefore, no floodplain or floodway impacts would be anticipated to occur as a result of Sponsor's Proposed Action. All construction and stormwater permits will be secured in coordination with federal, state and local regulatory agencies.

Surface and Ground Water

Water quality can be adversely impacted by several means including construction activities, storm water discharges from impervious surfaces, accidental releases of hazardous substances, and maintenance activities. Potential construction impacts could include disturbance from earth moving and grading and discharge of contaminants such as fuels and lubricating oils used for construction machinery.

The Sponsor's Proposed Action would add approximately 39 acres of impervious surfaces in the Northwest Air Cargo Development area and approximately 108 acres of impervious surfaces in the Midfield Air Cargo Development area. The Sponsor's Proposed Action includes construction of additional storm water detention facilities to accommodate the additional impervious surfaces.

Proposed detention facility design will be coordinated with the Airport's Wildlife Management Plan and will drain within 48 hours.

The proposed improvements in the Northwest Air Cargo Development area include modification of the existing treatment basins to add capacity to accommodate the additional aircraft parking area as well as replacement of the existing liner. The Midfield Air Cargo Development area design will include additional stormwater detention facilities. In consultation with the Rock River Water Reclamation District (RRWRD), the Airport is evaluating the need for additional on-site treatment or direct discharge of contaminated flows to the RRWRD.

Prior to construction of the proposed airfield improvements, a NPDES permit for storm water discharges associated with construction site activities would need to be secured from IEPA in accordance with Paragraph (1.c) Construction Activity 40CFR 122.26(b) (14). The project is not anticipated to change local surface water runoff patterns. During construction, storm water and silt runoff from project areas would be managed in accordance with the NPDES permit.

Wild and Scenic Rivers

Similar to the No Action Alternative, there are two small sections of the Kishwaukee River (under Beltline Road along the approach to Runway 1 and at the mouth of the Rock River along the approach to Runway 7) that are located within the 65-75 DNL noise contours for the Future (2023) Sponsor's Proposed Action Alternative. No sections of the Kishwaukee River would be impacted by noise levels greater than 75 DNL. Land use compatibility guidelines identified in FAR Part 150 indicates that water recreation below 80 DNL are generally compatible. As a result, no significant noise impacts are anticipated along this NRI River. In addition, there would be no direct impacts to the river, either in the form of cutting into the banks of the river or by the cutting of trees along the river corridor.

Further, because the proposed project would not occur in or near any designated wild and scenic river area, there would be no significant impact on wild and scenic rivers as a result of the proposed project.

Mitigation

Neither the Sponsor's Proposed Action nor the No Action Alternative would impact wetlands or other regulated waters. Further, no significant impacts to Wild and Scenic Rivers or NRI Rivers are anticipated under the No Action or the Sponsor's Proposed Action. Therefore, no mitigation would be required for these resources.

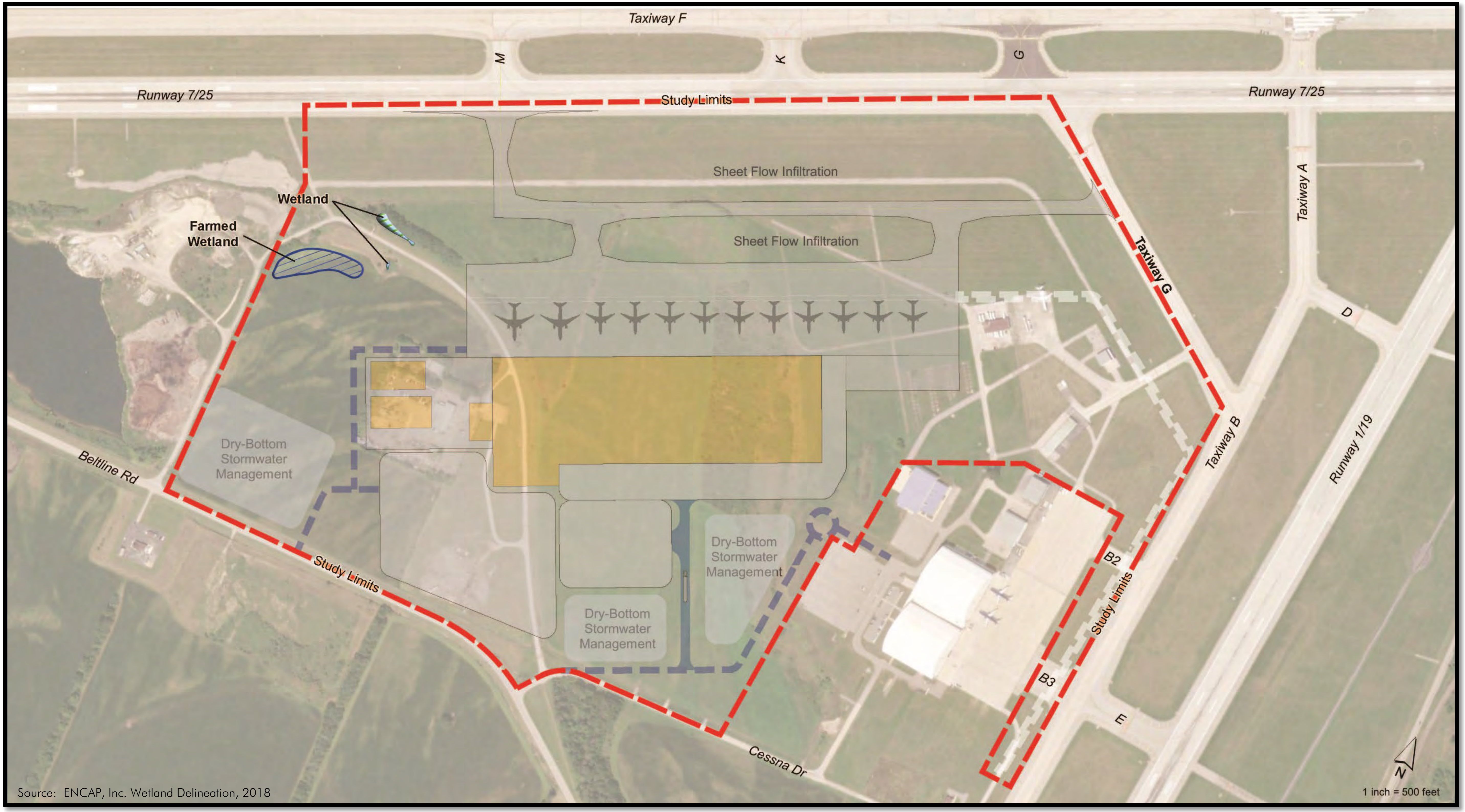
Proposed stormwater management facilities will be designed in compliance with the CLOMR and in coordination with state and local regulatory agencies, as required. Further, all construction and stormwater permits will be secured in coordination with federal, state and local regulatory agencies.

An erosion control plan would be developed based on the FAA's *Temporary Air and Water Pollution Soil Erosion and Siltation Control Standards for Specifying Construction on Airports (*change 10 to FAA *Advisory Circular (AC) 150/5370-10H).* The erosion control plan would incorporate BMPs to minimize impacts to water quality during construction. Depending upon the evaluations and conclusions of the design process for the proposed project, these BMPs could include requirements for erosion control and temporary seeding of all exposed soils, segregation and protection of fuel supplies and hazardous materials, and other measures for the protection of surface and subsurface waters, including periodic meetings between the Airport, resident engineer/architect and contractor to ensure compliance with the BMPs. These BMPs would be incorporated into the project construction specifications. The Airport's

SWPPP would be updated in support of the NPDES permit. This SWPPP would apply to activities conducted by airport personnel and those tenants who choose to be included in the Airport's SWPPP (rather than implementing a separate SWPPP for specific tenant operations). Various permanent sediment control measures, including vegetated filter strips, rock riffles, and detention basins, would be evaluated as part of the design process.

The Winnebago County Soil and Water Conservation District would also be contacted to ensure that proposed construction techniques and mitigation measures comply with local guidelines. Therefore, implementation of proposed BMPs during construction of the proposed projects, coupled with any permanent sediment control measures incorporated into the projects, would be anticipated to minimize any potential stormwater pollutant impacts to the adjacent impaired waterbodies and could improve water quality in proximity of the Airport.

Figure 3-11
Wetland Map – Midfield Air Cargo Development

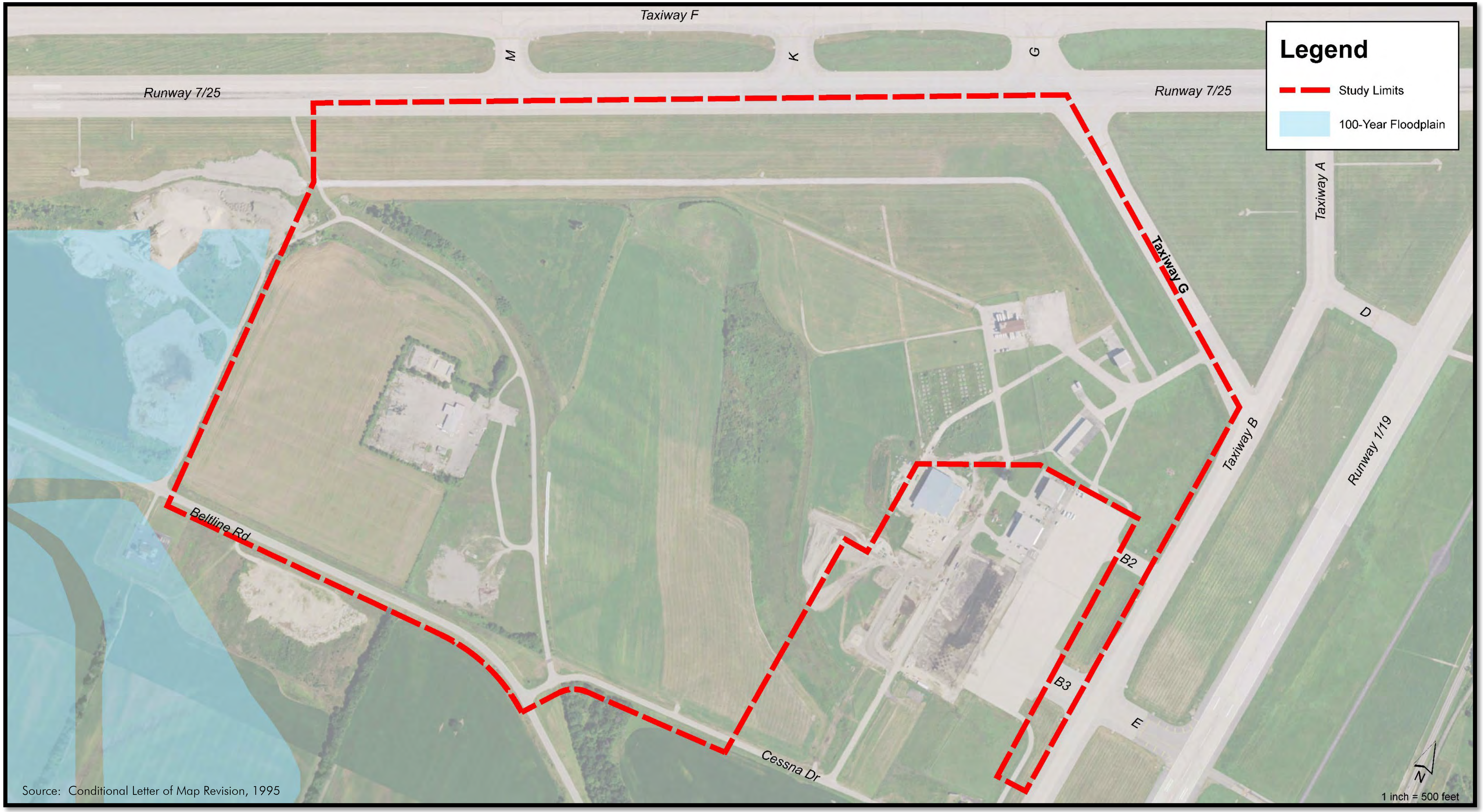


Source: ENCAP, Inc. Wetland Delineation, 2018

Figure 3-12
Floodplain Map – Northwest Air Cargo Development Area

Source: FEMA Flood Insurance Rate Map, Revised February 16, 2016

Figure 3-13
Floodplain Map – Midfield Air Cargo Development Area



Source: Conditional Letter of Map Revision, 1995

Historical, Architectural, Archaeological, and Cultural Resources

General

In accordance with FAA *Order 1050.1F, Environmental Impacts: Policies and Procedures*, this EA includes an investigation of impacts due to federal undertakings upon areas of historic, architectural, archaeological, and cultural significance. The purpose of this section is to document compliance with the *National Historic Preservation Act of 1966* as amended (NHPA) by identifying historic properties within the Area of Potential Effect (APE), including a description of the probable impact of the alternatives under consideration on these resources.

Affected Environment

An Environmental Survey Request (ESR) was submitted by the IDOT Division of Aeronautics to IDOT Bureau of Design & Environment (BDE) for the Northwest and Midfield Air Cargo Development areas. This ESR requested a review of potential cultural resources within the APE, which encompass the limits of proposed construction for these two development areas. A finding of "No Historic Properties Affected" pursuant to Section 106 of the *National Historic Preservation Act of 1966* was issued by the IDOT-BDE on October 3, 2018 for the Northwest Air Cargo Development area. A copy of the IDOT Memorandum is included in Appendix F.[39]

In October/November of 2018, the Northern Illinois Field Station of the Illinois State Archaeological Survey (ISAS) conducted cultural resource investigations within the Midfield Air Cargo Development area under the direction of the IDOT-BDE Chief Archaeologist. The cultural resource investigations identified two new prehistoric sites and three new historic sites within the APE. Only one of the historic sites, known as the "Bell Bowl," was identified by ISAS to potentially warrant consideration for the National Register of Historic Places (NRHP). Based on the review of the ISAS survey by the IDOT Chief Archaeologist, a finding dated January 31, 2019 was made that "No Historic Properties are Affected" regarding the proposed air cargo development in the Midfield.

IDOT BDE further analyzed the NRHP eligibility of the Bell Bowl Archeological Site. The IDOT Chief Archaeologist determined that the Bell Bowl Archeological Site was not eligible for the NRHP under any of the four nomination criteria as an archaeological or historic resource. A finding of No Historic Properties Affected pursuant to Section 106 of the *National Historic Preservation Act of 1966* was issued by IDOT on January 31, 2019 for the Midfield Air Cargo Development area. A copy of the IDOT Memorandum with the finding of "No Historic Properties Affected" and the IDOT Memorandum regarding the NRHP Eligibility Evaluation of the Bell Bowl site are included in Appendix F.

Environmental Consequences

No Action Alternative

The No Action Alternative assumes that there would be no construction of any facilities or any ground disturbance beyond those projects that have already received environmental approval and that would occur independent of the Sponsor's Proposed Action. No impacts to archaeological, architectural, historic, or cultural resources would be anticipated under this alternative.

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[39] IDOT approval authority is vested in a Section 106 Implementation Programmatic Agreement executed by FHWA, IDOT, Illinois SHPO and the Advisory Council on Historic Preservation.

Sponsor's Proposed Action

The Sponsor's Proposed Action includes the construction of proposed air cargo facilities in the Northwest Air Cargo and Midfield areas at RFD. In accordance with established procedures for coordination of Illinois Department of Transportation (IDOT) funded projects, no historic properties subject to protection under Section 106 of the National NHPA, as amended, are located within the APEs for the Northwest and Midfield Air Cargo Development areas. Copies of the IDOT findings of "No Historic Properties Affected" are included in Appendix F of this EA. As stated in these findings, no further cultural resources coordination is required for this undertaking.

Mitigation

The No Action Alternative assumes that there would be no construction of any facilities or any ground disturbance. No impacts to archaeological, architectural, historic, or cultural resources would be anticipated under this alternative. In addition, no impacts to archaeological, architectural, historic, or cultural resources within construction limits of the projects include in the Sponsor's Proposed Action. Therefore, no mitigation will be required.

While mitigation is not required, the GRAA is very mindful of the Rockford/Winnebago County's historic past and the airport's present location on the former US Army's Camp Grant. Vestiges of the Camp are limited, but GRAA is committed to preserving its legacy and history. As a part of this commitment, the GRAA will enter into an agreement with the Midway Village Museum to support the long-term preservation, exhibition and curation of artifacts from the original Camp Grant. Through this agreement, GRAA will help support the creation of an interpretative exhibition in the museum. GRAA will commit to the creation of rotational exhibits featuring Camp Grant in the lobby of the Passenger Terminal Building. GRAA will work with all community stakeholders in this endeavor to respect and honor the legacy of Camp Grant.

Department of Transportation Section 4(f) Lands

General

Section 4(f) of the *Department of Transportation Act of 1966* (DOT Act), currently codified as 49 USC Section 303(c), [hereinafter referred to as Section 4(f)], provides for the protection of certain publicly owned lands. These lands include public parks, recreation areas, or wildlife and waterfowl refuges of national, state, or local significance. In addition, Section 4(f) applies to all historic sites of national state, or local significance, regardless of whether these sites are publicly owned or open to the public. Typically, Section 4(f) protects only historic or archeological properties that are on, or eligible for inclusion on, the National Register of Historic Places (NRHP).

Programs or projects that are developed with federal funding or require a federal action, which adversely affect or use Section 4(f) lands, will not be approved unless there are no prudent and feasible alternatives to their use, and such programs include all planning to minimize harm. An airport development project can create adverse impacts on Section 4(f) lands through acquisition of all or a portion of Section 4(f) land, increased noise impacts, and increased surface traffic impacts.

If it is determined that an action would involve a Section 4(f) resource, then the lead federal agency, in this case the FAA, is required to prepare a Section 4(f) Evaluation. This evaluation can be included within the NEPA document for that project or issued in a separate document, referred to as a Section 4(f) Statement.

In addition to lands identified under Section 4(f) of the DOT Act, other lands funded by the *Land and Water Conservation Fund Act of 1966* (LAWCON) (Section 6(f)), Pittman-Robertson and Dingell-Johnson moneys must be considered. When proposed improvements affect lands purchased or developed using LAWCON funds, as administered by the U.S. Department of the Interior (USDOI), changes in use to other than public outdoor recreation at assisted sites may only be made with the prior approval of the Secretary of the Interior. Also, converted properties must be replaced by substitute properties of at least equal fair market value and of reasonably equivalent location and usefulness.

Affected Environment

There are three publicly owned forest preserves owned and operated by the Winnebago County Forest Preserve District that are in proximity of the Airport as shown on Figures 3-1, 3-3, 3-5 and 3-6 within the Noise and Noise Compatible Land Use section:

- Indian Hill Forest Preserve – This is a 50-acre undeveloped natural area located between the Rock River and Kishwaukee Road along the approach to Runway 7. There is a parking lot for 6 vehicles, restrooms and 1.75 miles of pedestrian trails located in this preserve.
- Hinchcliff Memorial Forest Preserve - This is a 2-acre preserve located along the south branch of the Kishwaukee River, near where it joins the Rock River, on Kishwaukee Road, northeast of the intersection of South Bend Road and Kishwaukee Road. There is an access road, canoe launch area and camping is allowed by permit only.
- Kilbuck Bluffs Forest Preserve – This is a 224-acre preserve located along Kilbuck Creek south of the Kishwaukee River. There is an access road, parking lot, restroom facilities, drinking water, shelterhouse, picnic tables, and pedestrian hiking trails.

Land use compatibility guidelines identified in FAR Part 150 indicate that parks and camps are compatible at noise levels of 75 DNL and below. Based on a review of the existing (2017) noise contours, Indian Hill is located within the area between the 65 to 70 DNL noise contours. Hinchcliff Memorial Forest Preserve is located along the existing 65 DNL contour and Kilbuck Bluffs Forest Preserve is located outside of 65 DNL contours area. As a result, these forest preserves are compatible with existing operations at the Airport.

No known grant funded parks or recreational areas, including those funded with LAWCON funds, or Pittman-Robertson and Dingell-Johnson moneys, would be affected by the proposed project. Further, as noted in the previous section, no properties on or eligible for the National Register of Historic Places have been identified within the project study area.

Environmental Consequences

No Action Alternative

The No Action Alternative does not require the purchase or use of any publicly owned land from a public park, recreation area, or wildlife or waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance. Under the No Action Alternative, each of the above-described forest preserves would be in the area between the 65 to 70 DNL contours. Because noise exposure at these forest preserves would be below 75 DNL, these publicly owned lands would be compatible und the No Action Alternative. Therefore, no impacts to Section 4(f) lands would be expected under the No Action Alternative.

Sponsor's Proposed Action

The proposed project would not require the purchase or use of any publicly owned land from a public park, recreation area, or wildlife or waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance. The proposed project will not cause a significant noise impact that would require the acquisition of any public lands.

Hinchcliff Forest Preserve and Kilbuck Bluffs Forest Preserve are both located in the area between the 65 to 70 DNL contours and Indian Hills Forest Preserve is located between the 70 to 75 DNL contour areas for the Future (2023) Proposed Action scenario. Therefore, because noise exposure at these forest preserves would be below 75 DNL, these publicly owned lands would be compatible with the Sponsor's Proposed Action. Further, the proposed project will not degrade or impair the use of the parks in a manner that would affect the intended use. Therefore, it is not anticipated that visitors to these preserves will experience indirect or constructive impacts associated with the proposed project.

Therefore, the Sponsor's Proposed Action would not be anticipated to create any adverse, significant impacts to any known Section 4(f) lands.

Mitigation

Neither the Sponsor's Proposed Action nor the No Action Alternative would be anticipated to create any adverse, significant impacts to public lands identified under Section 4(f), including lands funded with LAWCON (Section 6(f)), Pittman-Robertson and Dingell-Johnson moneys. Therefore, no mitigation measures would be required.

Biological Resources

General

For purposes of this EA, the term, biological resources, refers to various types of flora and fauna, as well as habitat types that would support these species. This section also addresses federally-listed and state-listed threatened or endangered species and their habitats.

The term "endangered species" means any member of the animal kingdom (mammal, fish or bird) or plant kingdom (seeds, roots, etc.) that is in danger of extinction throughout all or a significant portion of its range. "Threatened species" refers to those members of the animal kingdom or plant kingdom, which are likely to become endangered within the foreseeable future. Section 7 of the *Endangered Species Act of 1973* requires each federal agency that carries out, permits, licenses, funds, or otherwise authorizes activities that may affect a listed species must consult with the Fish and Wildlife Service to ensure that its actions are not likely to jeopardize the continued existence of any listed species.[40]

Further, Paragraph 341 of the *Illinois Endangered Species Protection Act of 1972* requires all agencies of state and local governments to further the purposes of this Act by:

> "…evaluating whether actions authorized, funded or carried out by them are likely to jeopardize the *continued existence of Illinois listed endangered and threatened species or are likely to result in the destruction or adverse modification of the designated*

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[40] Section 7(a)(2) of the Endangered Species Act of 1973.

> *essential habitat of such species, which policy shall be enforceable only by writ of mandamus."*

Affected Environment

The Northwest Air Cargo Development area (approximately 85 acres in size) consists of large, open fields that are occasionally mowed within the central portion of the project area, de-icing chemical treatment detention areas are within the northern portion of the project area, active construction within the western portion of the project area and airport infrastructure, including parking areas, runways, aircraft hangars and paved vehicle access roads throughout the remainder of the project area. A field investigation was performed by ENCAP, Inc. in the Northwest Air Cargo area on August 27, 2018. No federally-listed or state-listed threatened or endangered species or habitats were identified during the survey.

The Midfield Air Cargo Development area (approximately 280 acres in size) contains primarily agricultural land, open fallow fields, airfield infrastructure and a remnant prairie area, referred to as the Bell Bowl Prairie and, in the past, was identified as an Illinois Natural Area Inventory (INAI) site.

The Illinois Natural Heritage Database contains a record of the State-listed endangered plant, the Large-Flowered Beard Tongue within the limits of the Bell Bowl Prairie. A botanical survey was performed by ENCAP, Inc. on August 23, 2018 but did not locate this listed plant species within the INAI site. Subsequent to the biotic survey, Illinois Department of Transportation - Bureau of Design and Environment (IDOT-BDE) conducted a field verification site review.

Also, as a part of the IDOT Natural Resources Review, through obligation under Section 7(a)2 of the *Endangered Species Act*, included a review of the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Conservation (IPaC) web-based review tool. Through IPaC, an official species list was generated. The list contains the endangered, threatened, proposed and candidate species and proposed and designated critical habitat that may be present within or in the vicinity of the proposed improvement. The following species are listed: Indiana bat (Ibat), northern long-eared bat (NLEB), rusty patched bumble bee, prairie bush-clover and eastern prairie fringed orchid. No proposed or designated critical habitat is listed. IDOT cross-referenced the preferred habitat of each of the listed species with knowledge of the project area and determined that the listed species are not present. A copy of the IDOT-BDE Natural Resources Review memo, dated December 10, 2018, is included in Appendix F.

Environmental Consequences

No Action Alternative

The No Action Alternative assumes that there would be no construction of any facilities at the Airport beyond those projects that have already received environmental approval and that would occur independent of the Sponsor's Proposed Action. No impacts to fish, wildlife and plants would be expected under this alternative.

Sponsor's Proposed Action

The proposed improvements in both the Northwest and Midfield Air Cargo areas will occur on existing airport property. No land acquisition, in-stream work or tree removal is required. The projects include clearing or removing ground cover in uplands, which will result in the loss of some foraging habitat for various wildlife and waterfowl species. The proposed development would not directly affect any publicly-owned wildlife or waterfowl refuge of local, state or federal significance. The existing wildlife species would be anticipated to find similar habitat in adjoining areas at and around RFD. Erosion controls prescribed by the Winnebago Soil and Water Conservation District to protect adjacent biotic areas would be included as part of the proposed project. For these reasons it is assumed that only a minor impact would occur.

Within the Midfield area, there historically has been a designated Illinois Natural Areas Inventory site known as the Bell Bowl Prairie (Site Number 0916). From the field investigations noted above, it was determined that the state-listed, endangered Large-flowered Beard Tongue (*Penstemon grandiflorus*) is not present in the Bell Bowl. It should also be noted that the Large-flowered Beard Tongue is not listed as a federally endangered and/or threatened species. Based on these findings and per a request from the Illinois Department of Natural Resources (IDNR), the Greater Rockford Airport Authority grants permission for the following:

- "Take" of the state-listed Large-flowered Beard Tongue flower should be removed from documents noting its existence in the Bell Bowl Prairie (Site Number 0916); and
- Due to the lack of a state-listed endangered species, removal the Illinois Natural Areas Inventory (INAI) designation to the area referred to as the Bell Bowl Prairie.

A copy of the letter from the Airport to IDOT, dated December 3, 2018, granting these permissions is provided in Appendix F.

Mitigation

The No Action Alternative would not be anticipated to create any significant impacts to biological resources. The Sponsor's Proposed Action is also not anticipated to have significant impacts to biological resources. Therefore, no mitigation measures are required.

An area on the Airport, formerly known as the Bell Bowl Prairie, has been removed from the Illinois Natural Area Inventory (INAI). GRAA, as part of its established pursuit of sustainable resources, is aware of the need to preserve natural areas for Rockford/Winnebago County and will enter into an agreement with the Forest Preserves of Winnebago County to support the preservation of natural areas. This commitment will be conducted in a manner consistent with FAA guidelines regarding hazardous wildlife attractants and the Airport's Grant Assurances.

Natural Resources and Energy Supply

General

Sources of energy originate from fossil fuels (coal, oil, gas, etc.), nuclear power (uranium) and renewable elements (wood, sun, wind, water, etc.). Natural resources refer to the various forms of wealth supplied by nature including the sources of energy listed above.

Affected Environment

Demands for energy required to operate facilities at RFD include electricity and natural gas. Electricity is the primary source of energy used to light and cool the terminal area and related structures. Lighting for runways and navigational aids for aircraft also uses electricity as its energy source. The heating system of the terminal area and related structures uses natural gas. The West Shore Pipeline passes through the airport and in combination with truck deliveries provides required jet fuel for aircraft operations at RFD.

Commonwealth Edison is the major supplier of electricity to the Rockford region and to northern Illinois. Electric power is supplied to the Airport through a 12.5 kilovolt distribution system. Two electrical substations supply the Airport with electricity. The Sabrook substation is about two miles north of the Airport and the Blackhawk substation is less than one mile east of the Airport.

Nicor Gas is the natural gas supplier for the Airport area. The terminal is the Airport's largest user of this resource. There is an 8-inch natural gas distribution line which runs along the former alignment of Belt Line Road between Airport Drive and Falcon Road. A 4-inch gas distribution line also runs along Kishwaukee Road from Belt Line Road to the southwest across the Kishwaukee River.

In 2011, Rockford Solar Partners (RSP) received NEPA approval for the phased construction of a 20-megawatt photovoltaic power generation facility on property at RFD. In 2012, the initial phase was constructed which resulted in approximately a 3.2-megawatt facility. Power generated from this facility is transferred to the grid under renewable energy credits obtained by RSP through the Illinois Power Authority and purchased by Ameren Illinois.

The City of Rockford’s Water Division provides water to the Airport and the Rockford Metropolitan Area. The City uses ground water as the source of its water supply. The City does not utilize a centralized water treatment plant and instead, water is treated at the well sites with fluoride, polyphosphates, and chlorine. To ensure the safety of the water, samples are continuously tested at state approved laboratories.

The Water Division is the largest municipally-owned ground water system in Illinois and water is obtained from 30 wells (not the Rock River). Water is stored in 28 reservoirs and 2 elevated tanks. Annual water production is 7.6 billion gallons. Average consumption is approximately 16.7 million gallons per day, but the system can produce up to 40.0 million gallons per day. One of the City’s wells is located on the airport and the City has invested in the water distribution system on airport to meet current and future demands.

The Airport is a small energy consumer when compared to the total amount of electrical and natural gas energy being used by all activities in the Northern Illinois area.

Environmental Consequences

No Action Alternative

The No Action Alternative assumes that there would be no construction of any facilities at the Airport beyond those projects that have already received environmental approval and that would occur independent of the Sponsor’s Proposed Action. No impacts to energy supply and natural resources would be expected under the No Action Alternative.

Sponsor’s Proposed Action

During the construction of the Sponsor’s Proposed Action covered by this EA, items such as concrete, asphalt, crushed stone, fuel oil, and gasoline would be used. All materials needed for construction may be purchased from area firms or manufacturers who specialize in these materials. The proposed project would not involve the use of any unusual materials or of those in short supply.

Table 3-20 presents a summary of projected additional natural resource and energy usage at the Airport associated with the Sponsor’s Proposed Action. This information is based on coordination with the potential operators and the forecast additional operations.

Table 3-20
Future (2023) Natural Resource and Energy Supply

Natural Resource/Energy Supply	Supplier	Projected Demand
Electricity	Commonwealth Edison	5 Kilowatt Hours
Natural Gas	Nicor Gas	58,000_Cubic Feet/Hour
Potable Water	City of Rockford	38,000_gallons/day

Based on coordination with the various suppliers, it is anticipated that the demand for natural resources and energy supply for the Sponsor's Proposed Action could be accommodated within the existing infrastructure capabilities and would result in no significant impact on the overall systems. No significant impacts to energy generation or natural resources in short supply would be anticipated under the Sponsor's Proposed Action.

Mitigation

No significant impacts to energy supply and natural resources in short supply would be expected under the No Action Alternative or the Sponsor's Proposed Action. Therefore, no mitigation would be required.

Visual Effects

General

FAA *Order 1050.1F Desk Reference*, Section 13, states that:

> *"[v]isual effects deal broadly with the extent to which the proposed action or alternative(s) would either: 1) produce light emissions that create annoyance or interfere with activities; or 2) contrast with, or detract from, the visual resources and/or the visual character of the existing environment."*

Airport light emissions are considered to have a noticeable impact if light is directed towards a nearby residential area.

Affected Environment

Aviation lighting required for the purposes of security, obstruction clearance, and aeronautical navigation is the chief contributor to light emissions radiating from airports. Existing lighting at RFD falls within the following categories: airfield lights (runways and taxiways), aircraft apron lights, building lights, auto parking lot lights, and navigational lights (rotating beacon, approach lighting). No complaints have been received to date concerning light emission impacts at RFD. This is due primarily to the buffer of undeveloped and non-sensitive land uses around the Airport, such as major roadways and industrial development, and to the distance of the residences from the Airport. Additionally, the forested areas and elevation changes associated with the Rock and Kishwaukee Rivers provide natural buffers to off-airport areas.

Environmental Consequences

No Action Alternative

The No Action Alternative assumes that there would be no construction of facilities at the Airport beyond those projects that have already received environmental approval and that would occur independent of the Sponsor's Proposed Action. Lighting improvements would be incorporated into some of the projects included in the No Action Alternative; however, the lighting facilities would not have a significant adverse effect upon any surrounding residences or local roadway traffic. Further, no significant changes in the visual character of the project area are anticipated as a result of the No Action Alternative.

Sponsor's Proposed Action

The Sponsor's Proposed Action primarily includes the lighting improvements associated with the following improvements within the proposed air cargo development areas:

- Vehicular Parking Lots
- Air Cargo and Support Buildings
- Apron and Taxiways
- Roadways

The proposed lighting facilities would not be anticipated to have a significant adverse effect upon any surrounding residences or local roadway traffic. The nearest residential areas to the proposed development are across the Rock River, more than 2,000 feet from where the projects would occur in the Northwest Air Cargo Area, and to the southeast across the Kishwaukee River, more than a mile away from the Midfield Air Cargo Area. The design of the lighting will be accomplished using selective pole heights, fixture aiming, and fixture designs to minimize the light levels visible from residential areas and roadways.

Because all of the proposed projects occur on existing airport property no significant changes in the visual character of the project area are anticipated as a result of the Sponsor's Proposed Action.

Mitigation

The No Action Alternative assumes that there would be no construction of any facilities at the Airport to address the established "purpose and need." No visual impacts would be expected under this alternative. Additionally, as stated above, no significant adverse impacts would be anticipated for the Sponsor's Proposed Action, and as such, no mitigation would be required.

Hazardous Materials, Solid Waste, and Pollution Prevention

General

Hazardous Waste is a general term relating to spills, dumping, and releases of substances that could threaten human and animal life. To identify these materials and protect the environment from harmful interaction with hazardous wastes, federal laws and regulations have been enacted, including the following: *Comprehensive Environmental Response, Compensation and Liability Act* (CERCLA) and the *Resource Conservation and Recovery Act* (RCRA). CERCLA prescribes a very specific process for the investigation and cleanup of sites listed on the National Priorities List (NPL), also referred to as Superfund sites. RCRA is the public law that creates the framework for the proper management of hazardous and non-hazardous solid waste. As a method of protection for the citizens of the State of Illinois, several state laws and reporting regulations have also been passed including the *Illinois Environmental Protection Act*, State Priority List, Leaking Underground Storage Tank (LUST) List, and the Underground Storage Tank (UST) Facilities List.

Hazardous waste impacts are typically associated with the current or future use, transfer, or generation of hazardous material within the limits of the proposed improvements or the acquisition of properties that contain hazardous materials. Environmental concerns related to solid waste disposal range from adequate landfills for normal urban trash and garbage to the safe disposal of industrial waste.

Affected Environment

A review of on-line environmental databases was conducted to identify sites and facilities located in the Northwest and Midfield Air Cargo Development study areas that may be of environmental concern from both a site contamination and a NEPA perspective. The review included various on-line databases maintained by the EPA.[41, 42, 43]

A review of the on-line databases did not reveal any sites or facilities on or adjacent to the Airport that are included on the NPL.

The RCRA on-line database lists facilities that store, generate, transport, treat, and dispose of hazardous wastes. This database records facilities that generate large or small quantities of hazardous wastes or are conditionally exempt generators. It should be noted that sites included in this database do not necessarily involve contamination. Three (3) RCRA sites were identified in the midfield area, adjacent to the Midfield Air Cargo Development area. These sites are associated with the existing on-Airport tenants located along Cessna Drive. A review of the compliance status for each of the RCRA sites indicated no violations.

RFD is located near two municipal solid waste landfills: the Winnebago Reclamation Service Landfill, which is located approximately 10,500 feet southeast of Runway 01/19 and the Orchard Hills Landfill is located approximately 13,500 feet south of Runway 01/19. As of January 1, 2018, the Winnebago Landfill reported a capacity of approximately 79.6 million cubic yards with a projected life expectancy of 24 years. The Orchard Hills Landfill reported a capacity of approximately 81.5 million cubic yards with a life expectancy of 9 years.

Environmental Consequences

No Action Alternative

The No Action Alternative assumes that there would be no construction of facilities at the Airport beyond those projects that have already received environmental approval and that would occur independent of the Sponsor's Proposed Action. No hazardous waste or solid waste impacts are expected under this alternative.

Sponsor's Proposed Action

Construction associated with the Sponsor's Proposed Action includes the generation of solid waste resulting primarily from ground cover removal, as well as proposed development. General disposal of these wastes must be monitored and processed properly. While the Sponsor's Proposed Action would most likely cause an increase in solid waste generation associated with construction, it is not likely to be a substantial amount. Solid wastes from construction and post-construction waste could include debris and similar wastes that are currently accepted at existing landfills. Solid wastes resulting from construction and expanded operations will be transported to an IEPA licensed landfill site (or transfer station), while those materials conducive to use in landscaping could be collected and reused. Based on the available capacity of nearby landfills, no significant solid waste impacts are anticipated. Further,

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[41] http://cumulis.epa.gov/supercpad/cursites/srchsites.cfm, accessed February 5, 2019.
[42] http://www2.epa.gov/cleanups/cleanups-my-community, accessed February 5, 2019.
[43] http://www.epa.gov/osw/hazard/correctiveaction/facility/index.htm, accessed February 5, 2019.

hazardous waste impacts associated with the proposed project should be minimal due to the previous and current land uses of the project area. However, any due diligence requirements will be met prior to property development.

Mitigation

Neither the Sponsor's Proposed Action nor the No Action Alternative would be anticipated to create any significant solid or hazardous waste impacts. Therefore, no mitigation measures would be required.

Cumulative Impacts

General

The Council on Environmental Quality's (CEQ) regulations for implementing NEPA defines cumulative effects as:

the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions (40 CFR §1508.7).

NEPA requires that cumulative effects be evaluated along with the direct and indirect effects of the actions. As with direct and indirect project-related effects discussed in the previous sections of this chapter, the No Action Alternative serves as the reference point against which to evaluate cumulative effects. Where numerical thresholds are not available or cannot be determined, impacts are typically quantified in relative terms of magnitude.

Past, Present and Reasonably Foreseeable Future Actions

As required by FAA guidance, a NEPA document must consider past, present and reasonably foreseeable actions at the Airport and in the airport environs. The basis for that approach is the recognition that, while the impacts of many actions may be individually minor, the cumulative effects of past, present, and reasonably foreseeable actions on populations or resources can be considerable. A description of the past, present, and reasonably foreseeable future actions are included below.

Past Projects

To accommodate the increasing demand for air cargo facilities at RFD, air cargo expansion projects have been implemented in the northwest quadrant and in the midfield area over the past 10 years. Further, in 2016, the Airport completed construction of a new 238,000 maintenance, repair and overhaul (MRO) facility that is operated by AAR, Corp. This MRO facility includes two hangars large enough to accommodate multiple 747-800's. This development puts RFD in a prime position to accommodate additional cargo services as operators can access the facility without concern of a disabled aircraft being "stuck" at the airport.

Present/Current Projects

For purposes of this cumulative effects analysis, current refers to projects that would be under construction during years 2019 through 2022 that have already received environmental approval and/or are in the design phase. These are projects that would occur independent of the proposed build alternatives. In the context of the cumulative effects analysis, current projects at the Airport would primarily include the Transportation Improvement Program as depicted in Table 3-21.

Table 3-21
Chicago Rockford International Airport Transportation Improvement Program

Project Description	Estimated Construction Start Year
Terminal Building Expansion – Phase 4: Increase security checkpoint and gate holding areas	2018 (underway)
Expand northwest air cargo apron (Phase 2a)	2018 (underway)
Reconstruct the terminal entrance road including relocation of Main Terminal entrance	2020
Phased Rehabilitation of Runway 7/25	2019
Rehabilitate Taxiway G	2019
Construct 10' Airfield Perimeter/Security Fencing – Phase 2	2020

Source: Chicago Rockford International Airport Transportation Improvement Program: Airports FY 2020-2024.

Other current projects would include ongoing residential, commercial, and industrial development in the project vicinity.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions at the at the Airport would include other projects identified on the RFD Transportation Improvement Program (FY 2020-2024) that are beyond the scope of this current EA. These projects, which are listed below, would require separate environmental approval prior to implementation.

- Rehabilitate East Terminal Apron
- Rehabilitate Cargo Apron – Phases 2 and 3
- Rehabilitate Runway 1/19 Lighting and Signage
- Rehabilitate Runway 7/25 Lighting and Signage
- Rehabilitate Taxiway F
- Runway 7 Runway Safety Action Team (RSAT) Road
- Land Acquisition for Runway 25 Approach
- Avigation Easement for Runway 7 Approach Obstruction Clearing

In addition to future projects anticipated at the Airport, projects will likely be undertaken in the foreseeable future in proximity of the Airport within the cities of Rockford and New Milford, and in the unincorporated areas of Winnebago County. These could include other public infrastructure projects as well as private residential, commercial and industrial developments in the project vicinity.

Environmental Consequences

Sponsor's Proposed Action

The Sponsor's Proposed Action is anticipated to be constructed starting in 2019. The projects that have taken place in the several years prior to the Sponsor's Proposed Action were previously environmentally cleared and no significant impacts on any environmental resources were identified. These development projects have all taken place on airport property; therefore, they did not cause a change in area land use.

Other projects beyond those being assessed in this EA being planned for construction beginning in 2019 through the next three years (2019-2022) have either received environmental approval or are in the process of securing environmental approvals. These other current/present projects would occur independently of the Sponsor's Proposed Action.

Under this alternative, there are certain environmental resources that would have no impacts to cumulatively add or assess in comparison to the past, the present, or the reasonably foreseeable future. Therefore, for some of the resources assessed in this EA, it can be assumed that there would be no cumulatively significant impacts. Environmental resources that could have potential cumulative impacts associated with past, present and foreseeable future projects at the Airport include noise, socioeconomic impacts, air quality, water resources, and hazardous materials, solid waste and pollution prevention. Following is an analysis of these potential cumulative impacts.

Noise

Based on the results of the noise analysis associated with the Sponsor's Proposed Action, there are residential uses located within the 65 DNL noise contours; however, there are no significant impacts that would occur from implementation of the Proposed Action. The noise analysis conducted for this EA included operations associated with past, current and foreseeably future actions at the Airport. Therefore, the Sponsor's Proposed Action, in combination with other past, present, and foreseeable future projects, should not have a cumulatively significant noise impact.

To address the proposed noise level exceedances over non-compatible land uses adjacent to the Airport, the GRAA intends to prepare and update to the FAR Part 150 Noise Compatibility Study as a part of a Master Plan Update for the Airport. This study will consist of preparing updated Noise Exposure Maps and a Noise Compatibility Program.

Socioeconomic Impacts

The Sponsor's Proposed Action, coupled with past, present and reasonably foreseeable projects, are expected to result in greater increases in jobs (short-term construction projects, as well as ongoing permanent jobs), as well as increased economic productivity. No significant adverse cumulative effects are anticipated.

Air Quality

Air quality has been adversely affected as a result of human activities and development. In the past several years, application of federal and state emissions regulation and significant technological improvements aimed at reducing effects on air quality have acted to counter emission increases caused by population and development growth.

The increase in emissions due to construction and implementation of the Sponsor's Proposed Action would not exceed the federal *de minimis* thresholds and are therefore not significant. While the Sponsor's Proposed Action would contribute to the cumulative emissions of air pollutants in Winnebago County, the cumulative effect of the net air emissions would not cause or contribute to any new violation of the NAAQS, would not increase the frequency or severity of an existing violation, and would not delay timely attainment of any standard. Therefore, the cumulative impact on air quality is not significant.

Because aviation activity at RFD represents such a small amount of U.S. and global emissions, and the related uncertainties involving the assessment of such emissions regionally and globally, the incremental contribution of this proposed action cannot be adequately assessed given the current state of the science and assessment methodology.[44]

In addition to the Sponsor's Proposed Action, there would be other reasonably foreseeable developments at the Airport and in the airport environs that could affect air quality. These projects either have been considered in separate environmental documentation in recent years or will be assessed in the near future. Until specific project plans are known, it is not possible to quantify the specific air quality effects from the proposed project and these other Airport and regional projects.

Water Resources

Potential impacts to water quality may be caused directly and indirectly. Construction activities may include such things as clearing of vegetation, re-grading the existing ground surface, installing drainage, installing additional pavement and buildings, and handling construction materials. Such activities generally change pervious surfaces to impervious surfaces and could change the rate of infiltration. Development of impervious areas would create additional stormwater runoff. Compensatory measures for stormwater runoff control would be provided through construction of detention/retention basins. Past, present, and/or reasonably foreseeable projects have or would increase impervious surfaces, including the Sponsor's Proposed Action. Developments within the region would also likely result in additional impervious surfaces. In developed or developing urban areas, local regulations generally force any entity to comply with local and State Ordinances for building permits to be issued. Activities and events that could occur during operation of the airport facilities, such as stormwater runoff, accidental spills, sanding and de-icing, and vegetation control all have the potential to affect surface water quality. Contaminant concentrations in stormwater coming from such surfaces would most likely not exceed State Water Quality standards due to treatment by selected Best Management Practices (BMPs). Further, there are no wetland or floodplain impacts associated with the Sponsor's Proposed Action. Therefore, cumulative effects would be negligible.

Hazardous Materials, Solid Waste, and Pollution Prevention

Expected increases in development of airport facilities and urban development within the surrounding communities would result in the increased use of solid and hazardous materials, and generation of greater amounts of wastes. Reasonably foreseeable future actions in the area would also contribute solid waste to the local landfills, primarily in the form of construction debris. Higher use would increase the likelihood of releases of these materials to the environment. Proper storage, use, and disposal procedures would reduce the probability of releases and thus minimize impacts on human health and the environment. Therefore, the Sponsor's Proposed Action, in combination with other past, present, and foreseeable future projects, should not have a cumulatively significant impact on the environment from increased use of solid and hazardous materials.

No Action Alternative

The No Action Alternative assumes that the past projects have already been implemented. Present and reasonably foreseeable future projects, beyond those projects being assessed as a part of this EA, have already received environmental approval or will be required to secure the required necessary approvals. These projects under the No Action Alternative would occur independent of the Sponsor's Proposed Action. Under this alternative, the environmental resources that could have potential cumulative impacts associated with past, present and foreseeable future projects would be similar to or less than those resources analyzed under the Sponsor's Proposed Action. Therefore, because Sponsor's Proposed

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[44] NEPA Regulations, Council on Environmental Quality, 40 CFR 1502.22, *Incomplete or unavailable information.*

Action is not anticipated to create a cumulatively significant impact on any resources, it can be assumed that there would be no cumulatively significant impact as a result of the No Action Alternative.

Mitigation

Neither the Sponsor's Proposed Action nor the No Action Alternative would be anticipated to create a cumulatively significant impact on the environment. Therefore, no mitigation measures for cumulative impacts would be required.

Chapter Four

AGENCY AND CITIZEN COORDINATION AND RESPONSE TO COMMENTS

Introduction

The preparation of this Final Environmental Assessment (FEA) has been coordinated with various local, state and federal governmental agencies. Many of these agencies have provided data through the review process necessary for the completion of this document. The general public and interested parties of proposed airport development projects were afforded the opportunity to review and provide comments on the Draft EA.

Agency Coordination

Coordination with public agencies insures that appropriate local, state and federal governmental units have an opportunity to review the Sponsor's Proposed Action for conformance with the requirements of their jurisdictions and programs and to make known any concerns they may have.

The following is a list of public agencies that received the Draft EA for review and comment:

- US Department of Transportation - FAA, Great Lakes Region - Chicago Airports District Office
- US Department of the Interior – Fish and Wildlife Service
- US Department of the Army – Corps of Engineers, Rock Island District
- US Environmental Protection Agency – Region 5
- US Department of Agriculture APHIS, Wildlife Services
- Illinois Department of Transportation – Division of Aeronautics
- Illinois Department of Transportation – District Two
- Illinois Department of Transportation – Bureau of Design & Environment
- Illinois Department of Natural Resources
- Illinois Environmental Protection Agency
- Illinois Department of Agriculture
- Rock River Water Reclamation District
- Winnebago County
- Winnebago County Sheriff
- Winnebago County Regional Planning and Economic Development
- Winnebago County Soil and Water Conservation District
- Winnebago County Forest Preserve District
- Winnebago County Highway Department
- City of Rockford
- Village of New Milford
- Village of Cherry Valley
- Village of Machesney Park
- City of Loves Park
- Rock Valley College

- Rockford Park District
- Rockford Fire Department
- Rockford Police Department
- Chicago Rockford International Airport – Airport Traffic Control Tower

Correspondence received from these agencies is included in Appendix F.

All comments received from these agencies, along with any necessary responses, have been incorporated into this Final EA.

Citizen Coordination

Several methods were utilized to inform the public and interested parties of proposed airport development projects and to receive comments with respect to potential environmental impacts. The primary method of general citizen involvement was through the Public Hearing process. A notice for a Public Information Open House Workshop and Public Hearing was placed in the Rockford Register Star newspaper on August 8, 2019. A Public Information Open House Workshop and Public Hearing was held concurrently at the Authority Auditorium at 60 Airport Drive, Rockford, IL, on September 10, 2019, from 2 PM to 7 PM. During the notice period and for 10 days following the Public Workshop and Hearing, the Draft Environmental Assessment was available to the public at http://www.flyRFD.com/EA and at the following public locations:

Greater Rockford Airport Authority Offices
60 Airport Drive
Rockford, IL 61109

City of Rockford
Community and Economic Development
425 East State Street, Second Floor
Rockford, IL 61104

Rockford Metropolitan Area for Planning
313 N Main Street
Rockford, IL 61101

Rockford Public Library
214 North Church Street
Rockford, IL 61101

Response to Public and Agency Comments

All comments received through the resource agency reviews and those received by the general public during the public outreach process, including the workshop and hearing, are included in Appendix F.

Chapter Five

REFERENCES

Introduction

This Chapter consists of the following sections:

- Reference Documents
- Document Preparers

Reference Documents

- 14 CFR Part 139.337. Wildlife Hazard Management.
- 14 CFR Part 151. Federal Aid to Airports.
- 14 CFR Part 152. Airport Aid Program.
- 14 CFR, Part 157. Notice of Construction, Alteration, Activation and Deactivation of Airports.
- 33 CFR Part 328. Definitions of Waters of the US.
- 40 CFR Part 122.26. Storm Water Discharges. (applicable to State NPDES Programs, see §123.25.
- 40 CFR 1502.22. Incomplete or unavailable information.
- 40 CFR Part 1508.7. Cumulative impact.
- 40 CFR § 50. National Primary and Secondary Ambient Air Quality Standards
- 20 Illinois Compiled Statutes (ILCS) 830/1-1, et seq. *The Interagency Wetland Policy Act of 1989*.
- 415 Illinois Compiled Statutes (ILCS) 5/. *Environmental Protection Act*.
- 520 Illinois Compiled Statutes (ILCS) 10/1, et seq. *Illinois Endangered Species Protection Act*.
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- 16 U.S.C. App. 2151, 2153-56, et seq. December 28, 1973. *Endangered Species Act of 1973*. (P.L. 93-205, amended in 1978).
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- *Executive Order 11990*. May 24, 1977. *Protection of Wetlands.*
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- *Executive Order 12898*. February 11, 1994. *Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations*.
- *Executive Order 13045*. April 21, 1997. *Protection of Children from Environmental Health Risks and Safety Risks*.
- *Federal Aviation Act of 1958*, (P.L. 85-726) [Recodified at 49 U.S.C. – "Aviation Programs," § 40101 et seq.]
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- Federal Aviation Administration (FAA) Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects, Advisory Circular 5100-17, Change 7, July 10, 2017.Federal Aviation Administration (FAA) Land Acquisition and Relocation Assistance for Airport Projects, FAA Order 5100.37B, August 1, 2005.
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Document Preparers

Crawford, Murphy & Tilly, Inc. prepared the Chicago Rockford International Airport's EA in conjunction with the FAA and the Illinois Department of Transportation (IDOT) - Division of Aeronautics for the Greater Rockford Airport Authority. Specifically, the preparation of this document was overseen by Ms. Amy Hanson, Airports Environmental Protection Specialist for the FAA, Great Lakes Region, Chicago Airports District Office (CHI-ADO). The following individuals from the firm of Crawford, Murphy & Tilly, Inc. prepared text and exhibits: Ms. Laura Sakach and Ms. Shannon Barnhart, (Primary Authors); Mr. Boyd Nowicki and Mr. Ryan Johnson (Exhibit Preparation); and Mr. Doug Gregory and Mr. Terrence Schaddel (Technical/Environmental QA/QC).

Appendix A

FORECAST WORKING PAPER

Development of Northwest Cargo Apron & Midfield Development Program

FORECAST WORKING PAPER

Introduction

The Chicago/Rockford International Airport (RFD) is a non-hub commercial service airport that accommodates service by commercial airline operators, military, cargo, general aviation, and corporate needs of northern Illinois, southern Wisconsin and the Chicago Metropolitan Area. As a part of the Airport's overall development plan, the addition of new cargo operations and carriers are anticipated that will require pertinent airside and landside facilities. In response to recent demand for these types of facilities, the Greater Rockford Airport Authority (GRAA) proposes to construct additional air cargo facilities within 1) the Northwest Cargo Apron area and 2) the "Midfield" which is located south of Runway 7-25 and west of Runway 1-19 on property owned by the Airport.

Recognizing that the forecast presented below was developed specifically as part of the NEPA process, the following planning horizon's where established:

- 2017: Baseline (Existing Condition)
- 2023: Baseline + 5 Years (Build & No-Build Scenarios for NEPA Processing)

Baseline and demand projections were developed for various users of the airport including air carrier, air cargo, military, and general aviation (including corporate and air taxi operations). The forecasting process includes annual operations, average daily demand/operations, fleet mix by multiple categories (equipment types, user groups, classifications for input into noise modeling software, etc.), day/night ratios, # of turns per day, etc.

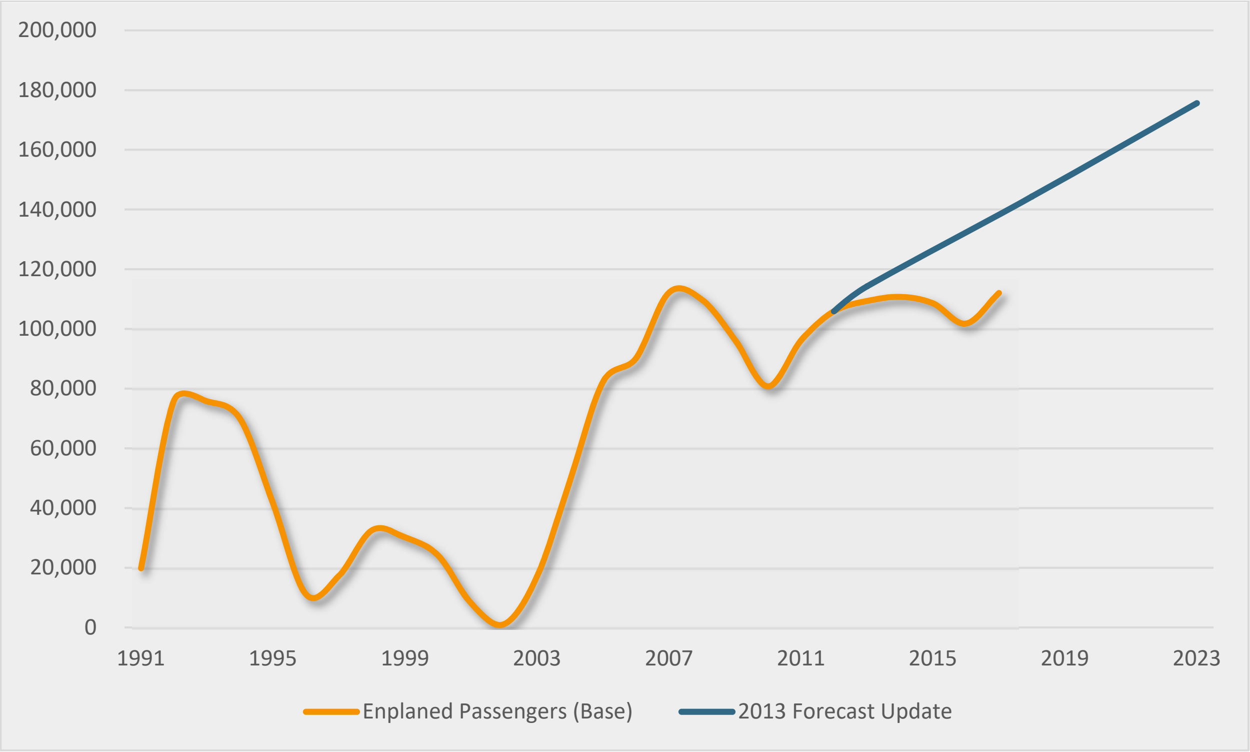
It should be noted that an Airport Master Plan Update (AMPU) will be conducted in the near future to assess long-term facility development needs based on "refreshed" aviation demand projections over the 20-year planning horizon.

Commercial Airline Service Demand

Passenger Enplanements (Historic)

Following the recession in 2008/2009, enplanements rebounded in 2011, 2012, and 2013 to near historic highs. Again, a decline was experienced in 2014-2016 due to a redistribution of chartered service through Apple Vacations. In 2017 enplanements rebounded near recent historic highs and the FY2018 TAF shows the Airport on pace for record passenger enplanements. Figure 2-1 depicts historic passenger traffic at RFD since 1991, including pre-recession growth trends, which continued at a compound annual growth rate of 4.8% from 2010 to 2017. As a point of reference, the 2012 MP Forecast Addendum selected the FAA Terminal Area Forecast (TAF) as the preferred scenario and projected an overall 4% average annual growth rate.

Figure 2-1:
Passenger Enplanements



Source: FAA TAF, CMT Analysis

Figure 2-1 illustrates the significant rebound in commercial passenger enplanements since the backend of the economic recession in 2010. In the past 8 years, enplanements at RFD have increased at a rate of 4.8% per year. This significant growth has returned RFD to pre-recession record enplanements. Additionally, this growth aligns closely with the previously selected enplanement forecast that showed a compound annual growth rate of 4.3%. Since 2010, with an exception in 2016, the growth in enplanements has exceeded the reported growth rates in the latest FAA Aerospace Forecast and Terminal Area Forecast for RFD.

Current Commercial Operations

Currently, RFD offers scheduled service by Allegiant Airlines. In general, Allegiant has experiencing steady growth at RFD with high load factors on all flights. Across all markets, the load factor average was 85.1% for 2017. The load factor national average for air carrier operation for 2017 was 84.5%. Consistent demand has spawned additional air service in terms of frequency, destinations and aircraft gauge. Most recently Allegiant Airlines has increased their seating capacity on flights to Punta Gorda and St. Pete-Clearwater. Potential new markets include Fort Walton Beach / Destin or New Orleans.

Emerging Commercial Airline Trends

As mentioned in the 2013 Forecast Update, the price of fuel is heavily linked with the profitability of the airline industry. In May of 2018, oil prices eclipsed $70/barrel for the first time since 2014 and based on recent projections, prices may continue to climb and remain high for the foreseeable future. Recent forecasts predict the price of oil to be over $90 a barrel by the end of 2018. Airlines will continue to battle fuel prices while attempting to strive for increased profitability. Following a record number of orders placed for aircraft following the economic downturn, airlines have taken delivery of more fuel-efficient aircraft and continue to place orders to maximize efficiencies and modernize fleets.

The continued consolidation of legacy carriers and growth of the Less Than Daily (LTD) carriers in the years following the recession have affected the commercial airline industry at RFD Airport. Since the recession the consolidation of hubs, legacy carriers, and major airlines has continued. In 2013, American Airlines and US Airways merged, followed by Southwest's acquisition of AirTran in 2016. According to the FAA Aerospace Forecast, published in 2018, the commercial air carrier industry will be shaped by these four distinct trends:

- Easing of capacity discipline
- Steady growth of seats per aircraft, whether through up-gauging or reconfiguring existing aircraft
- Increasing competitive pressure due to ultra-low-cost carrier expansion
- Continued reliance on ancillary revenues

Less than Daily and Growth of Domestic

Due to the consolidation of legacy and major carriers, LTD airlines have been able to meet the demand for cheaper flights to leisure markets such as Florida and Las Vegas. Legacy airlines are not present at RFD and therefore, less than daily carriers are finding success by capturing the leisure traveler with low cost and a high-volume product. As the effects of the recession shallowed around 2011, leisure travel has continued to increase. Carriers such as Allegiant Air are retiring their MD-80 fleet in favor of more fuel efficient and higher capacity aircraft.

RFD Reaction and Leisure Market Approach

The airport has reacted to the emerging trends outlined above by increasing efforts to attract less than daily commercial airlines which provide service to high demand leisure destinations with a frequency consistent with demand. With a rebounding economy, the outlook for the leisure market should continue to grow in the short and medium term. In the next five years, the airline industry could improve profitability across the board and airlines could look to compete more aggressively, providing more options to consumers.

Commercial Forecast

International growth

Regional carriers and less than daily carriers offer international service that is primarily confined to the border markets in Canada, Mexico, and the Caribbean. As the airport looks to bring in new service to RFD, an airline such as a less than daily carrier could add service to these markets. Airports of similar size to RFD and located in regional markets are increasing their efforts to bring in service to these destinations. International flights from the U.S. have been increasing in recent years and are projected to continue in the near and medium-term future. The airport is currently updating their existing air carrier terminal. As part of these updates, RFD will offer international passenger clearance by the US Customs and Border Protection.

General Outlook

RFD offers a combination of demographics, facilities and airport capacity, and cost structure that are attractive to low cost and ultra-low-cost (UCC) operators which creates a long-term potential for commercial passenger traffic to continue to grow. As RFD continues an aggressive marketing approach, the potential for significant air service milestones is enhanced. It is likely that growth continues within the Allegiant Air umbrella, but another UCC such as Frontier, Spirit, or even Sun Country could look to add service to capture a portion of the LTD leisure market.

Passenger Enplanement Forecast

Three passenger enplanement growth scenarios have been developed considering the general air service outlook and specific growth factors at RFD. These enplanement projections are derived from U.S. DOT O&D demand and T-100 operations statistics through YE 2017.

Low Growth

The low growth scenario is based on enplanements increasing at levels consistent with current service levels. This growth model represents a low-growth, or baseline scenario, as RFD has exceeded the United States real GDP of 2.78% with an annual compound annual growth rate (CAGR) of 4.8% between 2010 and 2017. Over the five-year period forecast period, an average growth of 4.8% per year is projected for passenger enplanements at RFD and will be utilized for this scenario.

Moderate Growth

The moderate growth scenario consists of the low growth option plus one (1) new market or increased frequency in existing markets. This new market or increased frequency is equivalent to three (3) operations per week. In this instance, an operation is defined as 1 takeoff and 1 landing. It is assumed that this additional market or increased frequency would coincide with Allegiant Air's 34% increase in total fleet size through 2020. An implementation timeframe of mid-2019 is assumed, then enplanements will continue to increase at a 4.8% CAGR. This scenario is generated from a projection of consistent, long-term growth by LTD operators, the introduction of new destinations and frequencies and planned fleet growth and upgauging moving forward. The moderate growth scenario represents a growth rate comparable to enplanement numbers experienced at RFD in recent years.

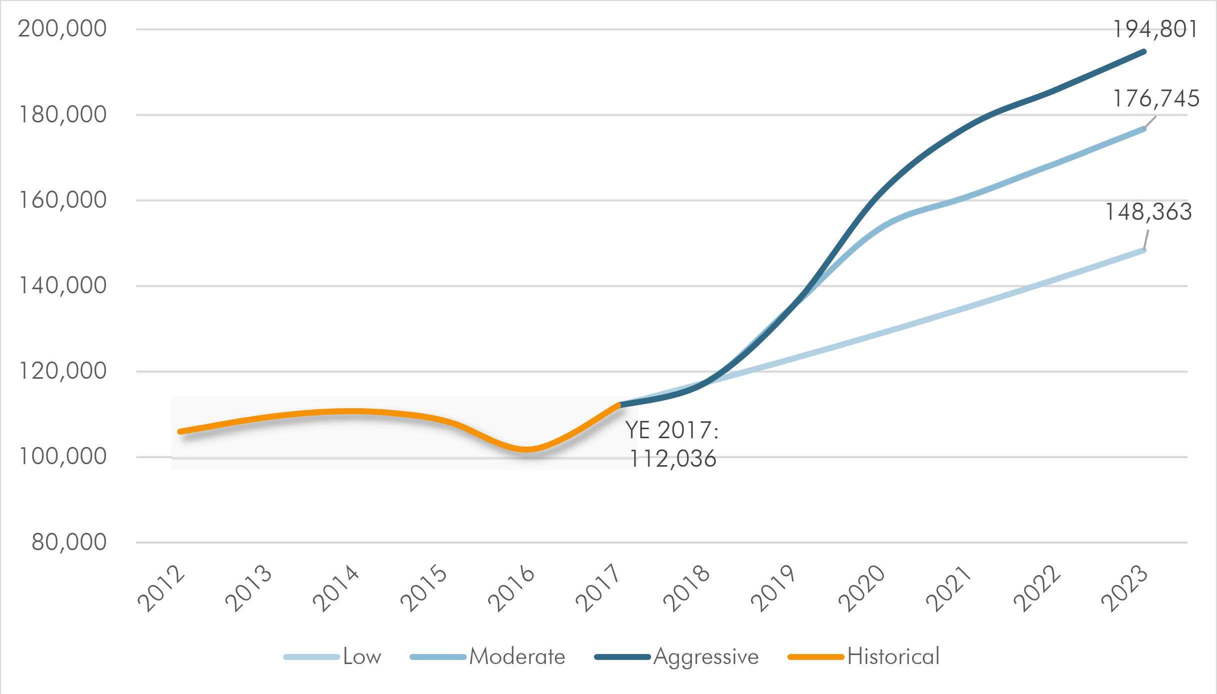
Aggressive Growth

An aggressive forecast scenario has been developed based on sizeable expansion of LTD operations and the potential introduction of additional low-cost carrier operations. Allegiant Air remains the most likely to add service, but growth could also come from one of the other ultra-low-cost carriers, such as; Frontier, Spirit, or Sun Country. The aggressive scenario introduces an additional market or increased frequency in an existing market on top of the moderate growth scenario. It is assumed that this second additional market or growth of an existing markets would operate 2 times per week beginning in mid-2020. Like the moderate growth scenario, this aligns well in Allegiant Air's planned fleet increase and their upgauge in aircraft through the retirement of their MD-80 fleet by YE 2018. The aggressive growth scenario is most representative of the moderate forecast scenario provided in the previous forecast addendum for RFD.

Preferred Scenario

Based on the increase of enplanements in the post-recession years at RFD and the outlook of the commercial airline market for the LTD operators, the moderate forecast is selected as the preferred growth scenario for this forecast. This scenario projects modest near-term growth and yet maintains the potential for sustained long-term growth. Figure 2-2 graphically displays the passenger enplanement forecast scenarios.

Figure 2-2:
Passenger Enplanements Forecast Scenarios



Source: U.S. DOT T-100, RFD Airport Activity Statistics, Allegiant Air's Investor Presentation

Table 2-1 provides the updated passenger enplanements and operations forecast displaying the low, moderate and aggressive growth scenarios. Because RFD is tower staffed 24 hours a day, TFMSC and third-party sources, such as TRAQPak, provide comprehensive information for the known cargo operations at the airport. By knowing the total number of Air Carrier Operations via OPSNET, we can say with reasonable certainty that the number of commercial operations is the difference between the OPSNET Air Carrier total and the identified cargo operations gathered from TFSMC and/or TRAQPak.

Historically, there has been a consistent relationship between the ratio of operations to enplanements at RFD. As recently as 2016 and 2017, this ratio was 0.021 and 0.019 respectively. A slight dip in the ratio can be accounted for an upgauge in aircraft as part of Allegiant's fleet turnover. The average of this ratio, 0.020 was carried forward into the forecast years to project the number of operations.

Table 2-1:
Commercial Passenger Enplanements and Operations Forecast

	Historic				Forecast			
	2016		2017		2018		2023	
	Enp.	Ops.	Enp.	Ops.	Enp.	Ops.	Enp.	Ops.
Average	101,780	2,141	112,036	2,162	117,405	2,451	148,363	3,091
Moderate	101,780	2,141	112,036	2,162	117,405	2,451	176,745	3,659
Aggressive	101,780	2,141	112,036	2,162	117,405	2,451	194,801	4,021

Source: U.S. DOT T-100, RFD Airport Activity Statistics, CMT Analysis

Passenger Aircraft Fleet Mix

Table 2-2 presents a summary of the passenger aircraft fleet mix for the preferred forecast scenario. These projections consider the economic outlook, airline schedules and industry trends in the passenger airline fleet. A major factor in the reduced fleet mix size and eventual use of one aircraft type is the expansion and model consolidation that Allegiant Air is committed to over the next 2 years. Allegiant Air will increase its total fleet by 34% through 2020, going from 82 to 110 units while retiring all its MD80s by YE 2018.[1]

While Allegiant Air operates both A-319's and A320's with an intent to retire their MD-80 fleet, it is projected that the most likely additional route(s) as part of the moderate forecast scenario as well as the existing routes will be served by A320's. When reviewing 2018 data, United Airlines accounted for roughly 104 operations ending November 1. It is assumed that these are chartered service through apple vacations. A variety of aircraft were utilized by United based on demand for travel to Apple destinations; Cancun, Punta Cana and Jamaica. Due to the volatility of these flights and use of variable aircraft, equipment was not forecasted for apple vacations from an operations or fleet mix standpoint. However, utilization was held constant in the out-year of the forecast summary table such that the aircraft utilized by Apple could be captured for noise modeling purposes.

Table 2-2:
Commercial Passenger Aircraft Fleet Mix

	Historic	Forecast
Aircraft	2017	2023
MD-80	36.1%	0.0%
Airbus 319	21.4%	0.0%
Airbus 320	42.5%	100.0%

Source: RFD Airport Activity Statistics, Allegiant Air's Investor Presentation, CMT Analysis

Maintenance Repair and Overhaul (MRO)

The 2013 Forecast Update outlined interest that RFD had received from multiple parties looking to establish an MRO facility to accommodate aircraft up to the 747-800. In 2016, AAR committed to RFD and subsequently constructed two (2) MRO hangars large enough to accommodate multiple 747-800's. This development puts RFD in prime position to land additional cargo services as operators can access the facility without concern of a disabled aircraft being "stuck" at the airport. This facility carries additional benefit given the airports proximity to Chicago O'Hare.

Since its opening and first full year of service, AAR has completed maintenance of aircraft under two separate contracts. One contract with an ultra-low-cost carrier utilizing Boeing 737-700 (48 departures) and Boeing 737-800's and the other for a cargo operator utilizing Boeing 767-200's. It is likely that the cargo operator completed logistical due-diligence and aligned the maintenance period with an arrival shipment of cargo. Therefore, these aircraft have not been counted anywhere other than in cargo operations. Growth in the market for maintenance of aircraft is not necessarily tied to increased operations for the cargo and commercial community. However, given the cargo and commercial airline

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[1] Allegiant Air's Investor Presentation (Feb. 2018)

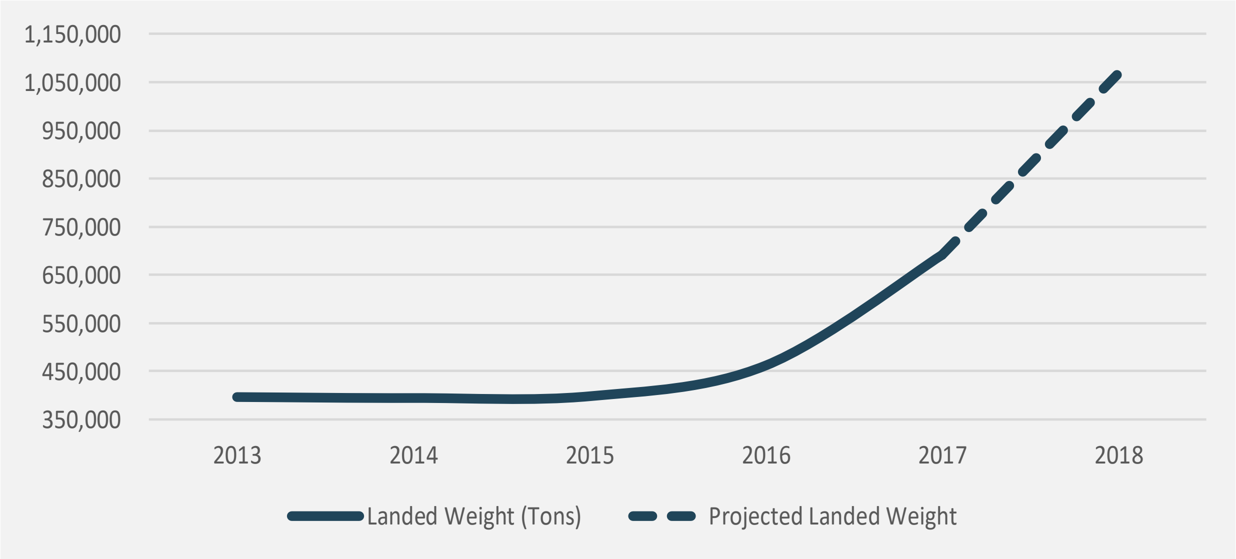
entities utilizing RFD, their hangar capacity, and proximity to Chicago O-Hare, it is anticipated that AAR will continue to see an uptick in maintenance contracts and aircraft serviced. MRO activity has been added to the 2018 projected commercial air carrier number of operations and is carried forward at the low-growth scenario CAGR of 4.8% under each forecast scenario.

Air Cargo Demand

Historic Activity

As noted in the 2013 Forecast Update, air cargo tonnage experienced significant and steady growth in the 2000's up to an airport record 737,287 tons (landed weight) in 2007. Beginning in 2008, the US and world economic crisis had a huge impact on air cargo activity worldwide as supply chain models were revamped to remain competitive in price-sensitive markets. This impact was felt by both integrators and forwarders that sought to compete against other modes of transportation to remain viable. Following the sudden and steep downturn, air cargo tonnage stabilized at RFD through 2015. Beginning in 2016, existing cargo operators at RFD adjusted their system plans and the airport saw in the introduction of new air cargo operations. By virtue of those changes in the air cargo market at RFD, the airport has experienced accelerated growth in landed weight. The landed weight in 2017 was approximately 73% greater than the landed weight in 2015. As a reference point, a 2018 projection for landed weight has been developed based on known landed weight figures from the airport and the anticipated schedule of cargo operators for the remainder of the year. The airport anticipates 2018 will surpass the previous record for landed weight. **Figure 2-3** displays the historical landed weight shallowing immediately following the economic crisis and its subsequent growth thereafter.

Figure 2-3:
Historical Landed Weight at RFD (2007-2017) and Projected 2018



Source: FAA CY Cargo Landed Weight, U.S. DOT T-100 Data, RFD Airport Activity Statistics

Current Operations

Cargo activity at RFD is heavily reliant on the economic climate. Given the current economic conditions, both existing and prospective carriers are looking to increase their market share in the air cargo business. United Parcel Service (UPS) remains the largest air cargo carrier at the airport with a market share at RFD of 75% expressed in terms of cargo operations. As recently as 2012, UPS held a market share at RFD of 94%. Since then, Air Transport International, ABX Air, and Atlas Air have increased operations at RFD to accommodate growth in e-commerce.

With continued growth by both UPS and other operators at RFD, adjustments to their operations translates into direct fluctuations in airport activity. Recessionary adjustments by UPS dictated a consolidation of cargo volumes thereby impacting operations at RFD. With the return of pre-recession utilization by UPS and the introduction of ATI, ABX and Atlas operations over the past few years, it is anticipated that RFD will continue to grow cargo tonnage at a substantial pace. A growing operation from both companies indicates that package processing will continue to be the primary generators of air cargo tonnage for the near term.

Forecast Scenarios

The following forecast scenarios were established to account for changes in the current air cargo industry. These projections will assist in developing the number of future operations and fleet mix for air cargo at RFD.

Average Growth (2023 No-Build)

The annual FAA Aerospace report projects growth rates for the cargo industry relative to recent industry variables, including the economic outlook. The average growth scenario utilizes the 2018 Aerospace report by incorporating nationwide and international cargo industry growth estimates to project tonnage at RFD in the future. The Aerospace forecast predicts an 8.7% increase in cargo activity in 2018 and a 3.8% all cargo annual growth is projected thereafter for the balance of the 20-year forecast. These Aerospace Forecast increases have been applied to each year following the 2018 projections and carried forward into the forecast year, 2023. Based on committals from the cargo operators at RFD, there is an expectation that above-average growth will continue even under the no-build scenario. By virtue of bringing additional landside and building facilities online in 2019, an additional increase in air cargo is forecasted in the amount of 0.5% average annual growth.

User-Driven Growth (2023 Build)

This scenario captures projected growth of existing carriers using proprietary information shared by the Airport's Cargo users; UPS and others. To accommodate growth plans derived by both operators, expansion and modification of the airport's available facilities, number of runways, and access to airfield environment via the midfield, is necessary. These user-driven projections are a direct result of the e-commerce industry growth. Online sales grew over 16.0% from 2016 to 2017 and while sales represented 13% of all retail sales, the growth experienced in e-commerce accounted for 49% of the overall growth.[2]

Demand is a direct result of today's need and desire to have goods as soon as possible and is subsequently satisfied through various shipping options/methods to consumers. As consumers continue to realize the benefits of quick and reliable service provided by the Air Cargo community, demand will continue to increase. A high value industry, air cargo is critical for serving markets that demand speed and reliability for the transport of goods. As the average value per ton of traded goods rises, a larger percentage of trade will become addressable by air cargo.[3]

With global e-commerce projected to double over the next 5 years, air cargo operators, integrators, and newer market participants will continue to expand to meet consumer demand. Therefore, the user-

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[2] Source: United States Commerce Department

[3] Source: Boeing 2017 World Air Cargo Forecast

driven scenario is driven by the Airport's air cargo entities that have firsthand knowledge and proprietary information that is based on historic, present, and future demand levels.

Supplemental Information

A key component for air cargo operators is the ability of Boeing and Airbus to deliver aircraft orders in a timely manner. These manufacturers can provide valuable forecasting insight based on orders placed by these operators. Boeing's 2016-17 base forecast projects 4.2% average annual growth in cargo through 2036 and Airbus forecasts 3.8% average annual growth over the same 20-year period. These forecasts been combined into a single reference point representing 4.0% average annual growth. This is shown for the purposes of supplemental information in **Table 2-5**.

Table 2-5
Air Cargo Forecast Scenarios (Landed Weight Tonnage and Operations)

	Historic				Forecast			
	2016		2017		2018		2023	
	Tonnage	Ops.	Tonnage	Ops.	Tonnage	Ops.	Tonnage	Ops.
Average	461,478	6,757	690,827	10,065	1,068,551	15,774	1,318,915	19,470
User-Driven	461,478	6,757	690,827	10,065	1,068,551	15,774	1,731,925	25,296
Manufacturer's Forecast	461,478	6,757	690,827	10,065	718,460	10,468	840,497	12,276

Note: 2018 tonnage and operations are projected based on January through September data.
Source: FAA Cargo Enplanement Data, RFD Airport Activity Statistics, CMT Analysis

Based on operational data, aircraft fleet modifications/interchangeability, proposed infrastructure expansions, and aircraft order committals by cargo carriers with established operations at RFD, the desired forecast scenario is the user-driven growth model. An adjustment in the 2023 forecasted values has been made to reflect the operations and tonnage at RFD in 2018.

Because RFD is tower staffed 24 hours a day, TFMSC and third-party sources, such as TRAQPak, provide comprehensive information for the known cargo operations at the airport. Historically, there has been a consistent relationship between the ratio of operations to landed weight at RFD. Even when fleet aircraft upgauge or frequency are altered, one has offset the other to maintain a consistent ratio. As recently as 2016 and 2017, this ratio was 0.0146 (operations to landed weight in tons) each year. Via cargo user supplied fleet mix and projected operations and flight schedules to forecast the number of operations, this ratio was applied to anticipate future landed weight under the user-driven scenario.

Air Cargo Fleet Mix

The air cargo fleet mix is displayed in **Table 2-6** and updated below using 2016, 2017, and partial 2018 records. Forecasted values align with the user-driven model given that specific fleet mixes for future use were provided by cargo airlines serving RFD.

Table 2-6:
Air Cargo Fleet Mix

	Historic		Forecast	
	2016	2017	2018	2023
Widebody				
Airbus 300	24.6%	20.3%	16.4%	24.4%
Boeing 767-200	4.9%	18.5%	11.7%	0.0%
Boeing 767-300	22.1%	22.2%	26.3%	30.2%
MD-11	0.5%	0.2%	0.0%	4.7%
Boeing 747-800F	0.0%	0.0%	0.0%	4.7%
Narrowbody				
Boeing 737-800BCF	0.0%	0.0%	0.0%	7.0%
Boeing 757-200	47.8%	38.8%	45.5%	29.1%

Source: TraqPak, User Data, CMT Analysis

General Aviation (GA) Demand

Overview

This section includes forecast scenarios for general aviation (GA) at RFD. It incorporates the same methodology utilized in the previously approved forecasts to project the number of GA based aircraft and GA operations at RFD. The forecast scenarios to estimate future GA based aircraft numbers are identified below.

Based Aircraft: Baseline & Projections

The following section presents 1) the baseline conditions for based aircraft, 2) the forecast methodologies selected, and 3) the associated demand projections for based aircraft at RFD going forward through the 2023 planning horizon:

Baseline Conditions

Today, RFD is home to 114 aircraft and helicopters which are based at the airport according to the most recent airport master record (5010). Of the 111 based aircraft, 78 are single-engine aircraft, 18 are multi-engine aircraft, 15 are jet aircraft, and 3 are helicopters.

Terminal Area Forecast (TAF)

This scenario is simply applying the latest FAA TAF report which projects the number of GA based aircraft for airports within the FAA system. For 2023, the TAF[4] estimates the airport to have 121 based aircraft.

Market Share

The market share approach projects the number of GA based aircraft at RFD relative to the growth of the total fleet in the U.S., provided in the TAF. This scenario assumes the number of based aircraft will increase at the same rate as the entire domestic fleet. According to the most recent TAF, RFD accounts for 0.07% of the based aircraft in the U.S. which is consistent with the previous forecast data. The TAF estimates the entire domestic fleet to increase by approximately 4.1% from 2017 to 2023; therefore, based on this growth estimate, RFD will account for 120 based aircraft in five years' time.

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[4] 2018 FAA Terminal Area Forecast (TAF) – Issued January 2018

FAA Aerospace[5]

The annual FAA Aerospace Forecast projects aviation traffic, aviation activity and economic conditions while it reviews the previous year. The latest Aerospace forecast includes 2017 GA results (estimated) as the latest available, with 2018 numbers projected. The aerospace forecast predicts GA fleet serving business usage will increase at a rate faster than those serving personal and recreational flying. A breakdown of the different GA aircraft categories is listed below, with the average annual growth percentages for years 2018 to 2028.

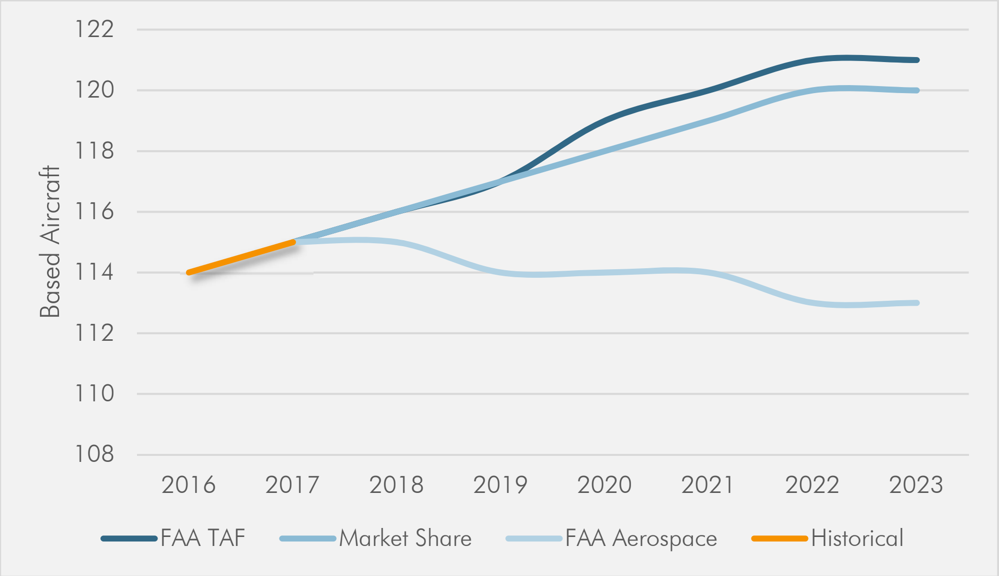
- Single-engine piston: -0.9%
- Multi-engine piston: -0.3%
- Turbine (turbo-jet): 2.3%
- Helicopter (turbine): 2.0%

Overall, the report estimates a relatively unchanged condition as is evident by the forecasted 0.02% average annual rate of increase for general aviation-based aircraft. This percentage will be utilized as rate of increase projected for the FAA Aerospace scenario.

Selected Based Aircraft Forecast

The GA based aircraft scenarios are re-analyzed with the most recent data. **Figure 2-4** displays the projections for the three different scenarios outlined above.

Figure 2-4:
Based Aircraft Forecast Scenarios



Source: FAA TAF, FAA Aerospace, RFD Airport Activity Statistics, CMT Analysis

The FAA TAF and Market Share produce a relatively similar number of aircraft at the airport, but the FAA Aerospace forecast results in a slight decline in based aircraft over the forecasted period. As the market share approach generates the mid-level estimate under this forecast process, and is consistent with the previous year's growth, it will be selected as the preferred alternative. Utilizing numbers

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[5] FAA Aerospace Forecast (2018-2038)

determined in the market share scenario, the updated GA fleet mix and forecast is provided below in **Table 2-8**, with a breakdown of the different GA aircraft categories.

Table 2-8:
Forecast of General Aviation Based Aircraft and Fleet Mix

Aircraft Type	2017	% of Total	2023	% of Total
Single Engine	79	68.7%	82	68.5%
Multi-Engine	18	15.7%	19	15.6%
Jet Engine	15	13.0%	16	13.0%
Helicopter	3	2.6%	3	2.6%
Total	115	100%	120	100%

Source: CMT Analysis

General Aviation Operations

Since the latest approved forecast, GA operations, including both itinerant and local, decreased significantly from 2012 to 2014. In 2012, approximately 41,000 GA operations occurred at RFD while 35,000 operations were recorded the following year and 26,000 in 2014. General aviation operations have remained relatively stable at the airport from 2014 to 2017.

The following forecast scenarios generated for general aviation operations at RFD are provided below.

FAA Aerospace Forecast

The FAA's most recent aerospace forecast (2018-2038) provided growth rates for GA operations. The 20-year outlook on total GA operations is less than the report referenced in the previous forecast. Whereas the 2012-2032 forecast predicted a modest 0.4% average annual growth curve over the next 20 years, the 2018-2038 forecast predicts an increase of 0.3% average annual growth. This percentage (0.3%) was applied to the number of operations experienced in 2017 and extrapolated through the planning period.

Terminal Area Forecast

The TAF scenario utilizes the GA operations projections provided in the most recent TAF report. For RFD, the TAF estimated itinerant general aviation operations to increase in 2017 and 2018, but flatline moving forward. However, air taxis continue to show growth over the forecast period at an average annual growth rate of 0.8%. For local operations, the TAF indicates 2016 experienced a 29% decrease. From there, RFD experienced a rebound in 2017 (13.4%) and is projected to experience a market compensation in 2018 (-3.2%) prior to flatlining over the forecasted period.

Market Share Analysis

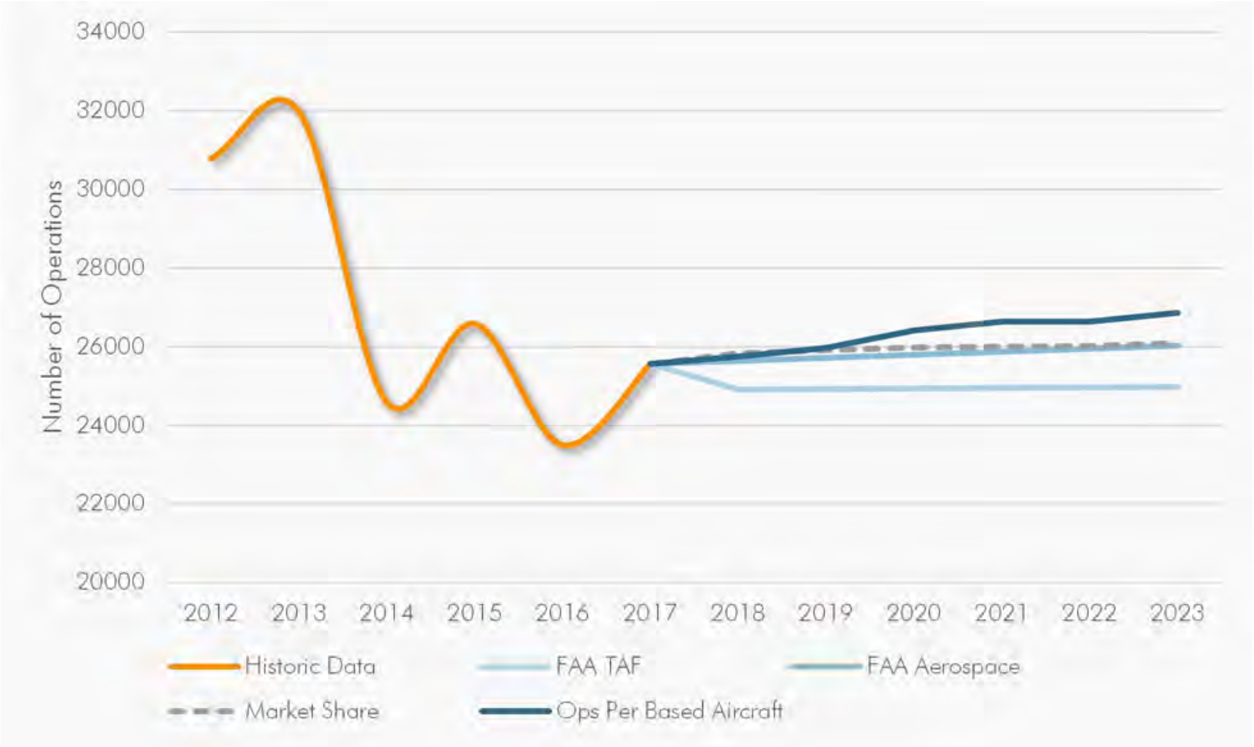
The market share approach projects the number of GA operations at RFD relative to the growth of total GA operations within the Great Lakes Region, provided in the TAF. This scenario assumes the number of operations at RFD will increase at the same rate as the total number of operations increases. In 2017, RFD accounted for approximately 0.172% of the Great Lakes Region GA operations. Utilizing this same ratio, RFD will have 25,835 GA operations in 2018, and 26,094 operations in 2023.

Operations per Based Aircraft

This scenario projects the number of GA operations at the airport based on the ratio of operations per GA based aircraft. In 2017, approximately 222 general aviation operations occurred at RFD per based aircraft. Utilizing this ratio and the projected number of based aircraft outlined in the TAF report for 2023, approximately 26,862 GA operations are projected at RFD in 2023.

Figure 2-5 displays the four updated general aviation operations growth scenarios along with historic numbers.

Figure 2-5:
General Aviation Operations Forecast Scenarios



Source: FAA Aerospace, FAA ATADS, FAA TAF, CMT Analysis

Selected General Aviation Operations Forecast

The scenarios generated produce similar estimates for 2018 ranging from approximately 25,000 to 26,000 operations. The previous forecast selected the market share analysis as the preferred alternative for GA operations projections. Conversely, given the stable number of GA operations since 2014, the FAA Aerospace forecast is the preferred alternative in this document. The Aerospace forecast scenario is a mid-level projection and estimates modest GA growth at the airport. Compared to the previous forecast, this scenario projects a lower number of GA operations based on the updated, recent data.

General Aviation Fleet Mix

Recognizing these demand projections will be integrated into noise modeling efforts as part of the overall environmental due diligence, it is important to identify a representative fleet mix for general aviation. Aircraft for the fleet mix were chosen based on number of operations having not previously been represented in the forecast update or were chosen because they were included as part of the previous Noise Exposure Map (NEM) update. Some aircraft previously included in the NEM update that have seen a regression in operations, were removed from the table as they are no longer considered representative.

Table 2-9:
General Aviation Fleet Mix

Equipment Type	Total 2017 Ops	Avg Daily Ops	2023 Forecasted Operations
C172 - Cessna Skyhawk 172/Cutlass	3053	5.75	3109
H25B - BAe HS 125/700-800/Hawker 800	1680	3.16	1710
SR22 - Cirrus SR 22	1544	2.91	1572
BE58 - Beech 58	1499	2.82	1526
PRM1 - Raytheon Premier 1/390 Premier 1	1309	2.47	1333
BE20 - Beech 200 Super King	1273	2.40	1296
P28A - Piper Cherokee	1237	2.33	1260
EA50 - Eclipse 500	1210	2.28	1232
BE33 - Beech Bonanza 33	1102	2.07	1122
LJ40 - Learjet 40; Gates Learjet	1020	1.92	1039
C25B - Cessna Citation CJ3	912	1.72	929
BE35 - Beech Bonanza 35	894	1.68	910
C182 - Cessna Skylane 182	795	1.50	809
BE9L - Beech King Air 90	677	1.28	690
B350 - Beech Super King Air 350	668	1.26	680
CL30 - Bombardier (Canadair) Challenger 300	623	1.17	634
PA24 - Piper PA-24	524	0.99	533
C525 - Cessna CitationJet/CJ1	497	0.94	506
PA30 - Piper PA-30	488	0.92	496
C441 - Cessna Conquest	470	0.88	478
PA46 - Piper Malibu	461	0.87	469
BE40 - Raytheon/Beech Beechjet 400/T-1	424	0.80	432
C56X - Cessna Excel/XLS	406	0.77	414
LJ45 - Bombardier Learjet 45	380	0.71	387
C550 - Cessna Citation II/Bravo	289	0.54	294
PA32 - Piper Cherokee Six	280	0.53	285
C560 - Cessna Citation V/Ultra/Encore	253	0.48	257
M20P - Mooney M-20C Ranger	235	0.44	239
C680 - Cessna Citation Sovereign	208	0.39	211
PA31 - Piper Navajo PA-31	208	0.39	211
E55P - Embraer Phenom 300	199	0.37	202
E145 - Embraer ERJ-145	135	0.26	138
C750 - Cessna Citation X	126	0.24	129
B190 - Beech 1900/C-12J	126	0.24	129
GLF5 - Gulfstream V/G500	126	0.24	129
P46T - Piper Malibu Meridian	126	0.24	129
C206 - Cessna 206 Stationair	108	0.20	110

Source: FAA TFMSC, TraqPak, CMT Analysis

Table 2-9 represents a representative fleet mix for general aviation operations at RFD. This list is presented and expressed in terms of overall operations and average daily operations and was forecasted for the year 2023 based on the chosen preferred operations forecast (FAA Aerospace Forecast). These 37 aircraft represent 70% of the total GA operations at RFD.

Military Forecast

Military operations at RFD from 2012 to 2017 have declined by approximately 20%. Itinerant and local military operations account for the total military operations recorded. Based on FAA ATADS records, operations of local military have declined substantially while being partially offset by an increase in itinerant military operations. Based on the offset in operations and what is seen as national trend downwards in military operations and bases, no growth will be shown within the military operations or military fleet mix categories.

Military Fleet Mix

Recognizing these demand projections will be integrated into noise modeling efforts as part of the overall environmental due diligence, it is important to identify a representative fleet mix for military aircraft. The aircraft types presented in **Table 2-10** as the fleet mix represent 86% of the total military operations.

Table 2-10:
Military Fleet Mix

Equipment Type	Total 2017 Ops	Avg Daily Ops	2023 Forecasted Operations
Messerschmitt MJ-90	258	0.71	258
Northrop T-38 Talon	231	0.63	231
Boeing KC-135 Stratotanker	180	0.49	180
Raytheon Texan 2	141	0.39	141
Sikorsky SH-60 Seahawk	141	0.39	141
Mitsubishi Regional Jet 90	128	0.35	128
Lockheed 130 Hercules	116	0.32	116
Embraer 190	103	0.28	103
Swearingen Merlin 4	90	0.25	90
Bombardier Q-400	77	0.21	77
Beechjet 400	77	0.21	77
Bombardier Learjet 35	77	0.21	77
Boeing E-6 Mercury	51	0.14	51

Source: FAA TFMSC, FAA OPSNET, CMT Analysis

Critical Aircraft

Advisory Circular 150/5000-17. "*Critical Aircraft and Regular Use Determination*" defines the critical aircraft as the most demanding aircraft type that makes regular use of the airport. "*Regular use is 500-annual operations, including both itinerant and local operations but excluding touch-and-go operations*". The determination of the future Critical Aircraft contained in this report, is based on future aeronautical demand. This demand is based on user defined parameters, including specific aircraft models, variants and operational levels. **Table 2-13** notes that the Boeing 747-800F (cargo freighter) is expected to conduct 1,134 operations is 2023 and thereby exceeds the operational criteria contained in the Advisory Circular. The Boeing 747-800F is considered the Critical Aircraft for this planning horizon.

Table 2-11:
Critical Aircraft Comparison (ALP vs. Proposed)

Critical Aircraft Comparison		
Aircraft	747-400 (ALP)	747-8F (Proposed)
Approach Category	D	D
Airplane Design Group	V	VI
Taxiway Design Group	V	V
Approach Speed (knots)	157	159
Wingspan (feet)	213.0	224.4
Tail Height (feet)	64.0	62.7
Strength (lbs)	875,000	987,000
Length (feet)	231.9	250.2

Source: CMT Analysis

Table 2-12 provides the summary of the forecast components analyzed in this forecast, including the military forecast.

Table 2-13 includes annual operations by user category, fleet mix (equipment type), and provides the summary of Day/Night splits for use in AEDT program inputs.

Forecast Summary

Table 2-12:
Forecast Summary

	Historic		Forecast	
Annual Operations	2016	2017	2018	2023
Air Carrier	2,141	2,162	2,451	3,659
Air Cargo	6,757	10,065	15,774	25,296
General Aviation	23,503	25,565	25,642	26,029
Military	1,986	1,670	1,670	1,670
Total Operations	34,387	39,462	45,537	56,654
Cargo Landed Weight (Tons)	461,478	690,827	1,068,551	1,731,925
Passenger Enplanements	101,780	112,036	117,405	176,745
Based Aircraft	114	115	116	120

Source: FAA ATADS, TAF, FAA TFMSC, FAA OPSNET, BTS T-100 Data, CMT Analysis

Table 2-13:
Annual Aircraft Operations & Day/Night Split

Equipment Type	2017 Operations	2017 D/N Split (%)	2023 Operations	2023 Operations (No-Build)	2023 D/N Split (%)
CARGO					
Airbus 300	2045	29.6/70.4	6078	4701	27.6/72.4
Boeing 767-200	1857	33.9/66.1	64	110	5.4/94.6
Boeing 767-300	2237	32.5/67.5	7532	5818	27.6/72.4
MD-11	24	18.2/81.8	1134	905	28.4/71.6
Boeing 747-800F	-	-	1134	905	28.4/71.6
Boeing 737-800BCF	-	-	1711	1348	27.9/72.1
Boeing 757-200	3902	20.9/79.1	7256	5606	27.7/72.3
Embraer 110	-	-	18	18	57.1/42.9
Learjet 35	-	-	54	54	70.6/29.4
Dassault Falcon 20	-	-	18	18	60.0/40.0
Swearingen Metroliner 4	-	-	297	297	1.0/99.0
CARGO SUBTOTAL	10,065	-	25,296	19,780	-
Equipment Type	2017 Operations	2017 D/N Split (%)	2023 Operations	2023 Operations (No-Build)	2023 D/N Split (%)
GENERAL AVIATION					
C172 - Cessna Skyhawk 172/Cutlass	3053	98.5/1.5	3109	3109	98.5/1.5
H25B - BAe HS 125/700-800/Hawker 800	1680	89.8/10.2	1710	1710	89.8/10.2
SR22 - Cirrus SR 22	1544	97.7/2.3	1572	1572	97.7/2.3
BE58 - Beech 58	1499	96.4/3.6	1526	1526	96.4/3.6
PRM1 - Raytheon Premier 1/390 Premier 1	1309	96.6/3.4	1333	1333	96.6/3.4
BE20 - Beech 200 Super King	1273	95.0/5.0	1296	1296	95.0/5.0
P28A - Piper Cherokee	1237	100/0	1260	1260	100/0
EA50 - Eclipse 500	1210	98.5/1.5	1232	1232	98.5/1.5
BE33 - Beech Bonanza 33	1102	98.4/1.6	1122	1122	98.4/1.6
LJ40 - Learjet 40; Gates Learjet	1020	97.3/2.7	1039	1039	97.3/2.7
C25B - Cessna Citation CJ3	912	91.1/8.9	929	929	91.1/8.9
BE35 - Beech Bonanza 35	894	100/0	910	910	100/0
C182 - Cessna Skylane 182	795	94.3/5.7	809	809	94.3/5.7
BE9L - Beech King Air 90	677	97.3/2.7	690	690	97.3/2.7
B350 - Beech Super King Air 350	668	94.6/5.4	680	680	94.6/5.4
CL30 - Bombardier Challenger 300	623	97.1/2.9	634	634	97.1/2.9
PA24 - Piper PA-24	524	93.1/6.9	533	533	93.1/6.9
C525 - Cessna CitationJet/CJ1	497	94.5/5.5	506	506	94.5/5.5
PA30 - Piper PA-30	488	100/0	496	496	100/0
C441 - Cessna Conquest	470	92.3/7.7	478	478	92.3/7.7
PA46 - Piper Malibu	461	76.5/23.5	469	469	76.5/23.5
BE40 - Raytheon/Beech Beechjet 400/T-1	424	93.6/6.4	432	432	93.6/6.4
C56X - Cessna Excel/XLS	406	95.6/4.4	414	414	95.6/4.4
LJ45 - Bombardier Learjet 45	380	92.7/7.3	387	387	92.7/7.3
C550 - Cessna Citation II/Bravo	289	100/0	294	294	100/0
PA32 - Piper Cherokee Six	280	93.5/6.5	285	285	93.5/6.5
C560 - Cessna Citation V/Ultra/Encore	253	96.4/3.6	257	257	96.4/3.6
M20P - Mooney M-20C Ranger	235	92.3/7.7	239	239	92.3/7.7
C680 - Cessna Citation Sovereign	208	95.7/4.3	211	211	95.7/4.3
PA31 - Piper Navajo PA-31	208	100/0	211	211	100/0

Table continued next page.

Equipment Type	2017 Operations	2017 D/N Split (%)	2023 Operations	2023 Operations (No-Build)	2023 D/N Split (%)
GENERAL AVIATION					
E55P - Embraer Phenom 300	199	63.6/36.4	202	202	63.6/36.4
E145 - Embraer ERJ-145	135	86.7/13.3	138	138	86.7/13.3
C750 - Cessna Citation X	126	85.7/14.3	129	129	85.7/14.3
B190 - Beech 1900/C-12J	126	92.9/7.1	129	129	92.9/7.1
GLF5 - Gulfstream V/G500	126	92.9/7.1	129	129	92.9/7.1
P46T - Piper Malibu Meridian	126	100/0	129	129	100/0
C206 - Cessna 206 Stationair	108	41.7/58.3	110	110	41.7/58.3
GENERAL AVIATION SUBTOTAL	25,565	-	26,029	26,029	-
COMMERCIAL					
MD-80	739	98.1/1.9	-	-	-
Airbus 319	421	98.9/1.1	22	22	80.0/20.0
Airbus 320	878	97.6/2.4	3480	3480	94.8/5.2
Boeing 737-700	29	100.0/0.0	37	37	100.0/0.0
Boeing 737-800	80	85.4/14.6	102	102	85.4/14.6
Boeing 757-300	15	100.0/0.0	18	18	100.0/0.0
COMMERCIAL SUBTOTAL	2,162	-	3,659	3,659	-
MILITARY					
Messerschmitt MJ-90	258	100/0	258	258	100/0
Northrop T-38 Talon	231	100/0	231	231	100/0
Boeing KC-135 Stratotanker	180	100/0	180	180	100/0
Raytheon Texan 2	141	100/0	141	141	100/0
Sikorsky SH-60 Seahawk	141	100/0	141	141	100/0
Mitsubishi Regional Jet 90	128	100/0	128	128	100/0
Lockheed 130 Hercules	116	100/0	116	116	100/0
Embraer 190	103	100/0	103	103	100/0
Swearingen Merlin 4	90	100/0	90	90	100/0
Bombardier Q-400	77	100/0	77	77	100/0
Beechjet 400	77	100/0	77	77	100/0
Bombardier Learjet 35	77	100/0	77	77	100/0
Boeing E-6 Mercury	51	100/0	51	51	100/0
MILITARY SUBTOTAL	1,670	-	1,670	1,670	-
TOTAL OPERATIONS	39,462	-	56,654	51,138	-

Source: FAA OPSNET, FAA TFMSC, TRAQPak, CMT Analysis

Appendix B

NOISE TECHNICAL REPORT

Northwest and Midfield Air Cargo Facility Development

Noise Technical Report

Draft – January 2019

PREPARED FOR
Crawford, Murphy & Tilly
Greater Rockford Airport Authority

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1 Introduction

The purpose of this Noise Technical Report is to provide supporting documentation for the Environmental Assessment (EA) being prepared for the Proposed Northwest Cargo Apron and Midfield Air Cargo Facility Development projects at the Chicago Rockford International Airport (RFD or Airport). Noise Exposure Contours were prepared for the following conditions: Existing (2018), Future (2023) No Action, Future (2023) Proposed Action. The Existing Noise Exposure Contour represents the current operating conditions at RFD and is based on data collected from July 2017 through June 2018, which was the most recent data available when modeling began. The Future (2023) conditions represent the opening year of the air cargo facilities.

2 Background on Characteristics of Noise

Sound is created by a vibrating source that induces vibrations in the air. The vibration produces alternating bands of relatively dense and sparse particles of air, spreading outward from the source like ripples on a pond. Sound waves dissipate with increasing distance from the source. Sound waves can also be reflected, diffracted, refracted, or scattered. When the source stops vibrating, the sound waves disappear almost instantly and the sound ceases.

Sound conveys information to listeners. It can be instructional, alarming, pleasant and relaxing, or annoying. Identical sounds can be characterized by different people, or even by the same person at different times, as desirable or unwanted. Unwanted sound is commonly referred to as “noise.”

Sound can be defined in terms of three components:

1. Level (amplitude)
2. Pitch (frequency)
3. Duration (time pattern)

2.1 Sound Level

The level of sound is measured by the difference between atmospheric pressure (without the sound) and the total pressure (with the sound). Amplitude of sound is like the relative height of the ripples caused by the stone thrown into the water. Although physicists typically measure pressure using the linear Pascal scale, sound is measured using the logarithmic decibel (dB) scale. This is because the range of sound pressures detectable by the human ear can vary from 1 to 100 trillion units. A logarithmic scale allows us to discuss and analyze noise using more manageable numbers. The range of audible sound ranges from approximately 1 to 140 dB, although everyday sounds rarely rise above about 120 dB. The human ear is extremely sensitive to sound pressure fluctuations. A sound of 140 dB, which is sharply painful to humans, contains 100 trillion (1014) times more sound pressure than the least audible sound.

By definition, a 10-dB increase in sound is equal to a tenfold (101) increase in the mean square sound pressure of the reference sound. A 20-dB increase is a 100-fold (102) increase in the mean square sound pressure of the reference sound. A 30-dB increase is a 1,000-fold (103) increase in mean square sound pressure.

A logarithmic scale requires different mathematics than used with linear scales. The sound pressures of two separate sounds, expressed in dB, are not arithmetically additive. For example, if a sound of 80 dB is added to another sound of 74 dB, the total is a 1-dB increase in the louder sound (81 dB), not the arithmetic sum of 154 dB. If two equally loud noise events occur simultaneously, the sound pressure level from the combined events is 3-dB higher than the level produced by either event alone.

Human perceptions of changes in sound pressure are less sensitive than a sound level meter. People typically perceive a tenfold increase in sound pressure, a 10-dB increase, as a doubling of loudness. Conversely, a 10-dB decrease in sound pressure is normally perceived as half as loud. In community settings, most people perceive a 3-dB increase in sound pressure (a doubling of the sound pressure or energy) as just noticeable. (In laboratory settings, people with good hearing are able to detect changes in sounds of as little as 1-dB.)

2.2 Sound Frequency

The pitch (or frequency) of sound can vary greatly from a low-pitched rumble to a shrill whistle. If we consider the analogy of ripples in a pond, high frequency sounds are vibrations with tightly spaced ripples, while low rumbles are vibrations with widely spaced ripples. The rate at which a source vibrates determines the frequency. The rate of vibration is measured in units called “Hertz” -- the number of cycles, or waves, per second. One’s ability to hear a sound depends greatly on the frequency composition. Humans hear sounds best at frequencies between 1,000 and 6,000 Hertz. Sound at frequencies above 10,000 Hertz (high-pitched hissing) and below 100 Hertz (low rumble) are much more difficult to hear.

If we are attempting to measure sound in a way that approximates what our ears hear, we must give more weight to sounds at the frequencies we hear well and less weight to sounds at frequencies we do not hear well. Acousticians have developed several weighting scales for measuring sound. The A-weighted scale was developed to correlate with the judgments people make about the loudness of sounds. The A weighted decibel scale (dBA) is used in studies where audible sound is the focus of inquiry. The U.S. Environmental Protection Agency (USEPA) has recommended the use of the A-weighted decibel scale in studies of environmental noise.[1] Its use is required by the FAA in airport noise studies.[2] For the purposes of this analysis, dBA was used as the noise metric and dB and dBA are used interchangeably.

2.3 Duration of Sounds

The duration of sounds – their patterns of loudness and pitch over time – can vary greatly. Sounds can be classified as continuous like a waterfall, impulsive like a firecracker, or intermittent like aircraft overflights. Intermittent sounds are produced for relatively short periods, with the instantaneous sound level during the event roughly appearing as a bell-shaped curve. An aircraft event is characterized by the period during which it rises above the background sound level, reaches its peak, and then recedes below the background level.

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[1] Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety. U.S. Environmental Protection Agency, Office of Noise Abatement and Control. 1974, P. A-10.

[2] “Airport Noise Compatibility Planning.” 14 CFR Part 150, Sec. A150.3, September 24, 2004.

3 Standard Noise Descriptors

Given the multiple dimensions of sound, a variety of descriptors, or metrics, have been developed for describing sound and noise. Some of the most commonly used metrics are discussed in this section. They include:

- Maximum Level (Lmax)
- Time Above Level (TA)
- Sound Exposure Level (SEL)
- Equivalent Sound Level (Leq)
- Day/Night Average Sound Level (DNL)

3.1 Maximum Level (Lmax)

Lmax is simply the highest sound level recorded during an event or over a given period of time. It provides a simple and understandable way to describe a sound event and compare it with other events. In addition to describing the peak sound level, Lmax can be reported on an appropriate weighted decibel scale (A-weighted, for example) so that it can disclose information about the frequency range of the sound event in addition to the loudness.

Lmax, however, fails to provide any information about the duration of the sound event. This can be a critical shortcoming when comparing different sounds. Even if they have identical Lmax values, sounds of greater duration contain more sound energy than sounds of shorter duration. Research has demonstrated that for many kinds of sound effects, the total sound energy, not just the peak sound level, is a critical consideration.

3.2 Time Above Level (TA)

The “time above,” or TA, metric indicates the amount of time that sound at a particular location exceeds a given sound level threshold. TA is often expressed in terms of the total time per day that the threshold is exceeded. The TA metric explicitly provides information about the duration of sound events, although it conveys no information about the peak levels during the period of observation.

3.3 Sound Exposure Level (SEL)

The sound exposure level, or SEL metric, provides a way of describing the total sound energy of a single event. In computing the SEL value, all sound energy occurring during the event, within 10 dB of the peak level (Lmax), is mathematically integrated over one second. (Very little information is lost by discarding the sound below the 10-dB cut-off, since the highest sound levels completely dominate the integration calculation.) Consequently, the SEL is always greater than the Lmax for events with a duration greater than one second. SELs for aircraft overflights typically range from five to 10 dB higher than the Lmax for the event.

3.4 Equivalent Sound Level (Leq)

The equivalent sound level (Leq) metric may be used to define cumulative noise dosage, or noise exposure, over a period of time. In computing Leq, the total noise energy over a given period of time, during which numerous events may have occurred, is logarithmically averaged over the time period. The Leq represents the steady sound level that is equivalent to the varying sound levels actually occurring during the period of observation.
For example, an 8-hour Leq of 67 dB indicates that the amount of sound energy in all the peaks and valleys that occurred in the 8-hour period is equivalent to the energy in a continuous sound level of 67 dB. Leq is typically computed for measurement periods of 1 hour, 8 hours, or 24 hours, although any time period can be specified.

Leq is a critical noise metric for many kinds of analysis where total noise dosage, or noise exposure, is under investigation. As already noted, noise dosage is important in understanding the effects of noise on both animals and people. Indeed, research has led to the formulation of the “equal energy rule.” This rule states that it is the total acoustical energy to which people are exposed that explains the effects the noise will have on them. That is, a very loud noise with a short duration will have the same effect as a lesser noise with a longer duration if they have the same total sound energy.

3.5 Day/Night Average Sound Level (DNL)

The DNL metric is really a variation of the 24-hour Leq metric. Like Leq, the DNL metric describes the total noise exposure during a given period. Unlike Leq, however, DNL, by definition, can only be applied to a 24-hour period. In computing DNL, an extra weight of 10 dB is assigned to any sound levels occurring between the hours of 10:00 p.m. and 6:59 a.m. This is intended to account for the greater annoyance that nighttime noise is presumed to cause for most people. Recalling the logarithmic nature of the dB scale, this extra weight treats one nighttime noise event as equivalent to 10 daytime events of the same magnitude.

As with Leq, DNL values are strongly influenced by the loud events. For example, 30 seconds of sound of 100 dB, followed by 23 hours, 59 minutes, and 30 seconds of silence would compute to a DNL value of 65 dB. If the 30 seconds occurred at night, it would yield a DNL of 75 dB.

This example can be roughly equated to an airport noise environment. Recall that an SEL is the mathematical compression of a noise event into one second. Thus, 30 SELs of 100 dB during a 24-hour period would equal DNL 65 dB, or DNL 75 dB if they occurred at night. This situation could actually occur in places around a real airport. If the area experienced 30 overflights during the day, each of which produced an SEL of 100 dB, it would be exposed to DNL 65 dB. Recalling the relationship of SEL to the peak noise level (Lmax) of an aircraft overflight, the Lmax recorded for each of those overflights (the peak level a person would actually hear) would typically range from 90 to 95 dB.

4 Regulatory Setting

This section presents information regarding noise and land use criteria that may be useful in the evaluation of noise impacts. The FAA has a long history of publishing noise and use assessment criteria. A summary of some of the more pertinent regulations and guidelines is presented in the following paragraphs.

4.1 Noise Control Act

Congress passed the Noise Control Act (42 U.S.C. §4901 et seq.) in 1972, which established a national policy to promote an environment for all Americans free from noise that jeopardizes their health and welfare. The act set forth the foundation for conducting research and setting guidelines to restrict noise pollution.

4.2 Federal Aviation Noise Abatement Policy

On November 18, 1976, the U.S. Department of Transportation and FAA jointly issued the Federal Aviation Noise Abatement Policy. This policy recognized aircraft noise as a major constraint on the further development of the commercial aviation established key responsibilities for addressing aircraft noise. The policy stated that the Federal Government has the authority and responsibility to regulate noise at the source by designing and managing flight procedures to limit the impact of aircraft noise on local communities; and by providing funding to airports for noise abatement planning.

4.3 Aviation Safety and Noise Abatement Act of 1979

The Aviation Safety and Noise Abatement Act of 1979 (ASNA), which is codified as 49 U.S.C. 47501-47510, set forth the foundation for the airport noise compatibility planning program outlined in 14 Code of Federal Regulations (CFR) Part 150. The act established the requirements for conducting noise compatibility planning and provided assistance and funding for which airport operators could apply to undertake such planning.

4.4 Airport Noise and Capacity Act of 1990

The Airport Noise and Capacity Act (ANCA) of 1990 established two broad directives for the FAA: 1) to establish a method by which to review airport noise and access/use restrictions imposed by airport proprietors, and 2) to institute a program to phase out Stage 2 aircraft over 75,000 lbs. by December 31, 1999.[3] To implement ANCA, the FAA amended 14 CFR Part 91 and issued 14 CFR Part 161 which sets forth noise levels that are permitted for aircraft of various weights, engine number.

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[3] Title 14, Part 36 of the CFR sets forth noise levels that are permitted for aircraft of various weights, engine number, and date of certification. Aircraft were divided into three classes according to noise level, Stage 1, Stage 2, and Stage 3, with Stage three being the quietest. Per 14 CFR Part 36, to be designated as Stage 3, aircraft must meet noise levels defined by the FAA at takeoff, sideline, and approach measurement locations.

4.5 Federal Requirements to Use DNL In Environmental Noise Studies

DNL is the standard metric used for environmental noise analysis in the U.S. This practice originated with the USEPA's effort to comply with the Noise Control Act of 1972. The USEPA designated a task group to "consider the characterization of the impact of airport community noise and develop a community noise exposure measure."[4] The task group recommended using the DNL metric. The USEPA accepted the recommendation in 1974, based on the following considerations:

- The measure is applicable to the evaluation of pervasive, long-term noise in various defined areas and under various conditions over long periods of time.
- The measure correlates well with known effects of the noise environment on individuals and the public.
- The measure is simple, practical, and accurate.
- Measurement equipment is commercially available.
- The metric at a given location is predictable, within an acceptable tolerance, from knowledge of the physical events producing the noise.[5]

Soon thereafter, the Department of Housing and Urban Development (HUD), Department of Defense, and the Veterans Administration adopted the use of DNL.

At about the same time, the Acoustical Society of America developed a standard (ANSI S3.23-1980) which established DNL as the preferred metric for outdoor environments. This standard was reevaluated in 1990 and they reached the same conclusions regarding the use of DNL (ANSI S12.40-1990).

In 1980, the Federal Interagency Committee on Urban Noise (FICUN) met to consolidate Federal guidance on incorporating noise considerations in local land use planning. The committee selected DNL as the best noise metric for the purpose, thus endorsing the USEPA's earlier work and making it applicable to all Federal agencies.[6]

In response to the requirements of the ASNA Act of 1979 and the recommendations of FICUN and USEPA, the FAA established DNL in 1981 as the single metric for use in airport noise and land use compatibility planning. This decision was incorporated into the final rule implementing ASNA, 14 CFR Part 150, in 1985. Part 150 established the DNL as the noise metric for determining the exposure of individuals to aircraft noise and identified residential land uses as being normally compatible with noise levels below DNL 65 dB.

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[4] Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety. U.S. Environmental Protection Agency, Office of Noise Abatement and Control. 1974, P. A-10.

[5] Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety. U.S. Environmental Protection Agency, Office of Noise Abatement and Control. 1974, Pp. A-1–A-23.

[6] Guidelines for Considering Noise in Land Use Planning and Control. Federal Interagency Committee on Urban Noise (FICUN). 1980.

5 Modeling Methodology

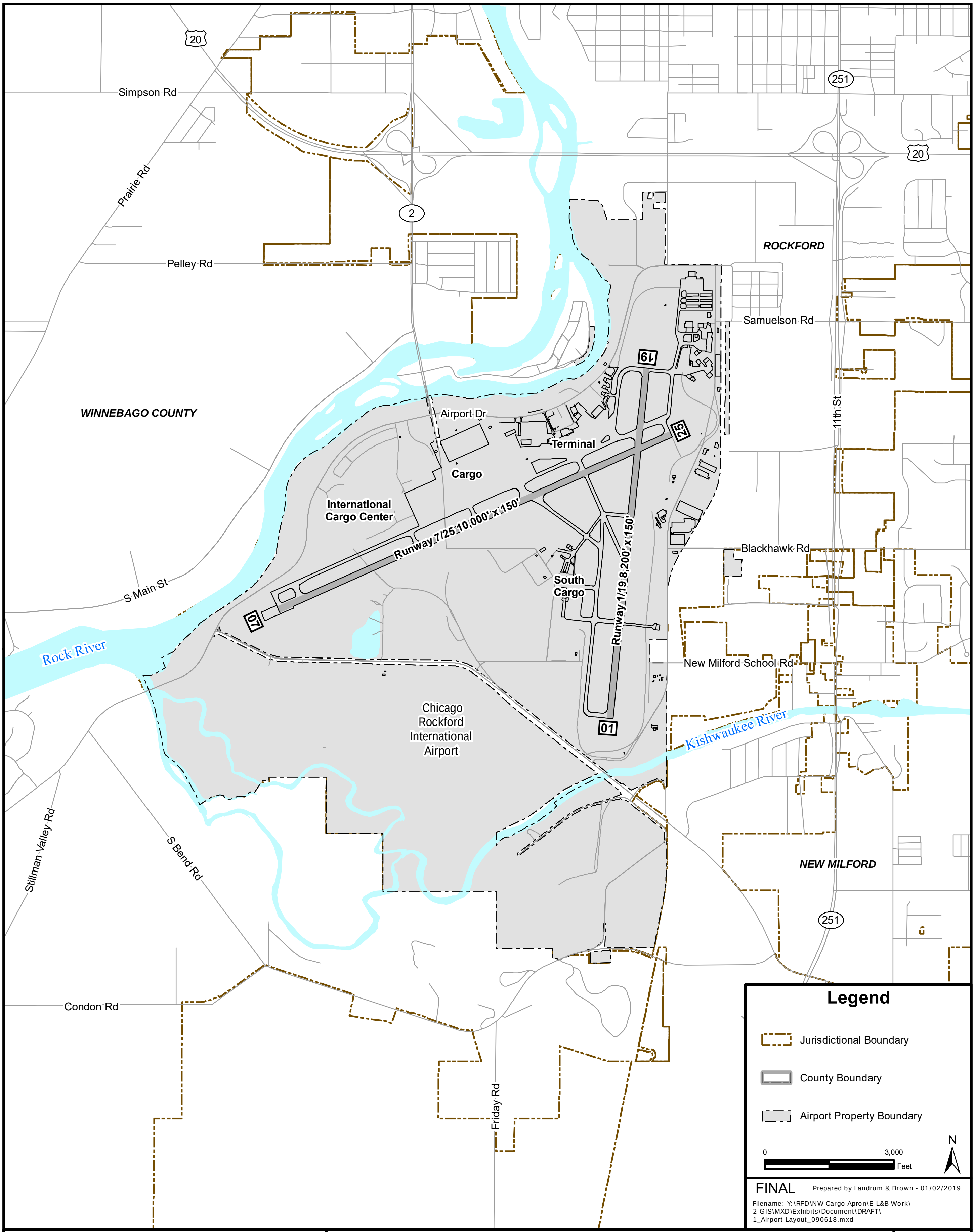
The analysis of noise exposure around RFD was prepared using the FAA's Aviation Environmental Design Tool (AEDT) Version 2d SP2. Inputs to the AEDT include runway definition, number of aircraft operations during the time period evaluated, the types of aircraft flown, the time of day when they are flown, how frequently each runway is used for arriving and departing aircraft, and the routes of flight used when arriving to and departing from the runways. The AEDT calculates noise exposure for the area around an airport and outputs contours of noise exposure using the Day-Night Average Sound Level (DNL) metric. Noise exposure contours for the levels of 65, 70, and 75 DNL were calculated and represent average-annual day conditions.

5.1 Existing (2018) Noise Exposure Contour Input Data

5.1.1 Runway Definition

The existing airfield at RFD has two intersecting Runways, Runway 01/19 and Runway 07/25, as depicted on **Figure 1**.

Runway	Length (feet)	Width (feet)
01/19	8,200	150
07/25	10,002	150



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NW Cargo Expansion

Chicago Rockford
International Airport

Airport Layout

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5.1.2 Number of Operations and Fleet Mix:

In order to calculate DNL noise exposure levels for the Airport, the average number of daily arrivals and departures by specific aircraft types was prepared for input into the AEDT. Information concerning aircraft operations was collected from FAA's Operational Network (OPSNET) and Traffic Flow Management System Counts (TFMSC) database, which is the official source for FAA air traffic data. Fleet mix was based on the FAA TFMSC database as it provides aircraft type by hour of the day for operations in which flight plans are filed and/or when flights are detected by the National Airspace System (NAS), usually via RADAR. Where aircraft type data in the TFMSC was limited (Air Taxi, General Aviation and Military), OPSNET data was used to supplement the TFMSC data. Data was queried for at RFD for the time period of July 2017 thru June 2018. This was the most recent operational data available at the time modeling started.

During the existing conditions period (July 2017 thru June 2018), OPSNET reported 24,492 Air Taxi, General Aviation, Civil and Military and TFMSC reported 15,512 Commercial and Cargo operations occurred at RFD during the July 2017 thru June 2018 time period. Therefore, a total of 40,004 total operations were assumed to occur at RFD during the July 2017 thru June 2018 time period.

The average daily number of aircraft arrivals and departures for the Existing (2018) Noise Contour are calculated by determining the total annual operations and dividing by 365 (days in a year). **Table 1** shows the total number of operations by the aircraft category, AEDT aircraft type and by time of day (daytime or nighttime). The 2018 annual average day included 109.6 total operations, 33 percent of which occurred during the nighttime hours of 10:00 p.m. to 6:59 a.m.

Table 1 AVERAGE DAILY OPERATIONS BY AIRCRAFT TYPE – EXISTING (2018)

AIRCRAFT TYPE	ARRIVALS		DEPARTURES		TOTAL OPERATIONS
	DAYTIME	NIGHTTIME	DAYTIME	NIGHTTIME	
Cargo					
Airbus A300F4-600 Series	0.94	2.79	0.94	2.79	7.45
Boeing 727-200 Series	0.01	0.09	0.01	0.09	0.20
Boeing 747-400 Series	0.01	0.02	0.01	--	0.04
Boeing 757-200 Series	0.76	7.18	0.76	7.18	15.88
Boeing 767-200 Series	1.77	5.24	1.77	5.24	14.02
Boeing DC-9-30 Series	0.01	0.05	0.01	0.05	0.11
Subtotal	***3.50***	***15.36***	***3.50***	***15.34***	***37.69***
Commercial					
Airbus A319-100 Series	0.45	0.04	0.45	0.04	0.99
Airbus A320-200 Series	0.78	0.07	0.78	0.07	1.71
Boeing 737-400 Series	0.08	0.01	0.08	0.01	0.16
Boeing 737-800 Series	0.33	0.03	0.33	0.03	0.72
Boeing MD-82	0.01	0.00	0.01	0.00	0.02

AIRCRAFT TYPE	ARRIVALS		DEPARTURES		TOTAL OPERATIONS
	DAYTIME	NIGHTTIME	DAYTIME	NIGHTTIME	
Boeing MD-83	0.53	0.05	0.53	0.05	1.15
Embraer ERJ190	0.02	0.01	0.02	0.01	0.06
Subtotal	***2.20***	***0.20***	***2.20***	***0.20***	***4.81***
General Aviation Jets					
Bombardier Challenger 600	2.08	0.16	2.08	0.16	4.49
Bombardier Challenger 601	0.78	0.29	0.04	0.00	1.10
Bombardier Learjet 25	0.04	0.00	0.04	0.00	0.08
Bombardier Learjet 35A/36A (C-21A)	4.17	0.32	4.17	0.32	8.98
Cessna 500 Citation I	0.22	0.02	0.22	0.02	0.47
Cessna 525 Citation Jet	0.48	0.04	0.48	0.04	1.02
Cessna 550 Citation II	0.73	0.06	0.73	0.06	1.58
Cessna 560 Citation V	0.29	0.02	0.29	0.02	0.63
Cessna 560 Citation XLS	0.37	0.03	0.37	0.03	0.79
Cessna 650 Citation III	0.26	0.02	0.26	0.02	0.55
Cessna 680 Citation Sovereign	0.15	0.01	0.15	0.01	0.32
Cessna 750 Citation X	0.26	0.02	0.26	0.02	0.55
CESSNA CITATION 510	0.07	0.01	0.07	0.01	0.16
Eclipse 500 / PW610F	0.80	0.06	0.80	0.06	1.73
Embraer ERJ145	0.09	0.03	0.09	0.03	0.24
Fokker F100	0.29	0.02	0.29	0.02	0.63
Gulfstream G550	0.04	0.00	0.04	0.00	0.08
Gulfstream IV-SP	0.15	0.01	0.15	0.01	0.32
Israel IAI-1125 Astra	0.18	0.01	0.18	0.01	0.39
Mitsubishi MU-300 Diamond	1.21	0.09	1.21	0.09	2.60
Subtotal	***12.64***	***1.23***	***11.90***	***0.95***	***26.72***
General Aviation Props					
Bombardier de Havilland Dash 8 Q400	0.45	0.10	0.45	0.10	1.10
Britten-Norman BN-2 Islander	0.11	0.01	0.11	0.01	0.24
Cessna 172 Skyhawk	1.82	0.11	1.82	0.11	3.86
Cessna 182	0.82	0.05	0.82	0.05	1.73

AIRCRAFT TYPE	ARRIVALS		DEPARTURES		TOTAL OPERATIONS
	DAYTIME	NIGHTTIME	DAYTIME	NIGHTTIME	
Cessna 206	0.33	0.02	0.33	0.02	0.71
Cessna 208 Caravan	0.52	0.03	0.52	0.03	1.10
Cessna 441 Conquest II	4.46	0.26	4.46	0.26	9.46
Convair CV-580	0.48	0.11	0.48	0.11	1.18
DeHavilland DHC-6-200 Twin Otter	0.15	0.01	0.15	0.01	0.31
DeHavilland DHC-8-100	0.03	0.01	0.03	0.01	0.08
Dornier 228-200 Series	0.19	0.01	0.19	0.01	0.39
EADS Socata TB-9 Tampico	0.11	0.01	0.11	0.01	0.24
Embraer EMB120 Brasilia	0.22	0.05	0.22	0.05	0.55
Piper PA-24 Comanche	4.69	0.28	4.69	0.28	9.93
Piper PA-28 Cherokee Series	0.60	0.04	0.60	0.04	1.26
Piper PA-30 Twin Comanche	0.22	0.01	0.22	0.01	0.47
Raytheon Beech 1900-D	0.22	0.05	0.22	0.05	0.55
Raytheon Beech Baron 58	1.97	0.12	1.97	0.12	4.17
Saab 340-B	0.19	0.04	0.19	0.04	0.47
Shorts 330-200 Series	0.70	0.16	0.70	0.16	1.73
Subtotal	***18.30***	***1.47***	***18.30***	***1.48***	***39.56***
Military					
Boeing KC-135 Stratotanker *	0.27	0.00	0.27	0.00	0.54
Lockheed C-130 Hercules*	0.08	0.00	0.08	0.00	0.16
Lockheed Martin F-16 Fighting Falcon	0.03	0.00	0.03	0.00	0.05
T-38 Talon*	0.04	0.00	0.04	0.00	0.07
Subtotal	***0.41***	***0.00***	***0.41***	***0.00***	***0.82***
Grand Total	**37.05**	**18.27**	**36.31**	**17.96**	**109.60**

* Includes touch-and-go/closed patterns operations which are counted as one arrival and one departure.
Notes: Daytime = 7:00 am – 9:59 pm, Nighttime = 10:00 pm – 6:59 am.
Source: TFMSC; OPSNET, Landrum & Brown analysis, 2018.

5.1.3 Runway End Utilization

Average-annual day runway end utilization was derived from analysis of the previously conducted 2013 Noise Exposure Map (NEM) Update[7] modeling files. It was confirmed with the Air Traffic Control tower (ATCT) at RFD that runway end utilization modeled in the 2013 study is consistent with current conditions at the Airport. This data provided the average annual daily runway use for each AEDT aircraft type during day and night periods at RFD. **Table 2** summarizes the percentage of use by each aircraft category on each of the runway ends at RFD during the daytime (7:00 a.m. to 9:59 p.m.) and nighttime (10:00 p.m. to 6:59 a.m.).

Currently, the majority of scheduled operations at RFD occur at night. During the nighttime, RFD typically operates in a preferential reverse flow to take advantage of less developed areas to the south and west of RFD. In this configuration, aircraft primarily arrive from the south or southwest and land on Runway 01 or Runway 07; and primarily depart to the south and southwest from Runway 19 and Runway 25. This reverse flow configuration is possible due to the unique nature of the nighttime cargo operation in which there is one distinct arrival bank and one distinct departure bank. In addition, the larger aircraft associated with the nighttime cargo operation are generally less affected by wind conditions than smaller general aviation aircraft and thus can accept a greater tailwind velocity. Daytime operations generally adhere to similar runway use patterns, although when mixed operations (arrivals and departures) occur simultaneously, reverse flow is typically not conducted. Furthermore, the smaller jet and propeller aircraft are less able to accept unfavorable wind conditions and typically must use the runway which provides the most optimal headwind. Therefore, daytime runway use is more evenly distributed among all four runway ends.

Table 2 RUNWAY UTILIZATION – EXISTING (2018)

AIRCRAFT CATEGORY	RUNWAY END			
	01	19	07	25
Daytime Arrivals				
Cargo	28%	22%	32%	18%
Commercial	23%	13%	49%	15%
General Aviation Jets	23%	21%	32%	23%
General Aviation Props	25%	21%	32%	23%
Military	0%	28%	32%	39%
Nighttime Arrivals				
Cargo	29%	10%	55%	6%
Commercial	34%	6%	46%	15%
General Aviation Jets	46%	18%	12%	24%
General Aviation Props	37%	6%	40%	17%
Military	n/a	n/a	n/a	n/a

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[7] Chicago Rockford International Airport, Noise Exposure Map Update, Landrum & Brown, November 2013.

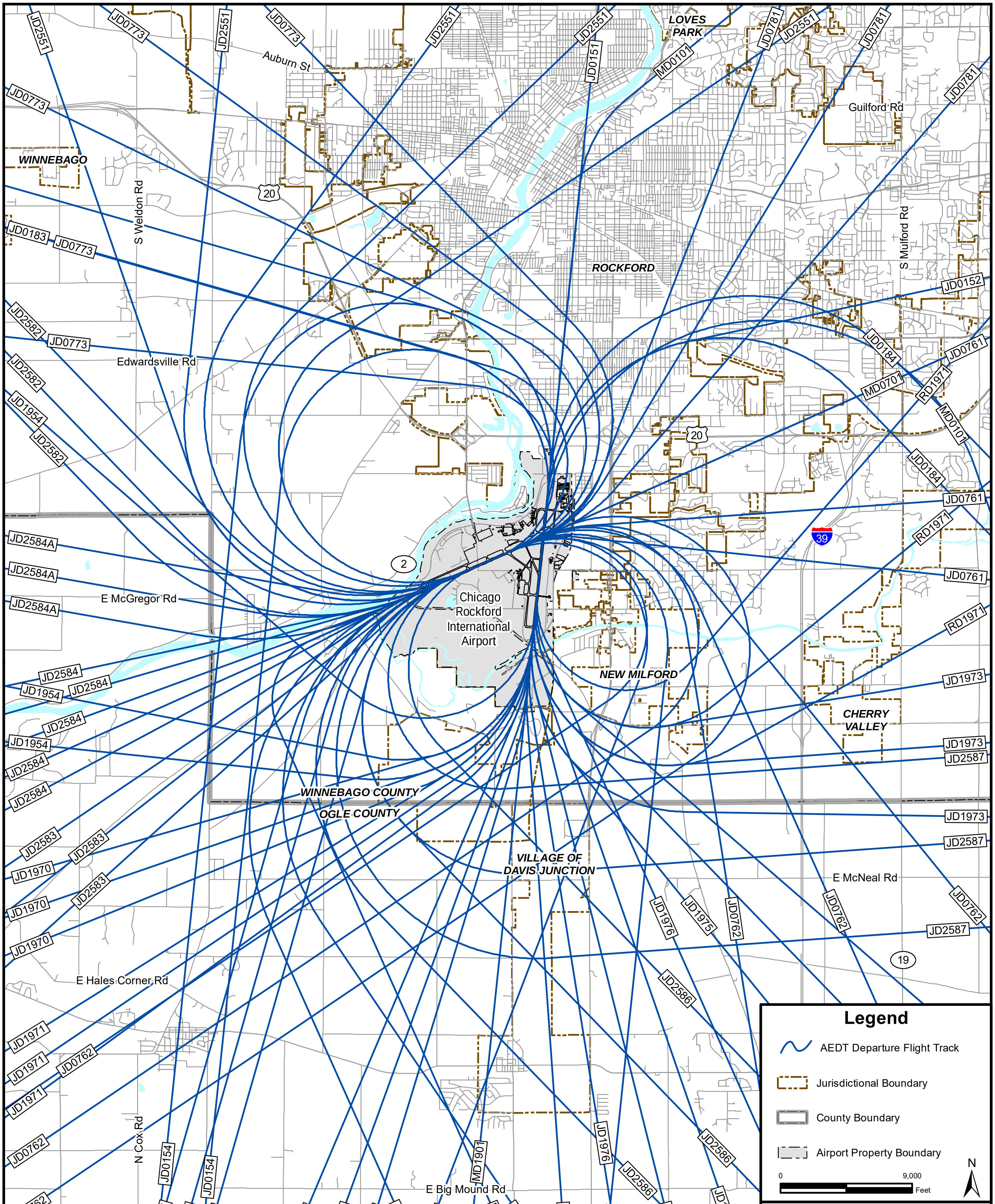
AIRCRAFT CATEGORY	RUNWAY END			
	01	19	07	25
Daytime Departures				
Cargo	10%	37%	25%	29%
Commercial	6%	29%	24%	42%
General Aviation Jets	13%	40%	22%	25%
General Aviation Props	14%	48%	17%	20%
Military	8%	42%	8%	42%
Nighttime Departures				
Cargo	1%	50%	8%	42%
Commercial	2%	25%	27%	46%
General Aviation Jets	17%	40%	27%	17%
General Aviation Props	3%	54%	23%	20%
Military	n/a	n/a	n/a	n/a

Source: ATCT, RFD 2013 NEM Update, Landrum & Brown analysis, 2018.

5.1.4 Flight Tracks

For this modeling, the flight tracks from the 2013 NEM Update were evaluated to ensure that the flight tracks used in the modeling of aircraft noise are representative of where aircraft currently fly at RFD. It was verified by the ATCT that the location, density, width and percent utilization of existing flight corridors utilized in the 2013 NEM Update are representative of the current flight corridors at RFD for each AEDT aircraft type.

Departure and arrival corridors are defined by a series of individual flight tracks located across the width of the corridor. In order to model the flight corridors in AEDT, consolidated flight tracks were developed from the radar data and given a track ID. Flight tracks modeled for the Existing (2018) conditions are shown in **Figure 2 through Figure 6**. The percent utilization modeled for each track is provided in **Table 3 through Table 5**.



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NW Cargo Expansion

Chicago Rockford International Airport

AEDT Jet Departure Flight Tracks

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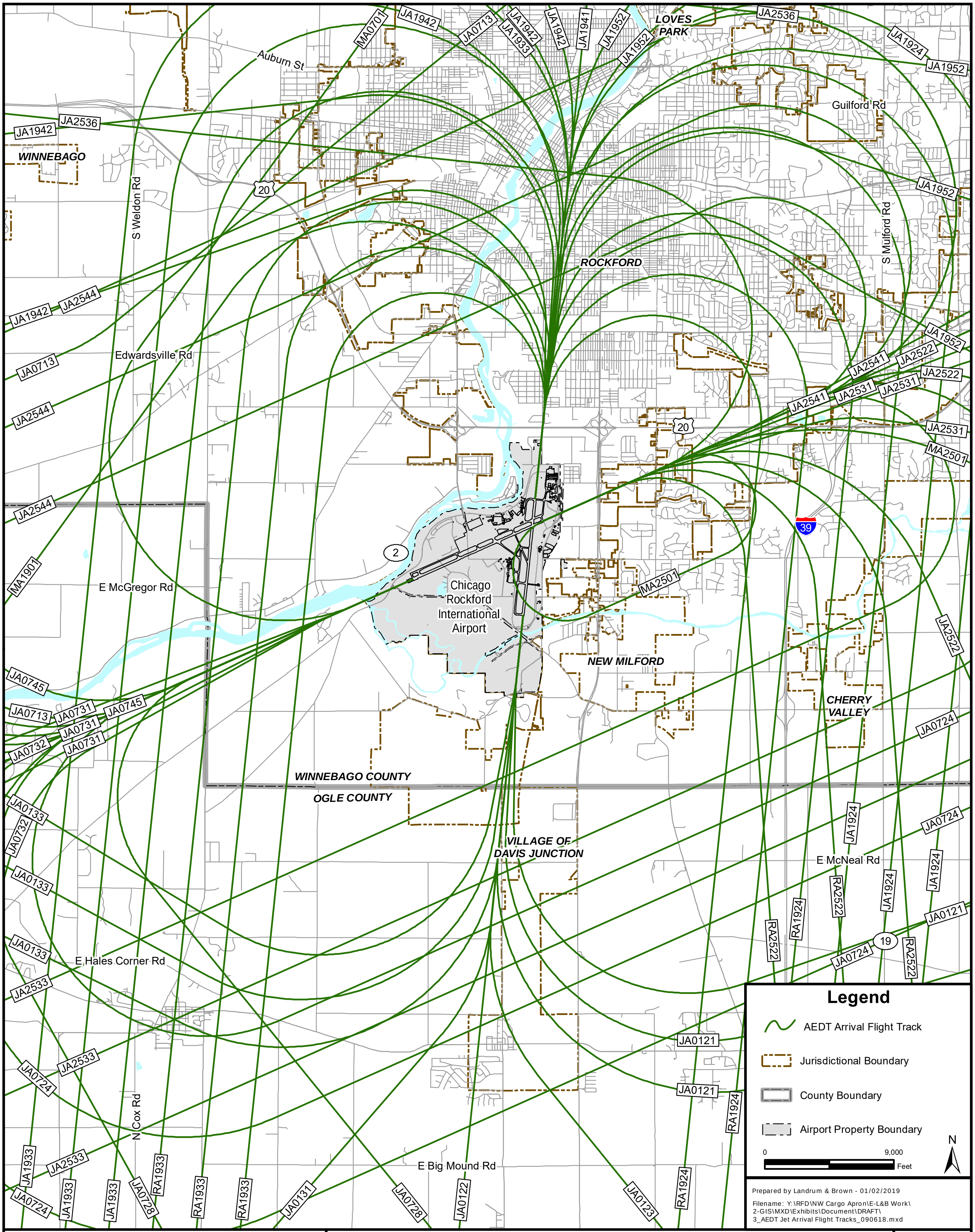

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NW Cargo Expansion

Chicago Rockford
International Airport

AEDT Jet Arrival Flight Tracks

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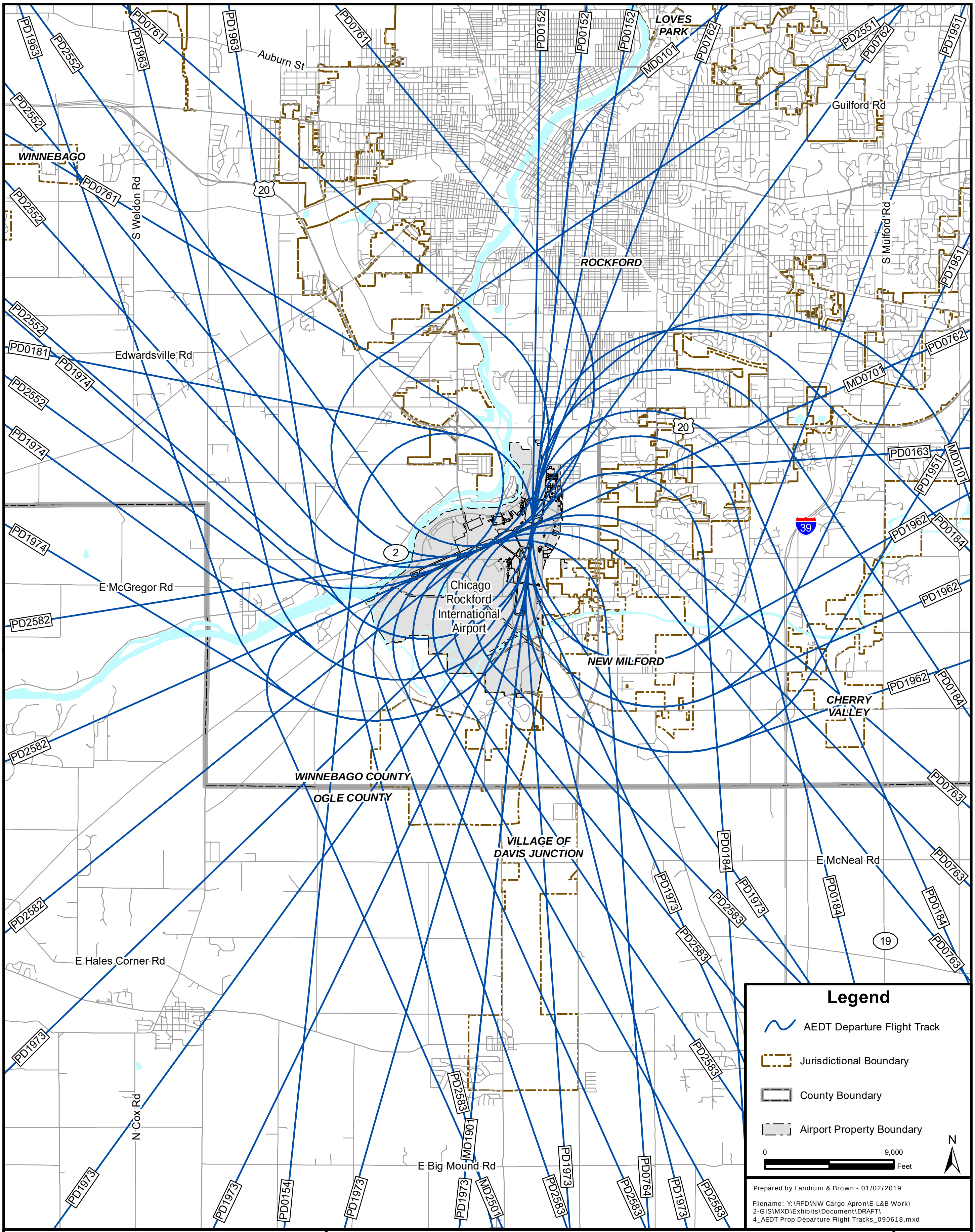

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4_AEDT Prop Departure Flight Tracks_090618.mxd

NW Cargo Expansion

Chicago Rockford
International Airport

AEDT Prop Departure Flight Tracks

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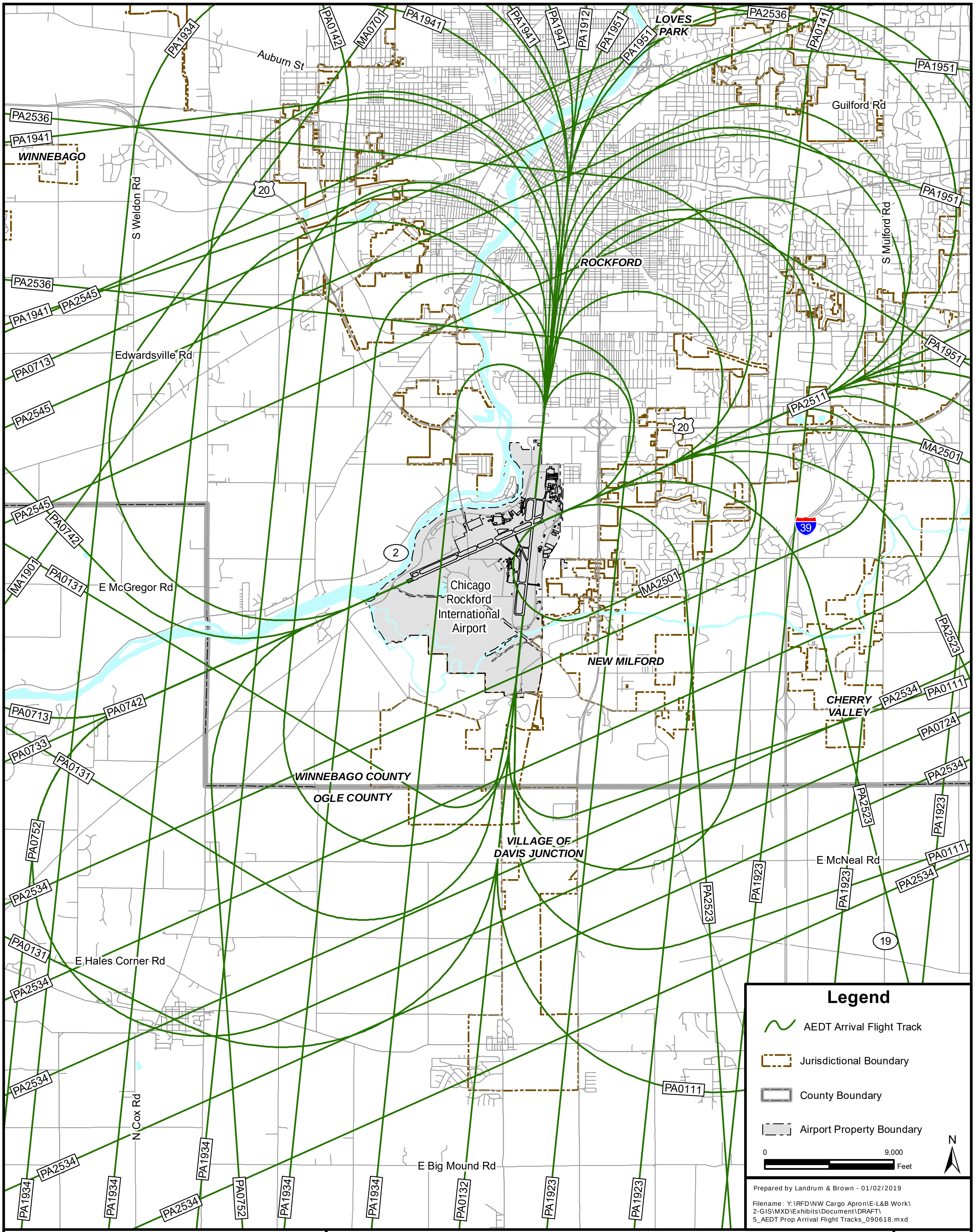

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NW Cargo Expansion

Chicago Rockford
International Airport

AEDT Prop Arrival Flight Tracks

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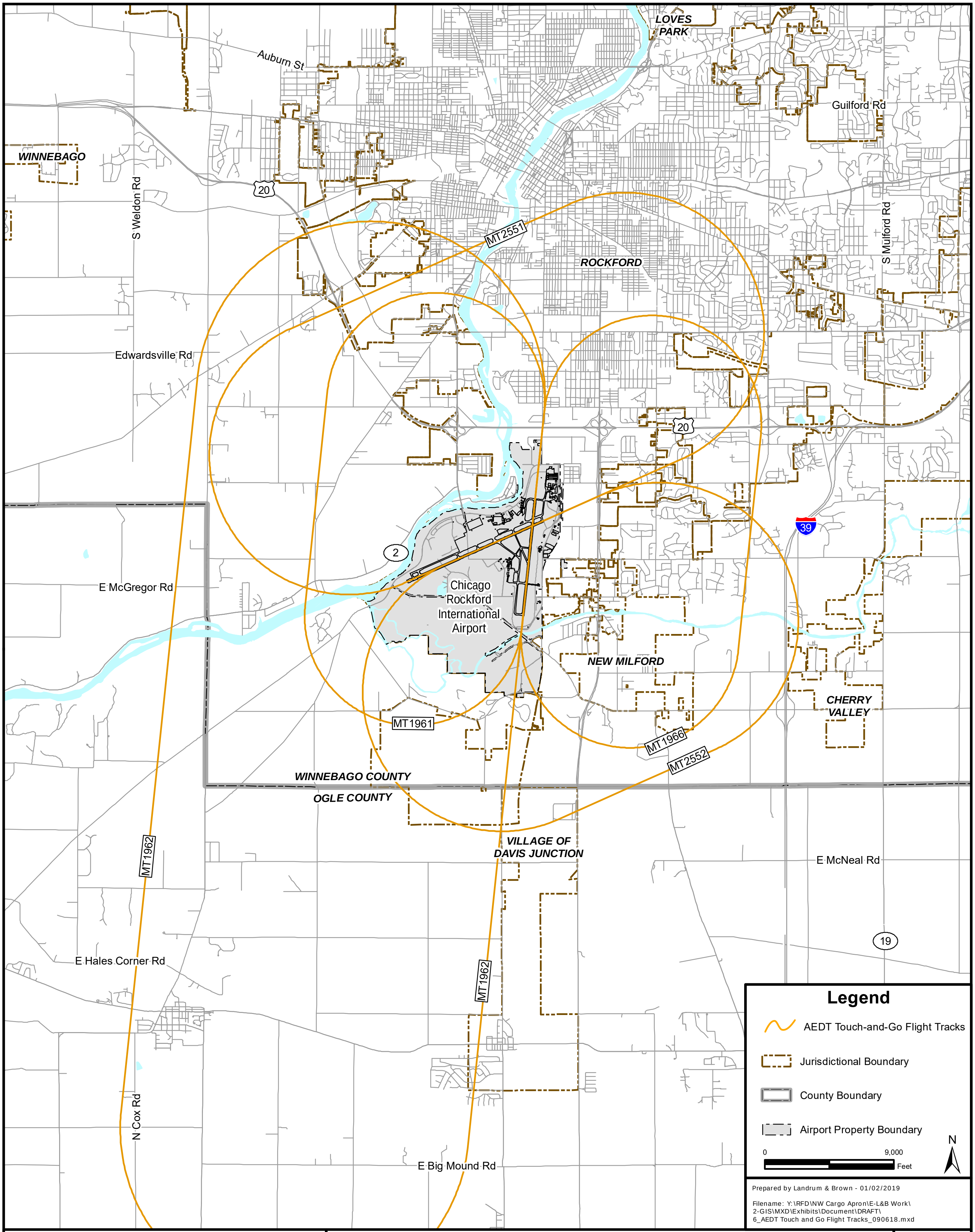

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6_AEDT Touch and Go Flight Tracks_090618.mxd

NW Cargo Expansion

Chicago Rockford International Airport

AEDT Touch-and-Go Flight Tracks

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Table 3 **ARRIVAL FLIGHT TRACK UTILIZATION – EXISTING (2018)**

RUNWAY	TRACK ID	CARGO	COMMERCIAL	GENERAL AVIATION JETS	GENERAL AVIATION PROPS	MILITARY
01	JA0121	10.83%	9.92%	10.72%	0.00%	0.00%
	JA0122	2.67%	0.00%	5.78%	0.00%	0.00%
	JA0123	2.65%	5.63%	5.27%	0.00%	0.00%
	JA0131	1.42%	9.56%	1.72%	0.00%	0.00%
	JA0133	14.05%	2.87%	1.96%	0.00%	0.00%
	PA0111	0.00%	0.00%	0.00%	10.57%	0.00%
	PA0131	0.00%	0.00%	0.00%	3.47%	0.00%
	PA0132	0.00%	0.00%	0.00%	5.16%	0.00%
	PA0141	0.00%	0.00%	0.00%	3.41%	0.00%
	PA0142	0.00%	0.00%	0.00%	3.38%	0.00%
19	JA1924	0.89%	4.15%	2.92%	0.00%	0.00%
	JA1933	0.30%	1.28%	1.16%	0.00%	0.00%
	JA1941	0.00%	0.00%	2.63%	0.00%	0.00%
	JA1942	3.46%	8.25%	2.33%	0.00%	0.00%
	JA1952	2.44%	7.62%	7.72%	0.00%	0.00%
	MA1901	0.00%	0.00%	0.00%	0.00%	4.29%
	PA1912	0.00%	0.00%	0.00%	1.90%	0.00%
	PA1923	0.00%	0.00%	0.00%	3.14%	0.00%
	PA1934	0.00%	0.00%	0.00%	1.96%	0.00%
	PA1941	0.00%	0.00%	0.00%	4.13%	0.00%
	PA1951	0.00%	0.00%	0.00%	8.36%	0.00%
	RA1924	0.00%	0.13%	2.92%	0.00%	0.00%
	RA1933	0.00%	0.00%	1.16%	0.00%	0.00%
07	JA0713	2.51%	0.00%	1.67%	0.00%	0.00%
	JA0724	7.62%	12.08%	6.67%	0.00%	0.00%
	JA0728	5.39%	6.73%	8.21%	0.00%	0.00%
	JA0731	5.58%	6.98%	2.80%	0.00%	0.00%
	JA0732	2.49%	8.14%	7.75%	0.00%	0.00%
	JA0745	22.76%	0.00%	3.31%	0.00%	0.00%
	MA0701	0.00%	0.00%	0.00%	0.00%	56.60%

RUNWAY	TRACK ID	CARGO	COMMERCIAL	GENERAL AVIATION JETS	GENERAL AVIATION PROPS	MILITARY
	PA0713	0.00%	0.00%	0.00%	4.80%	0.00%
	PA0724	0.00%	0.00%	0.00%	10.12%	0.00%
	PA0733	0.00%	0.00%	0.00%	2.33%	0.00%
	PA0742	0.00%	0.00%	0.00%	6.81%	0.00%
	PA0752	0.00%	0.00%	0.00%	8.18%	0.00%
25	JA2522	2.51%	3.10%	0.66%	0.00%	0.00%
	JA2531	2.58%	5.88%	5.62%	0.00%	0.00%
	JA2533	0.34%	4.81%	1.06%	0.00%	0.00%
	JA2536	5.97%	0.00%	0.73%	0.00%	0.00%
	JA2541	2.53%	0.00%	4.02%	0.00%	0.00%
	JA2544	1.01%	2.55%	1.62%	0.00%	0.00%
	MA2501	0.00%	0.00%	0.00%	0.00%	39.10%
	PA2511	0.00%	0.00%	0.00%	10.46%	0.00%
	PA2523	0.00%	0.00%	0.00%	4.06%	0.00%
	PA2534	0.00%	0.00%	0.00%	1.72%	0.00%
	PA2536	0.00%	0.00%	0.00%	4.53%	0.00%
	PA2545	0.00%	0.00%	0.00%	1.52%	0.00%
	RA2522	0.00%	0.31%	9.59%	0.00%	0.00%

Note: Percent utilizations were derived from the 2013 NEM Update Study however changes in fleet mix and operational totals resulted in adjustments to the percent utilizations.

Source: ATCT, RFD 2013 NEM Update, Landrum & Brown analysis, 2018.

Table 4 DEPARTURE FLIGHT TRACK UTILIZATION – EXISTING (2018)

RUNWAY	TRACK ID	CARGO	COMMERCIAL	GENERAL AVIATION JETS	GENERAL AVIATION PROPS	MILITARY
01	JD0151	0.93%	0.09%	2.20%	0.00%	0.00%
	JD0152	0.17%	3.25%	5.20%	0.00%	0.00%
	JD0154	0.54%	0.00%	1.27%	0.00%	0.00%
	JD0183	1.46%	5.30%	2.85%	0.00%	0.00%
	JD0184	0.00%	0.33%	1.38%	0.00%	0.00%
	MD0101	0.00%	0.00%	0.00%	0.00%	14.29%
	PD0152	0.00%	0.00%	0.00%	1.40%	0.00%
	PD0154	0.00%	0.00%	0.00%	0.79%	0.00%
	PD0163	0.00%	0.00%	0.00%	2.91%	0.00%
	PD0181	0.00%	0.00%	0.00%	3.86%	0.00%
	PD0184	0.00%	0.00%	0.00%	4.48%	0.00%
19	JD1954	10.13%	0.00%	2.91%	0.00%	0.00%
	JD1970	2.09%	13.35%	8.06%	0.00%	0.00%
	JD1971	3.37%	9.00%	0.37%	0.00%	0.00%
	JD1972	2.81%	0.00%	2.04%	0.00%	0.00%
	JD1973	6.82%	13.48%	11.14%	0.00%	0.00%
	JD1975	0.00%	0.71%	2.54%	0.00%	0.00%
	JD1976	0.56%	0.71%	2.23%	0.00%	0.00%
	MD1901	0.00%	0.00%	0.00%	0.00%	28.60%
	PD1951	0.00%	0.00%	0.00%	1.86%	0.00%
	PD1962	0.00%	0.00%	0.00%	7.49%	0.00%
	PD1963	0.00%	0.00%	0.00%	3.33%	0.00%
	PD1973	0.00%	0.00%	0.00%	31.15%	0.00%
	PD1974	0.00%	0.00%	0.00%	5.00%	0.00%
	RD1971	0.00%	0.40%	11.09%	0.00%	0.00%
07	JD0761	6.71%	8.42%	10.79%	0.00%	0.00%
	JD0762	3.37%	0.87%	2.98%	0.00%	0.00%
	JD0772	4.45%	9.70%	2.47%	0.00%	0.00%
	JD0773	11.44%	4.13%	3.23%	0.00%	0.00%
	JD0781	0.00%	0.15%	3.16%	0.00%	0.00%

RUNWAY	TRACK ID	CARGO	COMMERCIAL	GENERAL AVIATION JETS	GENERAL AVIATION PROPS	MILITARY
	MD0701	0.00%	0.00%	0.00%	0.00%	14.29%
	PD0761	0.00%	0.00%	0.00%	6.44%	0.00%
	PD0762	0.00%	0.00%	0.00%	3.47%	0.00%
	PD0763	0.00%	0.00%	0.00%	3.96%	0.00%
	PD0764	0.00%	0.00%	0.00%	3.85%	0.00%
25	JD2551	5.49%	0.15%	3.95%	0.00%	0.00%
	JD2582	5.49%	0.00%	0.15%	0.00%	0.00%
	JD2583	5.10%	12.59%	2.62%	0.00%	0.00%
	JD2584	1.29%	2.68%	1.20%	0.00%	0.00%
	JD2584	18.67%	2.68%	1.50%	0.00%	0.00%
	JD2585	6.86%	0.00%	1.63%	0.00%	0.00%
	JD2586	0.00%	1.14%	1.55%	0.00%	0.00%
	JD2587	2.27%	10.88%	11.51%	0.00%	0.00%
	MD2501	0.00%	0.00%	0.00%	0.00%	42.81%
	PD2551	0.00%	0.00%	0.00%	2.94%	0.00%
	PD2552	0.00%	0.00%	0.00%	2.17%	0.00%
	PD2582	0.00%	0.00%	0.00%	5.82%	0.00%
	PD2583	0.00%	0.00%	0.00%	9.07%	0.00%

Note: Percent utilizations were derived from the 2013 NEM Update Study however changes in fleet mix and operational totals resulted in adjustments to the percent utilizations.

Source: ATCT, RFD 2013 NEM Update, Landrum & Brown analysis, 2018.

Table 5 TOUCH-AND-GO FLIGHT TRACK UTILIZATION – EXISTING (2018)

RUNWAY	TRACK ID	CARGO	COMMERCIAL	GENERAL AVIATION JETS	GENERAL AVIATION PROPS	MILITARY
19	MT1961	0.00%	0.00%	0.00%	0.00%	20.18%
	MT1962	0.00%	0.00%	0.00%	0.00%	19.98%
	MT1966	0.00%	0.00%	0.00%	0.00%	19.88%
25	MT2551	0.00%	0.00%	0.00%	0.00%	19.98%
	MT2552	0.00%	0.00%	0.00%	0.00%	19.98%

Note: Percent utilizations were derived from the 2013 NEM Update Study however changes in fleet mix and operational totals resulted in adjustments to the percent utilizations.

Source: ATCT, RFD 2013 NEM Update, Landrum & Brown analysis, 2018.

5.1.5 Aircraft Trip Length and Operational Profiles

Aircraft weight during departure is a factor in the dispersion of noise because it impacts the rate at which an aircraft is able to climb. Generally, the heavier an aircraft is, the slower the rate of climb and the wider the dispersion of noise along its route of flight. Where specific aircraft weights are unknown, the AEDT uses the distance flown to the first stop as a surrogate for the weight, by assuming that the weight has a direct relationship with the fuel load necessary to reach the first destination. The AEDT groups trip lengths into nine categories; these categories are:

Category	Stage Length[8]
1	0-500 nautical miles
2	500-1000 nautical miles
3	1000-1500 nautical miles
4	1500-2500 nautical miles
5	2500-3500 nautical miles
6	3500-4500 nautical miles
7	4500-5500 nautical miles
8	5500-6500 nautical miles
9	6500+ nautical miles

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[8] Stage length is defined as the distance an aircraft travels from takeoff to landing.

The trip lengths flown from RFD are based on the stage lengths defined in the 2013 NEM Update modeling files for each AEDT aircraft type. ATCT confirmed that departure destinations utilized in the 2013 NEM Update to develop stage length distribution was consistent with the Existing (2018) conditions. **Table 6** indicates the proportion of the operations that fell within each of the nine trip length categories for the Existing (2018) conditions.

Table 6 DEPARTURE TRIP LENGTH DISTRIBUTION – EXISTING (2018)

STAGE LENGTH	CARGO	COMMERCIAL	GENERAL AVIATION JETS	GENERAL AVIATION PROPS	MILITARY
1	57.2%	68.4%	99.7%	100.0%	100.0%
2	20.7%	12.1%	0.3%	0.0%	0.0%
3	3.5%	19.5%	0.0%	0.0%	0.0%
4	18.6%	0.0%	0.0%	0.0%	0.0%
5+	0.0%	0.0%	0.0%	0.0%	0.0%

Source: ATCT, RFD 2013 NEM Update, Landrum & Brown analysis, 2018.

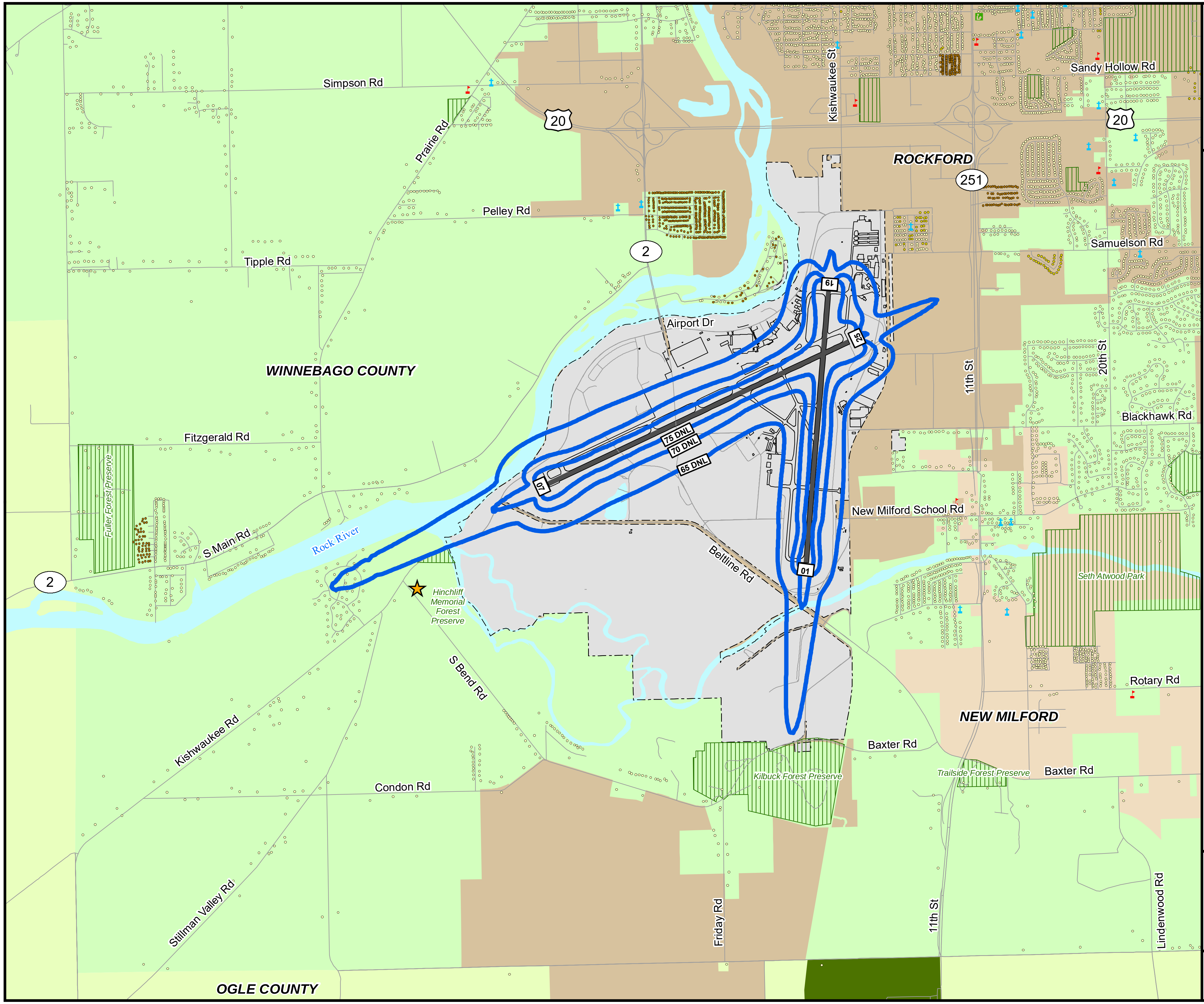
The AEDT includes standard flight procedure data for each aircraft that represents each phase of flight to or from the airport. Information related to aircraft speed, altitude, thrust settings, flap settings, and distance are available and used by AEDT to calculate noise levels on the ground.

Standard aircraft departure profiles are supplied from the runway (field elevation) up to 10,000 feet above ground level (AGL). Aircraft arrival profiles are supplied from 6,000 feet AGL down to the runway including the application of reverse thrust and rollout. The FAA requires that these standard arrival and departure profiles be used unless there is evidence that they are not applicable. It was determined that AEDT standard arrival and departure profiles were accurate representatives of the current condition operations.

5.1.6 Existing (2018) Noise Exposure Contour

Figure 7 reflects the average-annual noise exposure pattern at RFD during the Existing (2018) condition. Noise contours are presented for the 65, 70, and 75 DNL. DNL contours are a graphic representation of how the noise from RFD’s annual average daily aircraft operations is distributed over the surrounding area. DNL represents an average sound level over the course of an average annual day.

Table 7 summarizes the land areas within each noise contour level for the Existing (2018) Condition noise exposure contour. Noise contour patterns extend from the Airport along each extended runway centerline, reflective of the flight tracks used by all aircraft. The relative distance of a contour from the Airport along each route is a function of the frequency of use of each runway end for total aircraft arrivals and departures, and the type of aircraft assigned to it.



ROCKFORD
RFD
CHICAGO ROCKFORD INTERNATIONAL AIRPORT

NW Cargo Expansion

Legend

▭	Existing (2018) Noise Contour - 65 - 75 DNL
○	Single-Family Residential
●	Mobile Home
●	Multi-Family Residential
‡	Church
▲	School
▣	Library
★	Listed Site on NRHP (Indian Hill Manor and Farmhouse Historic District)
🟩	Winnebago County
🟩	Ogle County
🟫	City of Rockford
🟫	Village of New Milford
▥	Parks
▭	Airport Property Boundary

0 3,000'

N

Existing (2018) Noise Exposure Contour

L&B

Prepared by Landrum & Brown 01/02/2019
Filename: Y:\RFD\NW Cargo Apron\E-L&B Work\2-GIS\MXD\Exhibits\Document\DRAFT\Existing (2018) Noise Exposure Map_090618.mxd
Contour: RFD_2018_EX

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Table 7 **ESTIMATED LAND AREA WITHIN EXISTING (2018) CONDITION NOISE EXPOSURE CONTOUR**

CONTOUR RANGE	AIRPORT PROPERTY ESTIMATED LAND AREA (IN SQUARE MILES)	NON-AIRPORT PROPERTY ESTIMATED LAND AREA (IN SQUARE MILES)	TOTAL ESTIMATED LAND AREA (IN SQUARE MILES)
DNL 65-70 dB	0.92	0.19	1.11
DNL 70-75 dB	0.44	0.00	0.44
DNL 75+ dB	0.36	0.00	0.36
TOTAL	1.72	0.19	1.91

Source: Landrum & Brown analysis, 2018.

To the north and northeast of the airport the noise contours are shorter due to the implementation of preferential reverse flow during nighttime hours[9] which directs arrival and departure operations to the south and southwest of RFD. Conversely, the noise exposure contours are longer to the south and southwest of the airport due to the greater number of nighttime arrivals to Runway 07 and Runway 01 and the greater number of nighttime departures from Runway 19 and Runway 25.

5.1.7 Noise Compatible Land Use

The FAA has created guidelines regarding the compatibility of land uses with various aircraft noise levels measured using the DNL metric. These guidelines are defined in Appendix A to 14 C.F.R. Part 150. The land use compatibility table is reproduced in **Table 8**. These guidelines show the compatibility parameters for residential, public (schools, churches, nursing homes, hospitals, and libraries), commercial, institutional, and recreational land uses. All land uses exposed to noise levels below the DNL 65 dB noise contour are generally considered compatible with airport operations.

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[9] An informal preferential reverse flow was recommended at RFD by Noise Abatement Measure NA-10, which was initially approved in the 1994 Noise Compatibility Program (NCP) and updated in the 2003 NCP Update. This measure recommended use of Runway 01 as the primary runway and Runway 07 as the secondary runway for nighttime (10:00 P.M. to 7:00 A.M) arrivals.

Table 8 LAND USE COMPATIBILITY GUIDELINES – 14 C.F.R. PART 150

	YEARLY DAY NIGHT AVERAGE SOUND LEVEL (DNL) IN DECIBELS					
LAND USE	**BELOW 65**	**65-70**	**70-75**	**75-80**	**80-85**	**OVER 85**
Residential						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing And Production						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N

	YEARLY DAY NIGHT AVERAGE SOUND LEVEL (DNL) IN DECIBELS					
LAND USE	**BELOW 65**	**65-70**	**70-75**	**75-80**	**80-85**	**OVER 85**
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
(2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.
(5) Land use compatible provided special sound reinforcement systems are installed.
(6) Residential buildings require an NLR of 25.
(7) Residential buildings require an NLR of 30.
(8) Residential buildings not permitted.

Notes:
1. The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.
2. SLUCM=Standard Land Use Coding Manual.
3. Y (Yes)=Land Use and related structures compatible without restrictions.
4. N (No)=Land Use and related structures are not compatible and should be prohibited.
5. NLR=Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
6. 25, 30, or 35=Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Source: 14 C.F.R. § 150 Airport Noise Compatibility Planning, Appendix A, Table 1.

There are no public schools, churches, nursing homes, hospitals, or libraries within any of the contours.

Summaries of the residential population and housing units affected by noise levels exceeding DNL 65 dB for the Existing (2018) noise exposure contours are provided in **Table 9**. No housing units were located in the 70+ DNL noise contour.

Table 9 NON-COMPATIBLE LAND USE HOUSING AND POPULATION FOR EXISTING (2018) NOISE CONTOURS

	DNL 65-70 dB
Housing Units	
Single-Family Residential	8
Multi-Family Residential	0
Manufactured Housing	0
Total Housing Units	**8**
Population	
Single-Family Residential	20
Multi-Family Residential	0
Manufactured Housing	0
Total Population	**20**

Notes: Population numbers are estimates based on the 2000 United States Census average household size per number of housing units.

Source: Landrum & Brown analysis, 2018.

5.2 Future (2023) No Action Noise Exposure Contour Input Data

5.2.1 Runway Definition

No changes to runway configuration are expected at RFD therefore, the runway layout discussed for the Existing condition was also used to model the Future (2023) No Action Noise Exposure Contour.

5.2.2 Number of Operations and Fleet Mix

The Future (2023) No Action Noise Exposure Contour operating levels are based upon the Forecast Working Paper (FWP).[10] The growth in activity reported in the FWP can be handled at the Airport without new facilities being constructed. As described in the FWP, the total operations in the Future (2023) No Action condition were constrained due to the lack airport facilities to accommodate aircraft operations. The Future (2023) No Action conditions include 51,138 annual operations or 140.1 average-annual day operations, an increase of 27.8 percent from the Existing (2018) condition. **Table 10** provides a summary of the average daily operations and fleet mix at RFD for the Future (2023) No Action conditions, organized by aircraft category, operation type, and time of day.

Table 10 DISTRIBUTION OF AVERAGE DAILY OPERATIONS BY AIRCRAFT CATEGORY – FUTURE (2023) NO ACTION CONDITIONS

AIRCRAFT TYPE	ARRIVALS		DEPARTURES		TOTAL OPERATIONS
	DAYTIME	NIGHTTIME	DAYTIME	NIGHTTIME	
Cargo					
Airbus A300F4-600 Series	1.78	4.66	1.78	4.66	12.88
Boeing 737-800 Series	0.52	1.33	0.52	1.33	3.69
Boeing 747-800 Freighter	0.35	0.89	0.35	0.89	2.48
Boeing 757-200 Series	2.13	5.55	2.13	5.55	15.36
Boeing 767-200 Series	0.01	0.14	0.01	0.14	0.30
Boeing 767-300 ER Freighter	2.20	5.77	2.20	5.77	15.94
Boeing MD-11 Freighter	0.35	0.89	0.35	0.89	2.48
Bombardier Learjet 35A/36A (C-21A)	0.05	0.02	0.05	0.02	0.15
Dassault Falcon 20-C	0.01	0.01	0.01	0.01	0.05
DeHavilland DHC-6-200 Twin Otter	0.02	0.41	0.02	0.41	0.86
Subtotal	***7.42***	***19.68***	***7.42***	***19.68***	***54.19***
Commercial					
Airbus A319-100 Series	0.02	0.01	0.02	0.01	0.06
Airbus A320-200 Series	4.52	0.25	4.52	0.25	9.53

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[10] Development of Northwest Cargo Apron & Midfield Development Program, Forecast Summary, September 2018, Crawford Murphy & Tilly.

AIRCRAFT TYPE	ARRIVALS		DEPARTURES		TOTAL OPERATIONS
	DAYTIME	NIGHTTIME	DAYTIME	NIGHTTIME	
Boeing 737-700 Series	0.05	--	0.05	--	0.10
Boeing 737-800 Series	0.12	0.02	0.12	0.02	0.28
Boeing 757-300 Series	0.02	--	0.02	--	0.05
Subtotal	***4.74***	***0.27***	***4.74***	***0.27***	***10.02***
General Aviation Jets					
Bombardier Challenger 600	0.84	0.03	0.84	0.03	1.74
Bombardier Learjet 35A/36A (C-21A)	3.64	0.14	3.64	0.14	7.56
Cessna 500 Citation I	0.66	0.04	0.66	0.04	1.39
Cessna 525 CitationJet	1.16	0.11	1.16	0.11	2.55
Cessna 550 Citation II	0.58	0.10	0.58	0.10	1.36
Cessna 560 Citation V	0.34	0.01	0.34	0.01	0.70
Cessna 560 Citation XLS	0.54	0.02	0.54	0.02	1.13
Cessna 680 Citation Sovereign	0.28	0.01	0.28	0.01	0.58
Cessna 750 Citation X	0.15	0.03	0.15	0.03	0.35
Eclipse 500 / PW610F	1.66	0.03	1.66	0.03	3.38
Embraer ERJ145	0.16	0.03	0.16	0.03	0.38
Gulfstream G550	0.16	0.01	0.16	0.01	0.35
Subtotal	***10.18***	***0.55***	***10.18***	***0.55***	***21.46***
General Aviation Props					
Britten-Norman BN-2 Islander	0.29	--	0.29	--	0.58
Cessna 172 Skyhawk	4.20	0.06	4.20	0.06	8.52
Cessna 182	1.05	0.06	1.05	0.06	2.22
Cessna 206	0.06	0.09	0.06	0.09	0.30
Cessna 441 Conquest II	3.21	0.16	3.21	0.16	6.75
DeHavilland DHC-6-200 Twin Otter	0.88	0.05	0.88	0.05	1.86
Hawker HS748-1	2.10	0.24	2.10	0.24	4.68
Piper PA-24 Comanche	6.88	0.33	6.88	0.33	14.41
Piper PA-28 Cherokee Series	1.73	--	1.73	--	3.45
Piper PA-30 Twin Comanche	0.68	--	0.68	--	1.36
Raytheon Beech 1900-D	0.16	0.01	0.16	0.01	0.35
Raytheon Beech Baron 58	2.02	0.08	2.02	0.08	4.18

AIRCRAFT TYPE	ARRIVALS		DEPARTURES		TOTAL OPERATIONS
	DAYTIME	NIGHTTIME	DAYTIME	NIGHTTIME	
Raytheon Beechjet 400	0.55	0.04	0.55	0.04	1.18
Subtotal	***23.80***	***1.12***	***23.80***	***1.12***	***49.85***
Military					
Boeing KC-135 Stratotanker	0.25	--	0.42	--	0.68
Bombardier de Havilland Dash 8 Q400	0.14	--	0.14	--	0.29
Bombardier Learjet 35A/36A (C-21A)	0.14	--	0.14	--	0.29
DeHavilland DHC-6-200 Twin Otter	0.17	--	0.17	--	0.34
Embraer ERJ190	0.19	--	0.19	--	0.39
Lockheed C-130 Hercules	0.16	--	0.27	--	0.44
MRJ90	0.24	--	0.24	--	0.48
Piper PA-24 Comanche	0.26	--	0.26	--	0.53
Raytheon Beechjet 400	0.14	--	0.14	--	0.29
T-38 Talon	0.43	--	0.43	--	0.87
Subtotal	***2.15***	***--***	***2.43***	***--***	***4.58***
Grand Total	**48.28**	**21.63**	**48.56**	**21.63**	**140.10**

Notes: Subtotals may not equal due to rounding
Source: Forecast Working Paper, 2018, Landrum & Brown analysis, 2018.

5.2.3 Runway End Utilization

The Future (2023) No Action runway end utilization percentages were developed based on the same assumptions as the Existing (2018) condition as confirmed by ATCT. **Table 11** summarizes the percentage of use by each aircraft category on each of the runway ends at RFD during the daytime (7:00 a.m. to 9:59 p.m.) and nighttime (10:00 p.m. to 6:59 a.m.).

Table 11 RUNWAY UTILIZATION – FUTURE (2023) NO ACTION

AIRCRAFT CATEGORY	RUNWAY END			
	01	19	07	25
Daytime Arrivals				
Cargo	23%	13%	48%	15%
Commercial	28%	23%	32%	18%
General Aviation Jets	23%	21%	32%	23%
General Aviation Props	25%	21%	32%	23%
Military	0%	4%	57%	39%
Nighttime Arrivals				
Cargo	31%	5%	49%	14%
Commercial	29%	9%	57%	5%
General Aviation Jets	46%	18%	12%	24%
General Aviation Props	39%	9%	33%	19%
Military	n/a	n/a	n/a	n/a
Daytime Departures				
Cargo	6%	29%	24%	41%
Commercial	10%	37%	25%	29%
General Aviation Jets	13%	40%	22%	25%
General Aviation Props	14%	48%	18%	21%
Military	13%	32%	13%	42%
Nighttime Departures				
Cargo	3%	22%	25%	50%
Commercial	0%	50%	7%	43%
General Aviation Jets	17%	40%	27%	17%
General Aviation Props	6%	51%	24%	19%
Military	n/a	n/a	n/a	n/a

Source: ATCT, RFD 2013 NEM Update, Landrum & Brown analysis, 2018.

5.2.4 Flight Tracks

The Future (2023) No Action flight tracks and flight track utilization percentages were developed based on the same assumptions as the Existing (2018) condition as confirmed by ATCT. Tables 3, 4 and 5 provide the arrival and departure flight track utilization percentages.

5.2.5 Aircraft Weight and Trip Length

The Future (2023) No Action aircraft weight and trip lengths were developed based on the same assumptions as the Existing (2018) condition as confirmed by ATCT. Table 6 provide the departure stage length.

5.2.6 Future (2023) No Action Noise Exposure Contour

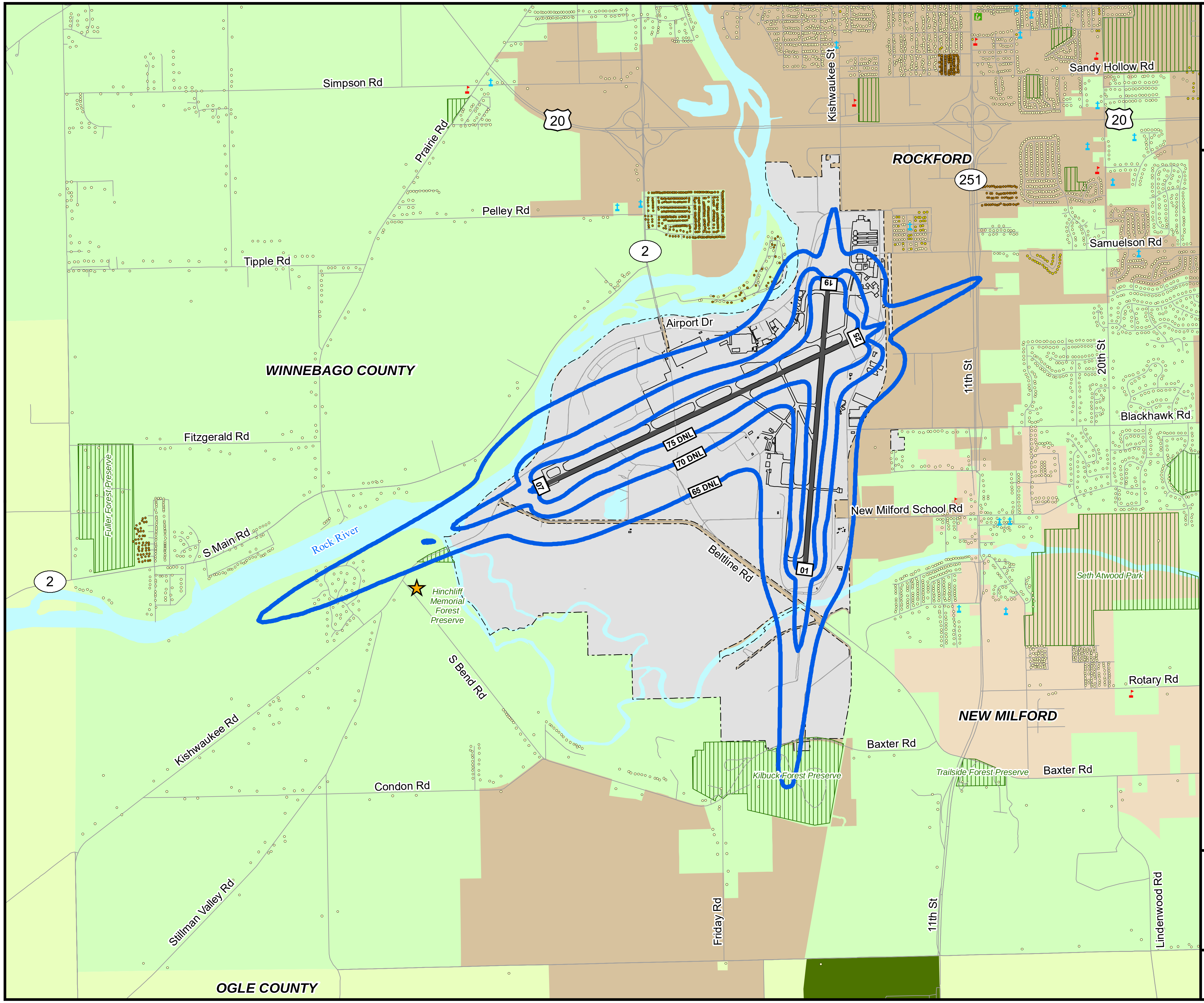
Figure 8 reflects the average-annual noise exposure pattern at RFD during the No Action 2023 condition. Noise contours are presented for the 65, 70, and 75 DNL.

Table 12 summarizes the land areas within each noise contour level for the Future (2023) No Action noise exposure contour.

Table 12 FUTURE (2023) NO ACTION NOISE EXPOSURE CONTOUR AREAS EXPOSED TO VARIOUS NOISE LEVELS (IN SQUARE MILES)

CONTOUR RANGE	AIRPORT PROPERTY ESTIMATED LAND AREA (IN SQUARE MILES)	NON-AIRPORT PROPERTY ESTIMATED LAND AREA (IN SQUARE MILES)	TOTAL ESTIMATED LAND AREA (IN SQUARE MILES)
65-70 DNL	1.24	0.52	1.76
70-75 DNL	0.70	0.01	0.71
75 + DNL	0.53	0.00	0.53
TOTAL	**2.47**	**0.53**	**3.00**

Source: Landrum & Brown analysis, 2018.



NW Cargo Expansion

Legend

▭ Future (2023) Noise Contour - 65 - 75 DNL

○ Single-Family Residential

● Mobile Home

● Multi-Family Residential

‡ Church

⚑ School

▣ Library

★ Listed Site on NRHP (Indian Hill Manor and Farmhouse Historic District)

🟩 Winnebago County

🟩 Ogle County

🟫 City of Rockford

🟫 Village of New Milford

▥ Parks

⬚ Airport Property Boundary

0 3,000'

N

Future (2023) No Action Noise Exposure Contour

Prepared by Landrum & Brown 01/02/2019
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Future (2023) No Action Noise Exposure Map_090618.mxd
Contour: RFD_2023_NA

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5.2.7 Noise Compatible Land Use

There are no public schools, churches, nursing homes, hospitals, or libraries within the 65+ DNL of the Future (2023) No Action noise contours.

Summaries of the residential population and housing units affected by noise levels exceeding DNL 65 dB for the Future (2023) No Action noise exposure contours are provided in **Table 13**. No housing units were located in the 70+ DNL noise contour.

Table 13 NON-COMPATIBLE LAND USE HOUSING AND POPULATION FOR FUTURE (2023) NO ACTION NOISE CONTOURS

	DNL 65-70 dB
Housing Units	
Single-Family Residential	22
Multi-Family Residential	0
Manufactured Housing	0
Total Housing Units	**22**
Population	
Single-Family Residential	56
Multi-Family Residential	0
Manufactured Housing	0
Total Population	**56**

Notes: Population numbers are estimates based on the 2000 United States Census average household size per number of housing units.
Source: Landrum & Brown analysis, 2018.

5.3 Future (2023) Proposed Action Noise Exposure Contour Input Data

5.3.1 Runway Definition

No changes to runway configuration are expected at RFD due to the Proposed Action; therefore, the runway layout discussed for the Existing (2018) condition was also used to model the Future (2023) Proposed Action Noise Exposure Contour.

5.3.2 Number of Operations and Fleet Mix

The Future (2023) Proposed Action Noise Exposure Contour operating levels are based upon the FWP. The Future (2023) Proposed Action conditions include 56,654 annual operations or 155.2 average-annual day operations, an increase of 10.8 percent from the Future (2023) No Action Noise Exposure Contour operating levels. Table 14 provides a summary of the average daily operations and fleet mix at RFD for the Future (2023) Proposed Action conditions, organized by aircraft category, operation type, and time of day.

Table 14 DISTRIBUTION OF AVERAGE DAILY OPERATIONS BY AIRCRAFT CATEGORY – FUTURE (2023) PROPOSED ACTION CONDITIONS

AIRCRAFT TYPE	ARRIVALS		DEPARTURES		TOTAL OPERATIONS
	DAYTIME	NIGHTTIME	DAYTIME	NIGHTTIME	
Cargo					
Airbus A300F4-600 Series	2.30	6.03	2.30	6.03	16.65
Boeing 737-800 Series	0.65	1.69	0.65	1.69	4.69
Boeing 747-800 Freighter	0.44	1.11	0.44	1.11	3.11
Boeing 757-200 Series	2.75	7.19	2.75	7.19	19.88
Boeing 767-200 Series	0.00	0.08	0.00	0.08	0.18
Boeing 767-300 ER Freighter	2.85	7.47	2.85	7.47	20.64
Boeing MD-11 Freighter	0.44	1.11	0.44	1.11	3.11
Bombardier Learjet 35A/36A (C-21A)	0.05	0.02	0.05	0.02	0.15
Dassault Falcon 20-C	0.01	0.01	0.01	0.01	0.05
DeHavilland DHC-6-200 Twin Otter	0.02	0.41	0.02	0.41	0.86
Subtotal	***9.53***	***25.13***	***9.53***	***25.13***	***69.30***
Commercial					
Airbus A319-100 Series	0.02	0.01	0.02	0.01	0.06
Airbus A320-200 Series	4.52	0.25	4.52	0.25	9.53
Boeing 737-700 Series	0.05	--	0.05	--	0.10
Boeing 737-800 Series	0.12	0.02	0.12	0.02	0.28
Boeing 757-300 Series	0.02	--	0.02	--	0.05

AIRCRAFT TYPE	ARRIVALS		DEPARTURES		TOTAL OPERATIONS
	DAYTIME	NIGHTTIME	DAYTIME	NIGHTTIME	
Subtotal	***4.74***	***0.27***	***4.74***	***0.27***	***10.02***
General Aviation Jets					
Bombardier Challenger 600	0.84	0.03	0.84	0.03	1.74
Bombardier Learjet 35A/36A (C-21A)	3.64	0.14	3.64	0.14	7.56
Cessna 500 Citation I	0.66	0.04	0.66	0.04	1.39
Cessna 525 CitationJet	1.16	0.11	1.16	0.11	2.55
Cessna 550 Citation II	0.58	0.10	0.58	0.10	1.36
Cessna 560 Citation V	0.34	0.01	0.34	0.01	0.70
Cessna 560 Citation XLS	0.54	0.02	0.54	0.02	1.13
Cessna 680 Citation Sovereign	0.28	0.01	0.28	0.01	0.58
Cessna 750 Citation X	0.15	0.03	0.15	0.03	0.35
Eclipse 500 / PW610F	1.66	0.03	1.66	0.03	3.38
Embraer ERJ145	0.16	0.03	0.16	0.03	0.38
Gulfstream G550	0.16	0.01	0.16	0.01	0.35
Subtotal	***10.18***	***0.55***	***10.18***	***0.55***	***21.46***
General Aviation Props					
Britten-Norman BN-2 Islander	0.29	--	0.29	--	0.58
Cessna 172 Skyhawk	4.20	0.06	4.20	0.06	8.52
Cessna 182	1.05	0.06	1.05	0.06	2.22
Cessna 206	0.06	0.09	0.06	0.09	0.30
Cessna 441 Conquest II	3.21	0.16	3.21	0.16	6.75
DeHavilland DHC-6-200 Twin Otter	0.88	0.05	0.88	0.05	1.86
Hawker HS748-1	2.10	0.24	2.10	0.24	4.68
Piper PA-24 Comanche	6.88	0.33	6.88	0.33	14.41
Piper PA-28 Cherokee Series	1.73	--	1.73	--	3.45
Piper PA-30 Twin Comanche	0.68	--	0.68	--	1.36
Raytheon Beech 1900-D	0.16	0.01	0.16	0.01	0.35
Raytheon Beech Baron 58	2.02	0.08	2.02	0.08	4.18
Raytheon Beechjet 400	0.55	0.04	0.55	0.04	1.18
Subtotal	***23.80***	***1.12***	***23.80***	***1.12***	***49.85***
Military					

AIRCRAFT TYPE	ARRIVALS		DEPARTURES		TOTAL OPERATIONS
	DAYTIME	NIGHTTIME	DAYTIME	NIGHTTIME	
Boeing KC-135 Stratotanker	0.25	--	0.42	--	0.68
Bombardier de Havilland Dash 8 Q400	0.14	--	0.14	--	0.29
Bombardier Learjet 35A/36A (C-21A)	0.14	--	0.14	--	0.29
DeHavilland DHC-6-200 Twin Otter	0.17	--	0.17	--	0.34
Embraer ERJ190	0.19	--	0.19	--	0.39
Lockheed C-130 Hercules	0.16	--	0.27	--	0.44
MRJ90	0.24	--	0.24	--	0.48
Piper PA-24 Comanche	0.26	--	0.26	--	0.53
Raytheon Beechjet 400	0.14	--	0.14	--	0.29
T-38 Talon	0.43	--	0.43	--	0.87
Subtotal	***2.15***	***--***	***2.43***	***--***	***4.58***
Grand Total	**50.39**	**27.08**	**50.67**	**27.08**	**155.22**

Notes: Subtotals may not equal due to rounding
Source: Forecast Working Paper, 2018, Landrum & Brown analysis, 2018

5.3.3 Runway End Utilization

The Future (2023) Proposed Action runway end utilization percentages were developed based on the same assumptions as the Existing (2018) condition as confirmed by ATCT. **Table 15** summarizes the percentage of use by each aircraft category on each of the runway ends at RFD during the daytime (7:00 a.m. to 9:59 p.m.) and nighttime (10:00 p.m. to 6:59 a.m.).

Table 15 RUNWAY UTILIZATION – FUTURE (2023) PROPOSED ACTION

AIRCRAFT CATEGORY	RUNWAY END			
	01	19	07	25
Daytime Arrivals				
Cargo	23%	13%	48%	15%
Commercial	28%	23%	32%	18%
General Aviation Jets	23%	21%	32%	23%
General Aviation Props	25%	21%	32%	23%
Military	0%	4%	57%	39%
Nighttime Arrivals				
Cargo	32%	5%	49%	14%
Commercial	29%	9%	57%	5%
General Aviation Jets	46%	18%	12%	24%
General Aviation Props	39%	9%	33%	19%
Military	n/a	n/a	n/a	n/a
Daytime Departures				
Cargo	6%	29%	24%	41%
Commercial	10%	37%	25%	29%
General Aviation Jets	13%	40%	22%	25%
General Aviation Props	14%	48%	18%	21%
Military	13%	32%	13%	42%
Nighttime Departures				
Cargo	3%	22%	25%	50%
Commercial	0%	50%	7%	43%
General Aviation Jets	17%	40%	27%	17%
General Aviation Props	6%	51%	24%	19%
Military	n/a	n/a	n/a	n/a

Source: ATCT, RFD 2013 NEM Update, Landrum & Brown analysis, 2018.

5.3.4 Flight Tracks

The Future (2023) Proposed Action flight tracks and flight track utilization percentages were developed based on the same assumptions as the Existing (2018) condition as confirmed by ATCT. Tables 3, 4 and 5 contained earlier in the report provide the arrival and departure flight track utilization percentages.

5.3.5 Aircraft Weight and Trip Length

The Future (2023) Proposed Action aircraft weight and trip lengths were developed based on the same assumptions as the Existing (2018) condition as confirmed by ATCT. Table 6 provides the departure stage length.

5.3.6 Future (2023) Proposed Action Noise Exposure Contour

The Future (2023) Proposed Action Noise Exposure Contour, showing 65, 70, and 75 DNL levels, is presented on **Figure 9**. The 65+ DNL of the Future (2023) Proposed Action Noise Exposure Contour encompasses approximately 3.56 square miles.

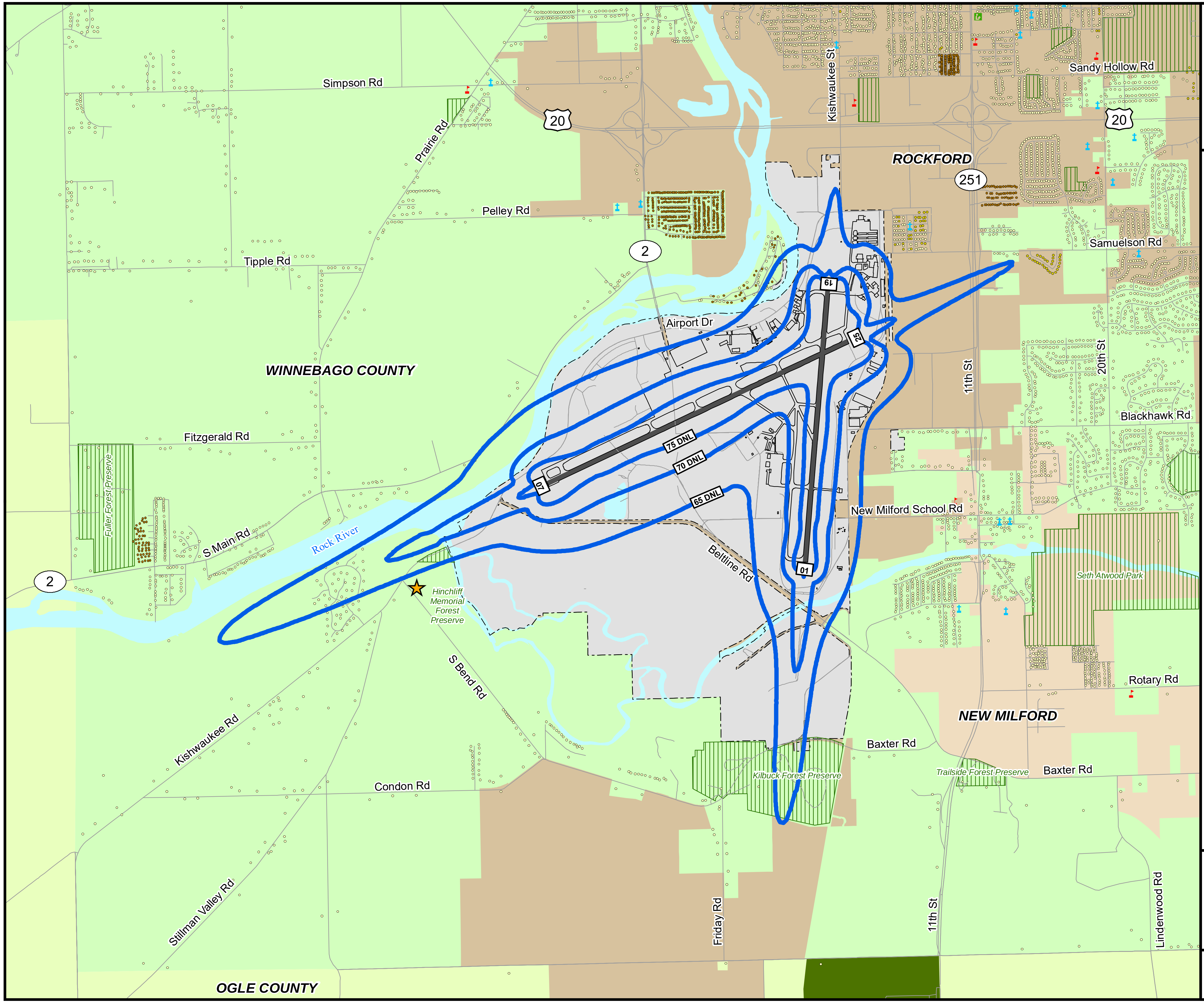
The Future (2023) Proposed Action Noise Exposure Contour retains a similar shape as the Future (2023) No Action Noise Exposure Contour but is larger due to the increase in aircraft operations that would occur as a result of the implementation of the Proposed Action. The primary difference in the shape of the Future (2023) Proposed Action noise contour compared to the Future (2023) No Action noise contour is due to the increase in cargo operations. **Figure 10** shows the Future (2023) Proposed Action compared to the Future (2023) No Action. **Table 16** summarizes the land areas within each noise contour level for the Future (2023) Proposed Action noise exposure contour.

Table 16 FUTURE (2023) PROPOSED ACTION NOISE EXPOSURE CONTOUR AREAS EXPOSED TO VARIOUS NOISE LEVELS (IN SQUARE MILES)

CONTOUR RANGE	AIRPORT PROPERTY ESTIMATED LAND AREA (IN SQUARE MILES)	NON-AIRPORT PROPERTY ESTIMATED LAND AREA (IN SQUARE MILES)	TOTAL ESTIMATED LAND AREA (IN SQUARE MILES)
65-70 DNL	1.30	0.77	2.07
70-75 DNL	0.81	0.06	0.87
75 + DNL	0.62	0.00	0.62
TOTAL	**2.73**	**0.83**	**3.56**

Source: Landrum & Brown analysis, 2018.

NW Cargo Expansion



Legend

▭ Future (2023) Proposed Action Noise Contour - 65 - 75 DNL

○ Single-Family Residential

● Mobile Home

● Multi-Family Residential

‡ Church

School

Library

★ Listed Site on NRHP
(Indian Hill Manor and Farmhouse Historic District)

🟩 Winnebago County

🟩 Ogle County

🟫 City of Rockford

🟫 Village of New Milford

▥ Parks

▭ Airport Property Boundary

0 3,000'

N

Future (2023) Proposed Action Noise Exposure Contour

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Future (2023) Proposed Action Noise Exposure Map_090618.mxd
Contour: RFD_2023_PA

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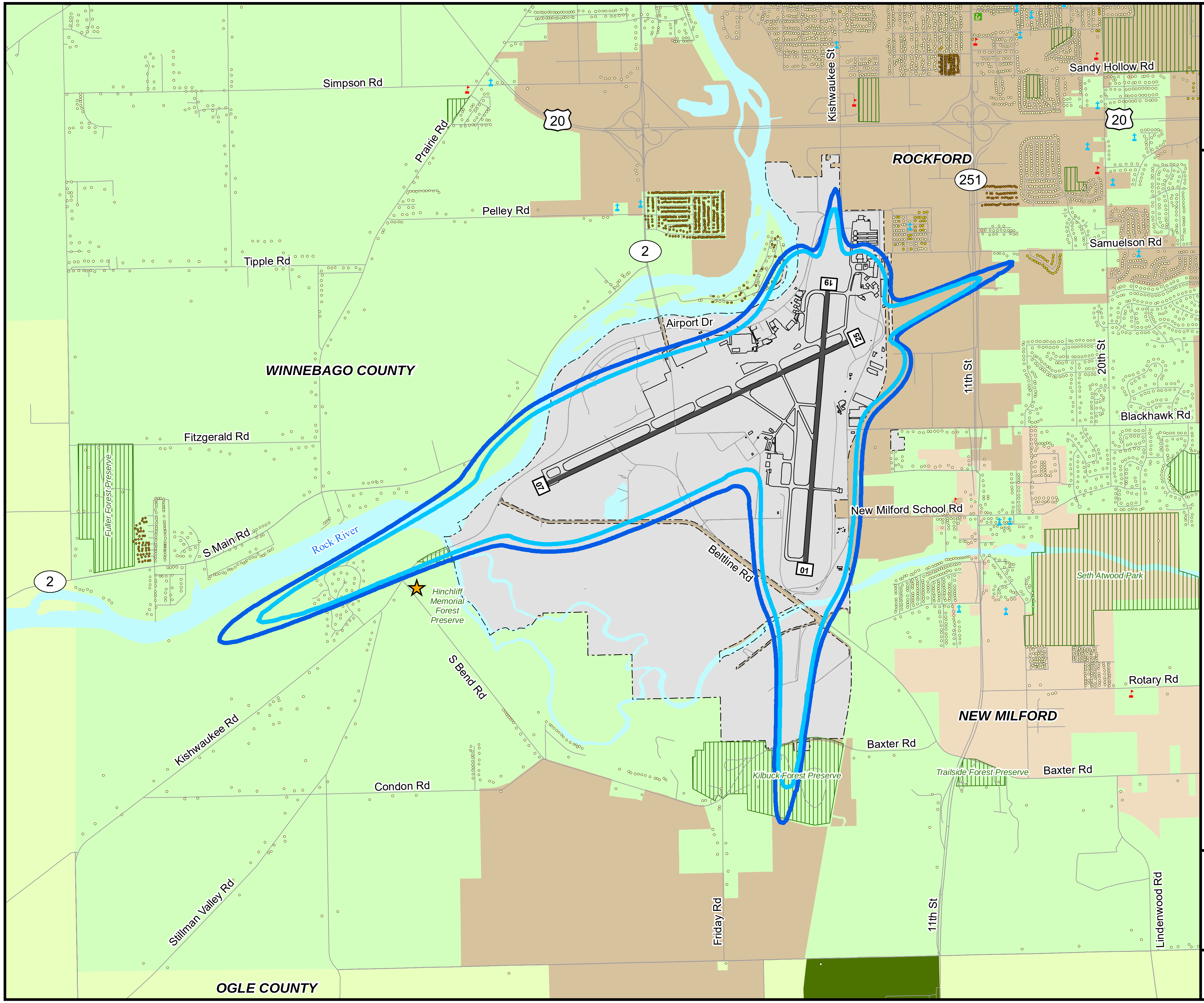

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NW Cargo Expansion

Legend

- ▭ Future (2023) No Action Noise Contour - 65 DNL
- ▭ Future (2023) Proposed Action Noise Contour - 65 DNL
- ○ Single-Family Residential
- ● Mobile Home
- ● Multi-Family Residential
- ✝ Church
- ⚑ School
- ▣ Library
- ★ Listed Site on NRHP (Indian Hill Manor and Farmhouse Historic District)
- 🟩 Winnebago County
- 🟩 Ogle County
- 🟫 City of Rockford
- ▨ Village of New Milford
- ▥ Parks
- ▭ Airport Property Boundary

0 3,000'

N

Future (2023) No Action vs. Future (2023) Proposed Action Noise Exposure Contours

L&B

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Contour: RFD_2023_NA and RFD_2023_PA

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The difference in area, over non-airport property, between the Future (2023) Proposed Action Noise Exposure Contour and the Future (2023) No Action Noise Exposure Contour is shown below in **Table 17**.

Table 17 FUTURE (2023) NO ACTION vs. FUTURE (2023) PROPOSED ACTION NOISE EXPOSURE CONTOUR AREAS EXPOSED TO VARIOUS NOISE LEVELS (IN SQUARE MILES)

CONTOUR RANGE	2023 NO ACTION (SQUARE MILES)	2023 PROPOSED ACTION (SQUARE MILES)	DIFFERENCE
65-70 DNL	1.76	2.07	+0.31
70-75 DNL	0.71	0.87	+0.16
75 + DNL	0.53	0.62	+0.09
65 + DNL	3.00	3.56	+0.56

Source: Landrum & Brown analysis, 2018.

5.3.7 Noise Compatible Land Use

There are no public schools, churches, nursing homes, hospitals, or libraries within the 65+ DNL of the Future (2023) Proposed Action noise contours.

Summaries of the residential population and housing units affected by noise levels exceeding DNL 65 dB for the Future (2023) Proposed Action noise exposure contours are provided in **Table 18**. No housing units were located in the 70+ DNL noise contour.

Table 18 NON-COMPATIBLE LAND USE HOUSING AND POPULATION FOR FUTURE (2023) PROPOSED ACTION NOISE CONTOURS

	65-70 DNL
Housing Units	
Single-Family Residential	32
Multi-Family Residential	0
Manufactured Housing	1
Total Housing Units	**33**
Population	
Single-Family Residential	99
Multi-Family Residential	0
Manufactured Housing	3
Total Population	**102**

Notes: Population numbers are estimates based on the 2000 United States Census average household size per number of housing units.
Source: Landrum & Brown analysis, 2018.

Table 19 provides the differences in housing and population counts between the Future (2023) No Action condition and the Future (2023) Proposed Action conditions.

Table 19 NON-COMPATIBLE LAND USE HOUSING AND POPULATION FOR FUTURE (2023) NO ACTION NOISE CONTOURS VS. FUTURE (2023) PROPOSED ACTION NOISE CONTOURS

	2023 No Action 65-70 DNL	2023 Proposed Action 65-70 DNL	Difference
Housing Units			
Single-Family Residential	22	32	10
Multi-Family Residential	0	0	0
Manufactured Housing	0	1	1
Total Housing Units	**22**	**33**	**11**
Population			
Single-Family Residential	56	99	43
Multi-Family Residential	0	0	0
Manufactured Housing	0	3	3
Total Population	**56**	**102**	**46**

Notes: Population numbers are estimates based on the 2000 United States Census average household size per number of housing units.
Source: Landrum & Brown analysis, 2018.

5.4 Comparison to Federal Threshold of Significance

A noise impact would be considered significant if there were an increase of 1.5 dB or more over noise-sensitive facilities within the 65+ DNL contour when comparing the No Action and Proposed Action.[11]

There are no increases of 1.5 dB within the 65+ DNL noise contour. Thus, there are no noise-sensitive facilities within the areas of 1.5 dB increase within 65+ DNL for the Future (2023) Proposed Action. Therefore, no significant impacts would occur from implementation of the Proposed Action.

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[11] FAA Order 1050.1F, Section 4.3-3, Significant Thresholds.

5.5 Supplemental Noise Analysis

In addition to the noise exposure contours, supplemental noise analysis was conducted to provide a greater understanding of noise conditions at locations near the Airport. Grid point locations were derived from the previous NEM Update study. Additional grid points were added to locations with in the 65 DNL that previously did not have a corresponding grid point. **Table 20 and Table 21** summarizes the AEDT grid point analysis, providing the AEDT predicted DNL, equivalent sound level (Leq), maximum noise levels (Lmax) values, time above 65 dB (TA65), and number of events above 65 dB (NA65) for each grid point shown in **Figure 11**.

Table 22 compares the AEDT grid point analysis for the Future (2023) No Action and the Future (2023) Proposed Action scenarios. Additional information on these noise metrics presented in this table is included in Section 3 of this report.

Table 20 SUPPLEMENTAL GRID POINT ANALYSIS – FUTURE (2023) NO ACTION NOISE CONTOURS

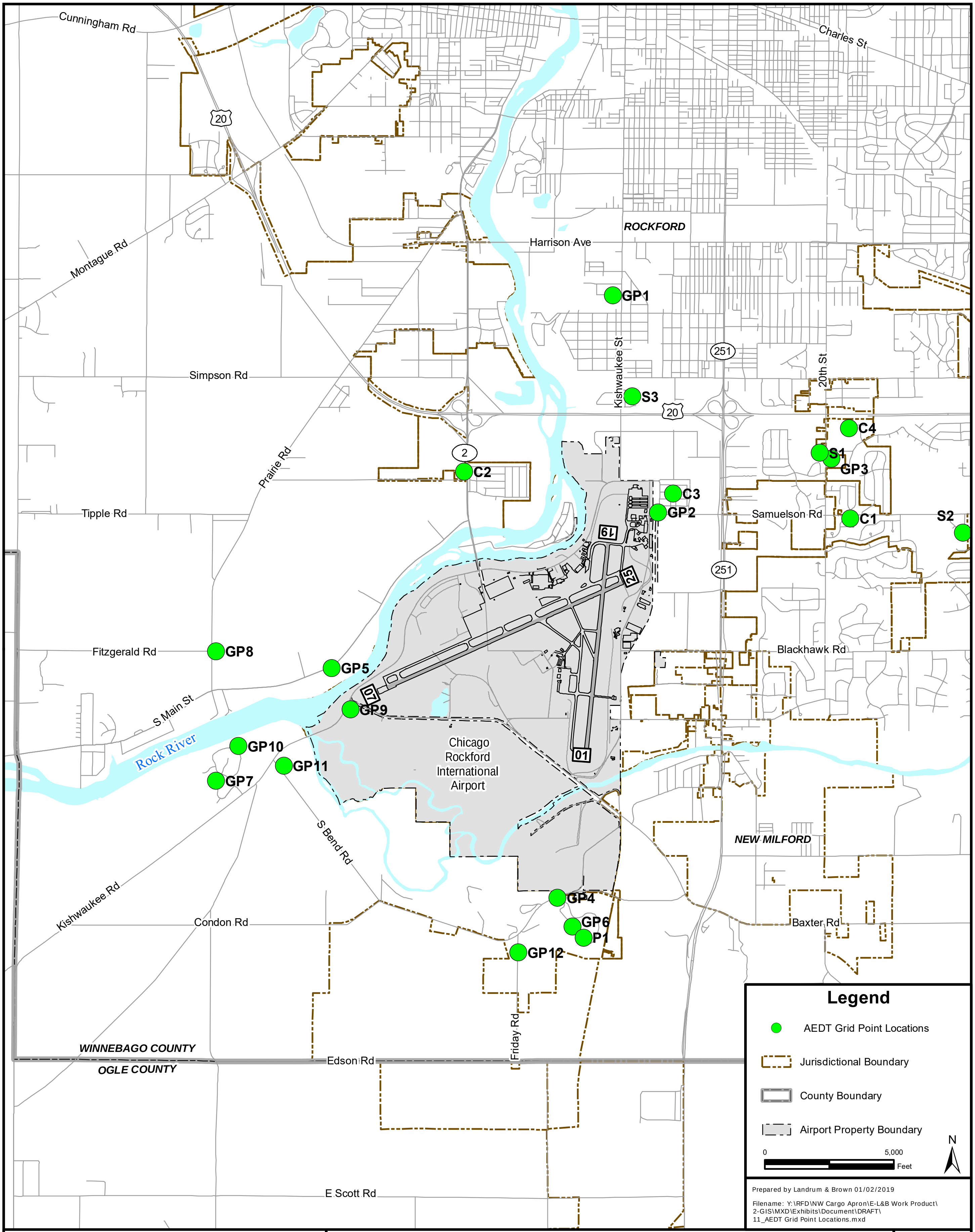
Grid ID	DNL	Leq	Lmax	Time Above 65 dB (TA 65) (in minutes)	Number of Events Above 65 dB (NA 65)
C1	53.1	47.1	89.9	3:38	16
C2	53.2	45.5	81.8	2:23	11
C3	60.6	53.7	98.0	14:25	48
C4	50.1	44.1	87.2	2:48	10
GP1	56.1	49.5	91.8	4:52	17
GP2	63.0	56.3	101.4	24:28	61
GP3	54.1	47.7	90.2	3:38	18
GP4	63.3	56.0	95.5	11:42	34
GP5	64.1	56.6	96.3	19:18	51
GP6	65.0	57.3	95.3	10:13	34
GP7	63.9	56.0	92.5	13:55	45
GP8	57.7	49.6	86.9	5:15	19
GP9	70.7	62.9	100.1	17:08	55
GP10	67.2	59.4	96.0	14:41	46
GP11	61.8	54.3	92.7	13:32	44
GP12	57.4	50.8	88.7	6:56	24
S1	52.3	46.1	89.2	2:59	14
S2	47.4	42.7	85.5	1:16	5
S3	59.7	53.7	96.5	6:41	25
P1	61.0	53.7	93.9	9:41	33

Source: Landrum & Brown analysis, 2018.

Table 21 SUPPLEMENTAL GRID POINT ANALYSIS – FUTURE (2023) PROPOSED ACTION NOISE CONTOURS

Grid ID	DNL	Leq	Lmax	Time Above 65 dB (TA 65) (in minutes)	Number of Events Above 65 dB (NA 65)
C1	54.0	47.6	89.9	4:10	18
C2	54.2	46.4	81.8	2:58	14
C3	61.6	54.4	98.0	16:58	56
C4	51.0	44.6	87.2	2:26	12
GP1	57.1	50.2	91.8	5:33	19
GP2	64.0	57.0	101.4	28:36	70
GP3	55.1	48.3	90.2	4:08	20
GP4	64.2	56.7	95.5	12:34	38
GP5	65.1	57.4	96.3	23:11	60
GP6	66.0	58.0	95.3	11:35	39
GP7	64.9	56.9	92.5	16:33	52
GP8	58.7	50.5	86.9	6:24	23
GP9	71.7	63.8	100.1	20:36	64
GP10	68.3	60.2	96.0	17:22	54
GP11	62.8	55.1	92.7	16:12	51
GP12	58.4	51.5	88.7	8:07	28
S1	53.2	46.6	89.2	3:28	16
S2	48.2	43.0	85.5	1:20	6
S3	60.6	54.3	96.5	7:31	28
P1	62.0	54.4	93.9	11:30	37

Source: Landrum & Brown analysis, 2018.



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Noise Exposure Map Update

Chicago Rockford
International Airport

AEDT Grid Point Locations

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Table 22 SUPPLEMENTAL GRID POINT ANALYSIS – FUTURE (2023) NO ACTION NOISE CONTOURS VS. FUTURE (2023) PROPOSED ACTION

Grid ID	DNL			Leq			Lmax			Time Above 65 dB (TA 65) (in minutes)			Number of Events Above 65 dB (NA65)		
	2023 NA	2023 PA	Change	2023 NA	2023 PA	Change	2023 NA	2023 PA	Change	2023 NA	2023 PA	Change	2023 NA	2023 PA	Change
C1	53.1	54.03	0.9	47.1	47.6	0.5	89.9	89.9	0.0	3:38	4:10	0:32	16	18	2
C2	53.2	54.23	1.0	45.5	46.4	0.8	81.8	81.8	0.0	2:23	2:58	0:35	11	14	3
C3	60.6	61.62	1.0	53.7	54.4	0.7	98.0	98.0	0.0	14:25	16:58	2:33	48	56	8
C4	50.1	51.02	0.9	44.1	44.6	0.5	87.2	87.2	0.0	2:05	2:26	0:21	10	12	2
GP1	56.1	57.05	1.0	49.5	50.2	0.7	91.8	91.8	0.0	4:52	5:33	0:41	17	19	2
GP2	63.0	64.01	1.0	56.3	57.0	0.7	101.4	101.4	0.0	24:28	28:36	4:08	61	70	9
GP3	54.1	55.05	0.9	47.7	48.3	0.6	90.2	90.2	0.0	3:38	4:08	0:30	18	20	2
GP4	63.3	64.24	1.0	56.0	56.7	0.7	95.5	95.5	0.0	11:04	12:34	1:30	34	38	4
GP5	64.1	65.14	1.0	56.6	57.4	0.9	96.3	96.3	0.0	19:18	23:11	3:53	51	60	9
GP6	65.0	66	1.0	57.3	58.0	0.8	95.3	95.3	0.0	10:13	11:35	1:22	34	39	5
GP7	63.9	64.91	1.0	56.0	56.9	0.8	92.5	92.5	0.0	13:55	16:33	2:38	45	52	7
GP8	57.7	58.74	1.0	49.6	50.5	0.9	86.9	86.9	0.0	5:15	6:24	1:09	19	23	4
GP9	70.7	71.7	1.0	62.9	63.8	0.9	100.1	100.1	0.0	17:08	20:04	2:56	55	64	9
GP10	67.2	68.26	1.0	59.4	60.2	0.9	96.0	96.0	0.0	14:41	17:22	2:41	46	54	8
GP11	61.8	62.76	1.0	54.3	55.1	0.8	92.7	92.7	0.0	13:32	16:12	2:40	44	51	7
GP12	57.4	58.39	1.0	50.8	51.5	0.7	88.7	88.7	0.0	6:56	8:07	1:11	24	28	4
S1	52.3	53.19	0.9	46.1	46.6	0.6	89.2	89.2	0.0	2:59	3:28	0:29	14	16	2

Grid ID	DNL			Leq			Lmax			Time Above 65 dB (TA 65) (in minutes)			Number of Events Above 65 dB (NA65)		
	2023 NA	2023 PA	Change	2023 NA	2023 PA	Change	2023 NA	2023 PA	Change	2023 NA	2023 PA	Change	2023 NA	2023 PA	Change
S2	47.4	48.22	0.8	42.7	43.0	0.3	85.5	85.5	0.0	1:16	1:20	0:04	5	6	1
S3	59.7	60.62	0.9	53.7	54.3	0.6	96.5	96.5	0.0	6:41	7:31	0:50	25	28	3
P1	61.0	62.02	1.0	53.7	54.4	0.7	93.9	93.9	0.0	9:41	11:30	1:49	33	37	4

Source: Landrum & Brown analysis, 2018.

Appendix C

TRAFFIC STUDY

Traffic Impact Study

Midfield Air Cargo Facility

CHICAGO ROCKFORD INTERNATIONAL AIRPORT (RFD)

February 4, 2019

Greater Rockford Airport Authority
60 Airport Drive
Rockford, IL 61109

Prepared by:
CMT, Inc.
550 N Commons Drive
Suite 116
Aurora, IL 60504

EXECUTIVE SUMMARY

An air cargo facility is proposed at the midfield of the Chicago Rockford International Airport (RFD). The midfield is generally located near 3501-6099 Cessna Drive. The facility is expected to add passenger vehicle and truck trips to the surrounding roadway network. The facility is proposed for full buildout in the year 2023. This traffic impact study analyzes the existing conditions, potential impacts and potential roadway infrastructure mitigation to the adjacent roadway network at full buildout.

The existing year 2018, no-build year 2023, and build year 2023 scenarios were evaluated. Historical trends on the surrounding roadway network show no growth in average daily trips; therefore, the existing and no-build volumes and system performance are assumed to be the same. Passenger vehicle distribution was based on applying the gravity model based on surrounding population for workforce. Truck trip distribution was based on location information provided to CMT for distribution centers located in the region.

After reviewing the impacts to the adjacent roadway system, Falcon Road, the intersection of Beltline Road at Falcon Road, and the intersection of Baxter Road at IL-251 do not require improvements or modifications based on capacity and signal warrant analyses. The following improvements have been identified to mitigate impacts and provide sufficient accommodations for the proposed facility:

1. **Kishwaukee Road and Beltline Road Intersection Improvements**. This existing one-way stop- controlled and channelized "T" intersection is recommended for signalization and additional channelization improvements. The intersection has environmental and runway lighting constraints that preclude some improvement alternatives. Channelization improvements will include southbound dual left turn lanes, two eastbound receiving lanes to accommodate the southbound dual lefts, and a continuous westbound to northbound right turn lane.

2. **Kishwaukee Road / Airport Drive at Beltline Road Intersection Modifications**. This existing signalized and channelized intersection is recommended for traffic signal and channelization modifications without additional pavement. This includes remarking the east leg median to be a westbound left turn lane as well as changing the split phasing of eastbound and westbound to become concurrent protected left turns and concurrent eastbound and westbound thru movements.

3. **Beltline Road at Employee Entrance Intersection Improvements.** This new facility entrance for employee parking will create a new "T" intersection access on Beltline Road west of Cessna Drive. This intersection can be traffic signal controlled with channelization or a multilane roundabout. The signalized option would have eastbound dual left turn lanes, a westbound right turn lane, and a southbound to westbound continuous right turn lane. The roundabout option would only require two eastbound lanes (left, left/thru), a westbound right turn lane, and a continuous southbound to westbound right turn lane.

4. **Beltline Road at Cessna Drive Intersection Improvement**. This existing un-channelized one-way stop-controlled "T" intersection can be a single lane roundabout or traffic signal controlled with channelization. Channelization would include a single eastbound left turn lane, single westbound right turn lane, and exclusive southbound left and right turn lanes.

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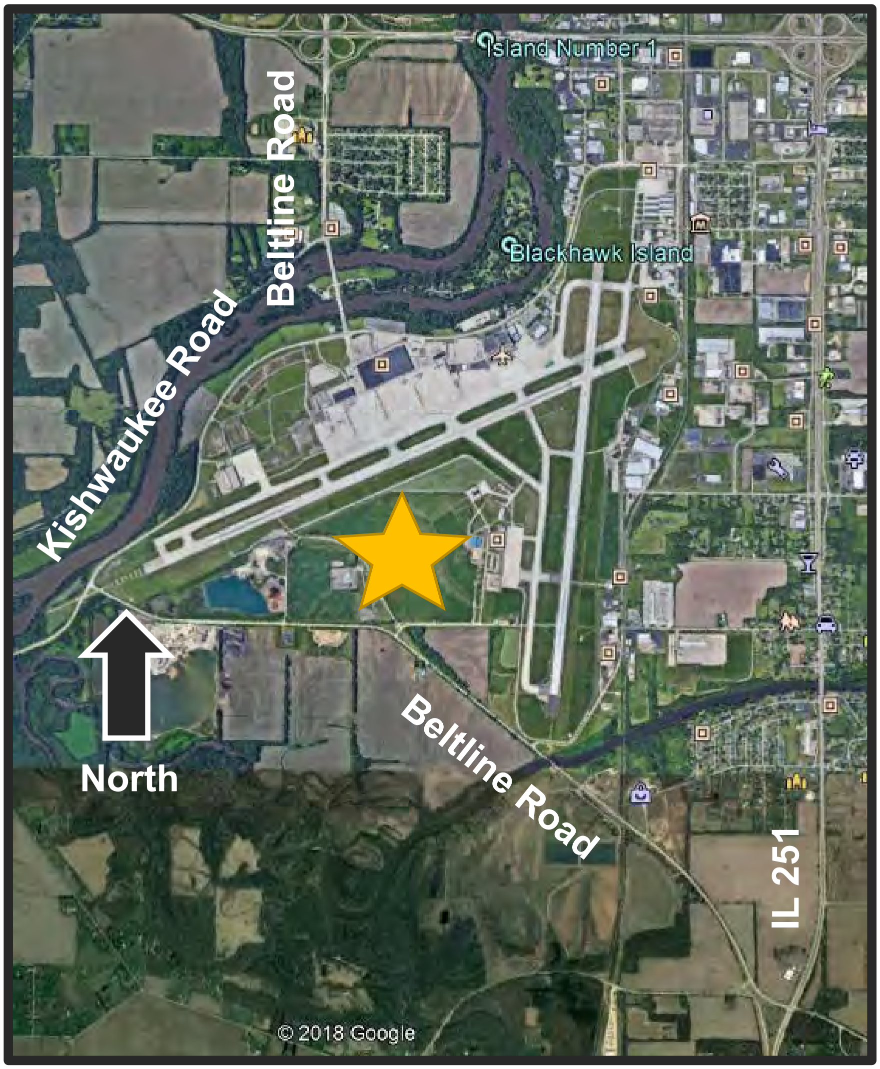
OVERVIEW

This traffic impact study has been prepared as part of the environmental assessment for a proposed air cargo facility at the midfield of the Chicago Rockford International Airport (RFD). The proposed site is located within the Airport marked with a star on **Figure 1** below. The proposed facility would be serviced by a proposed truck entrance Cessna Drive and a proposed employee entrance to Beltline Road. Trucks would be confined to use the existing intersection of Cessna Drive and Beltline Road while employees in passenger vehicles would use the proposed employee entrance. Cessna Drive currently serves Rock Valley College Aviation Career Education Center, Pride Aircraft, AAR (the maintenance repair overhaul (MRO) facility), and Straight Shot Express.

Figure 1 Location Map



For the purposes of travel demand modeling, there were three scenarios established for the travel demand forecasting.

1. Existing Conditions 2018
2. No Build 2023
3. Build 2023

Three peak hours have been identified as times when shift-changes would occur at the proposed air cargo facility in addition to the existing am and pm peak periods. Two of the shift-change peak hours partially overlap the existing am and pm peak hours. The peak periods are: AM peak period from 7:00 to 8:00 AM, shift peak period 1 from 7:30 to 8:30 AM, shift peak period 2 from 3:30 to 4:30 PM, PM peak period from 4:00 to 5:00 PM, and shift peak period 3 from 11:30 PM to 12:30 AM.

The scope of the traffic analysis is to provide quantifiable means of determining the types of improvements necessary to address the traffic impacts of the new air cargo facility being developed at RFD. Specifically, the traffic analysis:

1. Provides travel demand information for the proposed air cargo facility
2. Identifies the number of travel lanes and controls for the current roadway system
3. Identifies the capacity impacts of proposed trips to the existing system
4. Provides measures of effectiveness for evaluation of proposed improvements

EXISTING CONDITIONS

Beltline Road is a 4-lane minor arterial north of Kishwaukee Road and a 2-lane major collector east of Kishwaukee Road. Beltline Road is designated FAU Route 5103 north of Kishwaukee Road and FAU Route 5154 east of Kishwaukee Road. Both sections are posted with a speed limit of 45 mph and are under the jurisdiction of Winnebago County. Kishwaukee Road, FAU Route 5103, is a 2-lane minor arterial with an existing speed limit of 55 mph. Both Kishwaukee Road and Beltline Road have 12 ft lanes. Intersections with Kishwaukee and Beltline Road have an existing Level of Service (LOS) B or better during all five peak hours.

Figure 2 Roadway Functional Classification Map

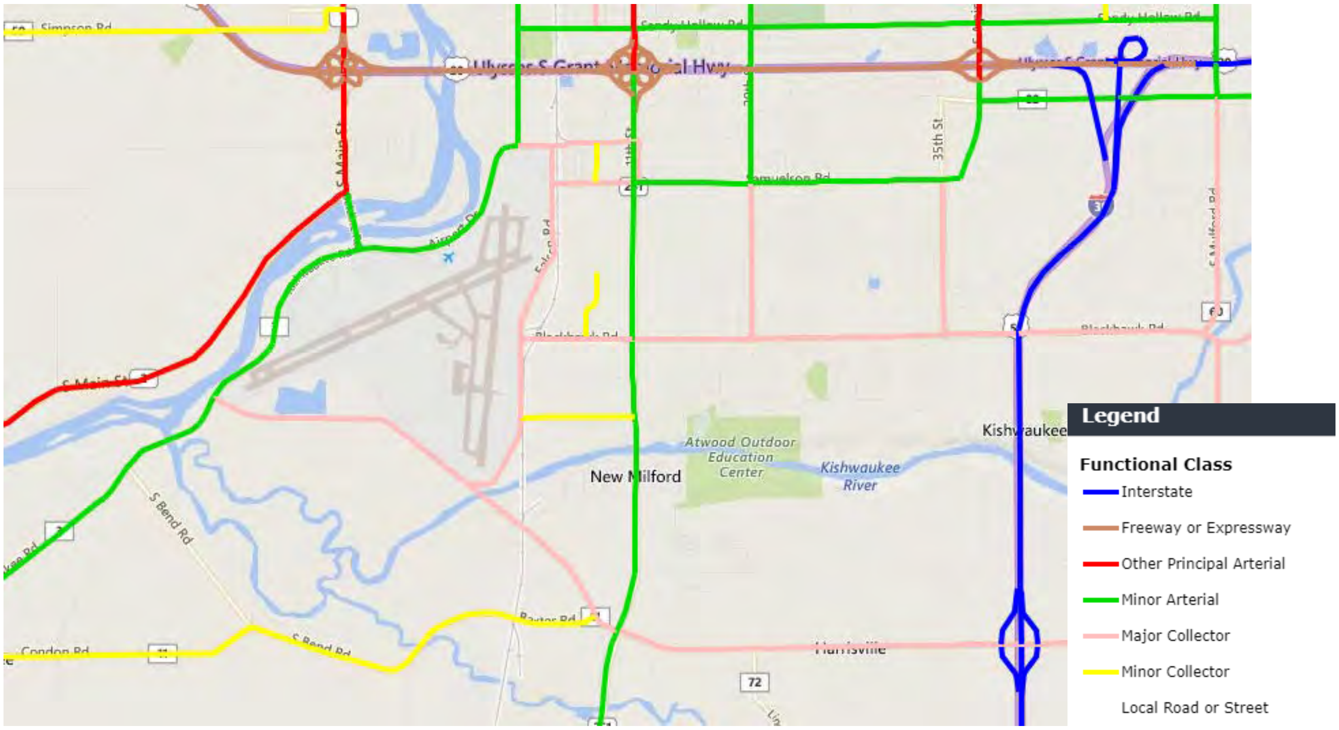
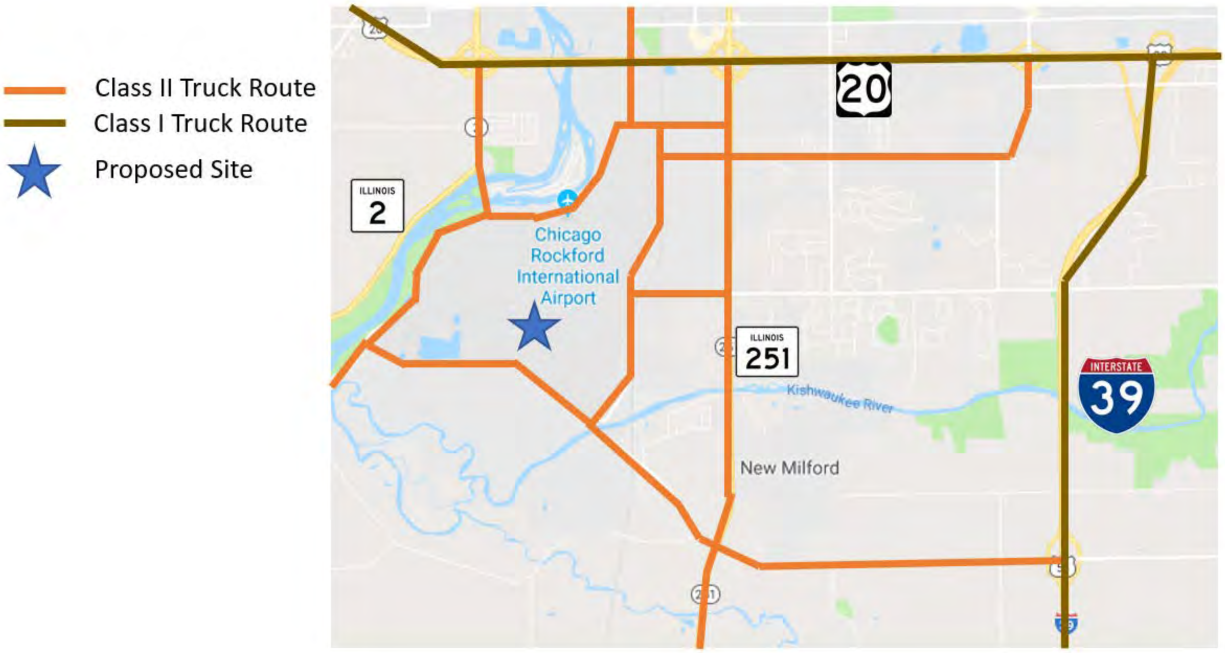


Figure 3 Existing Truck Route Map



DATA COLLECTION

Data was collected from several sources including 1996 Annual Daily Traffic from the City of Rockford, a 2008 Traffic Study for the existing cargo distribution center, Illinois Department of Transportation Annual Daily Traffic Counts from their website gettingaroundillinois.com, and manual traffic counts at several intersections around RFD. Existing network, no-build, and build option were each evaluated and simulated in order to obtain an understanding of the impacts each scenario would have on the existing roadway network. Traffic was projected to 2023 in build and no-build scenarios with the facility operating at normal capacity.

TRIP GENERATION

CMT has found the different types of trips to be generated by the proposed air cargo facility. Passenger vehicles as well as trucks will be coming and going to the site 24 hours a day.

The proposed air cargo facility plans for three separate peak hours for the employee shift changes in which 2725 passenger vehicles will be entering or leaving in the same peak hour. Trucks will have an estimated 1304 arrivals and departures per day. Additional information regarding times of trip generations can be found below:

1. **Passenger Vehicles**. Since proposed site workers work in three shifts per day with a total of 8176 trips in a single day, 2725 trips leaving the site and coming to the site occur at the shift peak hours. Shift peak hours 1 and 2 overlap with the historical AM and PM peak period for the surrounding road network.
2. **Trucks**. Trucks have been assumed to be coming and going at an evenly distributed rate using the interstate infrastructure in the region.

TRIP DISTRIBUTION

CMT used the gravity model using populations centers within 30 miles of the site for passenger vehicle trip distribution. CMT has developed the routes to be taken by future air cargo center employees as well as truck trip generation and direction. **Figure 4** shows where the passenger vehicles will be coming from and going to during a single shift change. Truck trip distribution is based off a similar facility currently at GRFD as well as directional distributions-based distribution centers located in the region. **Figure 5** shows which direction the trucks will be coming from and going to.

Figure 4 Passenger Vehicle Trip Distribution

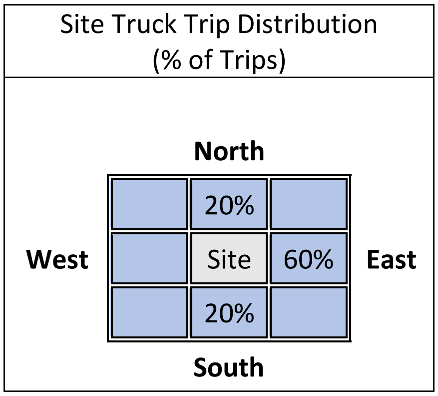
Site Passenger Vehicle Trip Distribution (% of Trips)

		North		
	10%	50%	20%	
West	1%	Site	11%	**East**
	2%	5%	1%	
		South		

Site Passenger Vehicle Trip Distributions (# of Trips)

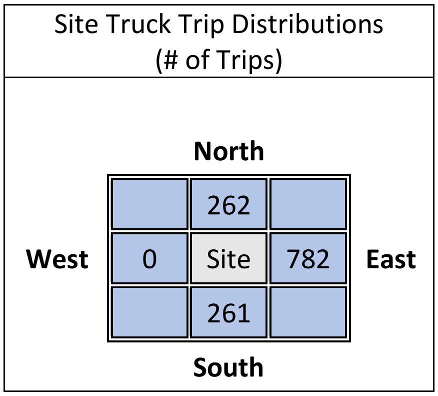
		North		
	136	682	273	
West	14	Site	150	**East**
	27	68	14	
		South		

Figure 5 Truck Trip Distribution



Site Truck Trip Distribution
(% of Trips)

		North		
		20%		
West		Site	60%	**East**
		20%		
		South		



Site Truck Trip Distributions
(# of Trips)

		North		
		262		
West	0	Site	782	**East**
		261		
		South		

TRIP ASSIGNMENT

ROADWAY NETWORK IDENTIFIERS

Each roadway in the network surrounding RFD was assigned a segment number for identification purposes. Letters have also been assigned to each intersection for evaluation purposes. Segment and intersection maps are below.

Figure 6 Roadway Segment Location Map

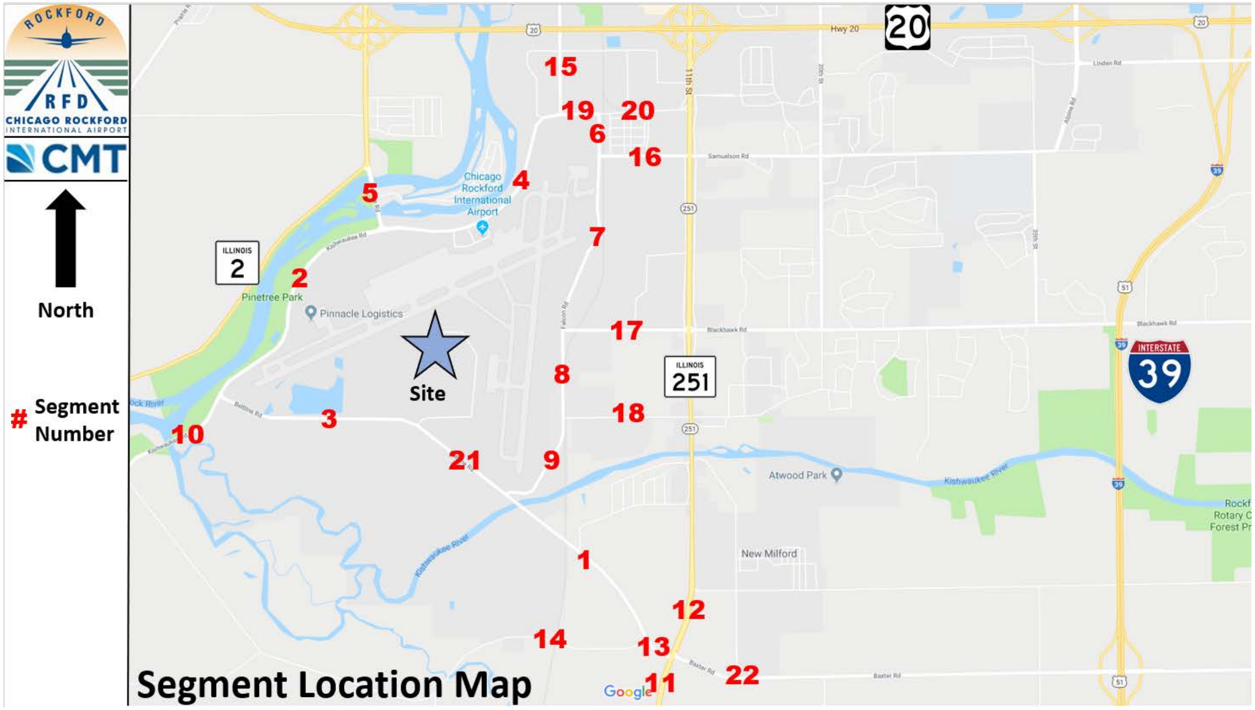


Table 1 Roadway Segment Identifiers

	Road	From	To
1	Beltline Road	Falcon Road	Baxter Road
2	Kishwaukee Road	Beltline Road	Beltline Road
3	Beltline Road	Kishwaukee Road	Cessna Drive
4	Airport Drive	Beltline Road	Kishwaukee Street
5	Beltline Road	Beltline Road /Airport Drive	S Main Street
6	Falcon Drive	Airport Drive	Samuelson Road
7	Falcon Drive	Samuelson Road	Blackhawk Road
8	Falcon Drive	Blackhawk Road	New Millford School Road
9	Falcon Drive	New Millford School Road	Beltline Road
10	Kishwaukee Road	Beltline Road	S Bend Road
11	IL 251	Baxter Road	E Edson Road
12	IL 251	Baxter Road	S Bend Road
13	Baxter Road	Beltline Road	IL 251
14	Baxter Road	Beltline Road	S Bend Road
15	Kishwaukee Street	Airport Drive	Research Parkway
16	Samuelson Road	Falcon Road	IL 251
17	Blackhawk Road	Falcon Road	IL 251
18	New Millford School Road	Falcon Road	IL 251
19	Airport Drive	Kishwaukee Street	Falcon Road
20	Airport Drive	Falcon Road	IL 251
21	Beltline Road	Cessna Drive	Falcon Road
22	Baxter Road	IL 251	Living Woods Drive

Figure 7 Intersection Location Map

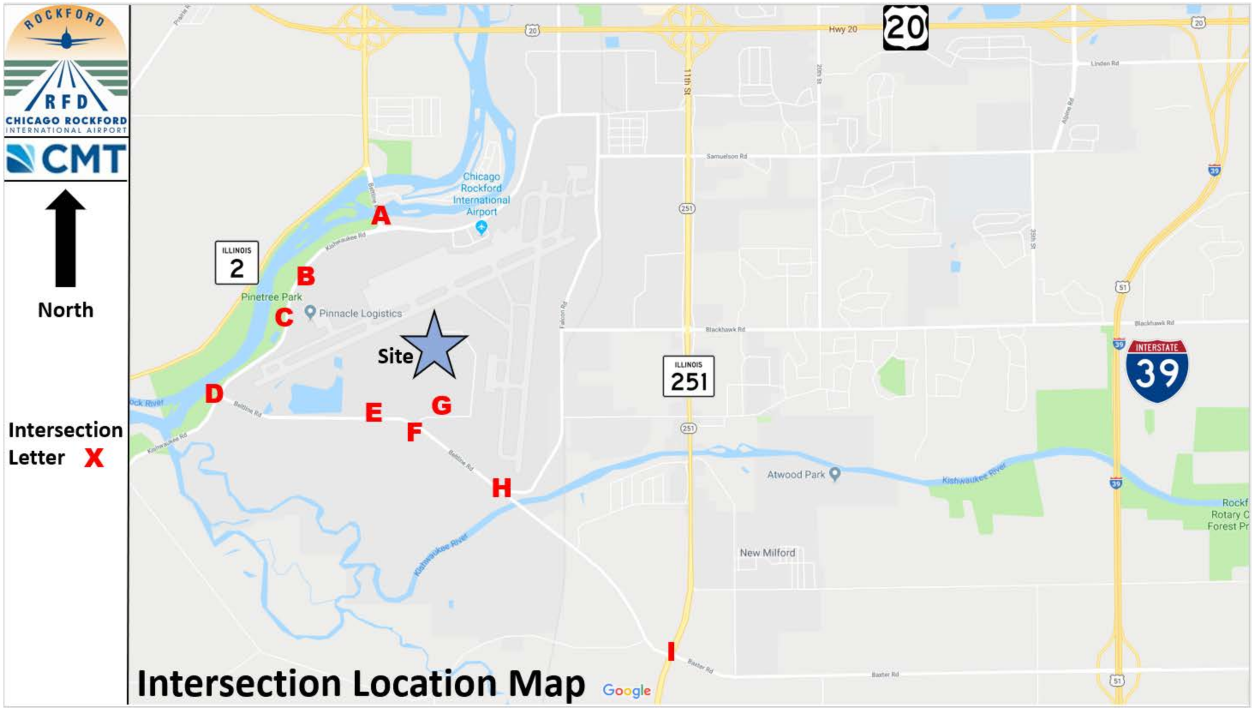


Table 2 Intersection Identifiers

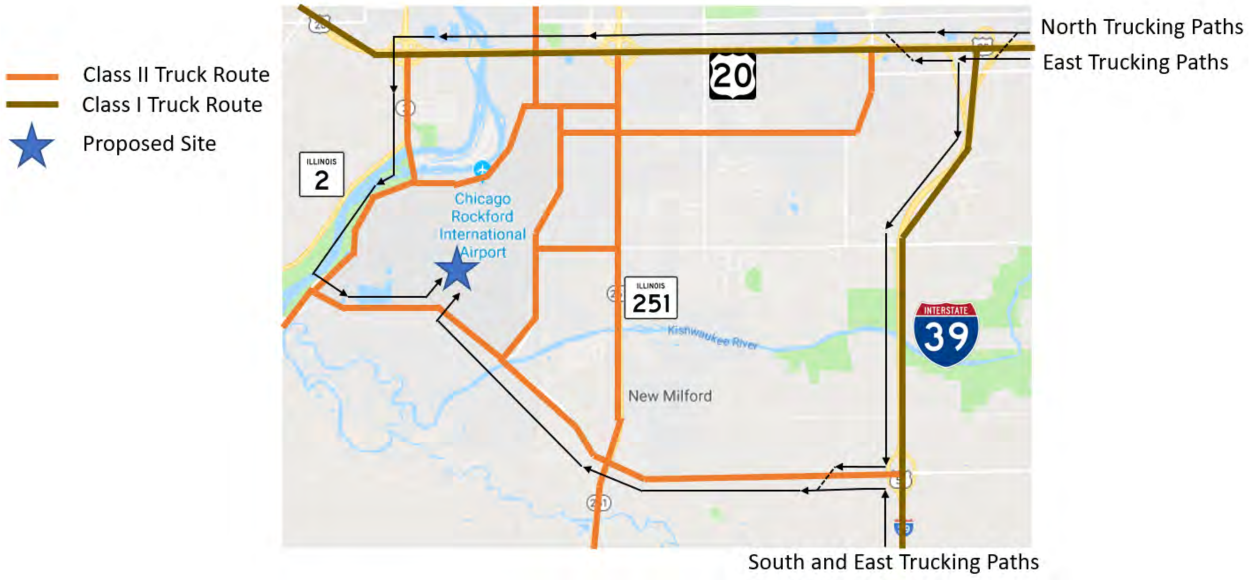
Designation	Street	Cross Street
A	Kishwaukee Road / Airport Drive	Beltline Road / UPS Rockford Air Hub Entrance
B	Kishwaukee Road	Northwest Cargo Truck Entrance
C	Kishwaukee Road	Northwest Cargo Employee Entrance
D	Kishwaukee Road	Beltline Road
E	Beltline Road	Proposed Midfield Air Cargo Employee Entrance
F	Beltline Road	Cessna Drive
G	Cessna Drive	Truck Entrance
H	Beltline Road	Falcon Road
I	Baxter Road	IL 251

The one-way directional hourly volumes (DHV) were calculated for each of the 5 peak hours being evaluated in each scenario. CMT used the one-way DHV's as well as manual traffic count data to evaluate intersection distributions and performances in the roadway network.

Standard internet mapping services, historical directional distributions based on recent Intersection Design Studies along Falcon Road, and manual count directional distributions were used to assign trips to the roadway network. Two routes were used for truck trips to access the interstate system. This includes (1) Beltline Road and Baxter Road, south of the airport, to access I-39, and (2) Kishwaukee Road to Beltline Road, north of the airport, to access US 20.

Segment design hour volumes and intersection peak hour turning movements were developed by combining existing traffic with site traffic assigned to the roadway network. See **Appendix A** for a table of build, existing, and no-build intersection movements.

Figure 8 Truck Trip Assignment Map



AVERAGE DAILY TRAFFIC

Existing/projected annual daily traffic volumes were compared with no-build and build projected volumes in order to understand the magnitude of impact to the roadway network. CMT used historical annual daily traffic (ADT) as well as historical traffic growth or decrease rates to predict the 2023 ADT on the surrounding roadway network. CMT also factored in the new ADT to be added with the proposed air cargo facility as well as considering no-build scenario trips. A map showing segmental ADT data as well as a detailed table showing all ADT analysis can be found in **Appendix B**. A Brief ADT summary can be found below in **Table 3**.

- Existing Condition – 2017 Road Network Volumes
- No Build Condition – Expanded Air Cargo Facility
- Proposed Condition – New Midfield Air Cargo Center

Table 3 ADT Summary

Intersection	ADT Comparison	From	To	2017 Existing	2023 Projected Expanded West Cargo Facility	2023 Build ADT
1	Beltline Road	Falcon Road	Baxter Road	1550	1620	2944
2	Kishwaukee Road	Beltline Road	Beltline Road	6350	10954	12118
3	Beltline Road	Kishwaukee Road	Cessna Drive	2300	2737	7988
4	Airport Drive	Beltline Road	Kishwaukee Road	4300	4755	4792
5	Beltline Road	Beltline Road/Airport Drive	S Main Sreet	8700	12388	13950
6	Falcon Road	Airport Drive	Samuelson Road	3450	3627	4620
7	Falcon Road	Samuelson	Blackhawk Road	2350	2592	3952
8	Falcon Road	Blackhawk	New Millford School Road	1450	1773	3574
9	Falcon Road	New Millford School	Beltline	1100	1467	3512
10	Kishwaukee Road	Beltline Road	S Bend Road	5100	5123	5289
11	IL 251	Baxter Road	S Bend Road	5400	5420	5430
12	IL 251	Baxter Road	S Bend Road	4750	4750	4754
13	Baxter Road	Beltline Road	IL 251	1750	1820	3144
14	Baxter Road	Beltline Road	S Bend Road	650	650	650
15	Kishwaukee Road	Airport Drive	Research Parkway	4800	5123	5616
16	Samuelson Road	Falcon Road	IL 251	2050	2115	2482
17	Blackhawk Road	Falcon Road	IL 251	1500	1581	2022
18	New Millford School Road	Falcon Road	IL 251	950	994	1238
19	Airport Drive	Kishwaukee Road	Falcon Road	4700	4932	5024
20	Airport Drive	Falcon Road	IL 251	4950	5259	5796
21	Beltline Road	Cessna Drive	Falcon Road	2300	2737	6106
22	Baxter Road	IL 251	Lindenwood Road	2900	2950	4256

DESIGN HOUR VOLUMES

A map of design hour volumes can be found in Appendix B.

INTERSECTION TURNING MOVEMENTS

Intersection Turning Movements and Truck percentages are shown for each intersection in Appendix A.

CAPACITY ANALYSIS

CMT used McTrans HCS7, Synchro and SIDRA to evaluate the site impacts to the surrounding roadway network. Capacity analysis was performed at each intersection for the 5 peak hours identified with various traffic control conditions, depending upon the scenario. The capacity analysis results can be found in **Table 4**.

It should be noted that Falcon Road was recently improved. Intersection design studies were performed as part of the study for the Falcon Road improvements. The intersection design studies for those intersections included projected traffic for a 20 year design horizon. The traffic volumes proposed by this facility do not exceed the projections included in that study. Therefore, the recent improvements should be able to adequately serve the additional trips generated by this facility within the anticipated acceptable level of service metrics without further improvements. A detailed capacity analysis for the Falcon Road corridor, other than at the intersection of Beltline Road, was not performed as part of this study.

Table 4 Intersection Capacity Analysis Summary

Intersection	Intersection	Peak Period	OWSC	OWSC or TWSC Channelized WORTL	OWSC Channelized WRTL	AWSC	Signalized w/ Existing Channelization	Signalized w/ Proposed Channelization	Single Lane Roundabout	Multi Lane Roundabout
A	Kishwaukee Road / Airport Drive at Beltline Road / UPS Entrance	**AM**					C	C		
		PH1					E	C		
		PH2					E	D		
		PM					E	C		
		PH3					C	C		
B	Kishwaukee Road at Northwest Cargo Truck Entrance	**AM**	C				A			
		PH1	E				A			
		PH2	E				A			
		PM	D				A			
		PH3	C				A			
C	Kishwaukee Road at Northwest Cargo Employee Entrance	**AM**	C				A			
		PH1	D				A			
		PH2	E				B			
		PM	C				A			
		PH3	C				A			
D	Kishwaukee Road at Beltline Road	**AM**	E			F	B	B		B
		PH1	F			F	D	B		C
		PH2	F			F	D	B		C
		PM	C			F	B	B		A
		PH3	E			F	B	B		B

OWSC = One-Way Stop Controlled (for “T” intersection)

WORTL = Without Right Turn Lane

TWSC = Two-Way Stop Controlled (Minor Street under stop control)

AWSC = All-Way Stop Controlled

Table 4 Continued

Intersection	Intersection	Peak Period	OWSC	OWSC or TWSC Channelized WORTL	OWSC Channelized WRTL	AWSC	Signalized w/ Existing Channelization	Signalized w/ Proposed Channelization	Single Lane Roundabout	Multi Lane Roundabout
E	Beltline Road at Proposed Midfield Air Cargo Employee Entrance	**AM**	F		F	F		B	B	A
		PH1	F		F	F		C	F	B
		PH2	F		F	F		C	F	C
		PM	F		F	F		B	B	A
		PH3	F		F	F		B	F	B
F	Beltline Road at Cessna Drive	**AM**	C		C	B		B	A	
		PH1	D		D	E		C	B	
		PH2	D		C	E		B	A	
		PM	C		B	B		B	A	
		PH3	D		D	D		B	B	
H	Beltline Road at Falcon Road	**AM**	B	B	B	B		A	A	
		PH1	B	B	B	F		A	A	
		PH2	C	C	C	F		A	B	
		PM	B	B	B	B		A	A	
		PH3	B	B	B	E		A	A	
I	Baxter Road at IL 251	**AM**		C - C						
		PH1		C - C						
		PH2		C - D						
		PM		C - D						
		PH3		B - B						

OWSC = One-Way Stop Controlled (for “T” intersection)

WORTL = Without Right Turn Lane

TWSC = Two-Way Stop Controlled (Minor Street under stop control)

AWSC = All-Way Stop Controlled

Note: Intersection “I” has two LOS conditions listed for TWSC (No Build – Build)

CONCLUSIONS

From an ADT planning level, all existing free flowing roadway segments, whether 2-lane or 4-lane, should be able to handle the build ADT without widening to more through lanes in each direction. Some intersections will need improvements to either the control or to channelization to handle the design hour volumes.

INTERSECTION A – KISHWAUKEE RD / AIRPORT DR AT BELTLINE RD / UPS ENTRANCE

Adding site traffic degrades the LOS in shift peak hours 1 and 2, and the PM peak (to LOS E). Remarking the westbound median to a left turn lane and changing the eastbound/westbound phasing from split to traditional protected only left-turn phasing with concurrent eastbound and westbound thru movements improves the LOS to D or better for all peak hours.

INTERSECTION B – KISHWAUKEE RD AT NORTHWEST CARGO TRUCK ENTRANCE

As a one-way stop-controlled intersection, this entrance will have insufficient gaps to operate at an acceptable level of service. It will operate at LOS E in shift peak hours 1 and 2. Kishwaukee Road will operate freely at an acceptable level of service. Traffic signals would be a means to interrupt flow on Kishwaukee Road to provide access for trucks exiting this entrance. A traffic signal may be necessary by a new third-party occupancy of the air cargo at this entrance.

INTERSECTION C – KISHWAUKEE RD AT NORTHWEST CARGO EMPLOYEE ENTRANCE

As a one-way stop-controlled intersection, this entrance will have insufficient gaps in shift peak 2, with LOS E. Kishwaukee Road will operate freely at an acceptable level of service. Traffic signals would be a means to interrupt flow to provide access for trucks exiting this entrance. A traffic signal may be necessary by a new third-party occupancy of the air cargo facility at this entrance.

INTERSECTION D – KISHWAUKEE ROAD AT BELTLINE ROAD

This existing one-way stop-controlled intersection will experience LOS F under the existing channelized condition. Beltline Road traffic would have insufficient gaps in traffic to enter Kishwaukee Road. As an all-way stop controlled intersection, it would also experience LOS F because it wouldn't be able to handle the volume of traffic and would result in high delay on Kishwaukee Road and Beltline Road. With a traffic signal control and the existing channelization, the LOS would be acceptable at LOS D or better, but the queues for southbound left would cause operational issues with the southbound thru movement. A traffic signal control with additional channelization capacity including southbound dual left turn lanes and a free-flowing continuous westbound right turn lane would improve the capacity to an acceptable LOS and avoid operational issues. **See Figure 9 or Appendix C – Exhibit 1.** A multilane roundabout was evaluated and would also operate at an acceptable LOS; however, due to geometric and runway lighting constraints, it would not be practical for construction. A traffic signal warrant analysis was performed and was met at this intersection.

Figure 9 Improvements to Kishwaukee Rd at Beltline Rd

INTERSECTION E – BELTLINE ROAD AT PROPOSED EMPLOYEE ENTRANCE

This intersection would operate at LOS F as a one-way stop control, all-way stop control, or a single lane roundabout. As a multilane roundabout or signalized intersection with dual eastbound left turn lanes and a continuous southbound to westbound right turn lane it would operate at LOS C or better. **See Figures 10 and 11 or Appendix C – Exhibits 2 and 3.** A single eastbound left turn lane would create queues that would create operational issues for eastbound thru movements at the intersection. A traffic signal warrant analysis was performed and was met at this intersection.

Figure 10 Signal Improvement to Employee Entrance

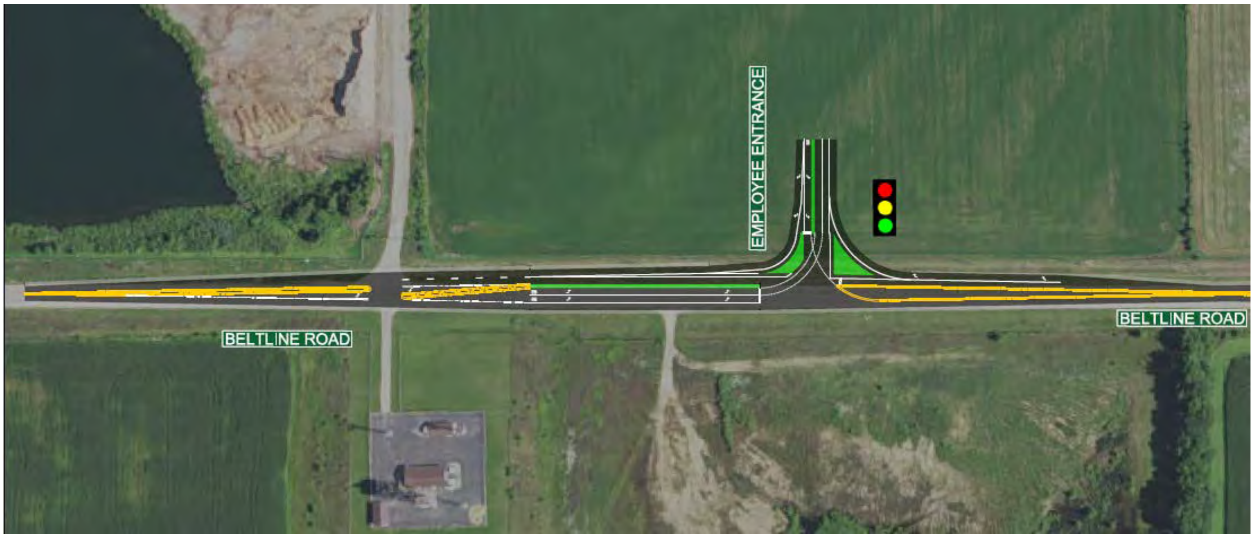


Figure 11 Multilane Roundabout Improvement to Employee Entrance

INTERSECTION F – BELTLINE ROAD AT CESSNA DRIVE

This intersection would operate at LOS D or better if it were to remain under one-way stop control, even with channelization. Cessna Drive traffic trying to enter Beltline Road would experience high delay. As an all-way stop control it would also operate at LOS E or better. Beltline Road would experience high delay. As a traffic signal-controlled intersection with channelization (single left, single right turn lanes) it would experience LOS B or better. **See Figure 12 or Appendix C Exhibit 4.** It would also operate at LOS B or better as a single lane roundabout. **See Figure 13 or Appendix C Exhibit 5.** A traffic signal warrant analysis was performed and was met at this intersection.

Figure 12 Signal Improvement to Cessna Drive

Figure 13 Single Lane Roundabout Improvement to Cessna Drive

INTERSECTION H – BELTLINE ROAD AT FALCON ROAD

This existing one-way stop-controlled intersection without channelization was found to operate at LOS C or better for all peak hours without any improvements. Introducing an all-way stop control would cause the intersection to experience LOS F due to the high delay experienced on Beltline Road. A traffic signal would result in LOS A or better; however, warrants were not met. A single lane roundabout would experience LOS B or better. If a traffic signal or roundabout were to be considered, a roundabout would better fit the vertical constraints of the site given the end of the runway near this location. It would be possible to fit channelization with the proximity of the Beltline Road bridge over the Kishwaukee River.

INTERSECTION I – BAXTER ROAD AT IL 251

This intersection experiences LOS C or better in the no-build condition and will experience LOS D or better in the build condition. The lower level of service is experienced on Baxter Road due to the two-way stop-controlled condition of Baxter Road yielding the right-of-way to IL 251 free flowing traffic. The additional traffic increases the delay on Baxter Road; however, traffic signal warrants are not met.

RECOMMENDATIONS

The traffic study recommends improvements to four intersections to mitigate traffic impacts to the adjacent roadway network. Only three of the four intersections will require additional pavement for traffic lanes.

1. **Kishwaukee Road and Beltline Road Intersection Improvements**. This existing one-way stop- controlled and channelized "T" intersection is recommended for signalization and additional channelization improvements. The intersection has environmental and runway lighting constraints that preclude some improvement alternatives. Channelization improvements will include southbound dual left turn lanes, two eastbound receiving lanes to accommodate the southbound dual lefts, and a continuous westbound to northbound right turn lane.
2. **Kishwaukee Road / Airport Drive at Beltline Road Intersection Modifications**. This existing signalized and channelized intersection is recommended for traffic signal and channelization modifications without additional pavement. This includes remarking the east leg median to be a westbound left turn lane as well as changing the split phasing of eastbound and westbound to become concurrent protected left turns and concurrent eastbound and westbound thru movements.
3. **Beltline Road at Employee Entrance Intersection Improvements.** This new facility entrance for employee parking will create a new "T" intersection access on Beltline Road west of Cessna Drive. This intersection can be traffic signal controlled with channelization or a multilane roundabout. The signalized option would have eastbound dual left turn lanes, a westbound right turn lane, and a southbound to westbound continuous right turn lane. The roundabout option would only require two eastbound lanes (left, left/thru), a westbound right turn lane, and a continuous southbound to westbound right turn lane.
4. **Beltline Road at Cessna Drive Intersection Improvement**. This existing un-channelized one-way stop-controlled "T" intersection can be a single lane roundabout or traffic signal controlled with channelization. Channelization would include a single eastbound left turn lane, single westbound right turn lane, and exclusive southbound left and right turn lanes.

Appendix A

Existing, No-Build, and Build Intersection Movements

Existing Intersection Movements

Intersection / Movement			AM	PH1	PH2	PM	PH3	Truck %	AM	PH1	PH2	PM	PH3
A	**EB**	**L**	387	310	387	426	23		10%	12%	10%	9%	0%
		T	68	55	53	58	3		0%	0%	0%	0%	0%
		R	1	1	2	2	0		0%	0%	0%	0%	0%
	WB	**L**	3	3	2	2	0		0%	0%	100%	100%	0%
		T	62	50	68	75	6		2%	2%	0%	0%	0%
		R	90	72	145	159	9		6%	7%	4%	4%	21%
	NB	**L**	2	2	2	2	0		50%	50%	100%	100%	0%
		T	1	1	13	13	0		0%	0%	62%	62%	0%
		R	6	6	2	2	0		17%	17%	0%	0%	0%
	SB	**L**	137	110	114	126	11		4%	5%	3%	2%	2%
		T	5	5	21	21	0		20%	20%	90%	90%	0%
		R	122	97	309	340	17		8%	10%	5%	4%	0%

Intersection / Movement			AM	PH1	PH2	PM	PH3	Truck %	AM	PH1	PH2	PM	PH3
H	**EB**	**L**	47	38	55	54	4		6%	8%	16%	17%	1%
		T	71	57	67	74	5		24%	30%	2%	3%	1%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	53	42	72	79	5		11%	14%	54%	49%	1%
		R	17	13	15	16	1		36%	45%	41%	37%	0%
	NB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	SB	**L**	3	3	14	16	1		64%	80%	21%	19%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	15	12	30	33	2		1%	1%	1%	1%	0%

Intersection / Movement			AM	PH1	PH2	PM	PH3	Truck %	AM	PH1	PH2	PM	PH3
D	EB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	L	22	17	26	28	2		0%	0%	4%	4%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	81	65	117	129	8		14%	17%	25%	23%	0%
	NB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	357	286	127	139	20		0%	0%	2%	2%	0%
		R	23	18	11	12	1		4%	5%	9%	8%	0%
	SB	L	46	37	18	20	5		39%	49%	54%	49%	0%
		T	300	240	378	416	20		1%	2%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%

Intersection / Movement			AM	PH1	PH2	PM	PH3	Truck %	AM	PH1	PH2	PM	PH3
F	**EB**	**L**	21	16	27	30	2		5%	6%	4%	3%	0%
		T	89	71	52	57	6		37%	46%	46%	42%	1%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	76	61	76	84	8		18%	23%	54%	49%	1%
		R	20	16	8	9	1		1%	1%	1%	1%	1%
	NB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	SB	**L**	5	5	40	40	0		1%	1%	1%	1%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	1	1	52	52	0		1%	1%	2%	2%	0%

Intersection / Movement			AM	PH1	PH2	PM	PH3	Truck %	AM	PH1	PH2	PM	PH3
I	EB	L	9	7	6	7	1		3%	3%	3%	3%	3%
		T	72	57	44	49	5		28%	35%	45%	41%	5%
		R	9	7	13	14	1		5%	5%	5%	5%	3%
	WB	L	49	39	39	43	4		5%	5%	5%	5%	3%
		T	65	52	78	86	6		31%	39%	26%	23%	3%
		R	49	39	39	43	4		3%	3%	3%	3%	3%
	NB	L	15	12	44	48	3		3%	3%	3%	3%	3%
		T	271	217	164	180	13		21%	21%	21%	21%	21%
		R	15	12	11	12	11		3%	3%	3%	3%	3%
	SB	L	20	16	29	32	5		5%	5%	5%	5%	5%
		T	179	143	164	180	8		14%	14%	14%	14%	14%
		R	0	0	0	0	0		3%	3%	3%	3%	3%

No-Build Intersection Movements (Existing + Expanded West Facility)

Intersection / Movement			PH1	AM	Noon	PM	PH3	Truck %	PH1	AM	Noon	PM	PH3
A	EB	L	25	387	189	426	105		10%	12%	10%	9%	0%
		T	4	68	26	58	16		0%	0%	0%	0%	0%
		R	1	1	2	2	0		0%	0%	0%	0%	0%
	WB	L	3	3	2	2	0		0%	0%	100%	100%	0%
		T	39	62	68	75	61		2%	2%	0%	0%	0%
		R	6	90	71	159	44		6%	7%	4%	4%	21%
	NB	L	2	2	2	2	0		50%	50%	100%	100%	0%
		T	1	1	13	13	0		0%	0%	62%	62%	0%
		R	6	6	2	2	0		17%	17%	0%	0%	0%
	SB	L	9	137	56	126	52		4%	5%	3%	2%	2%
		T	5	5	21	21	0		20%	20%	90%	90%	0%
		R	291	122	434	340	362		8%	10%	5%	4%	0%

Intersection / Movement			PH1	AM	Noon	PM	PH3	Truck %	PH1	AM	Noon	PM	PH3
H	EB	L	3	47	27	60	17		6%	8%	16%	17%	1%
		T	5	71	33	74	22		24%	30%	2%	3%	1%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	8	53	40	79	29		11%	14%	54%	49%	1%
		R	3	13	15	16	10		36%	45%	41%	37%	0%
	NB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	SB	L	3	3	14	16	1		64%	80%	21%	19%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	29	15	43	33	38		1%	1%	1%	1%	0%

Intersection / Movement			PH1	AM	Noon	PM	PH3	Truck %	PH1	AM	Noon	PM	PH3
D	EB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	L	1	22	13	28	9		0%	0%	4%	4%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	48	91	95	131	81		14%	17%	25%	23%	0%
	NB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	25	357	64	139	91		0%	0%	2%	2%	0%
		R	1	23	5	12	9		4%	5%	9%	8%	0%
	SB	L	13	56	14	22	34		39%	49%	54%	49%	0%
		T	6	90	55	124	77		1%	2%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%

Intersection / Movement			PH1	AM	Noon	PM	PH3	Truck %	PH1	AM	Noon	PM	PH3
F	**EB**	**L**	11	32	11	15	16		5%	6%	4%	3%	0%
		T	6	89	25	57	27		37%	46%	46%	42%	1%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	38	76	70	84	68		18%	23%	54%	49%	1%
		R	1	20	4	9	7		1%	1%	1%	1%	1%
	NB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	SB	**L**	5	5	40	40	0		1%	1%	1%	1%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	11	11	57	54	10		1%	1%	2%	2%	0%

Intersection / Movement			PH1	AM	Noon	PM	PH3	Truck %	PH1	AM	Noon	PM	PH3
I	EB	L	3	7	6	7	9		3%	3%	3%	3%	3%
		T	5	72	22	49	22		28%	35%	45%	41%	5%
		R	1	9	6	14	4		5%	5%	5%	5%	3%
	WB	L	3	49	19	43	17		5%	5%	5%	5%	3%
		T	9	65	43	86	32		31%	39%	26%	23%	3%
		R	3	49	19	43	17		3%	3%	3%	3%	3%
	NB	L	1	15	21	48	12		3%	3%	3%	3%	3%
		T	17	271	80	180	60		21%	21%	21%	21%	21%
		R	1	8	4	9	30		3%	3%	3%	3%	3%
	SB	L	1	20	14	32	25		5%	5%	5%	5%	5%
		T	12	179	80	180	40		14%	14%	14%	14%	14%
		R	0	0	0	0	0		0%	0%	0%	0%	0%

Intersection / Movement			PH1	AM	Noon	PM	PH3	Truck %	PH1	AM	Noon	PM	PH3
B	EB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	L	10	10	5	2	10		100%	100%	100%	100%	100%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	NB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	22	312	149	332	118		5%	5%	5%	5%	5%
		R	10	10	5	2	10		100%	100%	100%	100%	100%
	SB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	337	276	450	294	423		5%	5%	5%	5%	5%
		R	0	0	0	0	0		0%	0%	0%	0%	0%

Intersection / Movement			PH1	AM	Noon	PM	PH3	Truck %	PH1	AM	Noon	PM	PH3
C	EB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	NB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	32	322	154	334	128		5%	5%	5%	5%	5%
		R	35	0	35	0	35		0%	0%	0%	0%	0%
	SB	L	318	0	318	0	318		0%	0%	0%	0%	0%
		T	29	286	137	296	115		5%	5%	5%	5%	5%
		R	0	0	0	0	0		0%	0%	0%	0%	0%

Build Intersection Movements

Intersection / Movement			AM	PH1	PH2	PM	PH3	Truck %	AM	PH1	PH2	PM	PH3
A	EB	L	801	1097	1194	884	802		6%	4%	4%	5%	1%
		T	109	137	135	99	85		0%	0%	0%	0%	0%
		R	1	1	2	2	0		0%	0%	0%	0%	0%
	WB	L	3	3	2	2	0		0%	0%	100%	100%	0%
		T	103	132	150	116	88		2%	2%	0%	0%	0%
		R	90	72	145	159	9		6%	7%	4%	4%	21%
	NB	L	2	2	2	2	0		50%	50%	100%	100%	0%
		T	1	1	13	13	0		0%	0%	62%	62%	0%
		R	6	6	2	2	0		17%	17%	0%	0%	0%
	SB	L	137	110	114	126	11		4%	5%	3%	2%	2%
		T	5	5	21	21	0		20%	20%	90%	90%	0%
		R	580	904	1096	754	796		3%	2%	2%	3%	1%

Intersection / Movement			AM	PH1	PH2	PM	PH3	Truck %	AM	PH1	PH2	PM	PH3
H	**EB**	**L**	248	440	457	255	406		1%	1%	2%	4%	1%
		T	130	156	166	133	104		28%	23%	14%	17%	18%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	112	141	171	138	104		22%	18%	34%	42%	18%
		R	17	13	15	16	1		36%	45%	41%	37%	0%
	NB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	SB	**L**	3	3	14	16	1		64%	80%	21%	19%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	216	414	432	234	404		1%	1%	1%	1%	0%

Intersection / Movement			AM	PH1	PH2	PM	PH3	Truck %	AM	PH1	PH2	PM	PH3
D	EB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	L	37	47	56	43	32		0%	0%	2%	2%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	516	926	978	564	869		4%	2%	4%	7%	1%
	NB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	364	289	128	141	20		0%	0%	2%	2%	0%
		R	38	48	41	27	31		3%	2%	2%	4%	0%
	SB	L	481	898	879	455	866		5%	3%	2%	4%	1%
		T	302	241	381	423	20		1%	2%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%

Intersection / Movement			AM	PH1	PH2	PM	PH3	**Truck %**	AM	PH1	PH2	PM	PH3
E	**EB**	**L**	442	883	883	442	883		0%	0%	0%	0%	0%
		T	119	97	72	79	15		15%	19%	25%	23%	53%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	111	90	151	165	18		16%	20%	12%	11%	44%
		R	241	481	481	241	481		0%	0%	0%	0%	0%
	NB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	SB	**L**	241	481	481	241	481		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	442	883	883	442	883		0%	0%	0%	0%	0%

Intersection / Movement			AM	PH1	PH2	PM	PH3	<u>Truck %</u>	AM	PH1	PH2	PM	PH3
F	**EB**	**L**	29	24	35	38	10		32%	37%	26%	24%	81%
		T	330	552	533	298	487		10%	6%	5%	8%	1%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	317	543	558	325	490		4%	3%	7%	13%	1%
		R	39	35	27	28	20		48%	54%	69%	67%	93%
	NB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	SB	**L**	24	24	59	59	19		79%	79%	32%	32%	100%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	9	9	60	60	8		89%	89%	15%	15%	100%

Intersection / Movement			AM	PH1	PH2	PM	PH3	<u>Truck %</u>	AM	PH1	PH2	PM	PH3
I	EB	L	9	7	6	7	1		3%	3%	3%	3%	3%
		T	128	150	137	105	98		23%	19%	21%	28%	30%
		R	11	12	18	16	6		5%	5%	5%	5%	5%
	WB	L	49	39	39	43	4		5%	5%	5%	5%	5%
		T	121	145	171	142	99		24%	20%	17%	20%	29%
		R	49	39	39	43	4		3%	3%	3%	3%	3%
	NB	L	17	17	49	50	8		3%	3%	3%	3%	3%
		T	271	217	164	180	13		21%	21%	21%	21%	21%
		R	15	12	11	12	11		3%	3%	3%	3%	3%
	SB	L	20	16	29	32	5		5%	5%	5%	5%	5%
		T	179	143	164	180	8		14%	14%	14%	14%	14%
		R	0	0	0	0	0		3%	3%	3%	3%	3%

Intersection / Movement			AM	PH1	PH2	PM	PH3	Truck %	AM	PH1	PH2	PM	PH3
B	**EB**	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	2	2	2	2	2		100%	100%	100%	100%	100%
	NB	**L**	0	0	0	0	0		0%	0%	0%	0%	0%
		T	910	1233	1329	983	887		3%	2%	2%	3%	1%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	SB	**L**	3	3	3	3	3		100%	100%	100%	100%	100%
		T	954	1253	1309	939	887		1%	1%	1%	2%	1%
		R	0	0	0	0	0		0%	0%	0%	0%	0%

Intersection / Movement			AM	PH1	PH2	PM	PH3	Truck %	AM	PH1	PH2	PM	PH3
C	EB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	0	0	0	0	0		0%	0%	0%	0%	0%
	WB	L	2	1	3	7	0		0%	0%	0%	0%	0%
		T	0	0	0	0	0		0%	0%	0%	0%	0%
		R	20	8	28	64	0		0%	0%	0%	0%	0%
	NB	L	0	0	0	0	0		0%	0%	0%	0%	0%
		T	890	1225	1301	919	887		3%	2%	2%	3%	1%
		R	7	3	1	2	0		0%	0%	0%	0%	0%
	SB	L	64	28	8	20	0		0%	0%	0%	0%	0%
		T	571	970	992	580	883		2%	2%	1%	3%	1%
		R	0	0	0	0	0		0%	0%	0%	0%	0%

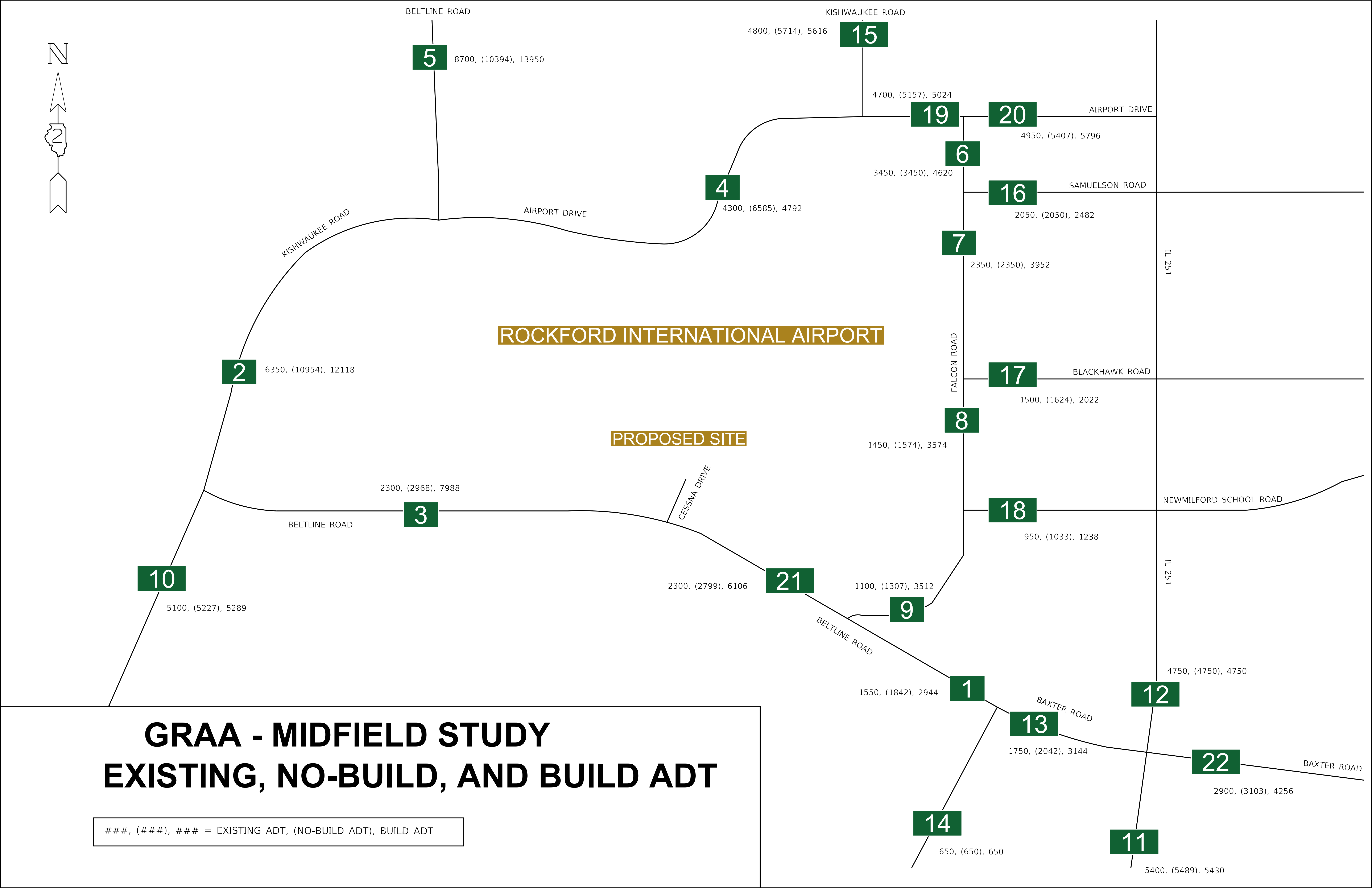
Appendix B

Average Daily Traffic and Design Hour Volumes

CMT	ADT Comparison	From	To	A (Existing)	B (No Build)	C	D (C/A)	E (B/A)	F	G	H	I (Build)	J (I/B)	K (I/A)
				2017 Existing ADT	**2023 Projected Expanded West Cargo Facility ADT**	**2023 Projected With Expanded Facility 3rd Party Owner ADT**	**% Growth from 2017 Existing to Projected 2023 3rd Party Facility Owner**	**% Growth from 2017 Existing to Projected 2023 Expanded West Cargo Facility**	**Site Only Pass Veh ADT**	**Site Only Trucks ADT**	**2023 Site ADT**	**2023 Build ADT**	**% Growth from No Build to Build**	**% Growth fromExisting to Build**
1	Beltline Road	Falcon Road	Baxter Road	1550	1620	1558	0.5%	4.5%	474	912	1386	2944	81.7%	89.9%
2	Kishwaukee Road	Beltline Road	Beltline Road	6350	10954	6616	4.2%	72.5%	5118	384	5502	12118	10.6%	90.8%
3	Beltline Road	Kishwaukee Road	Cessna Drive	2300	2737	2308	0.3%	19.0%	5296	384	5680	7988	191.9%	247.3%
4	Airport Drive	Beltline Road	Kishwaukee Road	4300	4755	4300	0.0%	10.6%	492	0	492	4792	0.8%	11.4%
5	Beltline Road	Beltline Road/Airport Drive	S Main Sreet	8700	12388	8940	2.8%	42.4%	4626	384	5010	13950	12.6%	60.3%
6	Falcon Road	Airport Drive	Samuelson Road	3450	3627	3450	0.0%	5.1%	1170	0	1170	4620	27.4%	33.9%
7	Falcon Road	Samuelson	Blackhawk Road	2350	2592	2350	0.0%	10.3%	1602	0	1602	3952	52.5%	68.2%
8	Falcon Road	Blackhawk	New Millford School Road	1450	1773	1450	0.0%	22.3%	2124	0	2124	3574	101.6%	146.5%
9	Falcon Road	New Millford School	Beltline	1100	1467	1100	0.0%	33.4%	2412	0	2412	3512	139.4%	219.3%
10	Kishwaukee Road	Beltline Road	S Bend Road	5100	5123	5109	0.2%	0.5%	180	0	180	5289	3.2%	3.7%
11	IL 251	Baxter Road	S Bend Road	5400	5420	5400	0.0%	0.4%	30	0	30	5430	0.2%	0.6%
12	IL 251	Baxter Road	S Bend Road	4750	4750	4754	0.1%	0.0%	0	0	0	4754	0.1%	0.1%
13	Baxter Road	Beltline Road	IL 251	1750	1820	1758	0.5%	4.0%	474	912	1386	3144	72.7%	79.7%
14	Baxter Road	Beltline Road	S Bend Road	650	650	650	0.0%	0.0%	0	0	0	650	0.0%	0.0%
15	Kishwaukee Road	Airport Drive	Research Parkway	4800	5123	4800	0.0%	6.7%	816	0	816	5616	9.6%	17.0%
16	Samuelson Road	Falcon Road	IL 251	2050	2115	2050	0.0%	3.2%	432	0	432	2482	17.4%	21.1%
17	Blackhawk Road	Falcon Road	IL 251	1500	1581	1500	0.0%	5.4%	522	0	522	2022	27.9%	34.8%
18	New Millford School Road	Falcon Road	IL 251	950	994	950	0.0%	4.6%	288	0	288	1238	24.5%	30.3%
19	Airport Drive	Kishwaukee Road	Falcon Road	4700	4932	4700	0.0%	4.9%	324	0	324	5024	1.9%	6.9%
20	Airport Drive	Falcon Road	IL 251	4950	5259	4950	0.0%	6.2%	846	0	846	5796	10.2%	17.1%
21	Beltline Road	Cessna Drive	Falcon Road	2300	2737	2308	0.3%	19.0%	2886	912	3798	6106	123.1%	165.5%
22	Baxter Road	IL 251	Lindenwood Road	2900	2950	2900	0.0%	1.7%	444	912	1356	4256	44.3%	46.8%

GRAA - MIDFIELD STUDY

EXISTING, NO-BUILD, AND BUILD ADT



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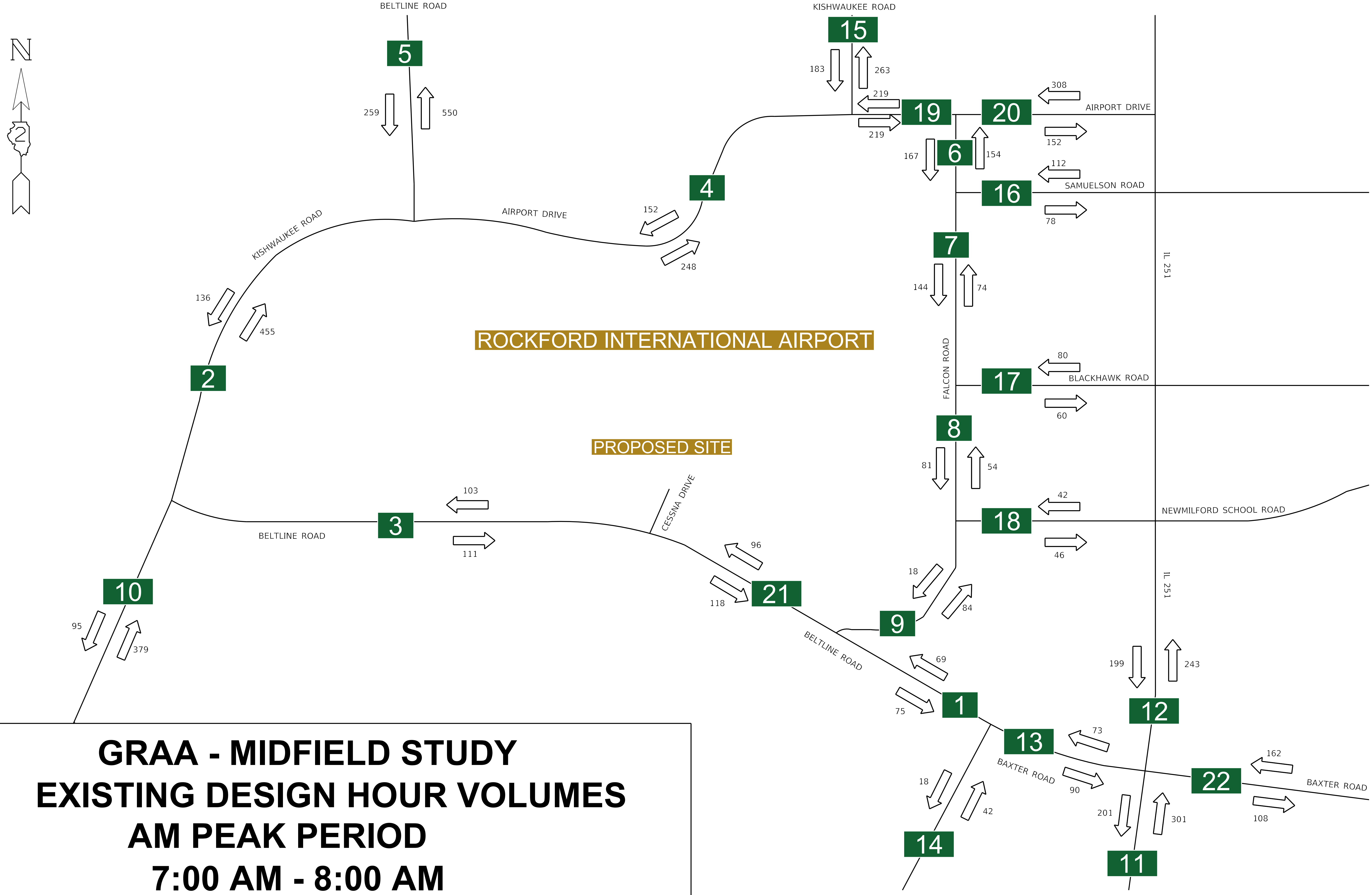
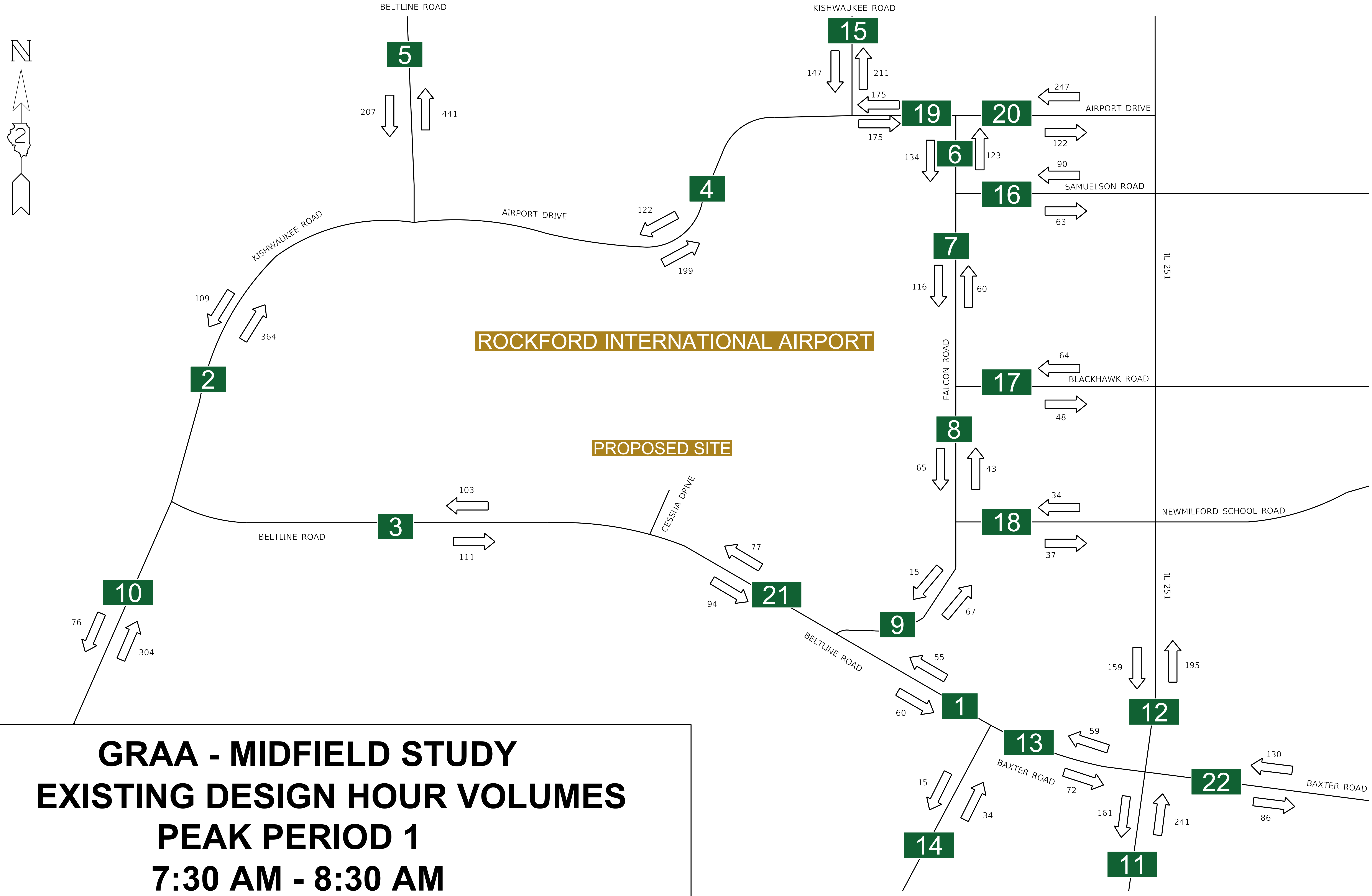
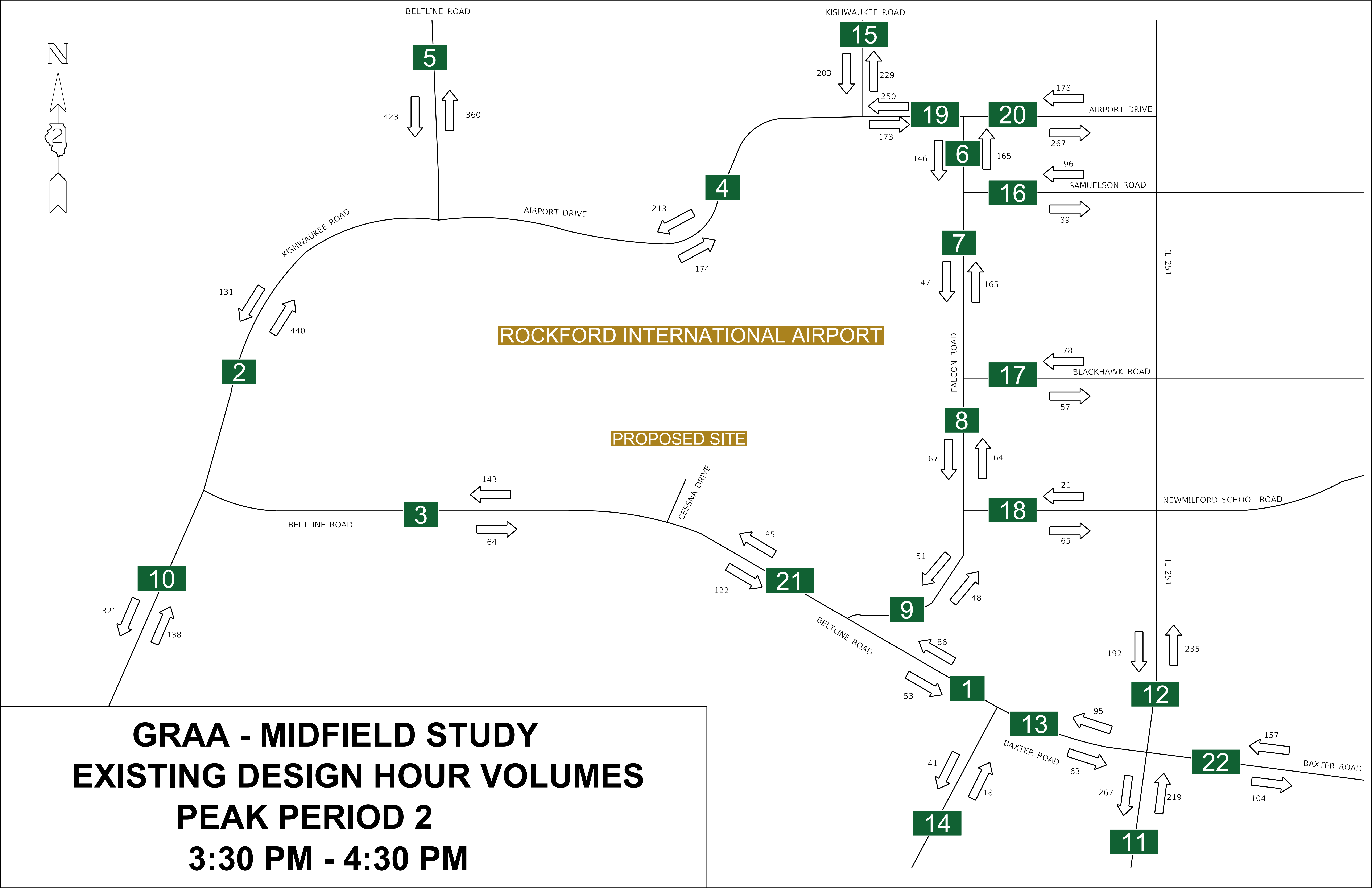


GRAA - MIDFIELD STUDY
EXISTING DESIGN HOUR VOLUMES
AM PEAK PERIOD
7:00 AM - 8:00 AM



GRAA - MIDFIELD STUDY
EXISTING DESIGN HOUR VOLUMES
PEAK PERIOD 1
7:30 AM - 8:30 AM



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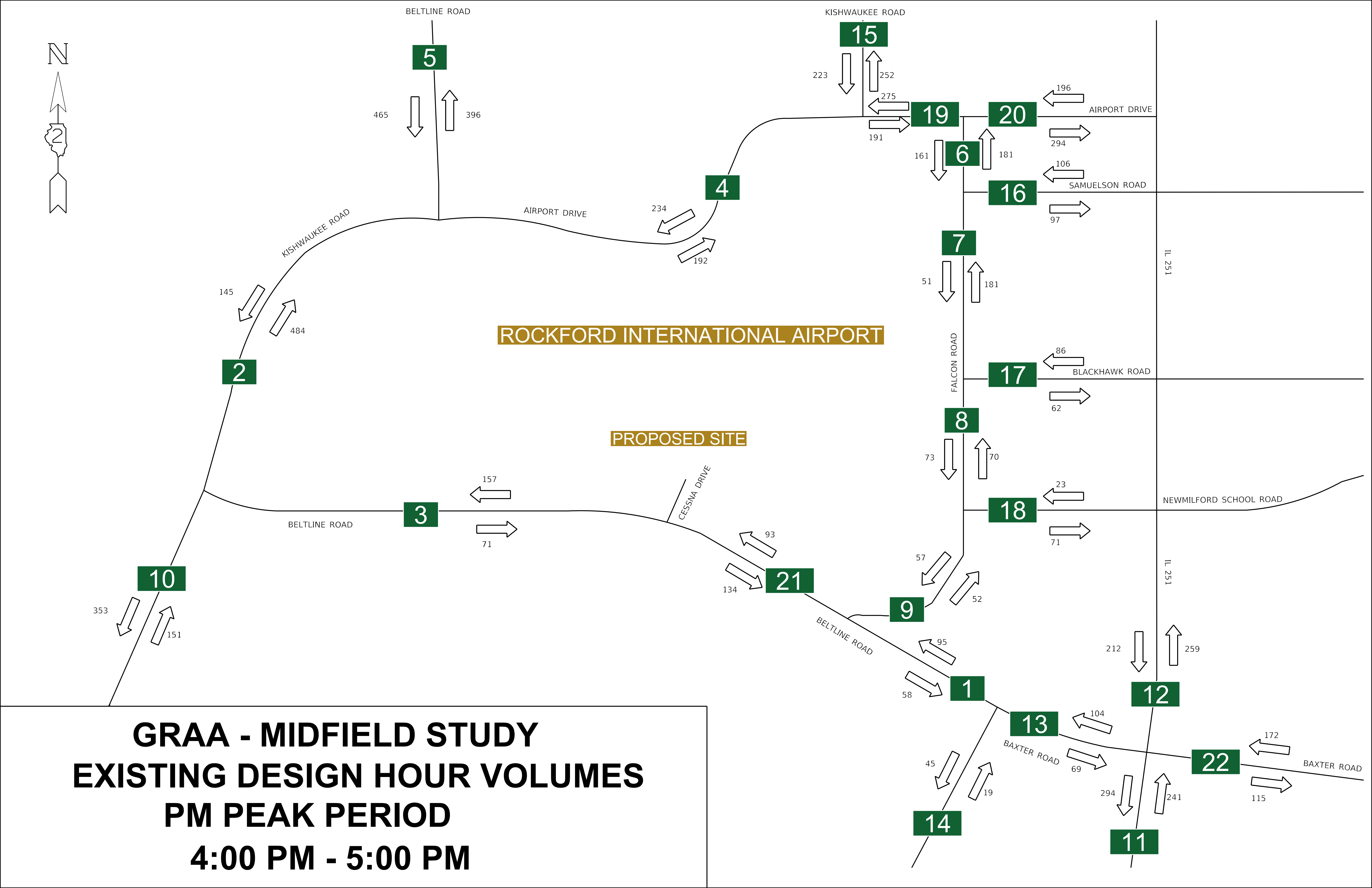
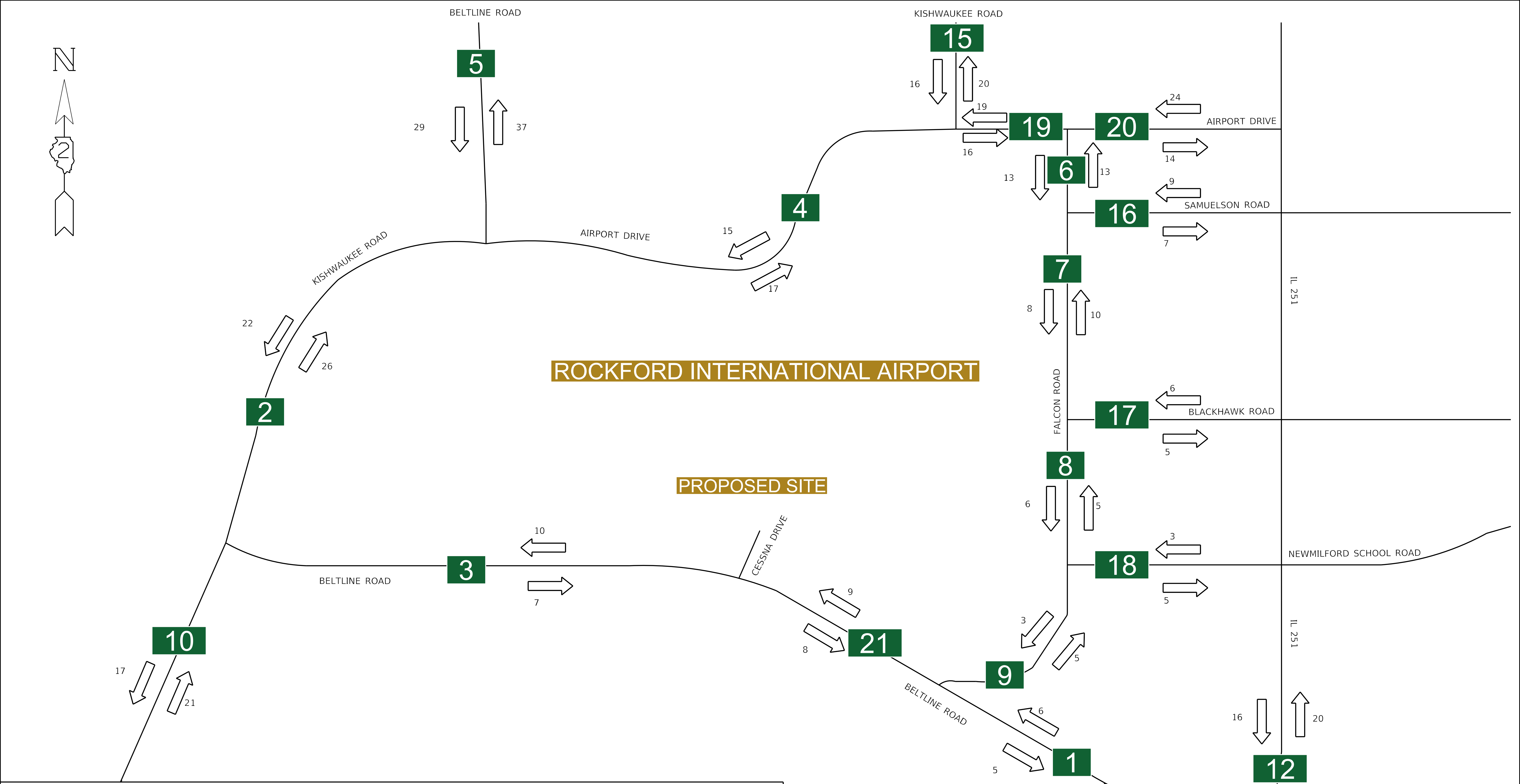
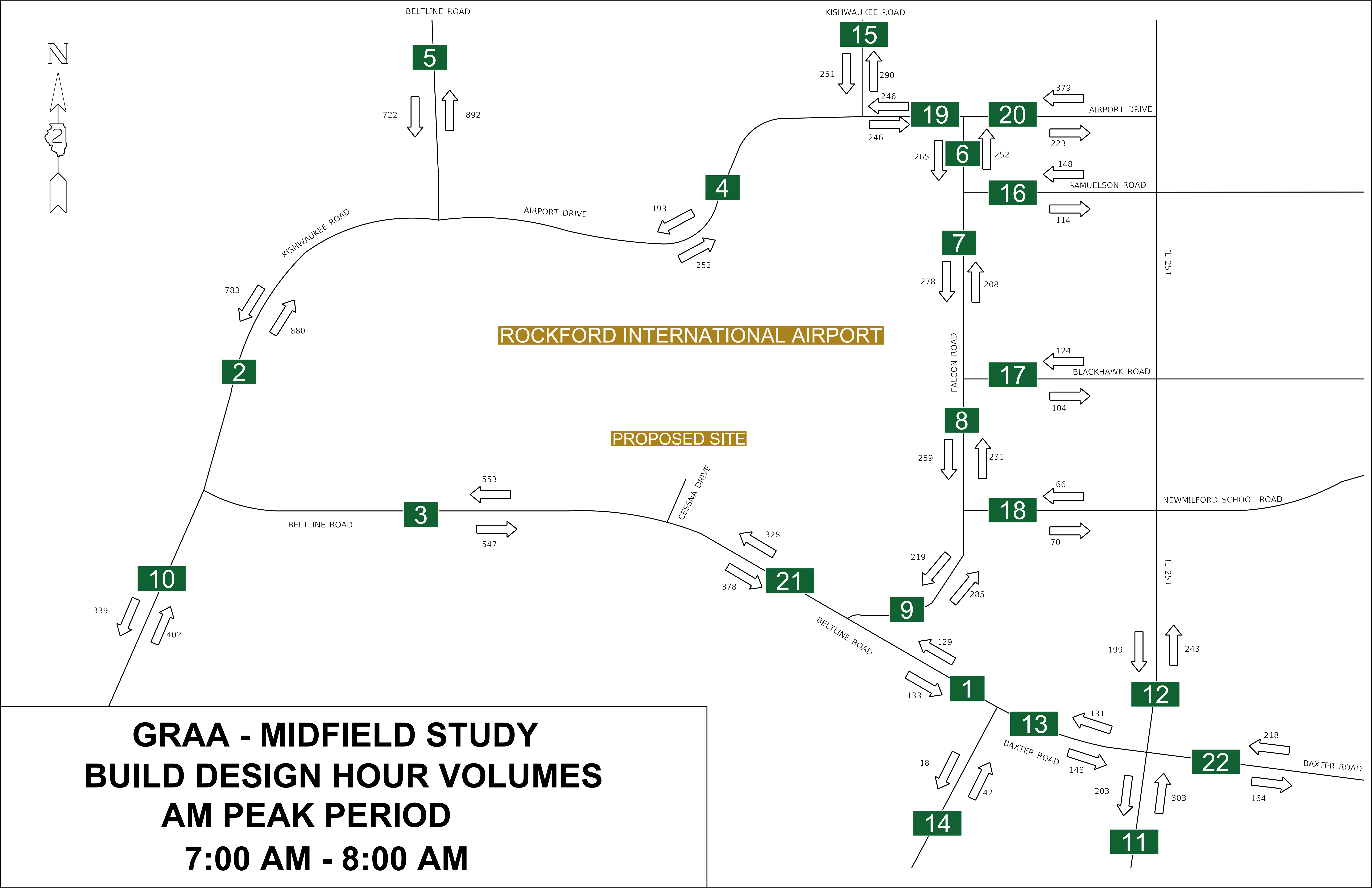
EXISTING DESIGN HOUR VOLUMES
PEAK PERIOD 2
3:30 PM - 4:30 PM



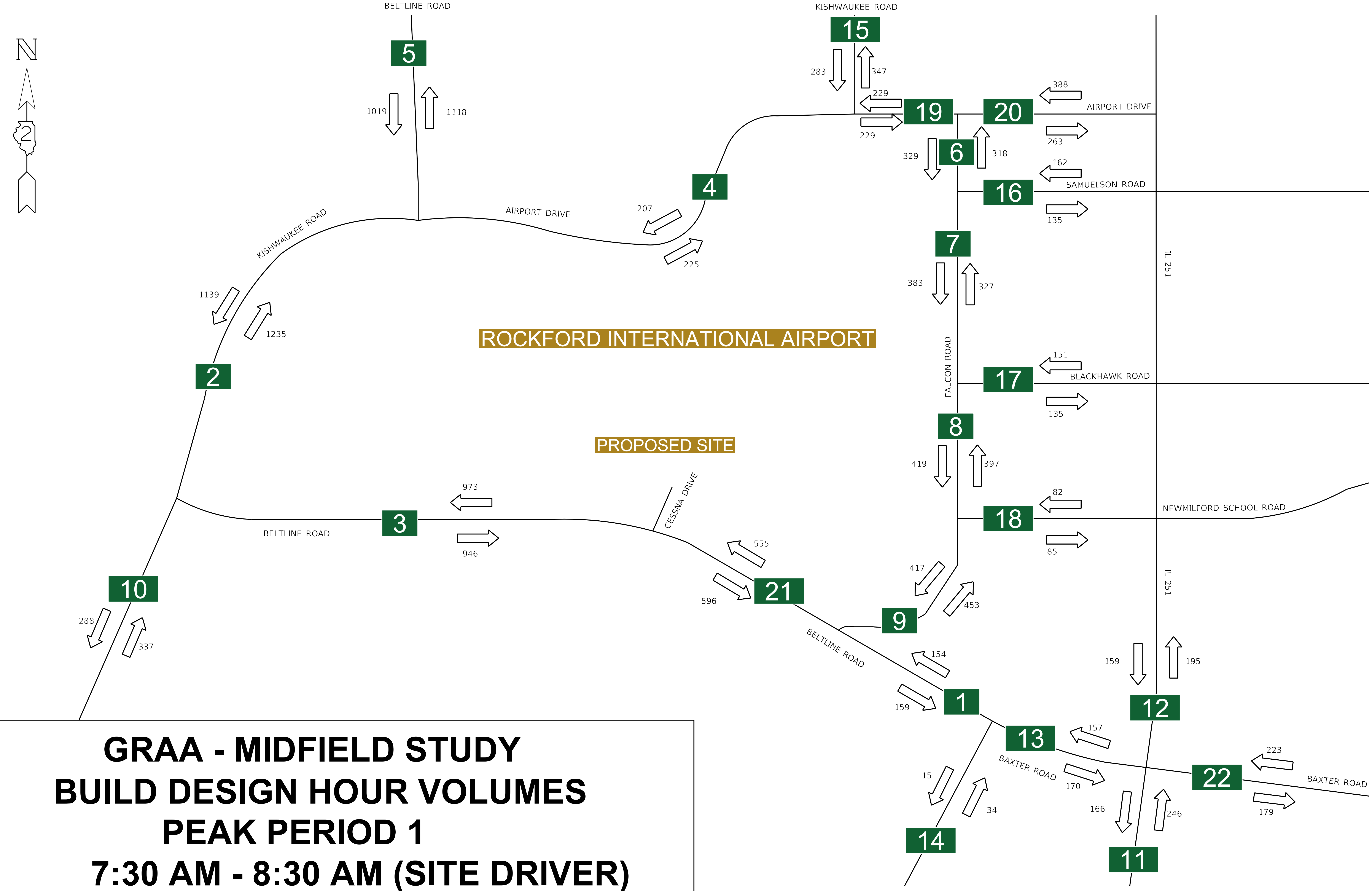
GRAA - MIDFIELD STUDY
EXISTING DESIGN HOUR VOLUMES
PM PEAK PERIOD
4:00 PM - 5:00 PM

GRAA - MIDFIELD STUDY
EXISTING DESIGN HOUR VOLUMES
PEAK PERIOD 3
11:30 PM - 12:30 AM

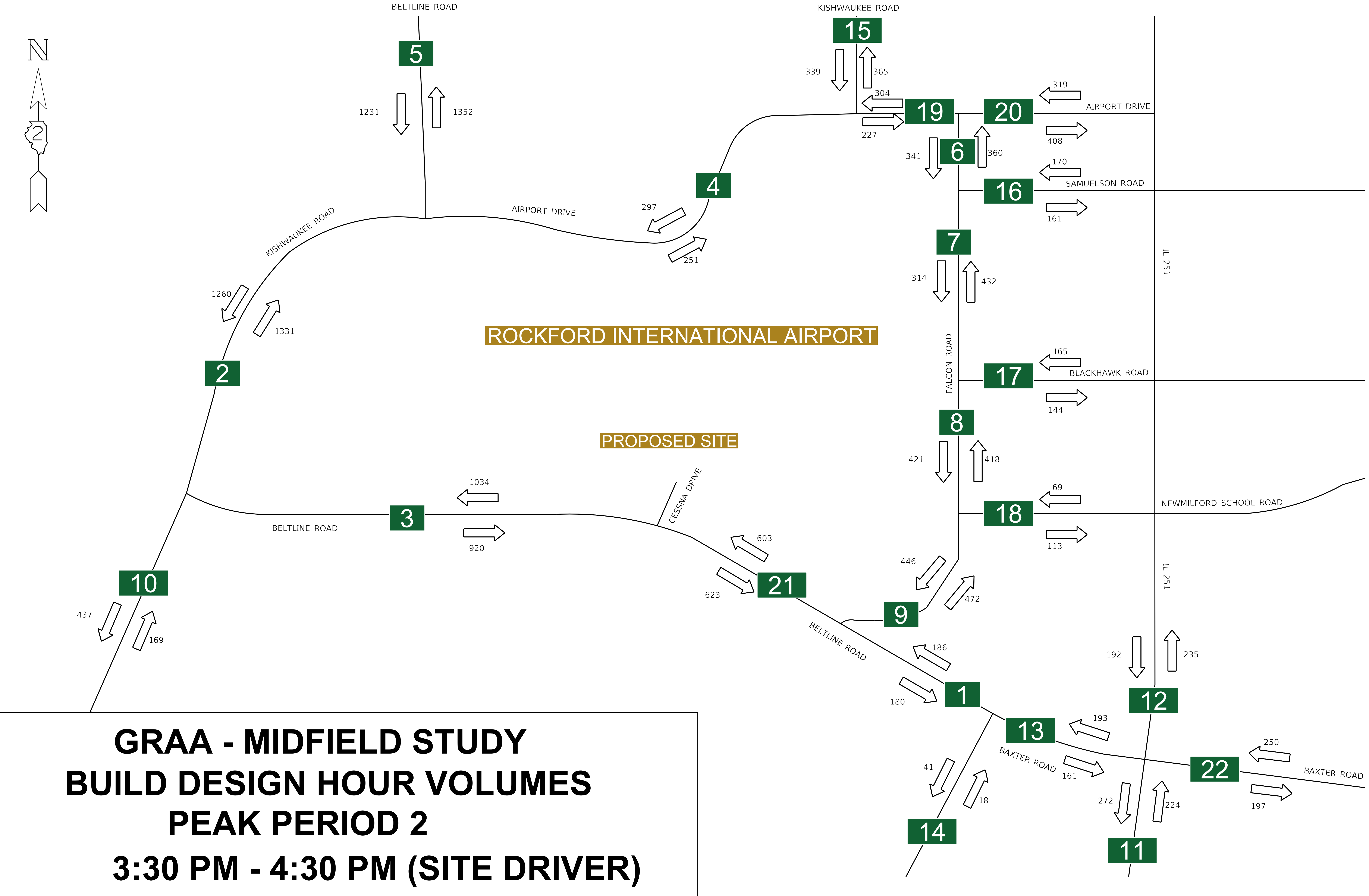




GRAA - MIDFIELD STUDY
BUILD DESIGN HOUR VOLUMES
AM PEAK PERIOD
7:00 AM - 8:00 AM

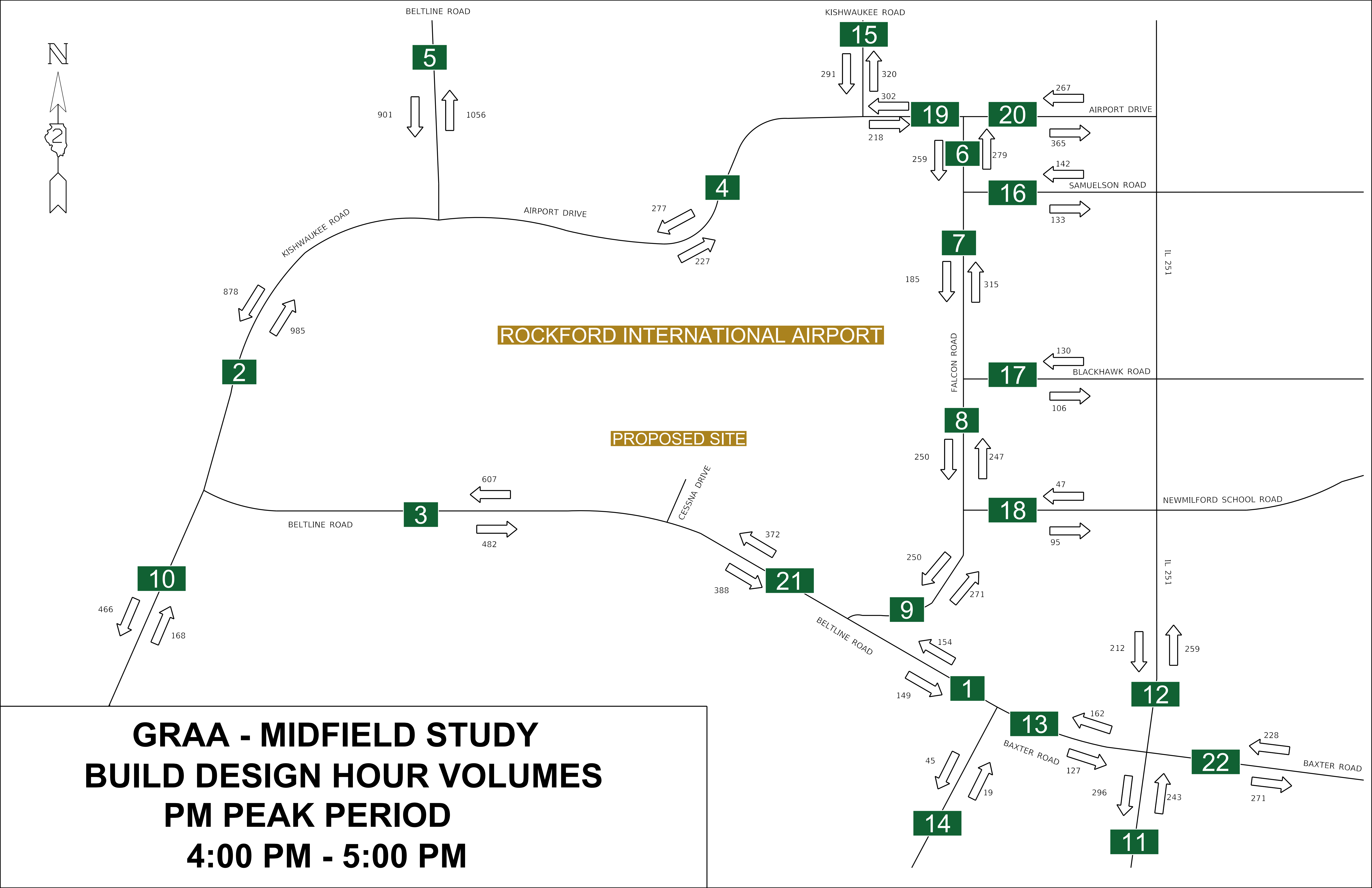


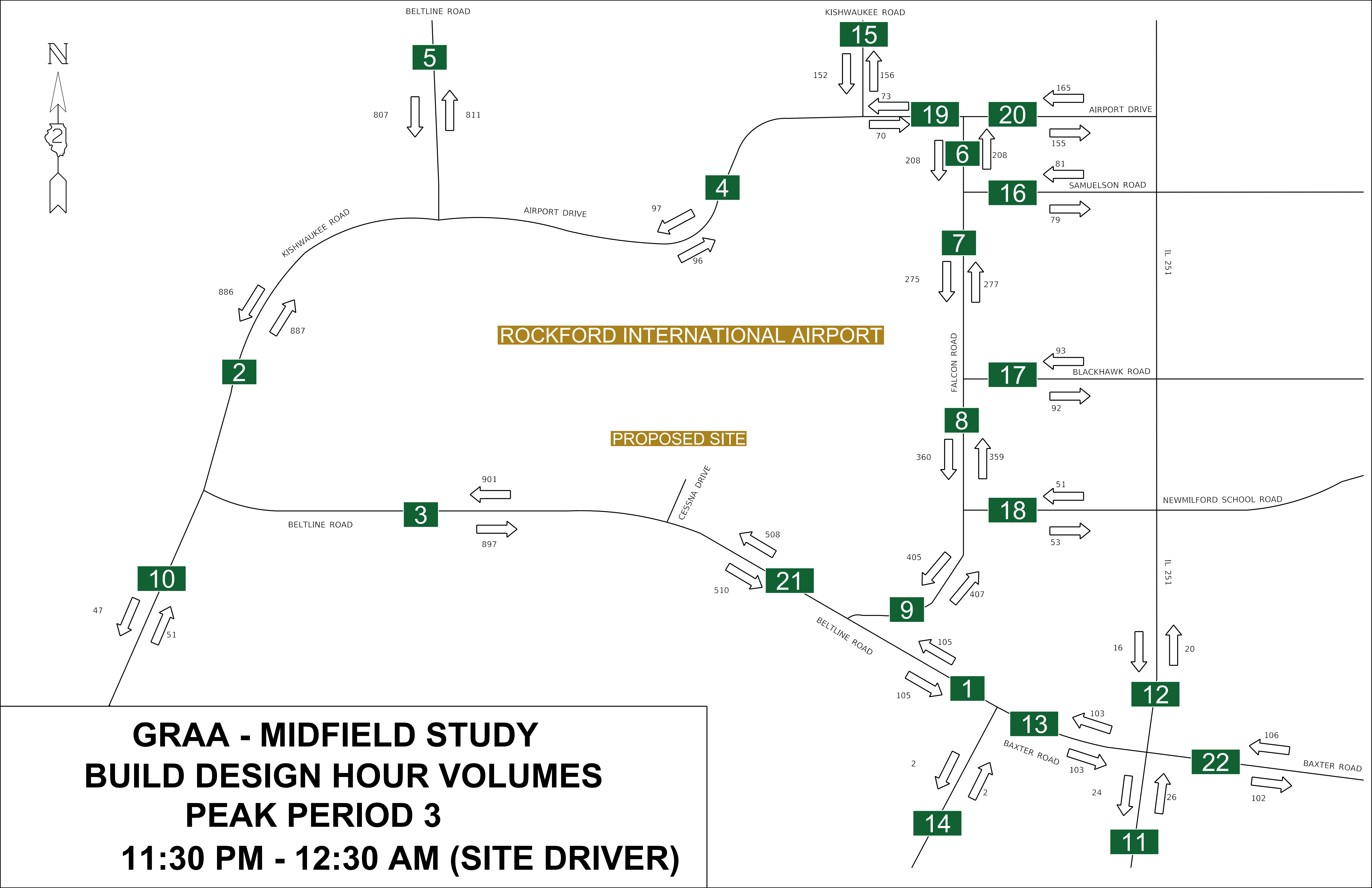
GRAA - MIDFIELD STUDY
BUILD DESIGN HOUR VOLUMES
PEAK PERIOD 1
7:30 AM - 8:30 AM (SITE DRIVER)



GRAA - MIDFIELD STUDY
BUILD DESIGN HOUR VOLUMES
PEAK PERIOD 2
3:30 PM - 4:30 PM (SITE DRIVER)

GRAA - MIDFIELD STUDY
BUILD DESIGN HOUR VOLUMES
PM PEAK PERIOD
4:00 PM - 5:00 PM





GRAA - MIDFIELD STUDY
BUILD DESIGN HOUR VOLUMES
PEAK PERIOD 3
11:30 PM - 12:30 AM (SITE DRIVER)

Appendix C

Conceptual Intersection Designs

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PLOT SCALE = 200.0000 '/ in.
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DESIGNED - CMC
DRAWN - JJM
CHECKED - BW
DATE - 12/12/2018

REVISED -
REVISED -
REVISED -
REVISED -

GREATER ROCKFORD INTERNATIONAL AIRPORT
GRAA – MIDFIELD STUDY

EXHIBIT 1
BELTLINE ROAD AT KISHWAUKEE ROAD – SIGNALIZED

SCALE:
SHEET OF SHEETS
STA. TO STA.

F.A. RTE.	PROJECT	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO.		

ILLINOIS FED. AID PROJECT

CMT

License No. 184-000613

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GREATER ROCKFORD INTERNATIONAL AIRPORT
GRAA – MIDFIELD STUDY

EXHIBIT 2
BELTLINE ROAD AT EMPLOYEE ENTRANCE – SIGNALIZED

SCALE: SHEET OF SHEETS STA. TO STA.

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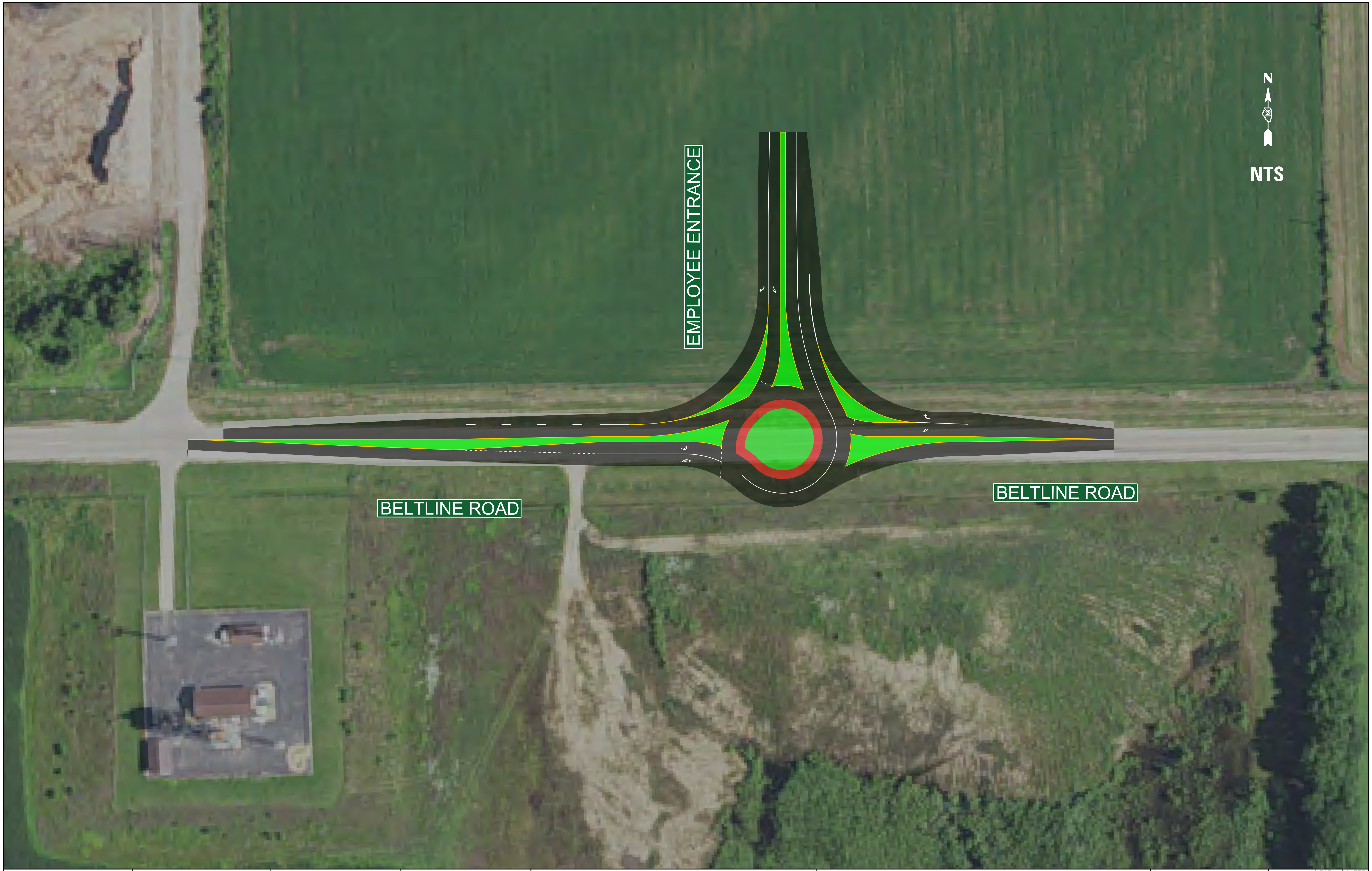
CONTRACT NO.

ILLINOIS FED. AID PROJECT



CMT

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GREATER ROCKFORD INTERNATIONAL AIRPORT
GRAA – MIDFIELD STUDY

EXHIBIT 3
BELTLINE ROAD AT EMPLOYEE ENTRANCE – MULTILANE ROUNDABOUT

SCALE: SHEET OF SHEETS STA. TO STA.

F.A. RTE.	PROJECT	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO.

ILLINOIS FED. AID PROJECT

CMT

License No. 184-000613

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CHECKED	- BW	REVISED	-
DATE	- 12/12/2018	REVISED	-

GREATER ROCKFORD INTERNATIONAL AIRPORT
GRAA – MIDFIELD STUDY

EXHIBIT 4
BELTLINE ROAD AT CESSNA DRIVE – SIGNALIZED

SCALE: SHEET OF SHEETS STA. TO STA.

F.A. RTE.	PROJECT	COUNTY	TOTAL SHEETS	SHEET NO.
	18025804.08	WINNEBAGO		

CONTRACT NO.

ILLINOIS FED. AID PROJECT

CMT
License No. 184-000613

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DRAWN - JJM
CHECKED - BW
DATE - 12/12/2018

REVISED -
REVISED -
REVISED -
REVISED -

GREATER ROCKFORD INTERNATIONAL AIRPORT
GRAA – MIDFIELD STUDY

EXHIBIT 5
BELTLINE ROAD AT CESSNA DRIVE – SINGLE LANE ROUNDABOUT

SCALE: SHEET OF SHEETS STA. TO STA.

F.A. RTE.	PROJECT	COUNTY	TOTAL SHEETS	SHEET NO.
	18025804.08	WINNEBAGO		
		CONTRACT NO.		

ILLINOIS FED. AID PROJECT

Appendix D

AIR QUALITY TECHNICAL REPORT

`

Northwest and Midfield Air Cargo Development Air Quality Technical Report

Chicago Rockford International Airport

Draft – April 2019

PREPARED FOR
Crawford, Murphy & Tilly
Greater Rockford Airport Authority

PRESENTED BY
Landrum & Brown, Incorporated

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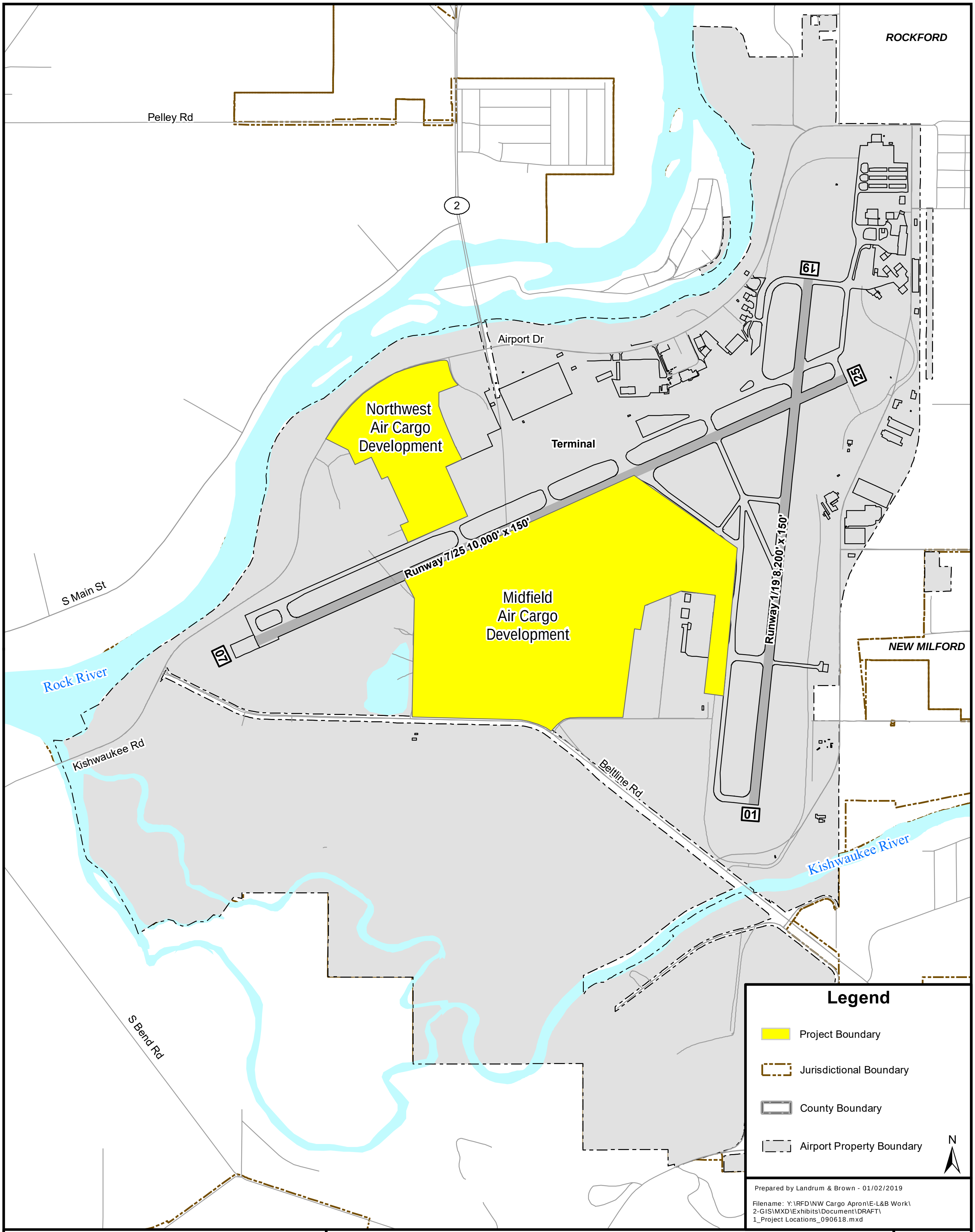
1 Introduction

The purpose of this Air Quality Technical Report is to provide supporting documentation for the Environmental Assessment (EA) being prepared for the Proposed Northwest and Midfield Air Cargo Development projects at the Chicago Rockford International Airport (RFD or Airport).

1.1 Description of Proposed Action

If approved by the FAA, the Proposed Action would be constructed over the course of three years starting in 2019 with a completion date in 2023. The project includes additional development of two areas on the airport property, the Northwest Air Cargo Development and Midfield Air Cargo Development. The two development areas are shown in **Figure 1**. Below is a summary of the planned development for each area:

- Northwest Air Cargo Development
  - Additional apron space to accommodate up to 10 aircraft
  - Additional truck parking
  - Access road
  - Stormwater management
- Midfield Air Cargo Development
  - Sortation building, ground support equipment building and storage building
  - Additional apron space to accommodate up to 12 aircraft
  - Additional taxiways
  - Employee and truck parking
  - Access roads
  - Stormwater management



Prepared by Landrum & Brown - 01/02/2019

Filename: Y:\RFD\NW Cargo Apron\E-L&B Work\
2-GIS\MXD\Exhibits\Document\DRAFT\
1_Project Locations_090618.mxd

NW & Midfield
Cargo Development
Chicago Rockford
International Airport

Project Locations

FIGURE:
1
DRAFT

2 Affected Environment

2.1 Regulatory Setting

An airport air quality assessment requires consideration under both the Clean Air Act of 1970, as Amended (CAA), and the National Environmental Policy Act of 1969, as Amended (NEPA). These two federal laws require distinct analyses and may be separately applicable to an airport project.

The CAA establishes standards and programs to evaluate, achieve, and maintain acceptable air quality in the United States. In accordance with CAA requirements, the United States Environmental Protection Agency (EPA) established the National Ambient Air Quality Standards (NAAQS), for six common air pollutants (known as “criteria air pollutants”) that are potentially harmful to human health and welfare.1

The EPA considers the presence of the following six criteria pollutants to be indicators of air quality:

- Carbon monoxide (CO);
- Nitrogen dioxide (NO_2);
- Ground-level Ozone (O_3);
- Sulfur dioxide (SO_2);
- Particulate matter (PM_{10} and $PM_{2.5}$);[2] and,
- Lead (Pb);[3]

Since 1975, lead emissions have been in decline due in part to the introduction of catalyst-equipped vehicles and the decline in production of leaded gasoline. In general, an analysis of lead is limited to projects that emit significant quantities of the pollutant (e.g., lead smelters) and is generally not applied to transportation projects. For lead, a major source, as defined by EPA for a Nonattainment New Source Review permitting program, would be emitting over 100 tons per year. Lead emissions from piston driven aircraft at RFD would be considerably lower, therefore an analysis of lead is not included in this emissions inventory.

The NAAQS are summarized in **Table 1**. For each of the criteria pollutants, the EPA established primary standards intended to protect public health, and secondary standards for the protection of other aspects of public welfare, such as preventing materials damage, preventing crop and vegetation damage, and assuring good visibility. Areas of the country where air pollution levels consistently exceed these standards may be designated nonattainment by the EPA.

A nonattainment area is a homogeneous geographical area (usually referred to as an air quality control region) that is in violation of one or more NAAQS and has been designated as nonattainment by the EPA as provided for under the CAA.

A maintenance area describes the air quality designation of an area previously designated nonattainment by the EPA and subsequently redesignated attainment after emissions are reduced. Such an area remains designated as maintenance for a period up to 20 years at which time the state can apply for redesignation to attainment, provided that the NAAQS were sufficiently maintained throughout the maintenance period. Some regulatory provisions, for instance the CAA conformity regulations, apply only to areas designated as nonattainment or maintenance.

---

[1] EPA, 40 C.F.R. § 50, National Primary and Secondary Ambient Air Quality Standards (NAAQS).

[2] PM_{10} and $PM_{2.5}$ are airborne inhalable particles that are less than ten micrometers (coarse particles) and less than 2.5 micrometers (fine particles) in diameter, respectively

[3] Airborne lead in urban areas is primarily emitted by vehicles using leaded fuels.

Table 1 NATIONAL AMBIENT AIR QUALITY STANDARDS

POLLUTANT		PRIMARY/ SECONDARY	AVERAGING TIME	LEVEL	FORM
Carbon Monoxide		primary	8 hour	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead		primary and secondary	Rolling 3-month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone		primary and secondary	8 hour	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particulate Matter	PM$_{2.5}$	primary	1 year	12.0 µg/m^3	Annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m^3	Annual mean, averaged over 3 years
		primary and secondary	24 hour	35 µg/m^3	98th percentile, averaged over 3 years
	PM$_{10}$	primary and secondary	24 hour	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide		primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hour	0.5 ppm	Not to be exceeded more than once per year

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

(2) The level of the annual NO2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO2 standards or is not meeting the requirements of a SIP call under the previous SO2 standards (40 CFR 50.4(3)).

Notes: ppm is parts per million; ppb is parts per billion, and µg/m3 is micrograms per cubic meter.

Source: EPA, https://www.epa.gov/criteria-air-pollutants/naaqs-table Accessed May 2018

2.1.1 General Conformity

The General Conformity Rule under the CAA is conducted in three phases: (1) applicability, (2) evaluation, and (3) determination. The General Conformity Rule establishes minimum values, referred to as the *de minimis* thresholds, for the criteria and precursor pollutants[4] for the purpose of:

- Identifying Federal actions with project-related emissions that are clearly negligible (*de minimis*);
- Avoiding unreasonable administrative burdens on the sponsoring agency, and;
- Focusing efforts on key actions that would have potential for significant air quality impacts.

The *de minimis* rates vary depending on the severity of the nonattainment area and further depend on whether the general Federal action is located inside an ozone transport region[5]. An evaluation relative to the General Conformity Rule (the Rule), published under 40 CFR Part 93,[6] is applicable to general Federal actions that would cause emissions of the criteria or precursor pollutants, and are:

- Federally-funded or Federally-approved;
- Not a highway or transit project;[7]
- Not identified as an exempt project[8] under the CAA;
- Not a project identified on the approving Federal agency's Presumed to Conform list;[9] and,
- Located within a nonattainment or maintenance area.

When the action requires evaluation under the General Conformity regulations, the net total direct and indirect emissions due to the Federal action may not equal or exceed the relevant de minimis thresholds unless:

- An analytical demonstration is provided that shows the emissions would not exceed the NAAQS; or
- Net emissions are accounted for in the State Implementation Plan (SIP) planning emissions budget; or
- Net emissions are otherwise accounted for by applying a solution prescribed under 40 CFR Part 93.158.

The Federal *de minimis* thresholds established under the CAA are given in **Table 2**. Conformity to the *de minimis* thresholds is relevant only with regard to those pollutants and the precursor pollutants for which the area is nonattainment or maintenance. Notably, there are no de minimis thresholds to which a Federal agency would compare ozone emissions. This is because ozone is not directly emitted from a source. Rather, ozone is formed through photochemical reactions involving emissions of the precursor pollutants, nitrogen oxides (NO_x) and volatile organic compounds (VOC), in the presence of abundant sunlight and heat. Therefore, emissions of ozone on a project level are evaluated based on the rate of emissions of the ozone precursor pollutants, NO_x and VOC.

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[4] Precursor pollutants are pollutants that are involved in the chemical reactions that form the resultant pollutant. Ozone precursor pollutants are NOx and VOC, whereas PM2.5 precursor pollutants include NOx, VOC, SO2, and ammonia (NH3)

[5] The ozone transport region is a single transport region for ozone (within the meaning of Section 176A(a) of the CAA), comprised of the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and the Consolidated Metropolitan Statistical Area that includes the District of Columbia, as given at Section 184 of the CAA.

[6] EPA, 40 C.F.R. Part 93, Subpart B, Determining Conformity of General Federal Actions to State or Federal Implementation Plans, July 1, 2006.

[7] Highway and transit projects are defined under Title 23 United States Code and the Federal Transit Act.

[8] The Proposed Project is not listed as an action exempt from a conformity determination pursuant to 40 C.F.R. § 93.153(c). An exempt project is one that the EPA has determined would clearly have no impact on air quality at the facility, and any net increase in emissions would be so small as to be considered negligible.

[9] The provisions of the CAA allow a Federal agency to submit a list of actions demonstrated to have low emissions that would have no potential to cause an exceedance of the NAAQS and are presumed to conform to the CAA conformity regulations. This list would be referred to as the "Presumed to Conform" list. The FAA Presumed to Conform list was published in the Federal Register on February 12, 2007 (72 FR 6641-6656) and includes airport projects that would not require evaluation under the General Conformity regulations

Table 2 FEDERAL DE MINIMIS THRESHOLDS

CRITERIA AND PRECURSOR POLLUTANTS	TYPE AND SEVERITY OF NONATTAINMENT AREA	TONS PER YEAR THRESHOLD
Ozone (VOC or NO_x)[1]	Serious nonattainment	50
	Severe nonattainment	25
	Extreme nonattainment	10
	Other areas outside an ozone transport region	100
Ozone (NO_x)[1]	Marginal and moderate nonattainment inside an ozone transport regions[2]	100
	Maintenance	100
Ozone (VOC)[1]	Marginal and moderate nonattainment inside an ozone transport region[2]	50
	Maintenance within an ozone transport region[2]	50
	Maintenance outside an ozone transport region[2]	100
Carbon monoxide (CO)	All nonattainment & maintenance	100
Sulfur dioxide (SO_2)	All nonattainment & maintenance	100
Nitrogen dioxide (NO_2)	All nonattainment & maintenance	100
Coarse particulate matter (PM_{10})	Serious nonattainment	70
	Moderate nonattainment and maintenance	100
Fine particulate matter ($PM_{2.5}$) (VOC, NO_x, NH_3, and SO_x)[3]	All nonattainment and maintenance	100
Lead (Pb)	All nonattainment and maintenance	25

[1] The rate of increase of ozone emissions is not evaluated for a project-level environmental review because the formation of ozone occurs on a regional level and is the result of the photochemical reaction of NO_X and VOC in the presence of abundant sunlight and heat. Therefore, USEPA considers the increasing rates of NO_X and VOC emissions to reflect the likelihood of ozone formation on a project level.

[2] An OTR is a single transport region for ozone, comprised of the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and the Consolidated Metropolitan Statistical Area that includes the District of Columbia.

[3] For the purposes of General Conformity applicability, VOCs and NH_3 emissions are only considered $PM_{2.5}$ precursors in nonattainment areas where either a State or USEPA has made a finding that the pollutants significantly contribute to the $PM_{2.5}$ problem in the area. In addition, NO_X emissions are always considered a $PM_{2.5}$ precursor unless the State and USEPA make a finding that NO_X emissions from sources in the State do not significantly contribute to $PM_{2.5}$ in the area. Refer to 74 FR 17003, April 5, 2006.

Notes: Code of Federal Regulations (CFR), Title 40, Protection of the Environment.
USEPA defines de minimis as emissions that are so low as to be considered insignificant and negligible. Volatile organic compounds (VOC); Nitrogen oxides (NOx); Ammonia (NH3); Sulfur oxides (SO_X).

Sources: USEPA, 40 CFR Part 93.153(b)(1) & (2).

2.1.2 Transportation Conformity

Although airport improvement projects are usually considered under the General Conformity regulations, there can be elements of a Federal action or its alternatives that may require an analysis to demonstrate Transportation Conformity, such as actions relating to transportation plans, programs, projects developed, funded, or approved under Title 23 United States Code (U.S.C.) or the Federal Transit Act (FTA), or involve Federal highways. In such cases, the sponsoring Federal agency would be required to coordinate with the Federal Highway Administration (FHWA), the state Department of Transportation (DOT), and the local metropolitan planning organization (MPO) to assist in completing a Transportation Conformity evaluation.

As with General Conformity, Transportation Conformity regulations apply only to Federal actions located within a nonattainment or maintenance area. The Proposed Action under consideration at RFD would not be developed, funded, or approved by the FHWA or FTA. Therefore, the Transportation Conformity regulations would not apply.

2.1.3 Indirect Source Review

Some states require an air quality review when a Federal action has the potential to cause an increase in net emissions from indirect sources. Indirect sources cause emissions that occur later in time or are farther removed from the Federal action. Depending on the state, indirect sources may be identified as motor vehicles on highways, parking at sports and entertainment facilities, or an increase in aircraft operations. The state requirement may be referred to as the indirect source review (ISR) and each state requiring an ISR sets thresholds for increased operation of the indirect sources. When a Federal action has the potential to exceed these thresholds, an air quality review is required to assess the character and impact of the additional emissions and determine whether a permit is required, which is separate from the analyses required under NEPA or the CAA. According to FAA, Air Quality Procedures for Civilian Airports and Air Force Bases,[10] Illinois does not require an ISR.

2.2 Winnebago County Air Quality Status

RFD is located in Winnebago County, Illinois which is included in the Rockford-Janesville-Beloit Interstate Air Quality Control Region.[11] Winnebago County is in attainment of the applicable NAAQS for the criteria pollutants established by the USEPA. Because the County is not designated a non-attainment or maintenance area for any of the criteria pollutants established by the EPA, a General Conformity evaluation under the CAA is not required. However, under NEPA the FAA, as a Federal agency, is required to establish if the Proposed Action would cause either direct or reasonably foreseeable indirect emissions. If there is the potential for emissions the FAA requires a comparison of project emissions to the NAAQS. The FAA does allow comparison to the Federal de minimis thresholds to limit the NAAQS comparison assessment to only those airports with the potential to exceed the NAAQS.

Therefore, if this air quality assessment were to show that any of the de minimis thresholds were equaled or exceeded due to the Proposed Action, further, more detailed analysis including dispersion analysis to demonstrate compliance with the NAAQS would be required. Conversely, if the air quality assessment were to show that none of the de minimis thresholds were equaled or exceeded, the Proposed Action at RFD would be assumed not to create any new violation of the NAAQS, delay the attainment of any NAAQS, nor increase the frequency or severity of any existing violations of the NAAQS and no further analysis would be required under the CAA or NEPA.

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[10] FAA, Air Quality Procedures for Civilian Airports and Air Force Bases, Appendix J, April 1997.

[11] USEPA, 40 CFR Part 81, Section 81.7114, Rockford-Janesville-Beloit *Air Quality Control Region*, data current as of July 1st, 2002.

2.3 Air Quality Monitoring in Region

The Illinois Environmental Protection Agency established an air monitoring network around the state that measures air pollution.[12] The two air quality monitoring stations closest to the Airport are located at the Health Department in Rockford, IL and Maple Elementary School in Loves Park, IL. The Rockford station primarily monitors for the pollutant $PM_{2.5}$ while the Loves Park station monitors for the pollutant's ozone and $PM_{2.5}$. Data from these monitors indicate if the air quality exceeds the pollutant standard. There were no exceedances of any of the $PM_{2.5}$ and ozone standards at either of the air quality monitoring stations in 2017. The locations of the monitoring stations are shown in **Figure 2**.

2.4 Modeling Methodology

The primary sources of air emissions accounted for in the inventory data presented in this report are derived from construction and operational activities. The following software were used to develop the emissions inventory attributed to the No Action and Proposed Action alternatives.

Airport Construction Emissions Inventory Tool

The Airport Construction Emissions Inventory Tool (ACEIT) was developed by the Transportation Research Board (TRB) to assist airports and other stakeholders in developing airport construction emissions inventories. The ACEIT[13] was used to estimate emissions resulting from construction activities attributed to the Proposed Action.

Airport Environmental Design Tool Version 2d

The Airport Environmental Design Tool (AEDT) Version 2d is now the FAA's preferred software system that models aircraft performance in space and time to estimate fuel consumption, emissions, noise, and air quality consequences at airports. The AEDT[14] was used to estimate operational activity emissions resulting from aircraft, auxiliary power units (APUs), ground support equipment (GSE), and stationary sources.

Motor Vehicle Emissions Simulator

The USEPA's Motor Vehicle Emissions Simulator (MOVES) is an emission modeling system that estimates emissions for mobile sources at the national, county, and project level for criteria air pollutants, greenhouse gases, and air toxics. MOVES was used to estimate operational activity emissions resulting from ground access vehicles (GAVs).

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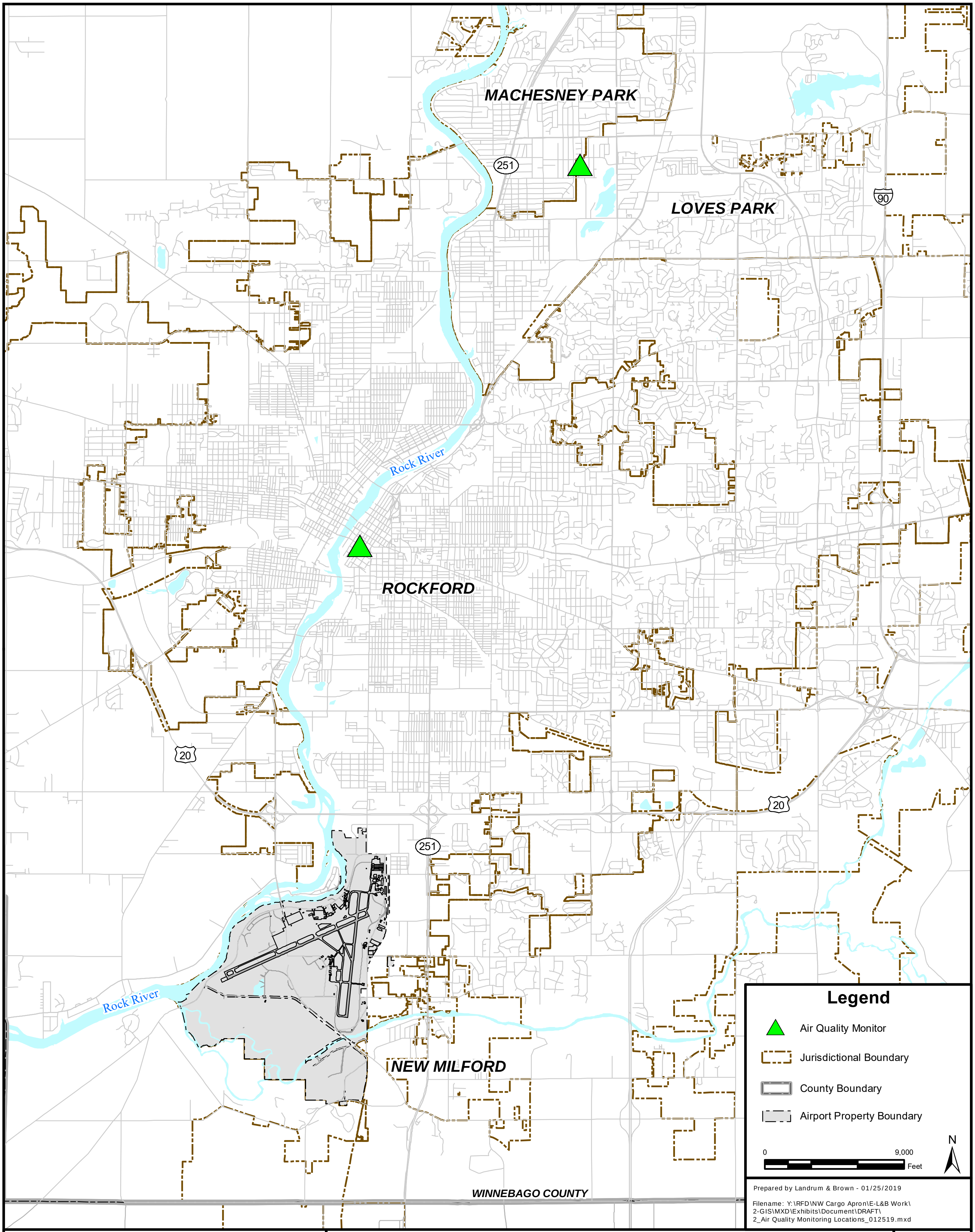
[12] 2017 Air quality Report, Illinois Environmental Protection Agency, 2017. Available on-line: https://www2.illinois.gov/epa/topics/air-quality/air-quality-reports/Documents/2017%20Annual%20Air%20Quality%20Report%20Final.pdf

[13] *ACEIT uses emission factors from the USEPA's Motor Vehicle Emissions Simulator (MOVES) and NONROAD modeling programs to estimate emissions resulting from construction activities. While ACEIT is not mentioned in Section 6.1.4 of the Aviation Emissions and Air Quality Handbook, Version 3, the Handbook recommends the use of MOVES and NONROAD emission factors to estimate emissions from construction activities. Furthermore, FAA Order 1050.1F, Paragraph 4-2.b allows the use of supplemental models for analysis of non-aviation sources "with prior approval."*

[14] Because this study began in April 2018, the use of AEDT 2d is in accordance with FAA policies. Specifically, "all FAA actions requiring noise, fuel burn or emissions modeling and for which the environmental analysis process has begun on or after September 27, 2017 are required to use AEDT 2d." Available on-line: https://aedt.faa.gov/2d_information.aspx Accessed May 2018.



Prepared by Landrum & Brown - 01/25/2019

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NW & Midfield
Cargo Development
Chicago Rockford
International Airport

Air Quality Monitoring Locations

FIGURE:
2
DRAFT

3 Environmental Consequences

This section presents the analysis of the No Action and Proposed Action to determine if the implementation of the Proposed Action would cause either direct or reasonably foreseeable indirect emissions. If there is the potential for emissions the FAA requires a comparison of project emissions to the NAAQS. The FAA does allow comparison to the Federal de minimis thresholds to limit the NAAQS comparison assessment to only those airports with the potential to exceed the NAAQS.

3.1 Construction Activities

Temporary impacts would result from construction activities associated with the Proposed Action. Air pollutants would be emitted by construction equipment and fugitive dust generated during construction of the proposed developments as well as during clearing and grading of the site. The Northwest Air Cargo Development and Midfield Air Cargo Development are anticipated to be completed and operational by 2023.

Construction estimates (including phase durations and estimated quantities) for the Proposed Action were based on the preliminary engineering data provided by the air cargo service provider. The construction phasing plans identified multiple phases proposed to occur over 4 years, beginning in 2019. The Proposed Action construction phases, elements, and estimated footprints are detailed in **Table 3**.

Table 3 PROPOSED ACTION CONSTRUCTION ACTIVITIES

PHASE	ACTIVITY	DURATION (MONTHS)	DIMENSIONS	UNIT
Northwest Air Cargo Development				
1	Clearing & Site Grading	5	17.2	acres
2	Service Road Construction	3	3,200	square feet
3	Apron Construction	22	31.2	acres
4	Parking Lot Construction	3	3.7	acres
5	Detention Area Construction	3	1.2	acres
6	Existing Glycol Containment Area Modification	3	7.6	acres
Midfield Air Cargo Development				
1	Clearing and Site Grading	5	96.3	acres
1	Building Construction	36	1,130,000	square feet
1	Ramp Construction	8	16.8	acres
1	Taxi Lane Construction	5	15	acres
1	Service Road Construction	6	700,000	square feet
1	Employee Parking Construction	6	30	acres
1	Detention Area Construction	6	18	acres

Source: Air cargo service provider, 2018; Landrum & Brown analysis, 2019.

A construction emissions inventory was prepared to reflect the use of construction equipment and vehicles attributed to the Proposed Action. Construction equipment and total hours of use, load factors and horsepower attributes for each construction activity were developed based on the dimensions for each development area in ACEIT.

The annual construction emissions inventory is provided in **Table 4**.

Table 4 CONSTRUCTION EMISSIONS PROPOSED ACTION

ACTIVITY / YEAR	ANNUAL EMISSIONS (SHORT TONS)					
	CO	VOC	NO_X	SO_X	$PM_{2.5}$	PM_{10}
Federal *de minimis* threshold	100	100	100	100	100	100
Construction – 2019	10.1	1.7	6.0	0.02	0.4	2.0
Construction – 2020	23.1	3.2	13.9	0.07	0.7	3.8
Construction – 2021	28.5	5.1	19.4	0.1	1.0	7.4
Construction – 2022	4.9	0.2	0.3	0.01	0.01	0.3

Note: Numbers may not sum due to rounding.
Source: Landrum & Brown analysis, 2019.

As shown in **Table 4**, there are no exceedances of the established *de minimis* threshold throughout the years of construction. Construction of the Proposed Action would result in the highest emissions during the second and third construction years in 2020 and 2021 when a majority of the building construction, apron construction, pavement placement, and rough grading would take place. This can be attributed to the Northwest Air Cargo Development and Midfield Air Cargo Development construction activities occurring simultaneously.

3.1.1 Best Management Practices

While the annual emissions from construction equipment would not equal or exceed the applicable *de minimis* thresholds defining insignificant and negligible emissions, the Proposed Action would result in a short-term increase of airborne fugitive dust emissions from vehicle movement and soil excavation in and around the construction site. All possible best management practices should be taken to reduce fugitive dust emissions by adhering to guidelines included in FAA Advisory Circular (AC), *Standards for Specifying Construction of Airports*.[15]

Methods of controlling dust and other airborne particles include, but not be limited to, the following:

- Exposing the minimum area of erodible earth;
- Applying temporary mulch with or without seeding;
- Using water sprinkler trucks;
- Using covered haul trucks;
- Using dust palliatives or penetration asphalt on haul roads; and,
- Using plastic sheet coverings.

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[15] FAA Advisory Circular (AC),150/5370-10H, Standards for Specifying Construction of Airports, December 21, 2018.

3.2 Operational Activities

This section presents the analysis of operational air quality emissions from the implementation of the Proposed Action in 2023 compared to the No Action in 2023. The year 2023 is used as a basis for analysis because 2023 is the projected implementation year of the proposed air cargo facility developments.

3.2.1 Future (2023) No Action

3.2.1.1 Emissions Sources

This section discusses the methodology and the emission inventory for the Future (2023) No Action Alternative. The Airport Environmental Design Tool (AEDT) Version 2d was used to estimate operational activity emissions resulting from aircraft, auxiliary power units (APUs), and ground support equipment (GSE). Since the No Action condition does not require the construction and operation of new facilities, only aircraft operations and associated support operations were modeled.

3.2.1.2 Aircraft

The number and type of aircraft operations directly affect emissions. Under the Future (2023) No Action Alternative, the Airport would accommodate approximately 51,138 annual aircraft operations. **Table 5** provides the annual aircraft operations by aircraft type for the Future (2023) No Action Alternative.

Table 5 TOTAL ANNUAL AIRCRAFT OPERATIONS WITH REPRESENTATIVE AIRCRAFT AND ENGINE COMBINATIONS – FUTURE (2023) NO ACTION ALTERNATIVE

REPRESENTATIVE AIRCRAFT TYPE	ENGINE MODEL	ANNUAL OPERATIONS
Cargo		
Airbus A300F4-600 Series	PW4x58	4,701
Boeing 737-800 Series	CFM56-7B26/2	1,348
Boeing 747-800 Freighter	CF6-80C2B1F	905
Boeing 757-200 Series	PW2037	5,606
Boeing 767-200 Series	CF6-80C2A5	110
Boeing 767-300 ER Freighter	CF6-80C2B6	5,818
Boeing MD-11 Freighter	PW4460	905
Bombardier Learjet 35A/36A (C-21A)	TFE731-2/2A	54
Dassault Falcon 20-C	CF700-2D	18
DeHavilland DHC-6-200 Twin Otter	PT6A-27	315
Commercial		
Airbus A319-100 Series	V2522-A5	22
Airbus A320-200 Series	CFM56-5-A1	3,480
Boeing 737-700 Series	CFM56-7B24	37
Boeing 737-800 Series	CFM56-7B26/2	102

REPRESENTATIVE AIRCRAFT TYPE	ENGINE MODEL	ANNUAL OPERATIONS
Boeing 757-300 Series	RB211-535E4B	18
General Aviation Jets		
Bombardier Challenger 600	ALF 502L-2	634
Bombardier Learjet 35A/36A (C-21A)	TFE731-2/2A	2,759
Cessna 500 Citation I	JT15D-4series	506
Cessna 525 CitationJet	PW4090	929
Cessna 550 Citation II	PW530	496
Cessna 560 Citation V	PW530	257
Cessna 560 Citation XLS	BIZMEDIUMJET_F	414
Cessna 680 Citation Sovereign	BIZMEDIUMJET_F	211
Cessna 750 Citation X	AE3007C1	129
Eclipse 500 / PW610F	PW610F-A	1,232
Embraer ERJ145	AE3007A1/1	138
Gulfstream G550	BR700-710A1-10	129
General Aviation Props		
Britten-Norman BN-2 Islander	250B17B	211
Cessna 172 Skyhawk	TSIO-360C	3,109
Cessna 182	IO-360-B	809
Cessna 206	TIO-540-J2B2	110
Cessna 441 Conquest II	TPE331-8	2,464
DeHavilland DHC-6-200 Twin Otter	PT6A-27	680
Hawker HS748-1	DART 514	1,710
Piper PA-24 Comanche	TIO-540-J2B2	5,259
Piper PA-28 Cherokee Series	IO-320-D1AD	1,260
Piper PA-30 Twin Comanche	IO-320-D1AD	496
Raytheon Beech 1900-D	PT6A-67D	129
Raytheon Beech Baron 58	TIO-540-J2B2	1,526
Raytheon Beechjet 400	JT15D-5, -5A, -5B	432
Military		
Boeing KC-135 Stratotanker	F108-CF-100	246
Bombardier de Havilland Dash 8 Q400	PW150A	105
Bombardier Learjet 35A/36A (C-21A)	TFE731-2/2A	105
DeHavilland DHC-6-200 Twin Otter	PT6A-27	123

REPRESENTATIVE AIRCRAFT TYPE	ENGINE MODEL	ANNUAL OPERATIONS
Embraer ERJ190	CF34-10E6A1	141
Lockheed C-130 Hercules	T56-A-15	159
MRJ90	CF34-10E5	175
Piper PA-24 Comanche	TIO-540-J2B2	193
Raytheon Beechjet 400	JT15D-5, -5A, -5B	105
T-38 Talon	J85-GE-5H (w/AB)	316
Total Annual Aircraft Operations		**51,138**

Source: Forecast Working Paper, 2018, Landrum & Brown analysis, 2018.

3.2.1.3 *APUs*

Some aircraft use APUs while parked to operate the heating, air conditioning, and electric systems. The APU can also be used to ‘start up’ or restart the aircraft engines before departing. APU usage causes emissions and is under the control of the pilot; therefore, APU use and emissions can vary greatly from one aircraft to another. AEDT defaults were used to model APU usage by aircraft at the Airport.

3.2.1.4 *GSE*

Typical GSE includes air conditioning, air start, baggage tractors, and belt loaders, which support airport operations. The annual GSE usage under the Future (2023) No Action Alternative was estimated based on the aircraft activity level. Default GSE for each aircraft type and operation were modeled in AEDT.

3.2.1.5 *Emissions Inventory*

The operational emissions inventory for the Future (2023) No Action Alternative is provided in **Table 6**.

Table 6 OPERATIONAL EMISSIONS INVENTORY – FUTURE (2023) NO ACTION ALTERNATIVE

SOURCE	ANNUAL EMISSIONS (SHORT TONS PER YEAR)					
	CO	VOC	NO_X	SO_X	$PM_{2.5}$	PM_{10}
Aircraft	282.1	61.9	201.7	17.1	1.5	1.5
APUs	1.9	0.2	4.3	0.4	0.4	0.4
GSE	19.2	0.8	2.2	0.2	0.1	0.1
Total	**303.2**	**63.0**	**208.2**	**17.6**	**2.0**	**2.0**

Note: Numbers may not sum due to rounding.
Source: Landrum & Brown analysis, 2019.

3.2.2 Future (2023) Proposed Action

3.2.2.1 Emissions Sources

This section discusses the methodology and the emission inventory for the Future (2023) Proposed Action Alternative. The AEDT was used to estimate operational activity emissions resulting from aircraft, APUs, and GSE. Additionally, ground access vehicles were modeled in the Proposed Action as the project includes the construction and operation of new facilities.

3.2.2.2 Aircraft

As a result of implementing the Proposed Action, it is anticipated that there would be an increase in the number of aircraft operating at RFD over the No Action. Under the Future (2023) Proposed Action Alternative, the Airport would accommodate approximately 56,654 annual aircraft operations. **Table 7** provides the annual aircraft operations by aircraft type for the Future (2023) Proposed Action Alternative.

Table 7 TOTAL ANNUAL AIRCRAFT OPERATIONS WITH REPRESENTATIVE AIRCRAFT AND ENGINE COMBINATIONS – FUTURE (2023) PROPOSED ACTION ALTERNATIVE

REPRESENTATIVE AIRCRAFT TYPE	ENGINE MODEL	ANNUAL OPERATIONS
Cargo		
Airbus A300F4-600 Series	PW4x58	6,078
Boeing 737-800 Series	CFM56-7B26/2	1,711
Boeing 747-800 Freighter	CF6-80C2B1F	1,134
Boeing 757-200 Series	PW2037	7,256
Boeing 767-200 Series	CF6-80C2A5	64
Boeing 767-300 ER Freighter	CF6-80C2B6	7,532
Boeing MD-11 Freighter	PW4460	1,134
Bombardier Learjet 35A/36A (C-21A)	TFE731-2/2A	54
Dassault Falcon 20-C	CF700-2D	18
DeHavilland DHC-6-200 Twin Otter	PT6A-27	315
Commercial		
Airbus A319-100 Series	V2522-A5	22
Airbus A320-200 Series	CFM56-5-A1	3,480
Boeing 737-700 Series	CFM56-7B24	37
Boeing 737-800 Series	CFM56-7B26/2	102
Boeing 757-300 Series	RB211-535E4B	18
General Aviation Jets		
Bombardier Challenger 600	ALF 502L-2	634
Bombardier Learjet 35A/36A (C-21A)	TFE731-2/2A	2,759

REPRESENTATIVE AIRCRAFT TYPE	ENGINE MODEL	ANNUAL OPERATIONS
Cessna 500 Citation I	JT15D-4series	506
Cessna 525 CitationJet	PW4090	929
Cessna 550 Citation II	PW530	496
Cessna 560 Citation V	PW530	257
Cessna 560 Citation XLS	BIZMEDIUMJET_F	414
Cessna 680 Citation Sovereign	BIZMEDIUMJET_F	211
Cessna 750 Citation X	AE3007C1	129
Eclipse 500 / PW610F	PW610F-A	1,232
Embraer ERJ145	AE3007A1/1	138
Gulfstream G550	BR700-710A1-10	129
General Aviation Props		
Britten-Norman BN-2 Islander	250B17B	211
Cessna 172 Skyhawk	TSIO-360C	3,109
Cessna 182	IO-360-B	809
Cessna 206	TIO-540-J2B2	110
Cessna 441 Conquest II	TPE331-8	2,464
DeHavilland DHC-6-200 Twin Otter	PT6A-27	680
Hawker HS748-1	DART 514	1,710
Piper PA-24 Comanche	TIO-540-J2B2	5,259
Piper PA-28 Cherokee Series	IO-320-D1AD	1,260
Piper PA-30 Twin Comanche	IO-320-D1AD	496
Raytheon Beech 1900-D	PT6A-67D	129
Raytheon Beech Baron 58	TIO-540-J2B2	1,526
Raytheon Beechjet 400	JT15D-5, -5A, -5B	432
Military		
Boeing KC-135 Stratotanker	F108-CF-100	246
Bombardier de Havilland Dash 8 Q400	PW150A	105
Bombardier Learjet 35A/36A (C-21A)	TFE731-2/2A	105
DeHavilland DHC-6-200 Twin Otter	PT6A-27	123
Embraer ERJ190	CF34-10E6A1	141
Lockheed C-130 Hercules	T56-A-15	159
MRJ90	CF34-10E5	175
Piper PA-24 Comanche	TIO-540-J2B2	193

REPRESENTATIVE AIRCRAFT TYPE	ENGINE MODEL	ANNUAL OPERATIONS
Raytheon Beechjet 400	JT15D-5, -5A, -5B	105
T-38 Talon	J85-GE-5H (w/AB)	316
Total Annual Aircraft Operations		**56,654**

Source: Forecast Working Paper, 2018, Landrum & Brown analysis, 2018.

3.2.2.3 APUs

The annual APU usage for the Future (2023) Proposed Action Alternative was estimated based on the aircraft activity level. AEDT defaults were used to model APU usage at the Airport.

3.2.2.4 GSE

The annual GSE usage for the Future (2023) Proposed Action Alternative was estimated based on the aircraft activity level. AEDT defaults were used to model GSE usage at the Airport.

3.2.2.5 GAVs

Mobile sources of air pollution include motor vehicles and other engines and equipment that can be moved from one location to another. Road sources, or GAVs, include vehicles used to transport people and goods.

The Future (2023) Proposed Action Alternative would require ground access vehicles (GAVs), including employee vehicles and delivery trucks, to service the sortation facilities in the Northwest Air Cargo Development and Midfield Air Cargo Development. The Midfield Air Cargo Development is a proposed new development that would require new employee vehicles and delivery trucks. Because the Northwest Cargo Development is an expansion to an existing facility supported by employees, it was assumed that only delivery trucks would be required to support the expansion. The daily GAV activity for the Future (2023) Proposed Action Alternative is provided in **Table 8**.

Table 8 PROPOSED ACTION GAV ACTIVITIES

GAV CATEGORY	VEHICLE TRIPS PER DAY
Northwest Air Cargo Expansion	
Delivery trucks	402
Midfield Air Cargo Development	
Employee vehicles	6,543
Delivery trucks	724

Source: Air cargo service provider, 2019; Landrum & Brown analysis, 2019.

MOVES was used to model the annual emissions for GAVs. The methodology used is consistent with guidance provided by the FAA for developing an emissions inventory for general conformity analysis.[16] Default MOVES inputs specific to Winnebago County were used in this model when available.

For the purpose of this study, GAV activity includes any vehicle activity occurring on Airport property and off Airport property between an Airport entry point to a major roadway. It was assumed that GAVs servicing the Northwest Air Cargo development would travel on Highway 20 via Beltline Road and Kishwaukee Road to access the development. Furthermore, it was assumed that GAVs servicing the Midfield Air Cargo Development would travel on State Route 251 via Blackhawk Road, Falcon Road, and Beltline Road to access the development.

Employee Vehicles

Employee vehicles were modeled as passenger cars and passenger trucks. Approximately 75% of the vehicle population was assigned to gasoline passenger cars and 25% of the vehicle population was assigned to gasoline passenger trucks. It was assumed that half of all employee vehicle trips would depart from (or "start" their engines in) the parking lot once a day.

Delivery Trucks

All delivery trucks were modeled as diesel long-haul combination trucks. It was assumed that half of all delivery truck vehicle trips would depart from (or "start" their engines in) the parking lot once a day and that each delivery truck would idle for approximately 30 minutes after arriving to the proposed development. The estimated idle time was based on the assumption that the proposed development would provide immediate access to loading docks for arriving delivery trucks.

3.2.2.6 Emissions Inventory

The operational emissions inventory for the Future (2023) Proposed Action Alternative is provided in **Table 9**.

Table 9 OPERATIONAL EMISSIONS INVENTORY – FUTURE (2023) PROPOSED ACTION ALTERNATIVE

SOURCE	ANNUAL EMISSIONS (SHORT TONS PER YEAR)					
	CO	VOC	NO_X	SO_X	$PM_{2.5}$	PM_{10}
Aircraft	321.9	70.8	250.7	20.9	1.7	1.7
APUs	2.2	0.2	5.0	0.5	0.5	0.5
GSE	22.7	0.9	2.6	0.2	0.2	0.2
GAVs	45.5	5.9	27.9	0.1	1.1	1.3
Total	**392.3**	**77.8**	**286.2**	**21.7**	**3.5**	**3.7**

Note: 1. Operational activities were modeled under the assumption that the development was operational during 365 days in 2023 to account for the maximum annual operational emissions.
2. Numbers may not sum due to rounding.

Source: Landrum & Brown analysis, 2019.

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[16] FAA, Using MOVES with AEDT, September 27, 2017.

4 Summary of Analysis

The results of the emission inventory prepared for the Future (2023) Proposed Action Alternative were compared to the results of the Future (2023) No Action Alternative of the same future year to disclose the potential increase in emissions caused by the Proposed Action. The comparison of the emission inventories, which included an inventory of construction and operational emissions, were used for this air quality assessment as required under the CAA (including the 1990 Amendments) and NEPA.

Table 10 presents the increase in emissions due to the implementation of the Future (2023) Proposed Action Alternative. As previously stated, general conformity does not apply to this study because Winnebago County is in attainment of the applicable NAAQS for the criteria pollutants established by the USEPA. The net emissions are compared to the *de minimis* thresholds to determine if the Proposed Action has the potential to create any new violation of the NAAQS, delay the attainment of any NAAQS, or increase the frequency or severity of any existing violation of the NAAQS.

Table 10 TOTAL ANNUAL EMISSIONS

SOURCE	ANNUAL EMISSIONS(SHORT TONS PER YEAR)					
	CO	VOC	NO_X	SO_X	$PM_{2.5}$	PM_{10}
***Federal de minimis* threshold**	**100**	**100**	**100**	**100**	**100**	**100**
2019						
Proposed Action – Construction	10.1	1.7	6.0	0.02	0.4	2.0
2019 Proposed Action Subtotal	*10.1*	*1.7*	*6.0*	*0.02*	*0.4*	*2.0*
2019 Proposed Action Net Emissions	**+10.1**	**+1.7**	**+6.0**	**+0.02**	**+0.4**	**+2.0**
2020						
Proposed Action – Construction	23.1	3.2	13.9	0.07	0.7	3.8
2020 Proposed Action Subtotal	*23.1*	*3.2*	*13.9*	*0.07*	*0.7*	*3.8*
2020 Proposed Action Net Emissions	**+23.1**	**+3.2**	**+13.9**	**+0.07**	**+0.7**	**+3.8**
2021						
Proposed Action – Construction	28.5	5.1	19.4	0.1	1.0	7.4
2021 Proposed Action Subtotal	*28.5*	*5.1*	*19.4*	*0.1*	*1.0*	*7.4*
2021 Proposed Action Net Emissions	**+28.5**	**+5.1**	**+19.4**	**+0.1**	**+1.0**	**+7.4**
2022						
Proposed Action – Construction	4.9	0.2	0.3	0.01	0.01	0.3
2022 Proposed Action Subtotal	*4.9*	*0.2*	*0.3*	*0.01*	*0.01*	*0.3*
2022 Proposed Action Net Emissions	**+4.9**	**+0.2**	**+0.3**	**+0.01**	**+0.01**	**+0.3**
2023						
Aircraft – No Action	282.1	61.9	201.7	17.1	1.5	1.5
APUs – No Action	1.9	0.2	4.3	0.4	0.4	0.4
GSE – No Action	19.2	0.8	2.2	0.2	0.1	0.1
Future (2023) No Action Subtotal	*303.2*	*63.0*	*208.2*	*17.6*	*2.0*	*2.0*

SOURCE	**ANNUAL EMISSIONS(SHORT TONS PER YEAR)**					
	CO	**VOC**	**NO_X**	**SO_X**	**$PM_{2.5}$**	**PM_{10}**
Aircraft – Proposed Action	321.9	70.8	250.7	20.9	1.7	1.7
APUs – Proposed Action	2.2	0.2	5.0	0.5	0.5	0.5
GSE – Proposed Action	22.7	0.9	2.6	0.2	0.2	0.2
GAVs – Proposed Action	45.5	5.9	27.9	0.1	1.1	1.3
Future (2023) Proposed Action Subtotal	*392.3*	*77.8*	*286.2*	*21.7*	*3.5*	*3.7*
2023 Proposed Action Net Emissions	**+89.1**	**+14.8**	**+78**	**+4.1**	**+1.5**	**+1.7**

Note: 1. GAVs operational activities were modeled under the assumption that the development was operational during 365 days in 2023 to account for the maximum annual operational emissions.
2. Numbers may not sum due to rounding.

Source: Landrum & Brown analysis, 2019.

The air quality assessment demonstrates that the Proposed Action would not cause an increase in air emissions above the federal de minimis thresholds. Therefore, the Proposed Action conforms to the CAA and NEPA and would not create any new violation of the NAAQS, delay the attainment of any NAAQS, nor increase the frequency or severity of any existing violations of the NAAQS. As a result, no adverse impact on local or regional air quality is expected by construction or operation of the Proposed Action. No further analysis or reporting is required under the CAA or NEPA. The sponsor would be responsible for obtaining any air quality permits required by local jurisdictions, if applicable.

4.1 Cumulative Impacts

The increase in emissions due to construction and implementation of the Proposed Action would not exceed the federal de minimis thresholds and are therefore not significant. Construction activities associated with the Proposed Action would result in temporary emissions from construction equipment, trucks, and fugitive dust emissions from site demolition and earthwork. The impacts would occur only within the immediate vicinity of the construction site and would be minimized through best management practices to reduce emissions, particularly fugitive particle emissions, during construction. While the Proposed Action would contribute to the cumulative emissions of air pollutants in Winnebago County, the cumulative effect of the net air emissions would not cause or contribute to any new violation of the NAAQS, would not increase the frequency or severity of an existing violation, and would not delay timely attainment of any standard. Therefore, the cumulative impact on air quality is not significant.

5 Climate

5.1 Regulatory Context

Research has shown that an increase in GHG emissions is significantly affecting the Earth's climate. These conclusions are based on scientific record that includes substantial contributions from the United States Global Change Research Program (USGCRP), mandated by congress in the Global Change Research Act to "assist the Nation and the world to understand, assess, predict, and respond to human-induced and natural processes of global change."[17]

In 2009, based primarily on scientific assessments of the USGCRP, the National Research Council, and the Intergovernmental Panel on Climate Change (IPCC), the United States Environmental Protection Agency (USEPA) issued a finding deeming it reasonable to assume that changes in climate caused by elevated concentrations of GHG in the atmosphere endanger the health and welfare of current and future generations.[18] By summer 2016, the USEPA acknowledged that scientific assessments by that time "highlight the urgency of addressing the rising concentration of carbon dioxide (CO_2) in the atmosphere" and formally announced that GHG emissions from certain classes of aircraft engines contribute to climate change.[19,20]

The most prevalent GHG at airports[21] are CO_2, methane (CH_4), and nitrous oxide (N_2O). GHG emissions are typically reported in units of metric tons (MT) of carbon dioxide equivalents (CO_{2e}).[22]

Worldwide emissions of GHG in 2014 were 45.7 billion tons of CO_{2e} per year.[23] This value includes ongoing emissions from industrial and agricultural sources. In 2016, the United States emitted about 6,511 million metric tons of CO_{2e}. Total U.S. emissions have increased by 2.4 percent from 1990 to 2016, and emissions decreased from 2015 to 2016 by 1.9 percent (126.8 million metric tons of CO_{2e}). The decrease in total GHG emissions between 2015 and 2016 was driven in large part by a decrease in CO_{2e} emissions from fossil fuel combustion. The decrease in CO_{2e} emission from fossil fuel combustion was a result of multiple factors, including substitution from coal to natural gas and other non-fossil energy sources in the electric power sector; and warmer winter conditions in 2016 resulting in decreased demand for heating fuel in the residential and commercial sectors.[24]

Of the five major sectors nationwide - residential and commercial, industrial, agriculture, transportation and electricity – electricity accounts for the highest fraction of GHG emissions (approximately 28 percent), closely followed by transportation (approximately 28 percent) and by industry (approximately 22 percent).[25] The most

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[17] Global Change Research Act of 1990, Pub. L. 101-606, Sec 103, November 16, 1990, http://www.globalchange.gov.

[18] Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the clean Air Act, 74 Fed. Reg. 66496 (December 15, 2009).

[19] USEPA, Final Rule for Carbon Pollution Emission Guidelines for Existing Stationary Sources Electric Utility Generating Units, 80 Fed. Reg. 64661, 64677 (October 23, 2015).

[20] USEPA finalized findings that GHG emissions from certain classes of engines used in aircraft contribute to air pollution that causes climate change endangering public health and welfare under section 231(a) of the Clean Air Act.

[21] Six GHGs are identified in the Kyoto Protocol: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluocarbons (PFCs), and sulfur hexafluoride (SF_6). The later three primary GHGs do occur at airports, but to a far lesser extent, and therefore are not included in the analysis.

[22] CO_{2e} are calculated as the product of the mass emitted of a given GHG and its specific Global Warming Potential (GWP) While methane (CH_4) and nitric oxides (N_2O) have much higher GWP than CO_2, CO_2 is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO_{2e}. One ton of CO_2 is equivalent to one ton of CO_{2e}.

[23] Climate analysis Indicator Tool. Accessed July 20, 2018, at http://cait.wri.org/

[24] USEPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016, April 2018, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2016

[25] USEPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016, April 2018, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2016

recent USEPA data indicate that in 2016, aircraft accounted for 9.1 percent of U.S. transportation GHG emissions and 2.6 percent of total U.S. GHG emissions.[26]

Although there are no federal standards for aviation-related GHG emissions, it is well established that GHG emissions affect climate.[27] Following procedures detailed in FAA's 1050.1F Desk Reference, FAA's policy is that GHG emissions should be quantified in a NEPA document when there is reason to quantify emissions for air quality purposes or when changes in the amount of aircraft fuel used are computed/reported. Because air pollutant/pollutant precursor emissions and fuel burn were estimated for the Future (2023) No Action and Future (2023) Proposed Action at RFD, GHG inventories were also prepared.

5.2 Methodologies, Assumptions and Data Descriptions

The GHG emissions inventory for the Future (2023) No Action Alternative was prepared using the same sources and methodology as described in this report for the Future (2023) No Action Alternative emissions of criteria pollutants. AEDT was used to determine CO_2 from aircraft operating during the landing take-off cycles (LTOs) at the Airport. GHG emissions from aircraft operating during cruise operations were not included in this analysis.

The Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different gases by converting each gas amount to a carbon dioxide equivalent (CO_{2e}). GWPs provide a common unit of measure, which allows for one emissions estimate of these different gases. CO_2 has a GWP of one because it is the gas used as the reference point. Methane does not last as long in the atmosphere as CO_2; however, it absorbs much more energy. Therefore, one ton of methane has 28 times more heat capturing potential than one ton of carbon dioxide. The amount of methane emissions would be multiplied by 28 to determine its CO_{2e} value. Nitrous oxides last in the atmosphere far longer than CO_2. The amount of nitrous oxides emissions would be multiplied by 265 to determine its CO_{2e} value. The 100-year time horizon Global Warming Potentials (GWP) for CO_2, CH_4 and N_2O reported in the IPCC Fifth Assessment Report, 2014 (AR5)[28] was utilized in the calculations of CO_{2e} reported in this assessment.

5.2.1 Climate Change Analysis Results

Using the methodologies, assumptions and data described previously, the estimated GHG emissions levels from the No Action and Proposed Action – represented in terms of MT of CO_{2e} – are presented.

Using AEDT, the estimated fuel burn for the Future (2023) No Action is 3,493,325 gallons and the fuel burn for the Future (2023) Proposed Action is 4,279,668 gallons.

Table 11 shows the calculated annual GHG emissions from aircraft operations for the Future (2023) No Action Alternative. GHG emission are provided in metric tons.

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[26] USEPA, Regulations for Greenhouse Gas Emissions from Aircraft, June 2018, https://epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-aircraft

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

[28] https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf

Table 11 FUTURE (2023) NO ACTION ALTERNATIVE GHG EMISSIONS

METRICS	GHG POLLUTANT EMISSIONS (METRIC TONS)		
	CO_2	CH_4	N_2O
GWP_{100}	**1**	**28**	**265**
2023			
Aircraft – No Action	41,721.2	--	--
CO_{2e}	41,721.2	--	--
CO_{2e} Net Emissions	**41,721.2**		

Notes: 1. CO_2 = Carbon Dioxide, CO_{2e} = Carbon Dioxide equivalent, CH_4 = Methane, N_2O = Nitrous Oxide,
2. GHG emissions for stationary sources, GSE, and APUs are not reported because AEDT does not have the capability of calculating GHG emissions for these emission sources.
3. Numbers may not sum due to rounding.

Source: Landrum & Brown analysis, 2019.

Table 12 shows the annual GHG emissions from aircraft operations for the Future (2023) Proposed Action Alternative. GHG emission are provided in metric tons.

Table 12 FUTURE (2023) PROPOSED ACTION ALTERNATIVE GHG EMISSIONS

METRICS	GHG POLLUTANT EMISSIONS (METRIC TONS)		
	CO_2	CH_4	N_2O
GWP_{100}	**1**	**28**	**265**
2023			
Aircraft – Proposed Action	56,342.00	--	--
CO_{2e}	56,342.00	--	--
2023 CO_{2e} Net Emissions	**56,342.0**		

Notes: 1. GHG emissions for stationary sources, GSE, and APUs are not reported because AEDT does not have the capability of calculating GHG emissions for these emission sources.
2. Numbers may not sum due to rounding.

Source: Landrum & Brown analysis, 2019.

Based on the analysis presented with the implementation of the Proposed Action, there would be an increase in GHG emissions due to additional aircraft operations. The Proposed Action would result in an increase of 786,342 gallons of fuel burn and 14,620.8 metric tons of CO2e. This level of emissions, compared to the 6,511 million metric tons of CO_{2e} within the U.S. during 2016, indicates that the Proposed Action emissions would represent 0.0002 percent of total GHG emissions generated in the U.S.

5.2.2 Mitigation Measures

The FAA has not identified specific factors to consider in making a significance determination for GHG emissions; therefore, no mitigation measures are required to mitigate the potential increase in GHGs attributed to the Proposed Action. However, for NEPA reviews of proposed FAA actions that would result in increased emissions of GHGs, consideration should be given to whether there are areas within the scope of a project where such emissions could be reduced. GHG emissions reduction can come from measures such as changes to more fuel-efficient equipment, delay reductions, use of renewable fuels, and operational changes. The Greater Rockford Airport Authority will continue to ensure that the Airport and its tenants are operating in an environmentally responsible and sustainable way.

Appendix E

WATER RESOURCES

NEGATIVE WETLAND FINDINGS REPORT

CHICAGO-ROCKFORD INTERNATIONAL AIRPORT NW CARGO APRON EXPANSION

ROCKFORD TOWNSHIP, WINNEBAGO COUNTY, ILLINOIS

Prepared for: Crawford, Murphy & Tilly, Inc.
505 West Hickpochee, Suite 400
LaBelle, Florida 33935
Attn: Ms. Laura Sakach, Project Engineer

Date Prepared: September 11, 2018

ENCAP, Inc. Project #: 18-0420O

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NEGATIVE WETLAND FINDINGS REPORT

Chicago-Rockford International Airport, NW Cargo Apron Expansion / Crawford, Murphy & Tilly, Inc.

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Attachments:

IDNR EcoCAT Natural Resources Review Results
Site Photographs
Wetland Determination Data Forms
Historic Aerial Photographs: 2000-WET, 2004, 2006, 2007, 2011, 2014
Exhibits A-G

NEGATIVE WETLAND FINDINGS REPORT

Project Name and Client: Chicago-Rockford International Airport, NW Cargo Apron Expansion / Crawford, Murphy & Tilly, Inc.

Project Number: 18-0420O

Location: Illinois, Winnebago County, Rockford Township, Rockford, T43N R1E, S15
Latitude: 42.198644; Longitude: -89.112794

Date of Site Visit: August 27, 2018

Field Investigators: K. McMahon, P. Meuer, and R. Van Herik

EXECUTIVE SUMMARY

The project area (approximately 85 acres in size) is located in Rockford, Winnebago County, Illinois (Exhibit A: Location Map). It is generally bounded by Kishwaukee Road to the north, Chicago-Rockford International Airport and associated infrastructure to the south and east, and additional airport infrastructure and an active construction area to the west. The project area consists of large, open fields that are occasionally mowed within the central portion of the project area, de-icing chemical treatment ponds within the northern portion of the project area, active construction within the western portion of the project area, and airport infrastructure, including parking areas, runway tarmacs, airplane hangars, and paved vehicle access roads throughout the remainder of the project area.

On August 27, 2018 ENCAP, Inc. performed an investigation of the project area in order to identify regulated surface water resources on, or within 100 feet of the site. A floodplain determination was not included as part of our investigation. No wetlands or other waters of the U.S. were identified within or directly adjacent to the project area.

METHODS AND FINDINGS

Map Review

Prior to the field investigation, a preliminary site evaluation was performed using natural resource mapping. Reviewed maps are attached as Exhibits B - F and summarized below.

- The **National Wetlands Inventory** identifies *Palustrine Emergent Persistent Seasonally Flooded Wetland (PEM1C)* directly off-site of the southwest portion of the project area; however, no water resources are identified on-site (Exhibit B).

- The **Soil Map** identifies the following soils within the project area: Troxel silt loam (197A), Plano silt loam (199A), St. Charles silt loam (243A), Warsaw loam (290A, 290B), Hononegah loam coarse sand (354B), Jasper silt loam (440A), Martinsville silt loam (570A, 570D2), Kishwaukee silt loam (623A), Flagler sandy loam (783B), Orthents (802B), and Rodman-Warsaw complex (939D2). None of the above soils are considered hydric in Winnebago County (Exhibit C).

- The **2017 United States Geologic Survey (USGS) Topographic Map** does not identify any surface drainage within or directly adjacent to the project area (Exhibit D).

- The **Flood Insurance Rate Map** identifies the project area outside the 500-year floodplain (Exhibit E).

- The **Historic Architectural Resources Geographic Information System (HARGIS) Map** does not identify any historic architectural remains on the site (Exhibit F).

Field Investigation

ENCAP, Inc. performed a site investigation to determine if any areas within the project area meet the requirements for a wetland based on U.S. Army Corps of Engineers (USACE) parameters of vegetation, hydrology, and soils. In general, positive indication of each of the three parameters must be demonstrated to classify an area as wetland. Each of these parameters is discussed below.

- **Vegetation** – Three vegetative indicators are applied to plant communities in order to determine if the hydrophytic vegetation criterion is met.
    1. More than 50% of the dominant plant species across all strata must be hydrophytic (water tolerant). The U.S. Fish Wildlife Service has prepared a regional list of plants occurring in wetlands which assigns the plant species different indicators. Wetland plants fall into three indicator classes based on differing tolerances to water level and soil saturation. These indicators are rated obligate wetland (OBL), facultative wetland (FACW), or facultative (FAC). Dominant plant species are recorded at sample points within investigated areas.
    2. The prevalence index is 3.0 or less. The prevalence index is a weighted-average wetland indicator status of all plant species in a sampling plot. Each indicator status category is given a numeric value (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and weighting is by abundance. A prevalence index of 3.0 or less indicates that hydrophytic vegetation is present. The prevalence index is used to determine whether hydrophytic vegetation is present on sites where indicators of hydric soil and wetland hydrology are present but the vegetation initially fails the dominance test.
    3. The plant community passes either the dominance test (Indictor 1) or the prevalence index (Indicator 2) after reconsideration of the indicator status of certain plant species that exhibit morphological adaptations for life in wetlands. Common morphological adaptations include but are not limited to adventitious roots, multi-stemmed trunks, shallow root systems developed on or near the soil surface, and buttressing in tree species. To apply this indicator, these morphological features must be observed on more than 50% of the individuals of a FACU species living in an area where indicators of hydric soil and wetland hydrology are present.

- **Hydrology** – To be considered a wetland, an area must have 14 or more consecutive days of flooding or ponding, or a water table 12 inches or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10. Wetland hydrology indicators are divided into four groups as described below:
    - **Group A** – indicators are based on the direct observation of surface water or groundwater during a site visit.

  - **Group B** – consists of evidence that the site is subject to flooding or ponding, although it may not be inundated currently. These indicators include water marks, drift deposits, sediment deposits, and similar features.
  - **Group C** – consists of other evidence that the soil is saturated currently or was saturated recently. Some of these indicators, such as oxidized rhizopheres surrounding living roots and the presence of reduced iron or sulfur in the soil profile, indicate that the soil has been saturated for an extended period.
  - **Group D** – consists of landscape and vegetation characteristics that indicate contemporary rather than historical wet conditions. These indicators include stunted or stressed plants, geomorphic position, and the FAC-neutral test.

  Wetland hydrology indicators are intended as one-time observations of site conditions that are sufficient evidence of wetland hydrology. Within each group, indicators are divided into two categories – *primary* and *secondary*. One primary indicator from any group is sufficient to conclude that wetland hydrology is present. In the absence of a primary indicator, two or more secondary indicators from any group are required to conclude that wetland hydrology is present.

- **Soils** - To be considered a wetland, an area must contain hydric soil. Hydric soils are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic (lacking oxygen) conditions in the upper part. Soils generally, but not always, will develop indicators that are formed predominantly by the accumulation or loss of iron, manganese, sulfur, or carbon compounds in a saturated and anaerobic environment. The most current edition of the United States Department of Agriculture, Natural Resource Conservation Service *Field Indicators of Hydric Soils in the United States* is used for identification of hydric soils. Field indicators of hydric soils include but are not limited to the presence of any of the following: histic epipedon, sulfidic odor, at least 2 centimeters of muck, depleted matrix, and/or redoximorphic features. Field indicators are usually examined in the top 24 inches of the soil. Soil colors are determined using *Munsell Soil Color Charts*.

At the time of the field investigation, the majority of the site consisted of either open field or airport infrastructure. Areas featuring potential wetland characteristics were identified and evaluated in the field to determine if they met the requirements for a wetland based on the above USACE parameters. Each area is briefly described below and U.S. Army Corps of Engineers data forms are provided to support our negative findings (See Wetland Determination Data Forms).

Investigated Area 1 - Sample Point A. This investigated area is located in the northwest portion of the project area (Exhibit G: Aerial Photograph – Sample Point A). This area was investigated because it consisted of a slight topographic depression situated alongside a large spoil pile. It appeared that stormwater flowed off of the spoil pile and was collected within the depression, creating potential wetland characteristics (Photographs 1-2).

The area around Sample Point A was primarily vegetated by Yellow Nutsedge (*Cyperus esculentus*), Large Barnyard Grass (*Echinocloa crus-galli*), and Kentucky Bluegrass (*Poa pratensis*). The mapped soil series is Jasper silt loam (440A), a non-hydric soil. The field investigated soils did not exhibit hydric characteristics and a gravel fill layer was observed at 12" below the soil surface. Algal mat or crust, geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology (See USACE data forms).

Based on the presence of non-hydric soil, Sample Point A/Investigated Area 1 does not qualify as wetland.

Investigated Area 2 - Sample Point B. This investigated area is located in the northwest portion of the project area (Exhibit G: Aerial Photograph – Sample Point B). This area was investigated because it consisted of a steeply sloped, constructed ravine that presented a mixture of upland and hydrophytic vegetation (Photographs 3-4).

The area around Sample Point B was primarily vegetated by Meadow Fescue (*Scedonorus pratensis*) and Willows (*Salix* spp.). The mapped soil series is Martinsville silt loam (570A), a non-hydric soil. The field investigated soils did not exhibit hydric characteristics and a gravel fill layer was observed at 12" below the soil surface. Evidence of persistent hydrology was not observed (See USACE data forms).

Based on the dominance of upland plant species, non-persistent hydrology, and the presence of non-hydric soil, Sample Point B/Investigated Area 2 does not qualify as wetland.

CONCLUSIONS AND RECOMMENDATIONS

No wetlands or other waters of the U.S. were identified on, or within 100 feet of the project area. Further concurrence with federal regulatory agencies may not be required; however, a Letter of No Objection (LONO) may be obtained from the USACE if necessary. ENCAP, Inc. recommends that this report be submitted as part of a development package as necessary for future development of the property.

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IDNR EcoCAT Natural Resources Review Results

Applicant: ENCAP, Inc.
Contact: Paul Meuer
Address: 2585 Wagner Court
DeKalb, IL 60115

IDNR Project Number: 1901591
Date: 08/15/2018
Alternate Number: 18-0609A

Project: CMT Project
Address: Chicago Rockford International Airport, Rockford

Description: Wetland delineation for project planning purposes.

Natural Resource Review Results

This project was submitted for information only. It is not a consultation under Part 1075.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Bell Bowl Prairie INAI Site
Johns Mound Group INAI Site
Kishwaukee River INAI Site
Rock River Rockford Segment INAI Site
Johns Mound Group Land And Water Reserve
American Brook Lamprey *(Lethenteron appendix)*
Black Sandshell *(Ligumia recta)*
Black Sandshell *(Ligumia recta)*
Large-Flowered Beard Tongue *(Penstemon grandiflorus)*

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Winnebago

Township, Range, Section:
43N, 1E, 14
43N, 1E, 15
43N, 1E, 16
43N, 1E, 22
43N, 1E, 23

IL Department of Natural Resources Contact
Impact Assessment Section
217-785-5500
Division of Ecosystems & Environment

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

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Eco CAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

EcoCAT Receipt

Project Code 1901591

APPLICANT	DATE
ENCAP, Inc. Susan Rowley 2585 Wagner Court DeKalb, IL 60115	8/15/2018

DESCRIPTION	FEE	CONVENIENCE FEE	TOTAL PAID
EcoCAT Consultation	$ 25.00	$ 1.00	$ 26.00

TOTAL PAID $ 26.00

Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
217-785-5500
dnr.ecocat@illinois.gov

Site Photographs

PHOTOGRAPH 1

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Investigated Area 1 – Sample Point A

Facing Northeast

DATE PHOTO TAKEN:

August 27, 2018

PHOTOGRAPH 2

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Investigated Area 1 - Overview

Facing Southwest

DATE PHOTO TAKEN:

August 27, 2018

PHOTOGRAPH 3

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Investigated Area 2 – Sample Point B

Facing Northwest

DATE PHOTO TAKEN:

August 27, 2018

PHOTOGRAPH 4

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Investigated Area 2 - Overview

Facing Northwest

DATE PHOTO TAKEN:

August 27, 2018

PHOTOGRAPH 5

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Site Overview – Created Ponds

Facing Northwest

DATE PHOTO TAKEN:

August 27, 2018

PHOTOGRAPH 6

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Site Overview – Runway Stormwater Culvert

Facing Southwest

DATE PHOTO TAKEN:

August 27, 2018

PHOTOGRAPH 7	
DESCRIPTION: Chicago Rockford Airport, NW Cargo Apron Expansion / CMT Site Overview – French Drain Facing Southwest	
DATE PHOTO TAKEN: August 27, 2018	

PHOTOGRAPH 8	
DESCRIPTION: Chicago Rockford Airport, NW Cargo Apron Expansion / CMT Site Overview – Parking Area Stormwater Culvert Facing Southeast	
DATE PHOTO TAKEN: August 27, 2018	

PHOTOGRAPH 9	
DESCRIPTION: Chicago Rockford Airport, NW Cargo Apron Expansion / CMT Site Overview – Access Road Stormwater Culvert Facing Northeast	
DATE PHOTO TAKEN: August 27, 2018	

PHOTOGRAPH 10	
DESCRIPTION: Chicago Rockford Airport, NW Cargo Apron Expansion / CMT Site Overview – Access Road Stormwater Culvert Facing Southeast	
DATE PHOTO TAKEN: August 27, 2018	

PHOTOGRAPH 11

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Site Overview – Access Road Stormwater Culvert

Facing North

DATE PHOTO TAKEN:

August 27, 2018

PHOTOGRAPH 12

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Site Overview – Kishwaukee Road Drainage Roadside Ditch

Facing Northeast

DATE PHOTO TAKEN:

August 27, 2018

PHOTOGRAPH 13

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Site Overview – Kishwaukee Road Drainage Roadside Ditch

Facing Southeast

DATE PHOTO TAKEN:

August 27, 2018

PHOTOGRAPH 14

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Site Overview – Construction Entrance

Facing Southeast

DATE PHOTO TAKEN:

August 27, 2018

PHOTOGRAPH 15

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Site Overview – Construction Grading

Facing Southeast

DATE PHOTO TAKEN:

August 27, 2018

PHOTOGRAPH 16

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Site Overview – Spoil Pile

Facing Southwest

DATE PHOTO TAKEN:

August 27, 2018

PHOTOGRAPH 17	
DESCRIPTION: Chicago Rockford Airport, NW Cargo Apron Expansion / CMT Site Overview – Trailer Parking Area Facing Northeast	
DATE PHOTO TAKEN: August 27, 2018	

PHOTOGRAPH 18	
DESCRIPTION: Chicago Rockford Airport, NW Cargo Apron Expansion / CMT Site Overview – Airplane Hangar Facing Southeast	
DATE PHOTO TAKEN: August 27, 2018	

PHOTOGRAPH 19

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Site Overview

Facing Southeast

DATE PHOTO TAKEN:

August 27, 2018

PHOTOGRAPH 20

DESCRIPTION:

Chicago Rockford Airport, NW Cargo Apron Expansion / CMT

Site Overview

Facing Southwest

DATE PHOTO TAKEN:

August 27, 2018

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago-Rockford Airport, NW Cargo Apron Expansion City/County: Rockford / Winnebago Sampling Date: 8/27/2018

Applicant/Owner: Crawford, Murphy and Tilly, Inc. State: IL Sampling Point: A

Investigator(s) K. McMahon / P. Meuer Section, Township, Range: S15, T43N, R1E

Landform (hillslope, terrace, etc.): Foot Slope of Spoil Pile Local Relief (concave, convex, none): Concave

Slope (%): 0% Lat: 42.198644 Long: -89.112794 Datum: Investigated Area 1

Soil Map Unit Name: Jasper silt loam, 0 to 2 percent slopes (440A) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☐ Soil ☒ Hydrology ☐ significantly disturbed? Are normal circumstances present? Yes ☒ No ☐

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐
Hydric Soils Present ? Yes ☐ No ☒
Wetland Hydrology Present? Yes ☒ No ☐

Is the Sampled Area Within a Wetland? Yes ☐ No ☒

Remarks: A gravel fill layer was observed at 12" below the soil surface.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 5')			
1. Cyperus esculentus	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That are OBL,FACW, or FAC 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species:	x 1 =
FACW species:	x 2 =
FAC species:	x 3 =
FACU species:	x 4 =
UPL species:	x 5 =
Column Totals	(A)

Prevalence Index =B/A =

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation
☒ Dominance Test is >50%
☐ Prevalence Index is ≤ 3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes☒ No ☐

Remarks: Photograph 1

SOIL

Sampling Point A

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth	Matrix		Redox Features					
(Inches)	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	**10YR 2/2**	**100**					**SiL**	With Rock & Sand

[1] Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2] Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron- Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)

Type: **Gravel**

Depth: **12”**

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☒ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B 3)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☒ Geomorphic Position (D2)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches) N/A

Water Table Present? Yes ☐ No ☒ Depth (inches) N/A

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches) N/A

Wetland Hydrology Present? Yes ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago-Rockford Airport, NW Cargo Apron Expansion   City/County: Rockford / Winnebago   Sampling Date: 8/27/2018

Applicant/Owner: Crawford, Murphy and Tilly, Inc.   State: IL   Sampling Point: B

Investigator(s) K. McMahon / P. Meuer   Section, Township, Range: S15, T43N, R1E

Landform (hillslope, terrace, etc.): Constructed Drainage Ditch   Local Relief (concave, convex, none): Concave

Slope (%): 0%   Lat: 42.198644   Long: -89.112794   Datum: Investigated Area 2

Soil Map Unit Name: Martinsville silt loam, 0 to 2 percent slopes (570A)   NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☐ Soil ☒ Hydrology ☐ significantly disturbed?   Are normal circumstances present? Yes ☒ No ☐

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic?   (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Hydric Soils Present ? Yes ☐ No ☒

Wetland Hydrology Present? Yes ☐ No ☒

Is the Sampled Area Within a Wetland? **Yes** ☐ **No** ☒

Remarks: A gravel fill layer was observed at 12” below the soil surface. This sample point was taken in a constructed drainage feature.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30’)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15’)			
1. Salix interior	15	Y	FACW
2.			
3.			
4.			
5.			
	15	=Total Cover	
Herb Stratum (Plot size: 5’)			
1. Schedonorus pratensis	30	Y	FACU
2. Plantago lanceolata	15	Y	FACU
3. Lotus corniculatus	10	N	FACU
4. Chamaesyce humistrata	10	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	65	=Total Cover	
Woody Vine Stratum (Plot size: 30’)			
1.			
2.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That are OBL,FACW, or FAC 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species:	______	x 1 = ______
FACW species:	______	x 2 = ______
FAC species:	______	x 3 = ______
FACU species:	______	x 4 = ______
UPL species:	______	x 5 = ______
Column Totals	______	(A) ______

Prevalence Index =B/A = ________

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤ 3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes☐ **No** ☒

Remarks: Photograph 3

SOIL

Sampling Point B

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth	Matrix		Redox Features					
(Inches)	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	**10YR 5/6**	**100**					**Sa**	
8-12	**10YR 3/3**	**100**					**Sa**	

[1]Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2]Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

☐ Coast Prairie Redox (A16)
☐ Dark Surface (S7)
☐ Iron- Manganese Masses (F12)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)

Type: **Gravel**
Depth: **12”**

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)

☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water Stained Leaves (B9)
☐ Aquatic Fauna (B 3)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☒ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches) N/A
Water Table Present? Yes ☐ No ☒ Depth (inches) N/A
Saturation Present? Yes ☐ No ☒ Depth (inches) N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Historical Aerial Slide Photographs:
2000-WET, 2004, 2006, 2007, 2011, 2014

Slide #: il201_00_139

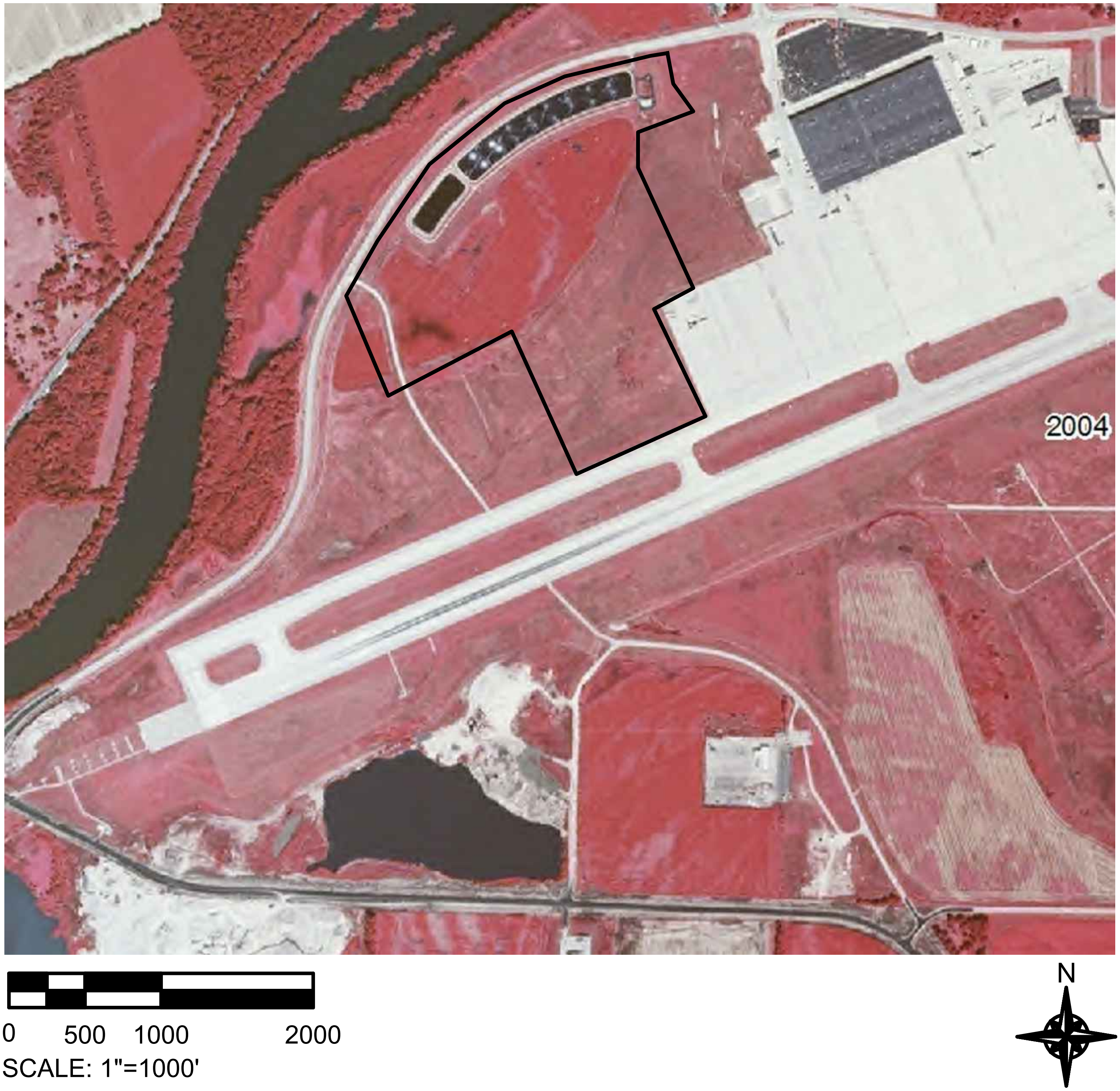
Year: 2000 (WET)

0 500 1000 2000

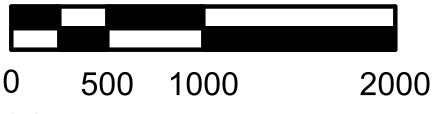
SCALE: 1"=1000'

N

Year: 2004



Year: 2006



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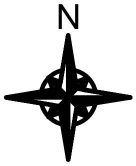
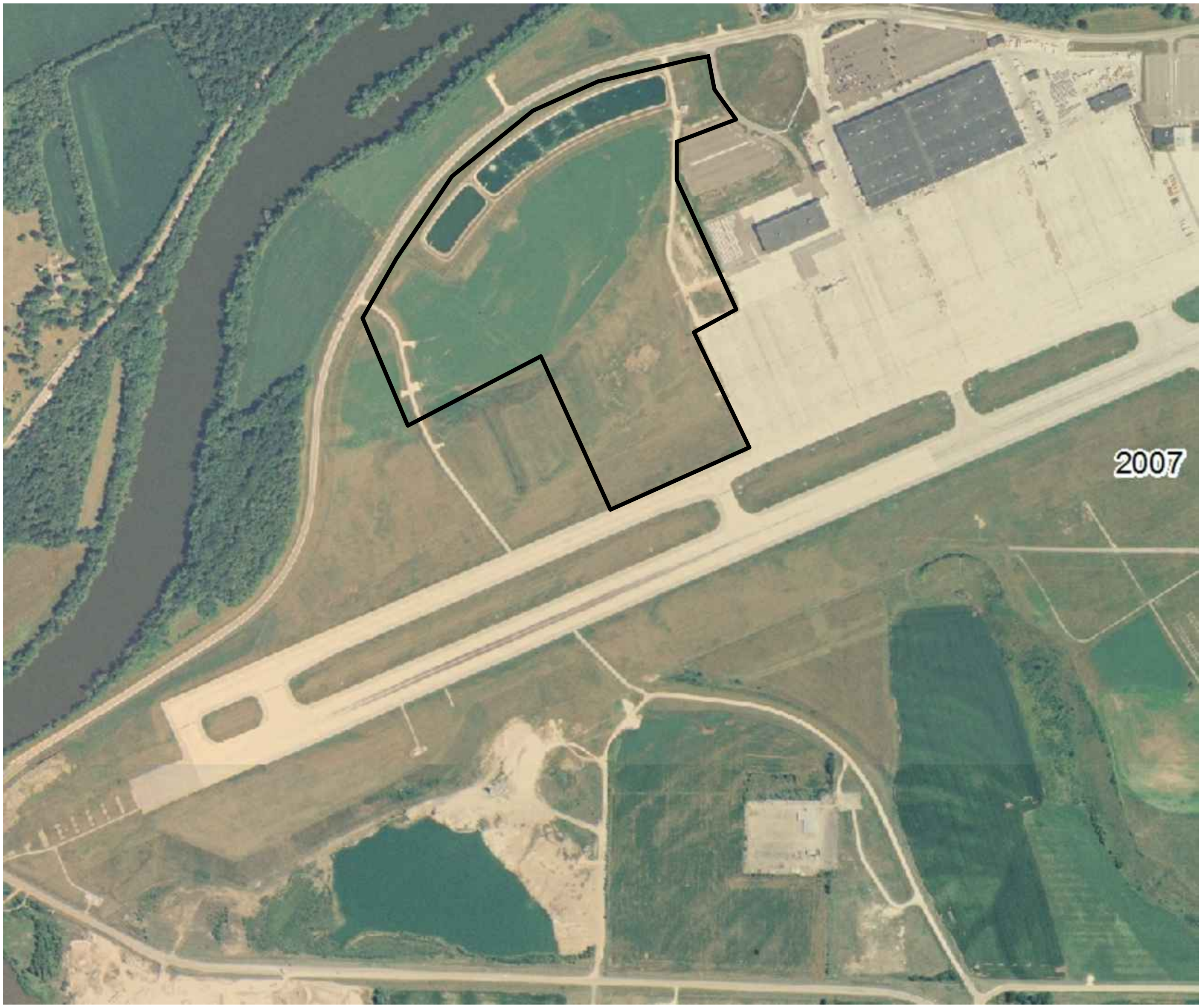


Year: 2007



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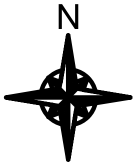
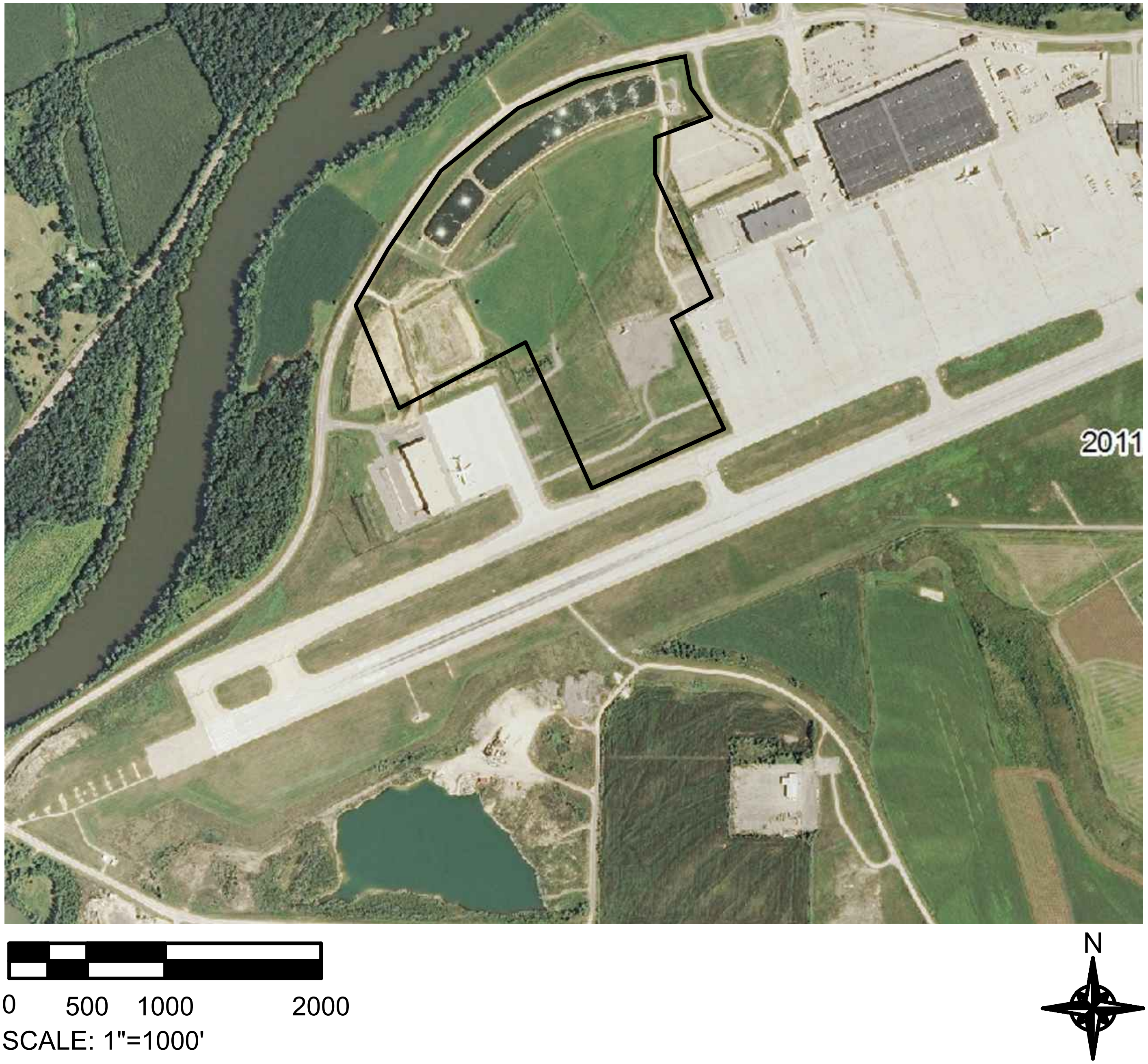


Year: 2011



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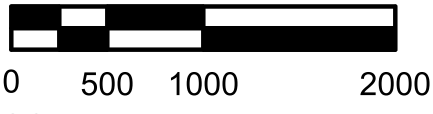
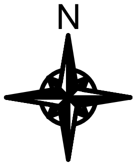
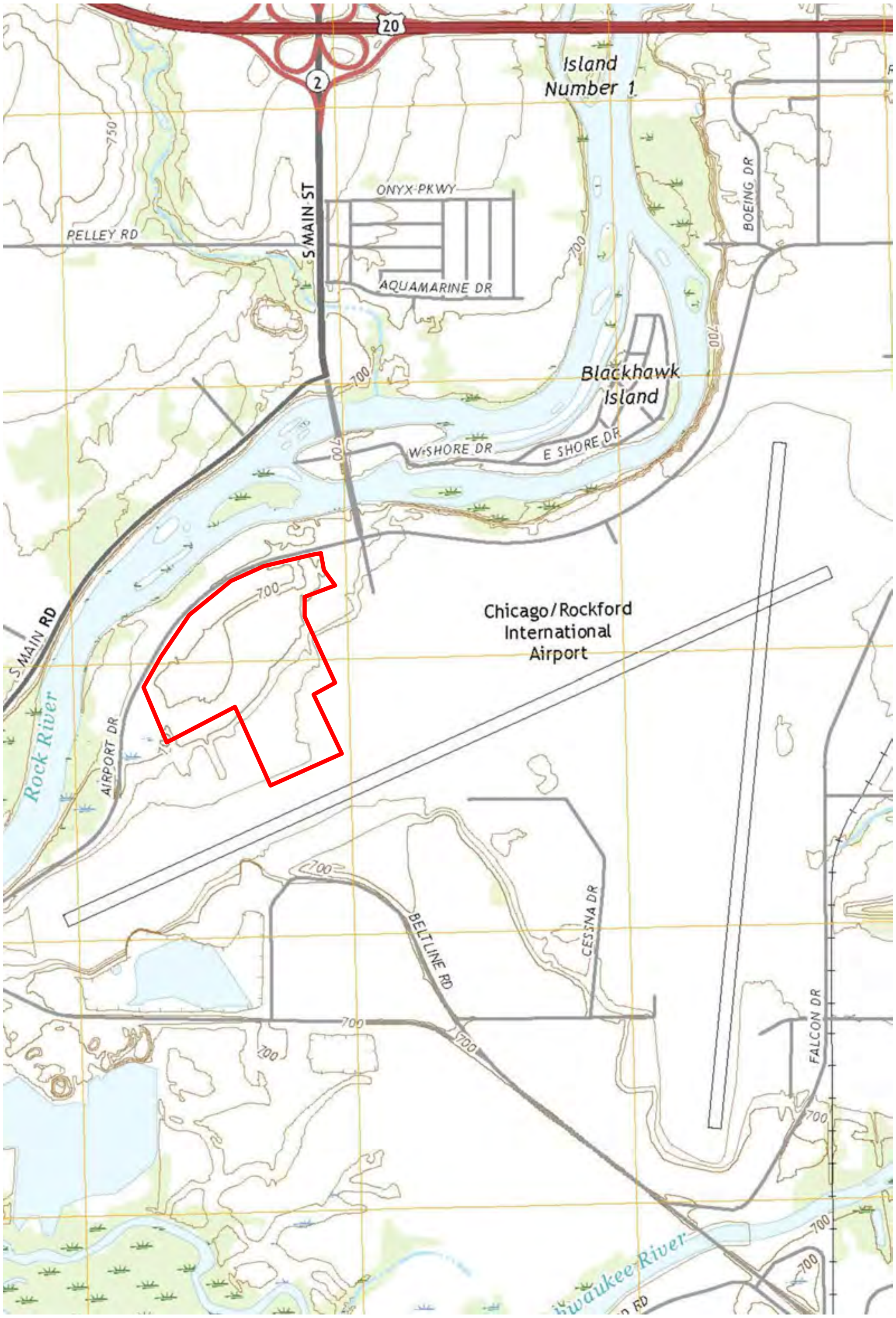
Year: 2014





Exhibits A - G



ENCAP
INCORPORATED

LEGEND:

Project Area	🟥

Location Map

Source: U.S. Geologic Survey
Section 15 T43N R1E
Latitude: 42.198644 Longitude: -89.112794

Chicago Rockford International Airport, NW Cargo Apron Expansion

Project Number: 18-0420O

Crawford, Murphy, & Tilly, Inc.

0 1000 2000 4000
SCALE: 1"= 2000'

NORTH

Exhibit A

ENCAP
INCORPORATED

LEGEND:

Project Area

Wetlands

- 🟦 Estuarine and Marine Deepwater
- 🟩 Estuarine and Marine Wetland
- 🟩 Freshwater Emergent Wetland
- 🟩 Freshwater Forested/Shrub Wetland
- 🟦 Freshwater Pond
- 🟪 Lake
- 🟫 Other
- 🟦 Riverine

National Wetlands Inventory

Source: U.S. Fish & Wildlife Service

Chicago Rockford International Airport, NW Cargo Apron Expansion

Project Number: 18-0420O

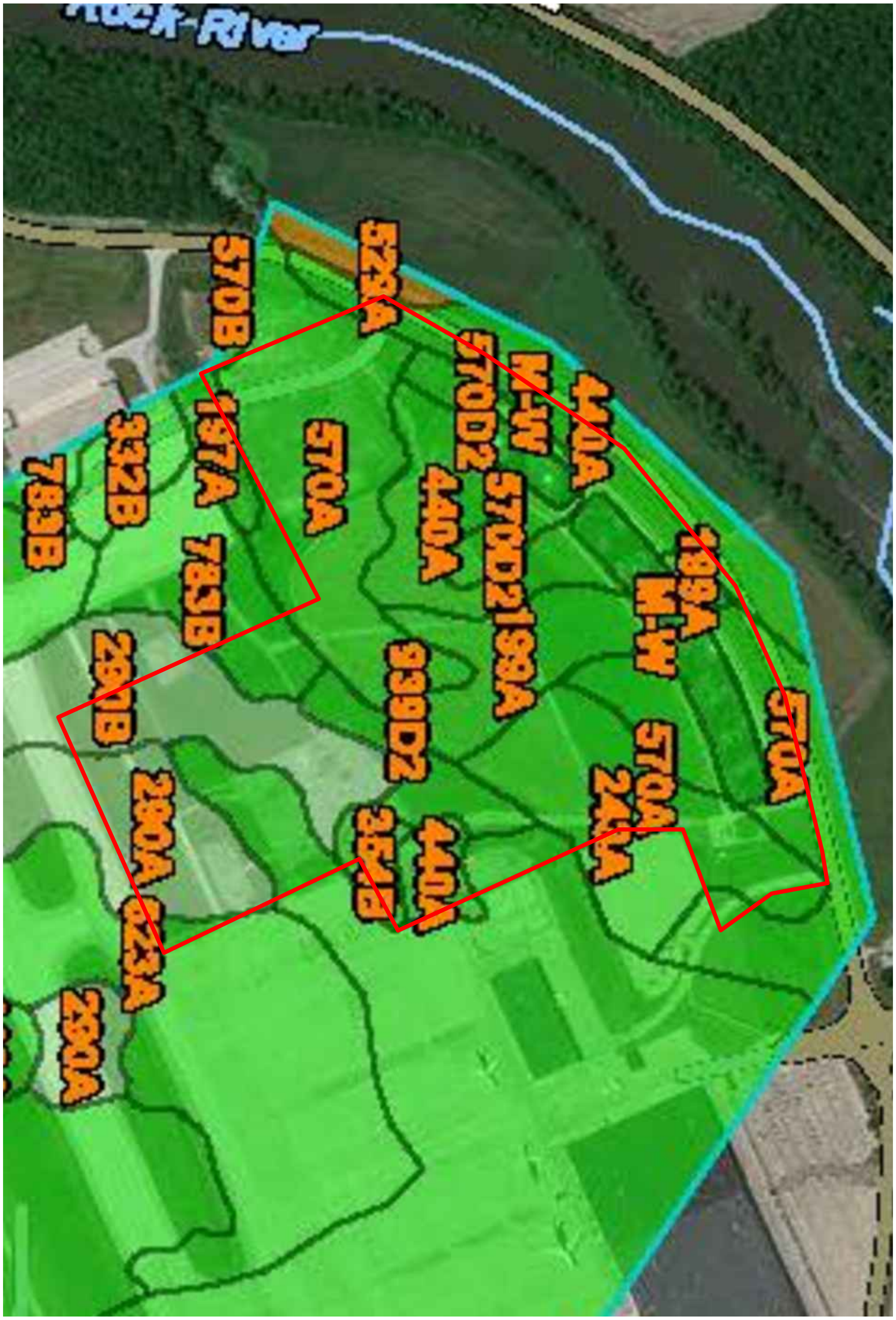
Crawford, Murphy, & Tilly, Inc.

0 300 600 1200

SCALE: 1"=600'

NORTH

Exhibit B



ENCAP INCORPORATED

LEGEND:

Project Area —

🟥 Hydric (100%)

🟧 Hydric (66 to 99%)

🟨 Hydric (33 to 65%)

🟩 Hydric (1 to 32%)

🟩 Not Hydric (0%)

⬜ Not rated or not available

Soil Map

Source: U.S. Department of Agriculture
Natural Resources Conservation Service
Web Soil Survey 3.1

Chicago Rockford International Airport, NW Cargo Apron Expansion

Project Number: 18-0420O

Crawford, Murphy, & Tilly, Inc.

0 300 600 1200
SCALE: 1"=600'

NORTH

Exhibit C

ENCAP
INCORPORATED

LEGEND:

Project Area ━

2017 USGS Topographic Map

Source: U.S. Geologic Survey
Rockford South Quadrangle

Chicago Rockford International Airport, NW Cargo Apron Expansion

Project Number: 18-0420O

Crawford, Murphy, & Tilly, Inc.

0 300 600 1200
SCALE: 1"=600'

NORTH

Exhibit D

ENCAP INCORPORATED

LEGEND:

Project Area	🟥

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
HTTP://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS	🟦	Without Base Flood Elevation (BFE) With BFE or Depth
	▨	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	🟧	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile
	▨	Future Conditions 1% Annual Chance Flood Hazard
	▨	Protected by Accredited Levee
OTHER AREAS	NO SCREEN	Areas Determined to be Outside the 0.2% Annual Chance Floodplain
	🟨	Area of Undetermined Flood Hazard
GENERAL STRUCTURES	>——<	Bridge
	-------	Channel, Culvert, or Storm Sewer
	———	Dam, Jetty, or Weir
	,,,,,,,,,,,,,	Levee, Dike or Floodwall
	(A) 718.7 717.8	Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
	(12)- - - -	Coastal Transect
	——·——	Coastal Transect Baseline
	———	Profile Baseline
	———	Hydrographic Feature
	~~512~~	Base Flood Elevation Line (BFE)
	• 148	River Mile
OTHER FEATURES	———	Limit of Study
	———	Jurisdiction Boundary

Flood Insurance Rate Map

Source: Federal Emergency Management Agency (FEMA)
Panel Number: 0378E
Effective Date: February 17, 2016

Chicago Rockford International Airport, NW Cargo Apron Expansion

Project Number: 18-0420O

Crawford, Murphy, & Tilly, Inc.

0 300 600 1200
SCALE: 1"=600'

NORTH

Exhibit E

ENCAP
INCORPORATED

LEGEND:

Project Area —

- ▲ Determined eligible for the NR
- ▲ Entered in the NR
- ▲ Part of a NR Historic District
- ▲ Part of a NR Historic District - contributing
- ▲ Part of a NR Historic District - non-contribu
- ▲ Undetermined
- ▨ NR Districts
- ▨ Survey Areas
- ☐ Senate Boundaries
- ☐ House Boundaries
- ☐ Floodplain
- ☐ Chicago Community Areas
- ☐ Certified Local Government Districts
- ☐ High Probability Archeology
- ☐ Local Governments
- 🟩 Federal Lands
- ☐ Counties
- ☐ Cities

Historic Architectural Resources Geographic Information System

Source: Illinois Historic Preservation Agency

Chicago Rockford International Airport, NW Cargo Apron Expansion

Project Number: 18-0420O

Crawford, Murphy, & Tilly, Inc.

0 300 600 1200
SCALE: 1"=600'

NORTH

Exhibit F

ENCAP INCORPORATED

LEGEND:

Project Area	🟥
Approximate Location of Roadside Ditch (On-site)	— · —
Approximate Location of Roadside Ditch (Off-site)	— · —
Culvert	≻—≺
Sample Points	A-B

Aerial Photograph

Image Courtesy of Google Earth
2017

Chicago Rockford International Airport, NW Cargo Apron Expansion

Project Number: 18-0420O

Crawford, Murphy, & Tilly, Inc.

0 300 600 1200
SCALE: 1"=600'

NORTH

Exhibit G

REVISED WETLAND DELINEATION REPORT

CHICAGO-ROCKFORD INTERNATIONAL AIRPORT MIDFIELD DEVELOPMENT

ROCKFORD TOWNSHIP, WINNEBAGO COUNTY, ILLINOIS

Prepared for: Crawford, Murphy & Tilly, Inc.
505 West Hickpochee, Suite 400
LaBelle, Florida 33935
Attn: Ms. Laura Sakach, Project Engineer

Date Prepared: September 12, 2018

Date Revised: September 19, 2018

ENCAP, Inc. Project #: 18-0609A

ENCAP INCORPORATED
2585 Wagner Ct.
DeKalb, IL 60115
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www.encapinc.net

REVISED WETLAND DELINEATION REPORT

Chicago-Rockford International Airport Midfield Development
Crawford, Murphy & Tilly, Inc.

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USFWS Section 7 Consultation Review Summary
IDNR EcoCAT Natural Resource Review Results
Floristic Quality Data Sheets
Wetland Determination Data Forms
Site Photographs
WETS Station Data
Historical Aerial Slide Photographs: 2000 (WET), 2004, 2006, 2007, 2011, 2014
Exhibits
- A – Location Map
- B – National Wetlands Inventory
- C – Soil Map
- D – 2017 USGS Topographic Map
- E – Flood Insurance Rate Map
- F – ISHPO HARGIS Map
- G – Bell Bowl Prairie INAI Site Map
- H – Aerial Photograph

REVISED WETLAND DELINEATION REPORT

Project Name and Client: Chicago-Rockford International Airport, Midfield Development / Crawford, Murphy & Tilly, Inc.

Project Number: 18-0609A

Location: Illinois, Winnebago County, Rockford Township, Rockford, T43N R1E, Sec 22
Latitude 42.190832; Longitude -89.102849

Dates of Site Visits: August 23 & 27, 2018

Field Investigators: S. Rowley, PWS, CWS, LEED-AP, K. McMahon, CWS, P. Meuer, & R. Van Herik

EXECUTIVE SUMMARY

The project area (approximately 280 acres in size) is located in Rockford, Winnebago County, Illinois (Exhibit A: Location Map). The project area, as presented in this report, represents the property limits investigated by ENCAP, Inc. for the presence of regulated surface water resources. These limits do not necessarily reflect the boundaries of any proposed development activities. The project area is generally bounded by Chicago-Rockford International Airport to the north and east, an agricultural field and an active mining operation to the south, and a former quarry and open water pond to the west. The project area is located within the Rock River watershed.

The project area contains a mosaic of various land-use areas which can be broadly placed into four main categories: airport infrastructure, the Bell Bowl Prairie Illinois Natural Area Inventory (INAI) Site, agricultural fields, and open fallow field.

Infrastructure associated with the Chicago-Rockford International Airport, including airplane hangars, maintenance roadways, parking lots, and various building structures, are generally concentrated within the eastern portion of the project area, with the runway tarmac extending along the northern boundary of the project area. Mowed turf grass areas occupy much of the space between roadways and buildings.

The Bell Bowl Prairie INAI site, located within the central portion of the project area, is a historically remnant prairie situated along a hillslope that forms a natural amphitheater along the northwest end. The amphitheater was christened “Bell Bowl” during World War I, when the airport and surrounding area operated as Camp Grant under the U.S. Army *(“Overview & History - Chicago Rockford Int'l Airport.” Chicago Rockford International Airport | FlyRFD.com, flyrfd.com/overview-history/.)* The INAI site consists of approximately 22 acres, with approximately 5.19 acres consisting of a high-quality natural area with several highly conservative native species present (Exhibit G: Bell Bowl Prairie INAI Site Map). The native mean Coefficient of Conservatism (ĉ) for the Bell Bowl Prairie INAI Site was 3.61, and the native Floristic Quality Index (FQI) of the Bell Bowl Prairie INAI Site was 29.30 (see attached Floristic Quality Data). These values indicate a high quality plant community.

The remainder of the Bell Bowl Prairie INAI Site has been degraded through the advancement of non-native species and lack of management. The northern portion of the bowl prairie area has been consistently mowed by Airport staff since the mid-1990’s and evidence of this was present during the field investigation. There were also some pockets of higher quality species located in this zone that were identified during the field investigation. The northern bowl portion consists of a mosaic of high-quality, moderate-quality, and some low-quality areas as well. Therefore, the northern bowl portion is identified as Moderate Quality Prairie on the attached map (Exhibit G: Bell Bowl Prairie INAI Site).

The remainder of the project area is largely occupied by agricultural field within the central and southwest portion of the project area and fallow field within the remaining portions. At the time of the field investigation, the agricultural fields were utilized for either Soybean (*Glycine max*), Alfalfa (*Medicago sativa*) or hay feed crops. A paved lot and building are located within the southwest portion of the project area, with Beltline Road providing vehicular access. Constructed drainage ditches and stormwater infrastructure are situated alongside Beltline Road, ultimately conveying water off-site to the southeast.

Three wetlands totaling approximately 1.27 acres were identified on the project area. One of the wetlands is considered a farmed wetland and totals 1.15 acres on-site. The limits of the farmed wetland were identified using protocol established by the U.S. Department of Agriculture and were not staked. Two non-farmed wetlands were identified on-site and total approximately 0.12 acres. Non-farmed wetland boundaries were identified and staked using methods sanctioned by the United States Army Corps of Engineers. Non-farmed wetland acreages provided in this report are estimations; a survey of the staked wetland boundaries must be performed in order to obtain exact size and location information.

Basic information regarding wetland regulations may be found in the Regulatory Statement portion of this report. Briefly, the U.S. Army Corps of Engineers (USACE) regulates all Waters of the United States that are currently or historically navigable, all wetlands that are connected to or associated with these waterways, and any wetlands located within the floodplain or are considered ‘neighboring’, ‘adjacent’, or have a ‘significant nexus’ to a jurisdictional waterway. Currently, no wetland ordinances are identified for Winnebago County, however, isolated wetlands are regulated through implementation of the Rockford Code of Ordinances and requires preservation of isolated wetlands during development, all mitigation to be local, and buffer requirements are to be in accordance with USACE regulations. It appears that the wetlands identified on site are isolated and therefore not regulated by the USACE, however, the USACE must make a final determination regarding jurisdictional status. If the USACE finds a connection to the Rock River or Kishwaukee River, all three wetlands may be considered jurisdictional under the revised Clean Water Act guidance of 2015.

Based on an August 30, 2018 review of the U.S. Fish and Wildlife Service (USFWS) technical assistance website, sensitive (federally threatened or endangered) plant or animal species habitat may be located on or adjacent to the project area, specifically the Rusty Patched Bumble Bee (*Bombus affinis*) and the Prairie Bush Clover (*Lespedeza leptostachya*) (see attached USFWS Review Summary). Further consultation with this agency is required for a Section 404 Permit from the USACE.

According to the Illinois Department of Natural Resources (IDNR), the following protected resources may be in the vicinity of the project location: Bell Bowl Prairie INAI Site, Johns Mound Group INAI Site, Kishwaukee River INAI Site, Rock River Rockford Segment INAI Site, Johns Mound Group Land and Water Reserve, American Brook Lamprey (*Lethenteron appendix*), Black Sandshell (*Ligumia recta*), and the Large-Flowered Beard Tongue (*Penstemon grandifloras*). Formal consultation with the IDNR has not been initiated by ENCAP, Inc. If the project moves forward into permitting stages, a formal consultation with the IDNR will be required. As noted, the Bell Bowl Prairie INAI site is located within the project boundaries and any project development will need to be coordinated with the IDNR. The Large-Flowered Beard Tongue was not located on-site; however, a formal survey for the species was not conducted by ENCAP, Inc. It appears that the other listed resources are not likely to be located on-site.

At the time of this wetland delineation report, current regulations state that this delineation is valid for 3 years from the date of site visit.

PROJECT PURPOSE

The purpose of the site visit was to identify regulated surface water resources on, or within 100 feet of the project area. A floodplain determination was not included as part of our investigation. On-site wetland areas encountered were delineated using standard methods sanctioned by the United States Army Corps of Engineers in the Corps of Engineers Wetlands Delineation Manual (1987) and 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region and the United States Department of Agriculture National Food Security Act Manual (1994 and 1996). Plant observations were made for calculating the Coefficient of Conservatism (ĉ) and Floristic Quality Index (FQI) for each wetland plant community using the Wilhelm method (Swink and Wilhelm, 1994).

METHODS

1987 USACE Wetland Delineation Manual and 2010 Midwest Regional Supplement.

Prior to the site visit, a preliminary site evaluation is performed using aerial photography and natural resource mapping. Potential wetland areas identified by these resources are evaluated in the field to determine if they meet the requirements for a wetland based on the USACE parameters of vegetation, hydrology, and soils. In general, positive indication of each of the three parameters must be demonstrated to classify an area as wetland. Each of these parameters is discussed below.

- **Vegetation** – Three vegetative indicators are applied to plant communities in order to determine if the hydrophytic vegetation criterion is met.
    1. More than 50% of the dominant plant species across all strata must be hydrophytic (water tolerant). The U.S. Fish Wildlife Service has prepared a regional list of plants occurring in wetlands which assigns the plant species different indicators. Wetland plants fall into three indicator classes based on differing tolerances to water level and soil saturation. These indicators are rated obligate wetland (OBL), facultative wetland (FACW), or facultative (FAC). Dominant plant species are recorded at sample points within investigated areas.
    2. The prevalence index is 3.0 or less. The prevalence index is a weighted-average wetland indicator status of all plant species in a sampling plot. Each indicator status category is given a numeric value (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and weighting is by abundance. A prevalence index of 3.0 or less indicates that hydrophytic vegetation is present. The prevalence index is used to determine whether hydrophytic vegetation is present on sites where indicators of hydric soil and wetland hydrology are present but the vegetation initially fails the dominance test.
    3. The plant community passes either the dominance test (Indictor 1) or the prevalence index (Indicator 2) after reconsideration of the indicator status of certain plant species that exhibit morphological adaptations for life in wetlands. Common morphological adaptations include but are not limited to adventitious roots, multi-stemmed trunks, shallow root systems developed on or near the soil surface, and buttressing in tree species. To apply this indicator, these morphological features must be observed on more than 50% of the individuals of a FACU species living in an area where indicators of hydric soil and wetland hydrology are present.

- **Hydrology** – To be considered a wetland, an area must have 14 or more consecutive days of flooding or ponding, or a water table 12 inches or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10. Wetland hydrology indicators are divided into four groups as described below:
    - **Group A** – indicators are based on the direct observation of surface water or groundwater during a site visit.
    - **Group B** – consists of evidence that the site is subject to flooding or ponding, although it may not be inundated currently. These indicators include water marks, drift deposits, sediment deposits, and similar features.
    - **Group C** – consists of other evidence that the soil is saturated currently or was saturated recently. Some of these indicators, such as oxidized rhizopheres surrounding living roots and the presence of reduced iron or sulfur in the soil profile, indicate that the soil has been saturated for an extended period.

    - **Group D** – consists of landscape and vegetation characteristics that indicate contemporary rather than historical wet conditions. These indicators include stunted or stressed plants, geomorphic position, and the FAC-neutral test.

  Wetland hydrology indicators are intended as one-time observations of site conditions that are sufficient evidence of wetland hydrology. Within each group, indicators are divided into two categories – *primary* and *secondary*. One primary indicator from any group is sufficient to conclude that wetland hydrology is present. In the absence of a primary indicator, two or more secondary indicators from any group are required to conclude that wetland hydrology is present.

- **Soils -** To be considered a wetland, an area must contain hydric soil. Hydric soils are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic (lacking oxygen) conditions in the upper part. Soils generally, but not always, will develop indicators that are formed predominantly by the accumulation or loss of iron, manganese, sulfur, or carbon compounds in a saturated and anaerobic environment. The most current edition of the United States Department of Agriculture, Natural Resource Conservation Service *Field Indicators of Hydric Soils in the United States* is used for identification of hydric soils. Field indicators of hydric soils include but are not limited to the presence of any of the following: histic epipedon, sulfidic odor, at least 2 centimeters of muck, depleted matrix, and/or redoximorphic features. Field indicators are usually examined in the top 24 inches of the soil. Soil colors are determined using *Munsell Soil Color Charts*.

In most circumstances areas meeting these three criteria are staked in the field for surveying purposes. Boundaries are demarcated in the field with pink flagged pin stakes labeled "WETLAND DELINEATION." Staked boundaries are mapped on an aerial photograph included in this report. Approximate off-site wetland boundaries are identified on the aerial photograph and were determined using available aerial photographs, wetland maps, and field observation.

Farmed Wetland Determinations.

ENCAP, Inc. conducted a wetland determination on the farmed portion of the project area using National Food Security Act Manual (NFSAM) methodology. Aerial photographs are reviewed in order to identify potential farmed wetland signatures. The identified suspect areas are then field investigated to confirm that the areas are in fact wetlands. Copies of the aerial photographs used in identifying farmed wetlands are included in this report.

MAP REVIEW

- The **National Wetlands Inventory** identifies *Lacustrine Limnetic Unconsolidated Bottom Permanently Flooded Excavated Wetland (L1UBHx)* and *Palustrine Unconsolidated Bottom Intermittently Exposed Excavated Wetland (PUBGx)* directly off-site of the westernmost boundary of the project area (Exhibit B).

- The **Soil Map** identifies the following soils within the project area: Rodman gravelly loam (93E2), Hoopeston sandy loam (172A), Warsaw loam (290A, 290B), Will loam (329A), Hononegah loamy coarse sand (354A), Jasper silt loam (440A), Kishwaukee silt loam (623A), Flagler sandy loam (783A), Orthents (802B), Pits, quarries (864), Rodman-Warsaw complex (939D2), and Comfrey loam (3776A). Will loam (329A) and Comfrey loam (3776A) are considered hydric in Winnebago County (Exhibit C).

- The **2017 United States Geologic Survey (USGS) Topographic Map** does not identify any surface drainage within or adjacent to the project area. One open water pond is located west of the site (Exhibit D).

- The **Flood Insurance Rate Map** identifies area of 100-year floodplain within the southern portion of the project area and special flood hazard areas with base flood elevations (Zone AE) within the majority of the south and west portions of the project area (Exhibit E).

- The **Illinois State Historic Preservation Office (ISHPO) Historic Architectural Resources Geographic Information System (HARGIS) Map** identifies the eastern ¾ of the site as within the high probability archeology area (Exhibit F).

SPECIFIC DESCRIPTION OF IDENTIFIED WATER RESOURCES

Wetland 1. This wetland (approximately 0.09 acres in total size) is located within the northwest portion of the project area. The wetland occurs at the bottom of a steeply sloped constructed drainage ditch situated alongside Beltline Road and collects stormwater through a stormwater culvert that directly discharges into the wetland, as well as overland flows from the surrounding area (Photographs 1-8). Collected stormwater pools within the area before flowing southeast, where it is ultimately carried off-site. The remainder of the constructed drainage ditch along the northern side of Beltline Road does not feature pooling, and therefore no additional wetland areas were identified. The wetland area is comprised mostly of low-quality and non-native scrub-shrub vegetation with few instances of native vegetation. A Red-Tailed Hawk (*Buteo jamaicensis*), Monarch Butterflies (*Danaus plexippus*), and various insect species were identified within the wetland area.

The buffer surrounding the wetland is comprised of Giant Ragweed (*Ambrosia trifada*), Smooth Brome (*Bromus inermis*), Meadow Fescue (*Schedonorus pratensis*), and Honey-Locust (*Gleditsia triacanthos*) along with non-native, scrub-shrub vegetation dominated by Honeysuckle (*Lonicera* spp.) and European Buckthorn (*Rhamnus cathartica*). The area directly west of Wetland 1 consists of stone rip-rap and is steeply sloped, directing stormwater directly into the drainage ditch. Wetland 1 appears to be isolated and therefore, not under the jurisdiction of the U.S. Army Corps of Engineers; however, the wetland is subject to regulation through the City of Rockford Code of Ordinances. Chapter 109 – Stormwater Management. Article IV. Protection of Special Management Areas. Ord. No. 2015-093-O, 5-4-2015. Based on the definition of a high-quality aquatic resource, Wetland 1 would not be considered a high quality aquatic resource.

Two sample points were established within and adjacent to Wetland 1 to characterize the vegetation, soils, and hydrology (Exhibit H: Aerial Photograph). The wetland boundaries were demarcated with 14 pink flagged pin stakes.

Wetland 1 was primarily vegetated by Willows (*Salix* spp.), Reed Canary Grass (*Phalaris arundinacea*), Pinkweed (*Persicaria pensylvanica*), and European Buckthorn. The mapped soil series is Will loam (329A), a hydric soil. USDA field indicator F6: Redox Dark Surface, provided evidence of hydric soil. High water table, saturation, drift deposits, drainage patterns, geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology (See Wetland Determination Data Forms).

The native mean Coefficient of Conservatism (ĉ) for Wetland 1 was 1.52, and the native Floristic Quality Index (FQI) of Wetland 1 was 8.17 (see attached Floristic Quality Data). These values indicate a low quality plant community.

Wetland 2. This wetland (approximately 0.03 acres in total size) is located within the western portion of the project area. The wetland is located within a constructed drainage ditch alongside the southern side of Beltline Road, and is directly southeast of Wetland 1, which is located on the opposite side of Beltline Road. Wetland 2 features a stormwater culvert that is directly associated with Wetland 1, and overflow stormwater from Wetland 1 is discharged into Wetland 2, along with overland flows from the surrounding area. Collected stormwater then pools within the immediate area before flowing southeast, where it is ultimately carried off-site. The wetland area is comprised mostly of low-quality and non-native scrub-shrub vegetation with few instances of native vegetation (Photographs 9-12). Monarch Butterflies and various insect species were identified within the wetland area.

The buffer surrounding the wetland is comprised of Reed Canary Grass, Tall Nettle (*Urtica dioica* ssp. Gracilis), and non-native, scrub-shrub vegetation dominated by European Buckthorn and Willows. Wetland 2 appears to be isolated and therefore, not under the jurisdiction of the U.S. Army Corps of Engineers; however, the wetland is subject to regulation through the City of Rockford Code of Ordinances. Chapter 109 – Stormwater Management. Article IV. Protection of Special Management Areas. Ord. No. 2015-093-O, 5-4-2015. Based on the definition of a high-quality aquatic resource, Wetland 2 would not be considered a high quality aquatic resource.

Two sample points were established within and adjacent to Wetland 2 to characterize the vegetation, soils, and hydrology (Exhibit H: Aerial Photograph). The wetland boundaries were demarcated with 7 pink flagged pin stakes.

Wetland 2 was primarily vegetated by Reed Canary Grass, Willows, and Riverbank Grape (*Vitis riparia*). The mapped soil series is Hononegah loamy coarse sand, 0 to 2 percent slopes (354A), a non-hydric soil. USDA field indicator A11: Depleted Below Dark Surface, provided evidence of hydric soil. High water table, saturation, watermarks, water-stained leaves, drainage patterns, geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology (See Wetland Determination Data Forms).

The native mean Coefficient of Conservatism (ĉ) for Wetland 2 was 1.21, and the native Floristic Quality Index (FQI) of Wetland 2 was 5.28 (see attached Floristic Quality Data). These values indicate a low quality plant community.

Farmed Wetland 1. This wetland (1.15 acres in total size) is located within the western portion of the project area. The wetland is located within a tiled and tilled agricultural field, currently utilized for Soybean (*Glycine max*) production (Photographs 13-14). Farmed Wetland 1 exhibited wetland signatures in 4 out of 5 historic aerial photographs from years with normal precipitation. The location and acreage of Farmed Wetland 1 were determined through aerial photograph interpretation, and its boundaries were not field staked by ENCAP, Inc. Based on the definition of a high-quality aquatic resource, Farmed Wetland 1 would not be considered a high quality aquatic resource. Monarchs and various insect species were observed within the wetland area.

The buffer surrounding the wetland is comprised of Hairy Crab Grass (*Digitaria sanguinalis*), Large Barnyard Grass (*Echinochloa crusgalli*), and Soybean. Farmed Wetland 1 appears to be isolated and therefore, not under the jurisdiction of the U.S. Army Corps of Engineers; however, the wetland is subject to regulation through the City of Rockford Code of Ordinances. Chapter 109 – Stormwater Management. Article IV. Protection of Special Management Areas. Ord. No. 2015-093-O, 5-4-2015.

One sample point was established within Farmed Wetland 1 to characterize the vegetation, soils, and hydrology (Exhibit H: Aerial Photograph).

Farmed Wetland 1 was primarily vegetated by Hairy Crab Grass, Large Barnyard Grass, and Soybean. The mapped soil series is Will loam (329A), a hydric soil. USDA field indicator F6: Redox Dark Surface, provided evidence of hydric soil. Algal mat or crust, saturation visible on aerial imagery, geomorphic position, and a review of historic aerial photographs provided evidence of persistent hydrology (See Wetland Determination Data Forms).

The native mean Coefficient of Conservatism (ĉ) for Farmed Wetland 1 was 0.00, and the native Floristic Quality Index (FQI) of Farmed Wetland 1 was 0.00 (see attached Floristic Quality Data). These values indicate a low quality plant community.

INVESTIGATION OF FARMED AREAS

During the field investigation, large portions of the site consisted of agricultural land. ENCAP, Inc. evaluated Farm Service Agency (FSA) aerial photographs (slides) year-by-year using NRCS wetland signature criteria. Wetland signatures consist of wetland vegetation, surface water, drowned-out crops, patches of greener vegetation, and avoided areas. Areas exhibiting wetland signatures in >50% or more of reviewed aerial photographs and containing hydric soil are considered farmed wetlands. Additionally, if areas do not exhibit wetland signatures in >50% or more of reviewed aerial photographs but do exhibit positive primary or secondary wetland hydrology indicators in the field, they are also considered farmed wetlands. See the attached aerial photographs for years reviewed and wetland signatures observed. WETS Station data from Rockford, Illinois (closest location available) is also attached.

Table 1. Slide Analysis Summary
CMT / Chicago-Rockford International Airport, Midfield Development

Year	**Precipitation**	**Sample Point** Type of Signature
		H
2000	WET	Signature/Discoloration Observed
2004	NORMAL	Signature/Discoloration Observed
2006	NORMAL	Signature/Discoloration Observed
2007	NORMAL	Signature/Discoloration Observed
2011	NORMAL	No Wetland Signature Observed
2014	NORMAL	Signature/Discoloration Observed
Percent wetland signatures present in years with normal precipitation		80%
Hydric soil present based on field inspection		Yes
Identified as wetland on the NWI		No
Qualifies as Farmed Wetland		Yes

ADDITIONAL AREAS INVESTIGATED FOR WETLAND STATUS

Seven additional vegetated sites located within the project area were examined to determine if they satisfied wetland criteria. None of these sites so qualified; therefore, they are referred to as Investigated Areas in this report. Each area is briefly described herein and USACE data forms are provided to support our negative findings (See USACE data forms).

Investigated Area 1. This investigated area is located in the northern portion of the project area (Exhibit H: Aerial Photograph – Sample Point A). This area was investigated because it consisted of a topographic depression containing several rutted areas and potential wetland hydrology (Photographs 15-16).

Investigated Area 1 was primarily vegetated by Meadow Fescue and Large Barnyard Grass. The mapped soil series is Rodman-Warsaw complex (939D2), a non-hydric soil. USDA Hydric Soil Indicator F6: Redox Dark Surface provided evidence of hydric soil. Evidence of persistent hydrology was not observed (See Wetland Determination Data Forms).

Based on the dominance of upland plant species and the non-persistent hydrology, Investigated Area 1 does not qualify as wetland.

Investigated Area 2. This investigated area is located in the north central portion of the project area (Exhibit H: Aerial Photograph – Sample Point B). This area was investigated because it consisted of a constructed drainage ditch that contained a mixture of upland and hydrophytic vegetation and potential wetland hydrology (Photographs 17-18).

Investigated Area 2 was primarily vegetated by Giant Ragweed. The mapped soil series is Hononegah loamy coarse sand (354A), a non-hydric soil. The field investigated soils did not exhibit hydric characteristics and evidence of persistent hydrology was not observed (See Wetland Determination Data Forms).

Based on the non-persistent hydrology and the presence of non-hydric soil, Investigated Area 2 does not qualify as wetland.

Investigated Area 3. This investigated area is located in the western portion of the project area (Exhibit H: Aerial Photograph – Sample Point E). This area was investigated because it consisted of a topographic depression within a tiled and tilled agricultural field that contained stressed vegetation (Photographs 19-20).

Investigated Area 3 was primarily vegetated by Soybean. The mapped soil series is Hononegah loam coarse sand (354A), a non-hydric soil. The field investigated soils did not exhibit hydric characteristics and evidence of persistent hydrology was not observed (See Wetland Determination Data Forms).

Based on the non-persistent hydrology, and the presence of non-hydric soil, Investigated Area 3 does not qualify as farmed wetland.

Investigated Area 4. This investigated area is located in the southeast portion of the project area (Exhibit H: Aerial Photograph – Sample Point I). This area was investigated because it consisted of a constructed drainage swale containing a mixture of upland and hydrophytic vegetation and potential wetland hydrology (Photographs 21-22).

Investigated Area 4 was primarily vegetated by Large Barnyard Grass and Kentucky Bluegrass (*Poa pratensis*). The mapped soil series is Orthents (802B), a non-hydric soil. The field investigated soils did not exhibit hydric characteristics; at 9” below the soil surface a clay/fill liner was observed at this location. Surface water, high water table, saturation, drainage patterns, and a positive FAC-neutral test provided evidence of persistent hydrology (See Wetland Determination Data Forms).

Based on the presence of non-hydric soil, Investigated Area 4 does not qualify as wetland.

Investigated Area 5. This investigated area is located in the southeast portion of the project area (Exhibit H: Aerial Photograph – Sample Point J). This area was investigated because it consisted of a topographic depression that appeared to collect runoff from an adjacent hillslope and featured a mixture of upland and hydrophytic vegetation (Photograph 23-24).

Investigated Area 5 was primarily vegetated by Scouring Rush (*Equisetum hyemale*), Smooth Brome, and scrub-shrub vegetation dominated by Smooth Sumac (*Rhus glabra*). The mapped soil series is Rodman-Warsaw complex (939D2), a non-hydric soil. The field investigated soils did not exhibit hydric characteristics. The soils from 12-16” below the surface contained clay, glass, and coal ash debris. Evidence of persistent hydrology was not observed (See Wetland Determination Data Forms).

Based on the non-persistent hydrology and the presence of non-hydric soil, Investigated Area 5 does not qualify as wetland.

Investigated Area 6. This investigated area is located in the eastern portion of the project area (Exhibit H: Aerial Photograph – Sample Point K). This area was investigated because it consisted of a topographic depression that appeared to collect runoff from an adjacent hillslope and featured a mixture of upland and hydrophytic vegetation (Photographs 25-26).

Investigated Area 6 was primarily vegetated by Hairy Aster (*Symphyotricum pilosum*), Prairie Cordgrass (*Spartina pectinata*), Wild Parsnip (*Pastinaca sativa*) and scrub-shrub vegetation dominated by Smooth Sumac. The mapped soil series is Comfrey loam (3776A), a hydric soil. The field investigated soils did not exhibit hydric characteristics and evidence of persistent hydrology was not observed (See Wetland Determination Data Forms).

Based on the dominance of upland plant species, non-persistent hydrology, and the presence of non-hydric soil, Investigated Area 6 does not qualify as wetland.

Investigated Area 7. This investigated area is located in the eastern portion of the project area (Exhibit H: Aerial Photograph – Sample Point L). This area was investigated because it consisted of a topographic depression that appeared to collect runoff from an adjacent hillslope and featured a mixture of upland and hydrophytic vegetation (Photographs 27-28).

Investigated Area 7 was primarily vegetated by Reed Canary Grass, Scouring Rush, and scrub-shrub vegetation dominated by Common Hoptree (*Ptelea trifoliata*) and Smooth Sumac. The mapped soil series is Comfrey loam (3776A), a hydric soil. The field investigated soils did not exhibit hydric characteristics. The soils from 10-16” below the surface contained glass and coal ash debris. Evidence of persistent hydrology was not observed (See Wetland Determination Data Forms).

Based on the dominance of upland plant species, non-persistent hydrology, and the presence of non-hydric soil, Investigated Area 7 does not qualify as wetland.

REGULATORY STATEMENT

Federal Regulations: The deposition of dredged or fill materials into federally jurisdictional wetlands or Waters of the United States is regulated by the USACE under Section 404 of the Clean Water Act.

The Nationwide 39 Permit authorizes 0.1 acre or less of low quality wetlands to be filled without mitigation. If over 0.1 acre is proposed for filling or is subject to secondary impacts, in-kind mitigation may be required at a ratio of 1.5:1, or greater. The aggregate total loss of waters of the U.S. authorized by NWP 39 cannot exceed 0.5 acre or 300 linear feet of streambed.

Under the existing regulations, secondary impacts (both on-site and off-site) from filling also must be evaluated. Mitigation may be required at a higher rate if a project will significantly alter wetland functions such as stormwater detention, water filtration, sediment trapping, and/or wildlife habitat.

Before mitigation will be approved, reasonable proof that avoidance or minimization of wetland impacts has been attempted must be provided to the Corps.

A USACE permit is not required if the wetlands are avoided and construction erosion near a wetland is controlled.

Winnebago County, IL: None. 2/15/07 Rick Mohaupt, County Engineer, 815-319-4031)

City of Rockford Code of Ordinances. Chapter 109 – Stormwater Management. Article IV. Protection of Special Management Areas. Ord. No. 2015-093-O, 5-4-2015.

Sec. 109-50. - Requirements for wetland delineation.

(a) Before any development in or near waters of the U.S., or in or near isolated wetlands or farmed wetlands, a written report identifying and evaluating the boundaries, location, limits, area and quality of all onsite wetlands shall be submitted. The presence and limits of wetland areas shall be determined by a wetland delineation conducted in accordance with the 1987 Corps of Engineers Wetland Delineation Manual. Wetland delineations under this section shall be valid for three years. The presence of farmed wetlands shall be determined by NRCS.

(b) Before any development on agricultural land, in addition to the onsite delineation required under the previous paragraph, a certified wetland determination shall be obtained from NRCS.

(c) Delineations for permitting purposes shall be performed only during the period beginning on the last Monday of March and ending on the third Friday of November.

(d) The approximate location, extent and relative quality of wetlands within 50 feet of the site shall be identified and included in the written report. The location and extent of such offsite wetlands shall be determined by using the first of the following documents or procedures pertaining at the time of development:

(1) Site specific delineation according to the 1987 Manual. If such delineation is not available, then:

(2) Wetlands identified in watershed plans or studies. If such plans are not available, then:
(3) Wetlands identified in interim watershed plans. If such plans are not available, then:
(4) Wetlands identified on NRCS wetlands inventory maps.

Sec. 109-77. - Wetland submittal.

(a) The applicant shall obtain a permit for all federally regulated activities involving waters of the US from the appropriate federal authorities. The applicant shall indicate on the plan set the location of any onsite wetland mitigation required by a COE permit and, in narrative form, the location of all onsite mitigation.

(b) A wetland submittal in accordance with the detailed requirements of sections 109-43, 109-51 and 109-52 shall be required. In general, the submittal will consist of the following material:

(1) Wetland delineation report (COE format);
(2) Wetland delineation plan view drawing: a. All existing and proposed impacted or undisturbed onsite wetlands; b. Location of buffers; c. Planting plan for buffers; and d. Identify all required wetland management activities.
(3) For all stream modifications, the following shall be submitted: a. A plan and profile of the existing and proposed channel; and b. Supporting calculations for channel width, depth, sinuosity, riffle locations and the like.

Illinois Department of Natural Resources Agency Action Plans for Interagency Wetlands Policy Act of 1989: The Illinois Interagency Wetlands Policy Act of 1989 is intended to ensure that there is no overall net loss of the State's existing wetland acres or their functional values resulting from State-supported activities. The Act charges State agencies with a further duty to "preserve, enhance and create wetlands where necessary to increase the quality and quantity of the State's wetland resource base."

The Interagency Wetlands Policy Act of 1989 states that any construction, land management or other activity performed by, or for which financial assistance is administered or provided by, a State agency that will result in an adverse impact to a wetland shall be subject to compliance. This includes, but is not limited to the following:

- The alteration, removal, excavation, or dredging of soil, sand, gravel, minerals, organic matter, vegetation, or naturally occurring minerals of any kind from a wetland;
- The discharge or deposit of fill material or dredged material in a wetland;
- The alteration of existing drainage characteristics, sedimentation patterns, or flood retention characteristics of a wetland;
- The disturbance of water level or water table of a wetland;
- The destruction or removal of plant life that would alter the character of a wetland, except for activities undertaken in accordance with the Illinois Noxious Weed Act;
- The transfer of State owned wetlands to any entity other than another state agency; and
- Other actions that cause or may cause adverse wetland impacts.

The Act is to be implemented through a State Wetland Mitigation Policy. The State Wetland Mitigation Policy requires preservation of wetlands as the primary objective. Where adverse wetland impacts are unavoidable, progressive levels of compensation based upon the level of impact to the existing wetland and the location of compensation wetlands are required.

Archaeological Survey Requirements: An archaeological survey may be required before a Section 404 permit will be issued for wetland impacts. The U.S. Army Corps of Engineers will make this determination as part of the permit application review. The archaeological survey must cover all areas of the project area, not wetlands only. If you already have a letter from the Illinois State Historic Preservation Office (ISHPO) stating an archaeological survey is required, you should act on it because the USACE will support this notification.

RECOMMENDATIONS

Three wetlands totaling approximately 1.27 acres were identified on the project area. The boundaries of Farmed Wetland 1 were not field staked by ENCAP, Inc. Farmed wetland boundaries must be scaled from the attached aerial photograph (Exhibit H) onto the property boundary survey.

The U.S. Army Corps of Engineers has the final authority in determining the jurisdictional status of the wetlands identified on site. ENCAP, Inc. recommends that a request for jurisdictional determination be sent to the U.S. Army Corps of Engineers as soon as possible.

Any impacts to jurisdictional wetland, Waters of the U.S., or associated buffers will require U.S. Army Corps of Engineers and/or City of Rockford notification. ENCAP, Inc. can assist you with the request for jurisdictional determination, permit applications, agency negotiations, wetland design plans, and mitigation plans which may be applicable to your project. The wetland consultant should be involved during the planning and design stages of the project to avoid complications with the agencies after the plan has been drafted. Proper planning regarding wetlands can reduce delays caused by the permitting process and costly changes in site plans.

The Corps of Engineers will not typically perform wetland boundary verifications during the winter season. If an application for a wetland permit will be submitted to the Corps of Engineers during the winter months, we recommend that a request for concurrence of jurisdictional boundaries be sent to the Corps during the growing season. This will prevent a delay in the permitting process. ENCAP, Inc. is available to assist you with obtaining Corps concurrence.

The Bell Bowl Prairie INAI site, located within the central portion of the project area, is a historically remnant prairie situated along a hillslope that forms a natural amphitheater along the northwest end. The INAI site consists of approximately 22 acres, with approximately 5.19 acres consisting of a high-quality natural area with several highly conservative native species present. The native mean Coefficient of Conservatism (ĉ) for the Bell Bowl Prairie INAI Site was 3.61, and the native Floristic Quality Index (FQI) of the Bell Bowl Prairie INAI Site was 29.30 (see attached Floristic Quality Data). These values indicate a high quality plant community. The remainder of the Bell Bowl Prairie INAI Site has been degraded through the advancement of non-native species and lack of management. ENCAP, Inc. recommends further coordination with IDNR officials to determine permitting requirements for the Bell Bowl Prairie INAI Site.

REFERENCES

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USFWS Section 7 Consultation Review Summary

ENCAP
INCORPORATED

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DeKalb, IL 60115
Phone: 815.748.4500
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August 30, 2018

U.S. Fish and Wildlife Service
Illinois-Iowa Field Office
1511 47th Avenue
Moline, IL 61265

Re: USFWS Review Summary - Section 7 Endangered Species Act Consultation
Project: Chicago-Rockford International Airport, Midfield Development, located in Illinois, Winnebago County, Rockford Township, Rockford, T43N R1E Section 22; Latitude 42.190832 N; Longitude -89.102849 W
ENCAP, Inc. Project # 18-0609A
Client: Crawford, Murphy & Tilly, Inc.

The project area consists of a mosaic of various land-use areas which can be broadly placed into four main categories: airport infrastructure, the Bell Bowl Prairie Illinois Natural Area Inventory (INAI) Site, agricultural field, and open fallow field. The topography features large hillslopes, steep ravines, and large, flat expanses of land.

ENCAP, Inc. carefully reviewed the U.S. Fish and Wildlife Service (USFWS) technical assistance website on August 30, 2018, for federally listed threatened and endangered species. According to the website, 5 species are listed and may be present in Winnebago County: the Indiana Bat (*Myotis sodalis*), the Northern Long-Eared Bat (*Myotis septentrionalis*), the Rusty-Patched Bumble Bee-RPBB (*Bombus affinis*), the Eastern Prairie Fringed Orchid (*Platanthera leucophaea*), and Prairie Bush Clover (*Lespedeza leptostachya*).

Three low-quality wetlands totaling approximately 1.27 acres were identified within the project area. Wetland 1 consists of a constructed drainage ditch and features a native mean C-value of 1.52 and a native FQI value of 8.17. Wetland 2 consists of a constructed drainage ditch and features a native mean C-value of 1.21 and a native FQI value of 5.28. The third wetland is considered a farmed wetland and features a native mean C-value of 0.00 and a native FQI value of 0.00.

Wetlands 1 and 2 contain flowering forbs and therefore may support habitat for the Rusty Patched Bumble Bee. Additionally, the northern portion of the site has been planted with Alfalfa and other flowing plants, and therefore may also support habitat for the RPBB. In order to determine the potential presence or habitat of the Rusty Patched Bumble Bee, ENCAP, Inc. recommends that further consultation and coordination with the USFWS be initiated prior to and during project permitting, in order to obtain guidance for this listed species.

The on-site Bell Bowl Prairie INAI Site supports habitat for the Prairie Bush Clover. Although, during the wetland delineation and plant inventory for the Prairie this species was not found, a formal survey for the species has not been conducted. ENCAP, Inc. recommends that further consultation and coordination with the USFWS be initiated prior to and during project permitting, in order to obtain guidance for this listed species.

None of the above wetlands contain upland forests or wet to mesic prairie habitats that would support the remainder of the above listed species. Therefore, with the exception of the Rusty Patched Bumble Bee and Prairie Bush Clover, ENCAP, Inc. concludes that the Chicago-Rockford International Airport, Midfield Development project does not contain the aforementioned listed species, their habitats, or designated critical habitat and will have “no effect” on the aforementioned species.

Susan Rowley, PWS, CWS, LEED AP
Ecological Consulting Director
ENCAP, Inc.

IDNR EcoCAT Natural Resources Review Results

Applicant:	ENCAP, Inc.	*IDNR Project Number:*	1901591
Contact:	Paul Meuer	*Date:*	08/15/2018
Address:	2585 Wagner Court DeKalb, IL 60115	*Alternate Number:*	18-0609A

Project: CMT Project
Address: Chicago Rockford International Airport, Rockford

Description: Wetland delineation for project planning purposes.

Natural Resource Review Results

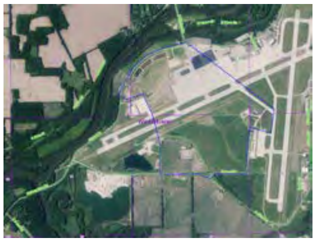
This project was submitted for information only. It is not a consultation under Part 1075.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Bell Bowl Prairie INAI Site
Johns Mound Group INAI Site
Kishwaukee River INAI Site
Rock River Rockford Segment INAI Site
Johns Mound Group Land And Water Reserve
American Brook Lamprey *(Lethenteron appendix)*
Black Sandshell *(Ligumia recta)*
Black Sandshell *(Ligumia recta)*
Large-Flowered Beard Tongue *(Penstemon grandiflorus)*

Location

The applicant is responsible for the accuracy of the location submitted for the project.



County: Winnebago

Township, Range, Section:
43N, 1E, 14
43N, 1E, 15
43N, 1E, 16
43N, 1E, 22
43N, 1E, 23

IL Department of Natural Resources Contact
Impact Assessment Section
217-785-5500
Division of Ecosystems & Environment

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

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1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

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EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.

EcoCAT Receipt

Project Code 1901591

APPLICANT	DATE
ENCAP, Inc. Susan Rowley 2585 Wagner Court DeKalb, IL 60115	8/15/2018

DESCRIPTION	FEE	CONVENIENCE FEE	TOTAL PAID
EcoCAT Consultation	$ 25.00	$ 1.00	$ 26.00

TOTAL PAID $ 26.00

Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
217-785-5500
dnr.ecocat@illinois.gov

Floristic Quality Data Sheets

SITE: Chicago Rockford International Airport - Midfield Development
LOCALE: Bell Bowl Prairie

BY: S. Rowley, K. McMahon, P. Meuer, R. Van Herik
NOTES: 8/23/2018

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	3.61	SPECIES RICHNESS (ALL)	102
MEAN C (ALL SPECIES)	2.33	SPECIES RICHNESS (NATIVE)	66
MEAN C (NATIVE TREES)	1.50	% NON-NATIVE	0.35
MEAN C (NATIVE SHRUBS)	2.88	WET INDICATOR (ALL)	0.83
MEAN C (NATIVE HERBACEOUS)	4.06	WET INDICATOR (NATIVE)	0.62
FQAI (NATIVE SPECIES)	29.30	% HYDROPHYTE (MIDWEST)	0.32
FQAI (ALL SPECIES)	23.57	% NATIVE PERENNIAL	0.60
ADJUSTED FQAI	29.01	% NATIVE ANNUAL	0.05
% C VALUE 0	0.47	% ANNUAL	0.14
% C VALUE 1-3	0.20	% PERENNIAL	0.80
% C VALUE 4-6	0.22		
% C VALUE 7-10	0.12		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
achmil	Achillea millefolium	ACHILLEA MILLEFOLIUM	Common Yarrow	0	FACU	FACU	1	Forb	Perennial	Adventive
euprug	Ageratina altissima	Eupatorium rugosum	White Snakeroot	3	FACU	FACU	1	Forb	Perennial	Native
agrsto	Agrostis stolonifera	Agrostis alba palustris	Spreading Bent	2	FACW	FACW	-1	Grass	Perennial	Native
ambart	Ambrosia artemisiifolia	Ambrosia artemisiifolia elatior	Annual Ragweed	0	FACU	FACU	1	Forb	Annual	Native
ambtri	Ambrosia trifida	Ambrosia trifida	Great Ragweed	0	FAC	FAC	0	Forb	Annual	Native
amocan	Amorpha canescens	Amorpha canescens	Leadplant	10	UPL	UPL	2	Shrub	Perennial	Native
andger	Andropogon gerardii	Andropogon gerardii	Big Bluestem	5	FAC	FACU	0	Grass	Perennial	Native
artlud	Artemisia ludoviciana	ARTEMISIA LUDOVICIANA	White Sage	0	UPL	UPL	2	Forb	Perennial	Adventive
ascsyr	Asclepias syriaca	Asclepias syriaca	Common Milkweed	0	FACU	UPL	1	Forb	Perennial	Native
ascver	Asclepias verticillata	Asclepias verticillata	Whorled Milkweed	1	FACU	UPL	1	Forb	Perennial	Native
berinc	Berteroa incana	BERTEROA INCANA	Hoary Alyssum	0	UPL	UPL	2	Forb	Annual	Adventive
boucur	Bouteloua curtipendula	Bouteloua curtipendula	Side-Oats Grama	8	UPL	UPL	2	Grass	Perennial	Native
broine	Bromus inermis	BROMUS INERMIS	Smooth Brome	0	FACU	UPL	1	Grass	Perennial	Adventive
consep	Calystegia sepium	Convolvulus sepium	Hedge False Bindweed	1	FAC	FAC	0	Forb	Perennial	Native
cxblan	Carex blanda	Carex blanda	Eastern Woodland Sedge	1	FAC	FAC	0	Sedge	Perennial	Native
cenmac	Centaurea stoebe ssp. micranthos	CENTAUREA MACULOSA	Spotted Knapweed	0	UPL	UPL	2	Forb	Biennial	Adventive

cirvul	Cirsium vulgare	CIRSIUM VULGARE	Bull Thistle	0	FACU	FACU	1	Forb	Biennial	Adventive
corpal	Coreopsis palmata	Coreopsis palmata	Prairie Tickseed	10	UPL	UPL	2	Forb	Perennial	Native
corobl	Cornus obliqua	Cornus obliqua	Pale Dogwood	5	FACW	FACW	-1	Shrub	Perennial	Native
corrac	Cornus racemosa	Cornus racemosa	Gray Dogwood	1	FAC	FAC	0	Shrub	Perennial	Native
cracru	Crataegus crus-galli	Crataegus crus-galli; Crataegus acutifolia	Cock-Spur Hawthorn	3	FAC	FAC	0	Tree	Perennial	Native
cypesc	Cyperus esculentus	Cyperus esculentus	Chufa	0	FACW	FACW	-1	Sedge	Perennial	Native
cyplup	Cyperus lupulinus	Cyperus filiculmis	Great Plains Flat Sedge	5	FACU	FACU	1	Sedge	Perennial	Native
dalpur	Dalea purpurea	Petalostemum purpureum	Purple Prairie-Clover	9	UPL	UPL	2	Forb	Perennial	Native
daucar	Daucus carota	DAUCUS CAROTA	Queen Anne's Lace	0	UPL	UPL	2	Forb	Biennial	Adventive
desill	Desmodium illinoense	Desmodium illinoense	Illinois Tick-Trefoil	9	UPL	UPL	2	Forb	Perennial	Native
potarg	Drymocallis arguta	Potentilla arguta	Prairie Cinquefoil	10	FACU	FACU	1	Forb	Perennial	Native
equhye	Equisetum hyemale	Equisetum hyemale	Tall Scouring-Rush	1	FACW	FAC	-1	Fern	Perennial	Native
eristr	Erigeron strigosus	Erigeron strigosus	Prairie Fleabane	5	FACU	FACU	1	Forb	Annual	Native
erivil	Eriochloa villosa	ERIOCHLOA VILLOSA	Chinese Cup Grass	0	UPL	UPL	2	Grass	Annual	Adventive
eupalt	Eupatorium altissimum	Eupatorium altissimum	Tall Boneset	0	UPL	UPL	2	Forb	Perennial	Native
eupcor	Euphorbia corollata	Euphorbia corollata	Flowering Spurge	4	UPL	UPL	2	Forb	Perennial	Native
frapen	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima; Fraxinus lanceolata	Green Ash	4	FACW	FACW	-1	Tree	Perennial	Native
gletri	Gleditsia triacanthos	Gleditsia triacanthos	Honey-Locust	1	FACU	FAC	1	Tree	Perennial	Native
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	4	FACW	FACW	-1	Forb	Perennial	Native
helhel	Heliopsis helianthoides	Heliopsis helianthoides	Smooth Oxeye	7	FACU	FACU	1	Forb	Perennial	Native
hyppun	Hypericum punctatum	Hypericum punctatum	Spotted St. John's-Wort	4	FAC	FAC	0	Forb	Perennial	Native
juntor	Juncus torreyi	Juncus torreyi	Torrey's Rush	2	FACW	FACW	-1	Forb	Perennial	Native
lepcog	Leptoloma cognatum	Leptoloma cognatum	Fall Witch Grass	1	UPL	UPL	2	Grass	Perennial	Native
lescap	Lespedeza capitata	Lespedeza capitata	Round-Head Bush-Clover	4	FACU	FACU	1	Forb	Perennial	Native
chrleu	Leucanthemum vulgare	CHRYSANTHEMUM LEUCANTHEMUM PINNATIFIDUM; LEUCANTHEMUM VULGARE VAR. PINNATIFIDUM	Ox-Eye Daisy	0	UPL	UPL	2	Forb	Perennial	Adventive
linvul	Linaria vulgaris	LINARIA VULGARIS	Butter-and-Eggs	0	UPL	UPL	2	Forb	Perennial	Adventive
lonmaa	Lonicera maackii	LONICERA MAACKII	Amur Honeysuckle	0	UPL	UPL	2	Shrub	Perennial	Adventive
lontat	Lonicera tatarica	LONICERA TATARICA	Twinsisters	0	FACU	FACU	1	Shrub	Perennial	Adventive
lotcor	Lotus corniculatus	LOTUS CORNICULATUS	Garden Bird's-Foot-Trefoil	0	FACU	FACU	1	Forb	Perennial	Adventive
medsat	Medicago sativa	MEDICAGO X VARIA	Alfalfa	0	FACU	UPL	1	Forb	Perennial	Adventive
melalb	Melilotus albus	MELILOTUS ALBA	White Sweet-Clover	0	UPL	UPL	2	Forb	Biennial	Adventive
monfis	Monarda fistulosa	Monarda fistulosa	Oswego-Tea	4	FACU	FACU	1	Forb	Perennial	Native
moralb	Morus alba	MORUS ALBA VAR. TATARICA	White Mulberry	0	FAC	FACU	0	Tree	Perennial	Adventive
oxavio	Oxalis violacea	Oxalis violacea	Purple Wood-Sorrel	8	UPL	UPL	2	Forb	Perennial	Native

pandic	Panicum dichotomiflorum	Panicum dichotomiflorum	Fall Panic Grass	0	FACW	FACW	-1	Grass	Annual	Native
panvir	Panicum virgatum	Panicum virgatum	Wand Panic Grass	3	FAC	FAC	0	Grass	Perennial	Native
parint	Parthenium integrifolium	Parthenium integrifolium	Wild Quinine	8	UPL	UPL	2	Forb	Perennial	Native
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	4	FACU	FACU	1	Vine	Perennial	Native
passat	Pastinaca sativa	PASTINACA SATIVA	Parsnip	0	UPL	UPL	2	Forb	Biennial	Adventive
polper	Persicaria maculosa	POLYGONUM PERSICARIA	Lady's-Thumb	0	FACW	FAC	-1	Forb	Annual	Adventive
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
plalan	Plantago lanceolata	PLANTAGO LANCEOLATA	English Plantain	0	FACU	FACU	1	Forb	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
poiden	Poinsettia dentata	EUPHORBIA DENTATA	Wild Poinsettia	0	UPL	UPL	2	Forb	Annual	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	0	FAC	FAC	0	Tree	Perennial	Native
potnor	Potentilla norvegica	Potentilla norvegica	Norwegian Cinquefoil	0	FAC	FAC	0	Forb	Annual	Native
pruser	Prunus serotina	Prunus serotina	Black Cherry	0	FACU	FACU	1	Shrub	Perennial	Native
ptetri	Ptelea trifoliata	Ptelea trifoliata	Common Hoptree	4	FACU	FACU	1	Shrub	Perennial	Native
ratpin	Ratibida pinnata	Ratibida pinnata	Yellow Coneflower	4	UPL	UPL	2	Forb	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
rhugla	Rhus glabra	Rhus glabra	Smooth Sumac	1	UPL	UPL	2	Shrub	Perennial	Native
rhutyp	Rhus hirta	Rhus typhina	Staghorn Sumac	1	UPL	UPL	2	Tree	Perennial	Native
robpse	Robinia pseudoacacia	ROBINIA PSEUDOACACIA	Black Locust	0	FACU	FACU	1	Tree	Perennial	Adventive
rosmul	Rosa multiflora	ROSA MULTIFLORA	Rambler Rose	0	FACU	FACU	1	Shrub	Perennial	Adventive
rubocc	Rubus occidentalis	Rubus occidentalis	Black Raspberry	0	UPL	UPL	2	Shrub	Perennial	Native
ruehum	Ruellia humilis	Ruellia humilis	Fringe-Leaf Wild Petunia	8	FACU	FACU	1	Forb	Perennial	Native
salfra	Salix fragilis	SALIX FRAGILIS	Crack Willow	0	UPL	UPL	2	Tree	Perennial	Adventive
salint	Salix interior	Salix interior	Sandbar Willow	2	FACW	FACW	-1	Shrub	Perennial	Native
sapoff	Saponaria officinalis	SAPONARIA OFFICINALIS	Bouncing-Bett	0	FACU	FACU	1	Forb	Perennial	Adventive
andsco	Schizachyrium scoparium	Andropogon scoparius	Little False Bluestem	5	FACU	FACU	1	Grass	Perennial	Native
scipun	Schoenoplectus pungens	Scirpus pungens	Three-Square	4	OBL	OBL	-2	Sedge	Perennial	Native
setfab	Setaria faberi	SETARIA FABERI	Japanese Bristle Grass	0	FACU	FACU	1	Grass	Annual	Adventive
setgla	Setaria pumila	SETARIA GLAUCA	Yellow Bristle Grass	0	FAC	FAC	0	Grass	Annual	Adventive
sillat	Silene latifolia	LYCHNIS ALBA	White Campion	0	UPL	UPL	2	Forb	Annual	Adventive
silste	Silene stellata	Silene stellata	Starry Campion	6	UPL	UPL	2	Forb	Perennial	Native
silint	Silphium integrifolium	Silphium integrifolium var. deamii; Silphium integrifolium var. neglectum	Entire-Leaf Rosinweed	5	UPL	FAC	2	Forb	Perennial	Native
solcar	Solanum carolinense	SOLANUM CAROLINENSE	Carolina Horse-Nettle	0	FACU	FACU	1	Forb	Perennial	Adventive
solphy	Solanum physalifolium	SOLANUM SARACHOIDES	Hairy Nightshade	0	UPL	UPL	2	Forb	Annual	Adventive
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	FACW	-1	Forb	Perennial	Native
sornut	Sorghastrum nutans	Sorghastrum nutans	Yellow Indian Grass	5	FACU	FACU	1	Grass	Perennial	Native
spapec	Spartina pectinata	Spartina pectinata	Freshwater Cord Grass	4	FACW	FACW	-1	Grass	Perennial	Native
spocry	Sporobolus cryptandrus	Sporobolus cryptandrus	Sand Dropseed	3	FACU	FACU	1	Grass	Perennial	Native

spohet	Sporobolus heterolepis	Sporobolus heterolepis	Prairie Dropseed	10	FACU	FACU	1	Grass	Perennial	Native
stemed	Stellaria media	STELLARIA MEDIA	Common Chickweed	0	FACU	FACU	1	Forb	Annual	Adventive
asteri	Symphyotrichum ericoides	Aster ericoides	White Heath American-Aster	6	FACU	FACU	1	Forb	Perennial	Native
astpil	Symphyotrichum pilosum	Aster pilosus	White Oldfield American-Aster	0	FACU	FACU	1	Forb	Perennial	Native
rhurad	Toxicodendron radicans	Rhus radicans	Eastern Poison-Ivy	2	FAC	FAC	0	Vine	Perennial	Native
tripra	Trifolium pratense	TRIFOLIUM PRATENSE	Red Clover	0	FACU	FACU	1	Forb	Perennial	Adventive
ulmpum	Ulmus pumila	ULMUS PUMILA	Siberian Elm	0	UPL	FACU	2	Tree	Perennial	Adventive
vertha	Verbascum thapsus	VERBASCUM THAPSUS	Woolly Mullein	0	UPL	UPL	2	Forb	Biennial	Adventive
verstr	Verbena stricta	Verbena stricta	Hoary Vervain	4	UPL	UPL	2	Forb	Perennial	Native
verfas	Vernonia fasciculata	Vernonia fasciculata	Prairie Ironweed	8	FACW	FACW	-1	Forb	Perennial	Native
viosor	Viola sororia	Viola priceana	Hooded Blue Violet	3	FAC	FAC	0	Forb	Perennial	Native
vitrip	Vitis riparia	Vitis riparia var. syrticola	River-Bank Grape	1	FACW	FAC	-1	Vine	Perennial	Native

SITE: Chicago-Rockford International Airport, Midfield Development
LOCALE: Wetland 1
BY: K. McMahon / P. Meuer
NOTES: 8/23/2018

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	1.52	SPECIES RICHNESS (ALL)	39
MEAN C (ALL SPECIES)	1.13	SPECIES RICHNESS (NATIVE)	29
MEAN C (NATIVE TREES)	1.86	% NON-NATIVE	0.26
MEAN C (NATIVE SHRUBS)	2.00	WET INDICATOR (ALL)	-0.31
MEAN C (NATIVE HERBACEOUS)	1.22	WET INDICATOR (NATIVE)	-0.41
FQAI (NATIVE SPECIES)	8.17	% HYDROPHYTE (MIDWEST)	0.74
FQAI (ALL SPECIES)	7.05	% NATIVE PERENNIAL	0.51
ADJUSTED FQAI	13.08	% NATIVE ANNUAL	0.23
% C VALUE 0	0.49	% ANNUAL	0.26
% C VALUE 1-3	0.41	% PERENNIAL	0.74
% C VALUE 4-6	0.10		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
acesai	Acer saccharinum	Acer saccharinum	Silver Maple	1	FACW	FACW	-1	Tree	Perennial	Native
amahyb	Amaranthus hybridus	Amaranthus hybridus	Green Pigweed	0	UPL	UPL	2	Forb	Annual	Native
ambart	Ambrosia artemisiifolia	Ambrosia artemisiifolia elatior	Annual Ragweed	0	FACU	FACU	1	Forb	Annual	Native
ambtri	Ambrosia trifida	Ambrosia trifida	Great Ragweed	0	FAC	FAC	0	Forb	Annual	Native
bidcer	Bidens cernua	Bidens cernua	Nodding Burr-Marigold	3	OBL	OBL	-2	Forb	Annual	Native
bidfro	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork	1	FACW	FACW	-1	Forb	Annual	Native
broine	Bromus inermis	BROMUS INERMIS	Smooth Brome	0	FACU	UPL	1	Grass	Perennial	Adventive
cxvulp	Carex vulpinoidea	Carex vulpinoidea	Common Fox Sedge	2	FACW	OBL	-1	Sedge	Perennial	Native
celocc	Celtis occidentalis	Celtis occidentalis	Common Hackberry	2	FAC	FAC	0	Tree	Perennial	Native
conarv	Convolvulus arvensis	CONVOLVULUS ARVENSIS	Field Bindweed	0	UPL	UPL	2	Forb	Perennial	Adventive
cypesc	Cyperus esculentus	Cyperus esculentus	Chufa	0	FACW	FACW	-1	Sedge	Perennial	Native
echcru	Echinochloa crus-galli	Echinochloa crusgalli	Large Barnyard Grass	0	FACW	FAC	-1	Grass	Annual	Native

elepal	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii; Eleocharis xyridiformis; Eleocharis macrostachya	Common Spike-Rush	1	OBL	OBL	-2	Sedge	Perennial	Native
frapen	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima; Fraxinus lanceolata	Green Ash	4	FACW	FACW	-1	Tree	Perennial	Native
galapa	Galium aparine	Galium spurium	Sticky-Willy	0	FACU	FACU	1	Forb	Annual	Native
geucan	Geum canadense	Geum canadense	White Avens	1	FAC	FAC	0	Forb	Perennial	Native
gletri	Gleditsia triacanthos	Gleditsia triacanthos	Honey-Locust	1	FACU	FAC	1	Tree	Perennial	Native
lontat	Lonicera tatarica	LONICERA TATARICA	Twinsisters	0	FACU	FACU	1	Shrub	Perennial	Adventive
moralb	Morus alba	MORUS ALBA VAR. TATARICA	White Mulberry	0	FAC	FACU	0	Tree	Perennial	Adventive
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	4	FACU	FACU	1	Vine	Perennial	Native
permac	Persicaria maculosa	POLYGONUM PERSICARIA	Lady's-Thumb	0	FACW	FAC	-1	Forb	Annual	Adventive
perpen	Persicaria pensylvanica	Polygonum pensylvanicum	Pinkweed	0	FACW	FACW	-1	Forb	Annual	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
phrausu	Phragmites australis ssp. australis	PHRAGMITES AUSTRALIS	Common Reed	0	FACW	FACW	-1	Grass	Perennial	Adventive
pilpum	Pilea pumila	Pilea pumila	Canadian Clearweed	2	FACW	FACW	-1	Forb	Annual	Native
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	0	FAC	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
salint	Salix interior	Salix interior	Sandbar Willow	2	FACW	FACW	-1	Shrub	Perennial	Native
salnig	Salix nigra	Salix nigra	Black Willow	5	OBL	OBL	-2	Tree	Perennial	Native
fesela	Schedonorus pratensis	FESTUCA ELATIOR	Meadow False Rye Grass	0	FACU	FACU	1	Grass	Perennial	Adventive
sciatv	Scirpus atrovirens	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	OBL	-2	Sedge	Perennial	Native
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
astsim	Symphyotrichum lanceolatum	Aster simplex	White Panicled American-Aster	3	FAC	FACW	0	Forb	Perennial	Native
toxrad	Toxicodendron radicans	Rhus radicans	Eastern Poison-Ivy	2	FAC	FAC	0	Vine	Perennial	Native
typang	Typha angustifolia	TYPHA ANGUSTIFOLIA	Narrow-Leaf Cat-Tail	0	OBL	OBL	-2	Forb	Perennial	Adventive
urtdio	Urtica dioica ssp. gracilis	Urtica procera; Urtica gracilis	Tall Nettle	1	FACW	FAC	-1	Forb	Perennial	Native
viosor	Viola sororia	Viola priceana	Hooded Blue Violet	3	FAC	FAC	0	Forb	Perennial	Native
vitrip	Vitis riparia	Vitis riparia var. syrticola	River-Bank Grape	1	FACW	FAC	-1	Vine	Perennial	Native

SITE:	Chicago-Rockford International Airport, Midfield Development
LOCALE:	Wetland 2
BY:	K. McMahon / P. Meuer
NOTES:	8/23/2018

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	1.21	SPECIES RICHNESS (ALL)	27
MEAN C (ALL SPECIES)	0.85	SPECIES RICHNESS (NATIVE)	19
MEAN C (NATIVE TREES)	2.50	% NON-NATIVE	0.30
MEAN C (NATIVE SHRUBS)	2.00	WET INDICATOR (ALL)	-0.30
MEAN C (NATIVE HERBACEOUS)	0.93	WET INDICATOR (NATIVE)	-0.37
FQAI (NATIVE SPECIES)	5.28	% HYDROPHYTE (MIDWEST)	0.74
FQAI (ALL SPECIES)	4.43	% NATIVE PERENNIAL	0.44
ADJUSTED FQAI	10.15	% NATIVE ANNUAL	0.26
% C VALUE 0	0.59	% ANNUAL	0.30
% C VALUE 1-3	0.33	% PERENNIAL	0.70
% C VALUE 4-6	0.07		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
amahyb	Amaranthus hybridus	Amaranthus hybridus	Green Pigweed	0	UPL	UPL	2	Forb	Annual	Native
ambart	Ambrosia artemisiifolia	Ambrosia artemisiifolia elatior	Annual Ragweed	0	FACU	FACU	1	Forb	Annual	Native
ambtri	Ambrosia trifida	Ambrosia trifida	Great Ragweed	0	FAC	FAC	0	Forb	Annual	Native
bidfro	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork	1	FACW	FACW	-1	Forb	Annual	Native
broine	Bromus inermis	BROMUS INERMIS	Smooth Brome	0	FACU	UPL	1	Grass	Perennial	Adventive
conarv	Convolvulus arvensis	CONVOLVULUS ARVENSIS	Field Bindweed	0	UPL	UPL	2	Forb	Perennial	Adventive
cypesc	Cyperus esculentus	Cyperus esculentus	Chufa	0	FACW	FACW	-1	Sedge	Perennial	Native
echcru	Echinochloa crus-galli	Echinochloa crusgalli	Large Barnyard Grass	0	FACW	FAC	-1	Grass	Annual	Native
geucan	Geum canadense	Geum canadense	White Avens	1	FAC	FAC	0	Forb	Perennial	Native
permac	Persicaria maculosa	POLYGONUM PERSICARIA	Lady's-Thumb	0	FACW	FAC	-1	Forb	Annual	Adventive
perpen	Persicaria pensylvanica	Polygonum pensylvanicum	Pinkweed	0	FACW	FACW	-1	Forb	Annual	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
phrausu	Phragmites australis ssp. australis	PHRAGMITES AUSTRALIS	Common Reed	0	FACW	FACW	-1	Grass	Perennial	Adventive
pilpum	Pilea pumila	Pilea pumila	Canadian Clearweed	2	FACW	FACW	-1	Forb	Annual	Native
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	0	FAC	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
salint	Salix interior	Salix interior	Sandbar Willow	2	FACW	FACW	-1	Shrub	Perennial	Native
salnig	Salix nigra	Salix nigra	Black Willow	5	OBL	OBL	-2	Tree	Perennial	Native
fesela	Schedonorus pratensis	FESTUCA ELATIOR	Meadow False Rye Grass	0	FACU	FACU	1	Grass	Perennial	Adventive

sciatv	Scirpus atrovirens	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	OBL	-2	Sedge	Perennial	Native
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
astsim	Symphyotrichum lanceolatum	Aster simplex	White Panicled American-Aster	3	FAC	FACW	0	Forb	Perennial	Native
astpil	Symphyotrichum pilosum	Aster pilosus	White Oldfield American-Aster	0	FACU	FACU	1	Forb	Perennial	Native
toxrad	Toxicodendron radicans	Rhus radicans	Eastern Poison-Ivy	2	FAC	FAC	0	Vine	Perennial	Native
typang	Typha angustifolia	TYPHA ANGUSTIFOLIA	Narrow-Leaf Cat-Tail	0	OBL	OBL	-2	Forb	Perennial	Adventive
urtdio	Urtica dioica ssp. gracilis	Urtica procera; Urtica gracilis	Tall Nettle	1	FACW	FAC	-1	Forb	Perennial	Native
vitrip	Vitis riparia	Vitis riparia var. syrticola	River-Bank Grape	1	FACW	FAC	-1	Vine	Perennial	Native

SITE: Chicago-Rockford International Airport, Midfield Development
LOCALE: Farmed Wetland 1
BY: K. McMahon / P. Meuer
NOTES: 8/23/2018

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	0.00	SPECIES RICHNESS (ALL)	9
MEAN C (ALL SPECIES)	0.00	SPECIES RICHNESS (NATIVE)	2
MEAN C (NATIVE TREES)	n/a	% NON-NATIVE	0.78
MEAN C (NATIVE SHRUBS)	n/a	WET INDICATOR (ALL)	0.89
MEAN C (NATIVE HERBACEOUS)	0.00	WET INDICATOR (NATIVE)	0.50
FQAI (NATIVE SPECIES)	0.00	% HYDROPHYTE (MIDWEST)	0.33
FQAI (ALL SPECIES)	0.00	% NATIVE PERENNIAL	0.00
ADJUSTED FQAI	0.00	% NATIVE ANNUAL	0.22
% C VALUE 0	1.00	% ANNUAL	0.56
% C VALUE 1-3	0.00	% PERENNIAL	0.44
% C VALUE 4-6	0.00		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
amahyb	Amaranthus hybridus	Amaranthus hybridus	Green Pigweed	0	UPL	UPL	2	Forb	Annual	Native
digsan	Digitaria sanguinalis	DIGITARIA SANGUINALIS	Hairy Crab Grass	0	FACU	FACU	1	Grass	Annual	Adventive
echcru	Echinochloa crus-galli	Echinochloa crusgalli	Large Barnyard Grass	0	FACW	FAC	-1	Grass	Annual	Native
verper	Glandularia peruviana	VERBENA PERUVIANA	Peruvian Vervain	0	UPL	UPL	2	Forb	Perennial	Adventive
glymax	Glycine max	GLYCINE MAX	Soybean	0	UPL	UPL	2	Forb	Annual	Adventive
plamaj	Plantago major	PLANTAGO MAJOR	Great Plantain	0	FAC	FACU	0	Forb	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
setfab	Setaria faberi	SETARIA FABERI	Japanese Bristle Grass	0	FACU	FACU	1	Grass	Annual	Adventive
trirep	Trifolium repens	TRIFOLIUM REPENS	White Clover	0	FACU	FACU	1	Forb	Perennial	Adventive

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago Rockford Airport, Midfield Development City/County: Rockford / Winnebago Sampling Date: 08/23/2018

Applicant/Owner: Crawford, Murphy, & Tilly, Inc. State: IL Sampling Point: A

Investigator(s) S. Rowley / K. McMahon / P. Meuer Section, Township, Range: S22, T43N, R1E

Landform (hillslope, terrace, etc.): Valley (Constructed) Local Relief (concave, convex, none): Concave

Slope (%): 0% Lat: 42.190832 Long: -89.102849 Datum: Investigated Area 1

Soil Map Unit Name: Rodman gravelly loam, 12 to 20 percent slopes, eroded (93E2) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☐ Soil ☐ Hydrology ☐ significantly disturbed? Are normal circumstances present? Yes ☒ No ☐

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒		
Hydric Soils Present ?	Yes ☒ No ☐	**Is the Sampled Area Within a Wetland?**	**Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes ☐ No ☒		

Remarks: Depressional valley between two hillslopes. Hillslope to the east is a result of fill material placed in the 1990's.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 5')			
1. Schedonorus pratensis	40	Y	FACU
2. Echinochloa crusgalli	15	Y	FACW
3. Trifolium repens	10	N	FACU
4. Cyperus esculentus	5	N	FACW
5. Amaranthus hybridus	3	N	UPL
6. Securigera varia	2	N	UPL
7.			
8.			
9.			
10.			
	75	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL,FACW, or FAC 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species:		x 1 =
FACW species:		x 2 =
FAC species:		x 3 =
FACU species:		x 4 =
UPL species:		x 5 =
Column Totals	(A)	

Prevalence Index =B/A = ________

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤ 3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes☐ **No** ☒

Remarks: Photograph 15

SOIL

Sampling Point A

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth	Matrix		Redox Features					
(Inches)	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	**10YR 3/3**	**83**	**10YR 6/8**	**15**	**C**	**M**	**SiCL**	
			10YR 5/6	**2**	**C**	**M**		
6-20	**10YR 3/2**	**70**	**10YR 5/8**	**25**	**C**	**M**	**SiCL**	
			10YR 5/1	**5**	**D**	**M**		
20-24	**10YR 2/1**	**60**	**10YR 6/6**	**40**	**C**	**M**	**SiCL**	w/ sand
24								Restrictive Gravel / Sand

[1] Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2] Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)

☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☒ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

☐ Coast Prairie Redox (A16)
☐ Dark Surface (S7)
☐ Iron- Manganese Masses (F12)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)

Type: **Gravel / Sand**
Depth: **24”**

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)

☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)

☐ Water Stained Leaves (B9)
☐ Aquatic Fauna (B 3)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☒ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches) N/A
Water Table Present? Yes ☐ No ☒ Depth (inches) N/A
Saturation Present? Yes ☐ No ☒ Depth (inches) N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago Rockford Airport, Midfield Development City/County: Rockford / Winnebago Sampling Date: 08/23/2018

Applicant/Owner: Crawford, Murphy, & Tilly, Inc. State: IL Sampling Point: B

Investigator(s) S. Rowley / K. McMahon / P. Meuer Section, Township, Range: S22, T43N, R1E

Landform (hillslope, terrace, etc.): Drainage Ditch (roadside) Local Relief (concave, convex, none): Concave

Slope (%): 25% Lat: 42.190832 Long: -89.102849 Datum: Investigated Area 2

Soil Map Unit Name: Hononegah loamy coarse sand, 0 to 2 percent slopes (354A) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☐ Soil ☐ Hydrology ☐ significantly disturbed? Are normal circumstances present? Yes ☒ No ☐

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐			
Hydric Soils Present ?	Yes ☐ No ☒	**Is the Sampled Area Within a Wetland?**	**Yes** ☐	**No** ☒
Wetland Hydrology Present?	Yes ☐ No ☒			

Remarks: Constructed drainage ditch feature.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 5')			
1. Ambrosia trifida	80	Y	FAC
2. Convolvulus arvensis	5	N	UPL
3. Geum canadense	3	N	FAC
4. Symphyotrichum lanceolatum	2	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	90	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That are OBL,FACW, or FAC 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species:	______	x 1 = ______
FACW species:	______	x 2 = ______
FAC species:	______	x 3 = ______
FACU species:	______	x 4 = ______
UPL species:	______	x 5 = ______
Column Totals	______	(A) ______

Prevalence Index =B/A = ________

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation
☒ Dominance Test is >50%
☐ Prevalence Index is ≤ 3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Photograph 17

SOIL

Sampling Point B

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth	Matrix		Redox Features					
(Inches)	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	**10YR 2/2**	**100**					**SiCL**	
8-10	**10YR 2/1**	**68**	**10YR 4/4**	**30**	**C**	**M**	**SiCL**	
			10YR 3/6	**2**	**C**	**M**		
10-20	**10YR 2/2**	**96**	**10YR 4/6**	**2**	**C**	**M**	**C**	
			10YR 3/6	**2**	**C**	**M**		

[1] Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2] Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron- Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)

Type:

Depth:

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B 3)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☒ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches) N/A

Water Table Present? Yes ☐ No ☒ Depth (inches) N/A

Saturation Present? Yes ☐ No ☒ Depth (inches) N/A

(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago Rockford Airport, Midfield Development City/County: Rockford / Winnebago Sampling Date: 08/23/2018

Applicant/Owner: Crawford, Murphy, & Tilly, Inc. State: IL Sampling Point: C

Investigator(s) S. Rowley / K. McMahon / P. Meuer Section, Township, Range: S22, T43N, R1E

Landform (hillslope, terrace, etc.): Drainage Ditch Local Relief (concave, convex, none): Concave

Slope (%): 0% Lat: 42.190832 Long: -89.102849 Datum: Wetland 1

Soil Map Unit Name: Will loam, 0 to 2 percent slopes (329A) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☐ Soil ☐ Hydrology ☐ significantly disturbed? Are normal circumstances present? Yes ☒ No ☐

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐
Hydric Soils Present ? Yes ☒ No ☐
Wetland Hydrology Present? Yes ☒ No ☐

Is the Sampled Area Within a Wetland? Yes ☒ No ☐

Remarks: Constructed drainage ditch feature that has reverted to wetland over time.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1. Salix nigra	30	Y	OBL
2. Fraxinus pennsylvanica	10	Y	FACW
3.			
4.			
5.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Rhamnus cathartica	5	Y	FAC
2.			
3.			
4.			
5.			
	5	=Total Cover	
Herb Stratum (Plot size: 5')			
1. Amaranthus hybridus	15	Y	UPL
2. Persicaria pensylvanica	10	Y	FACW
3. Symphyotrichum lanceolatum	10	Y	FAC
4. Scirpus atrovirens	5	N	OBL
5. Echinochloa crusgalli	3	N	FACW
6. Ambrosia trifida	2	N	FAC
7.			
8.			
9.			
10.			
	45	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That are OBL,FACW, or FAC 83% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species:		x 1 =
FACW species:		x 2 =
FAC species:		x 3 =
FACU species:		x 4 =
UPL species:		x 5 =
Column Totals	(A)	

Prevalence Index =B/A = ________

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤ 3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes☒ No ☐

Remarks: Photograph 1

SOIL

Sampling Point C

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix		Redox Features					
	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	**10YR 3/2**	**95**	**10YR 5/6**	**5**	**C**	**M**	**SiCL**	
10-20	**10YR 3/2**	**83**	**10YR 3/3**	**15**	**C**	**M**	**SiCL**	
			10YR 3/6	**2**	**C**	**PL**		
20-24	**10YR 2/1**	**100**					**C**	

[1]Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2]Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☒ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

☐ Coast Prairie Redox (A16)
☐ Dark Surface (S7)
☐ Iron- Manganese Masses (F12)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)
Type: ________________
Depth: ________________

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)

☐ Surface Water (A1)
☒ High Water Table (A2)
☒ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☒ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water Stained Leaves (B9)
☐ Aquatic Fauna (B 3)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

☐ Surface Soil Cracks (B6)
☒ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☒ Geomorphic Position (D2)
☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches) N/A
Water Table Present? Yes ☒ No ☐ Depth (inches) 10”
Saturation Present? Yes ☒ No ☐ Depth (inches) 10”
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago Rockford Airport, Midfield Development City/County: Rockford / Winnebago Sampling Date: 08/23/2018

Applicant/Owner: Crawford, Murphy, & Tilly, Inc. State: IL Sampling Point: D

Investigator(s) S. Rowley / K. McMahon / P. Meuer Section, Township, Range: S22, T43N, R1E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Concave

Slope (%): 25% Lat: 42.190832 Long: -89.102849 Datum: Wetland 1 – Upland

Soil Map Unit Name: Will loam, 0 to 2 percent slopes (329A) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☐ Soil ☐ Hydrology ☐ significantly disturbed? Are normal circumstances present? Yes ☒ No ☐

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒
Hydric Soils Present ? Yes ☒ No ☐
Wetland Hydrology Present? Yes ☐ No ☒

Is the Sampled Area Within a Wetland? Yes ☐ No ☒

Remarks: Constructed feature.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 5')			
1. Schedonorus pratensis	50	Y	FACU
2. Bromus inermis	40	Y	FACU
3. Trifolium repens	5	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL,FACW, or FAC 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species:		x 1 =
FACW species:		x 2 =
FAC species:		x 3 =
FACU species:		x 4 =
UPL species:		x 5 =
Column Totals	(A)	

Prevalence Index =B/A =

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation
☐ Dominance Test is >50%
☐ Prevalence Index is ≤ 3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes☐ No ☒

Remarks: Photograph 2

SOIL

Sampling Point D

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth	Matrix		Redox Features					
(Inches)	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	**10YR 2/2**	**95**	**10YR 3/3**	**5**	**C**	**M**	**SiL**	
12								Gravel Fill

[1]Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2]Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☒ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

☐ Coast Prairie Redox (A16)
☐ Dark Surface (S7)
☐ Iron- Manganese Masses (F12)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)

Type: **Gravel**
Depth: **12”**

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)

☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water Stained Leaves (B9)
☐ Aquatic Fauna (B 3)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches) N/A
Water Table Present? Yes ☐ No ☒ Depth (inches) N/A
Saturation Present? Yes ☐ No ☒ Depth (inches) N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago Rockford Airport, Midfield Development City/County: Rockford / Winnebago Sampling Date: 08/23/2018

Applicant/Owner: Crawford, Murphy, & Tilly, Inc. State: IL Sampling Point: E

Investigator(s) S. Rowley / K. McMahon / P. Meuer Section, Township, Range: S22, T43N, R1E

Landform (hillslope, terrace, etc.): Field Local Relief (concave, convex, none): None

Slope (%): 0% Lat: 42.190832 Long: -89.102849 Datum: Investigated Area 3

Soil Map Unit Name: Hononegah loamy coarse sand, 0 to 2 percent slopes (354A) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☒ Soil ☒ Hydrology ☒ significantly disturbed? Are normal circumstances present? Yes ☐ No ☒

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒	
Hydric Soils Present ?	Yes ☐ No ☒	**Is the Sampled Area Within a Wetland? Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: Tiled and tilled agricultural field currently utilized for Soybean (Glycine max) production.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30’)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15’)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 5’)			
1. Glycine max	30	Y	UPL
2. Digitaria sanguinalis	10	Y	FACU
3. Portulaca oleracea	5	N	FACU
4. Poa pratensis	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	50	=Total Cover	
Woody Vine Stratum (Plot size: 30’)			
1.			
2.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL,FACW, or FAC 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species: ______	x 1 = ______
FACW species: ______	x 2 = ______
FAC species: ______	x 3 = ______
FACU species: ______	x 4 = ______
UPL species: ______	x 5 = ______
Column Totals ______ (A)	______

Prevalence Index =B/A = ________

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation
☐ Dominance Test is >50%
☐ Prevalence Index is ≤ 3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes☐ No ☒

Remarks: Photograph 19

SOIL

Sampling Point E

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth	Matrix		Redox Features					
(Inches)	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	**10YR 3/3**	**100**					**SiCL**	
10-24	**10YR 3/4**	**100**					**LSa**	
24								Compacted Sand

[1]Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2]Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

☐ Coast Prairie Redox (A16)
☐ Dark Surface (S7)
☐ Iron- Manganese Masses (F12)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)
Type: **Compacted Sand**
Depth: **24"**

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)

☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water Stained Leaves (B9)
☐ Aquatic Fauna (B 3)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☒ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches) N/A
Water Table Present? Yes ☐ No ☒ Depth (inches) N/A
Saturation Present? Yes ☐ No ☒ Depth (inches) N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago Rockford Airport, Midfield Development City/County: Rockford / Winnebago Sampling Date: 08/23/2018

Applicant/Owner: Crawford, Murphy, & Tilly, Inc. State: IL Sampling Point: F

Investigator(s) S. Rowley / K. McMahon / P. Meuer Section, Township, Range: S22, T43N, R1E

Landform (hillslope, terrace, etc.): Drainage Ditch Local Relief (concave, convex, none): Concave

Slope (%): 0% Lat: 42.190832 Long: -89.102849 Datum: Wetland 2 – Upland

Soil Map Unit Name: Hononegah loamy coarse sand, 0 to 2 percent slopes (354A) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☐ Soil ☐ Hydrology ☐ significantly disturbed? Are normal circumstances present? Yes ☒ No ☐

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐		
Hydric Soils Present ?	Yes ☐ No ☒	**Is the Sampled Area Within a Wetland?**	**Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes ☒ No ☐		

Remarks: Constructed drainage ditch feature.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Rhamnus cathartica	10	Y	FAC
2. Salix interior	5	Y	FACW
3.			
4.			
5.			
	15	=Total Cover	
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	80	Y	FACW
2. Urtica dioica ssp. Gracilis	10	N	FACW
3. Asclepias syriaca	3	N	FACU
4. Medicago sativa	2	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	95	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That are OBL,FACW, or FAC 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species:	______	x 1 = ______
FACW species:	______	x 2 = ______
FAC species:	______	x 3 = ______
FACU species:	______	x 4 = ______
UPL species:	______	x 5 = ______
Column Totals	______	(A) ______

Prevalence Index =B/A = ________

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤ 3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes ☒ **No** ☐

Remarks: Photograph 10

SOIL

Sampling Point F

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth	Matrix		Redox Features					
(Inches)	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	**10YR 2/2**	**100**					**SiCL**	
12-24	**10YR 2/2**	**98**	**10YR 5/4**	**2**	**C**	**M**	**SiCL**	
24-30	**10YR 3/3**	**95**	**10YR 4/6**	**5**	**C**	**M**	**SiCL**	

[1]Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2]Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

☐ Coast Prairie Redox (A16)
☐ Dark Surface (S7)
☐ Iron- Manganese Masses (F12)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)

Type: __________
Depth: __________

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)

☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water Stained Leaves (B9)
☐ Aquatic Fauna (B 3)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

☐ Surface Soil Cracks (B6)
☒ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☒ Geomorphic Position (D2)
☒FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No☒ Depth (inches) N/A
Water Table Present? Yes ☐ No☒ Depth (inches) N/A
Saturation Present? Yes ☐ No☒ Depth (inches) 24”
(includes capillary fringe)

Wetland Hydrology Present? Yes☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago Rockford Airport, Midfield Development City/County: Rockford / Winnebago Sampling Date: 08/23/2018

Applicant/Owner: Crawford, Murphy, & Tilly, Inc. State: IL Sampling Point: G

Investigator(s) S. Rowley / K. McMahon / P. Meuer Section, Township, Range: S22, T43N, R1E

Landform (hillslope, terrace, etc.): Drainage Ditch Local Relief (concave, convex, none): Concave

Slope (%): 0% Lat: 42.190832 Long: -89.102849 Datum: Wetland 2

Soil Map Unit Name: Hononegah loamy coarse sand, 0 to 2 percent slopes (354A) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☐ Soil ☐ Hydrology ☐ significantly disturbed? Are normal circumstances present? Yes ☒ No ☐

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐
Hydric Soils Present ? Yes ☒ No ☐
Wetland Hydrology Present? Yes ☒ No ☐

Is the Sampled Area Within a Wetland? Yes ☒ No ☐

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Salix interior	30	Y	FACW
2.			
3.			
4.			
5.			
	30	=Total Cover	
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	80	Y	FACW
2. Urtica dioica ssp. Gracilis	10	N	FACW
3. Typha angustifolia	5	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. Vitis riparia	20	Y	FACW
2.			
	20	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That are OBL,FACW, or FAC 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species:		x 1 =
FACW species:		x 2 =
FAC species:		x 3 =
FACU species:		x 4 =
UPL species:		x 5 =
Column Totals		(A)

Prevalence Index =B/A = ________

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation
☒ Dominance Test is >50%
☐ Prevalence Index is ≤ 3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes☒ No ☐

Remarks: Photograph 9

SOIL

Sampling Point G

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth	Matrix		Redox Features					
(Inches)	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	**10YR 3/1**	**100**					**SiCL**	
4-6	**10YR 5/2**	**98**	**10YR 6/4**	**2**	**C**	**M**	**SiCL**	
6								Compacted Sand

[1] Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2] Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☒ Depleted below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

☐ Coast Prairie Redox (A16)
☐ Dark Surface (S7)
☐ Iron- Manganese Masses (F12)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)

Type: **Compacted Sand**

Depth: **6”**

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)

☐ Surface Water (A1)
☒ High Water Table (A2)
☒ Saturation (A3)
☒ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☒ Water Stained Leaves (B9)
☐ Aquatic Fauna (B 3)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

☐ Surface Soil Cracks (B6)
☒ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☒ Geomorphic Position (D2)
☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches) N/A
Water Table Present? Yes ☒ No ☐ Depth (inches) 0”
Saturation Present? Yes ☒ No ☐ Depth (inches) 0”
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago Rockford Airport, Midfield Development City/County: Rockford / Winnebago Sampling Date: 08/23/2018

Applicant/Owner: Crawford, Murphy, & Tilly, Inc. State: IL Sampling Point: H

Investigator(s) S. Rowley / K. McMahon / P. Meuer Section, Township, Range: S22, T43N, R1E

Landform (hillslope, terrace, etc.): Agricultural Field Local Relief (concave, convex, none): Concave

Slope (%): 0% Lat: 42.190832 Long: -89.102849 Datum: Farmed Wetland 1

Soil Map Unit Name: Will loam, 0 to 2 percent slopes (329A) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☒ Soil ☒ Hydrology ☒ significantly disturbed? Are normal circumstances present? Yes ☐ No ☒

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒
Hydric Soils Present ? Yes ☒ No ☐
Wetland Hydrology Present? Yes ☒ No ☐

Is the Sampled Area Within a Wetland? Yes ☒ No ☐

Remarks: Tiled and tilled agricultural field, currently utilized for Soybean (*Glycine max*) production. This area meets the hydric soils and hydrology criteria for farmed wetland status.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 5')			
1. Digitaria sanguinalis	60	Y	FACU
2. Echinochloa crusgalli	30	Y	FACW
3. Amaranthus hybridus	5	N	UPL
4. Glycine max	5	N	UPL
5.			
6.			
7.			
8.			
9.			
10.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL,FACW, or FAC 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species:		x 1 =	
FACW species:		x 2 =	
FAC species:		x 3 =	
FACU species:		x 4 =	
UPL species:		x 5 =	
Column Totals		(A)	

Prevalence Index =B/A = ________

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤ 3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes☐ No ☒

Remarks: Photograph 13

SOIL

Sampling Point H

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth	Matrix		Redox Features					
(Inches)	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	**10YR 2/1**	**98**	**10YR 4/3**	**2**	**C**	**M**	**SiCL**	
20-24	**10YR 2/1**	**98**	**10YR 4/4**	**2**	**C**	**M**	**SiCL**	

[1]Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2]Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☒ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

☐ Coast Prairie Redox (A16)
☐ Dark Surface (S7)
☐ Iron- Manganese Masses (F12)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)

Type:
Depth:

Hydric Soil Present? Yes ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)

☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☒ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water Stained Leaves (B9)
☐ Aquatic Fauna (B 3)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☒ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☒ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☒ Geomorphic Position (D2)
☐FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No☒ Depth (inches) N/A
Water Table Present? Yes ☐ No☒ Depth (inches) N/A
Saturation Present? Yes ☐ No☒ Depth (inches) N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Area displayed wetland signatures in 4 out of 5 examined historical aerials with normal precipitation. Meets farmed wetland hydrology criteria.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago Rockford Airport, Midfield Development City/County: Rockford / Winnebago Sampling Date: 08/23/2018

Applicant/Owner: Crawford, Murphy, & Tilly, Inc. State: IL Sampling Point: I

Investigator(s) S. Rowley / K. McMahon / P. Meuer Section, Township, Range: S22, T43N, R1E

Landform (hillslope, terrace, etc.): Road Ditch (excavated) Local Relief (concave, convex, none): Concave

Slope (%): 0% Lat: 42.190832 Long: -89.102849 Datum: Investigated Area 4

Soil Map Unit Name: Orthents, loamy, undulating (802B) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☐ Soil ☒ Hydrology ☒ significantly disturbed? Are normal circumstances present? Yes ☒ No ☐

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐
Hydric Soils Present ? Yes ☐ No ☒
Wetland Hydrology Present? Yes ☒ No ☐

Is the Sampled Area Within a Wetland? Yes ☐ No ☒

Remarks: Constructed roadway drainage ditch.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30’)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15’)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
Herb Stratum (Plot size: 5’)			
1. Echinochloa crusgalli	40	Y	FACW
2. Poa pratensis	25	Y	FAC
3. Agrostis stolonifera	10	N	FACW
4. Panicum dichotomiflorum	5	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	80	=Total Cover	
Woody Vine Stratum (Plot size: 30’)			
1.			
2.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL,FACW, or FAC 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species:		x 1 =
FACW species:		x 2 =
FAC species:		x 3 =
FACU species:		x 4 =
UPL species:		x 5 =
Column Totals		(A)

Prevalence Index =B/A = ________

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation
☒ Dominance Test is >50%
☐ Prevalence Index is ≤ 3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes☒ No ☐

Remarks: Photograph 21

SOIL

Sampling Point I

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]		
0-8	**10YR 3/1**	**99**	**10YR 4/4**	**1**	**C**	**M**	**LSa**	
8-9	**10YR 5/1**						**C**	

[1]Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2]Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

☐ Coast Prairie Redox (A16)
☐ Dark Surface (S7)
☐ Iron- Manganese Masses (F12)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)
Type: **Clay Liner / Fill**
Depth: **9”**

Hydric Soil Present? Yes ☐ No ☒

Remarks: Clay liner or fill observed at 9” below sand layer. Appears disturbed and created.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)

☒ Surface Water (A1)
☒ High Water Table (A2)
☒ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water Stained Leaves (B9)
☐ Aquatic Fauna (B 3)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

☐ Surface Soil Cracks (B6)
☒ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches) 1”
Water Table Present? Yes ☒ No ☐ Depth (inches) 0”
Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches) 0”

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago Rockford Airport, Midfield Development City/County: Rockford / Winnebago Sampling Date: 08/23/2018

Applicant/Owner: Crawford, Murphy, & Tilly, Inc. State: IL Sampling Point: J

Investigator(s) S. Rowley / K. McMahon / P. Meuer Section, Township, Range: S22, T43N, R1E

Landform (hillslope, terrace, etc.): Toe of Hillslope Local Relief (concave, convex, none): Concave

Slope (%): 0% Lat: 42.190832 Long: -89.102849 Datum: Investigated Area 5

Soil Map Unit Name: Rodman-Warsaw complex, 6 to 12 percent slopes, eroded (939D2) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☐ Soil ☐ Hydrology ☐ significantly disturbed? Are normal circumstances present? Yes ☒ No ☐

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐
Hydric Soils Present ? Yes ☐ No ☒
Wetland Hydrology Present? Yes ☐ No ☒

Is the Sampled Area Within a Wetland? Yes ☐ No ☒

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	10	Y	FAC
2.			
3.			
4.			
5.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Rhus glabra	25	Y	UPL
2. Morus alba	10	Y	FAC
3.			
4.			
5.			
	35	=Total Cover	
Herb Stratum (Plot size: 5')			
1. Equisetum hyemale	55	Y	FACW
2. Bromus inermis	25	Y	FACU
3. Asclepias syriaca	10	N	FACU
4. Ambrosia trifida	5	N	FAC
5. Lolium perenne	5	N	FACU
6.			
7.			
8.			
9.			
10.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. Calystegia sepium	5	Y	FAC
2. Vitis riparia	5	Y	FACW
	10	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 5 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That are OBL,FACW, or FAC 71% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species:		x 1 =	
FACW species:		x 2 =	
FAC species:		x 3 =	
FACU species:		x 4 =	
UPL species:		x 5 =	
Column Totals		(A)	

Prevalence Index =B/A = ________

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation
☒ Dominance Test is >50%
☐ Prevalence Index is $\leq$ 3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Photograph 23

SOIL

Sampling Point J

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth	Matrix		Redox Features					
(Inches)	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	**10YR 3/2**	**100**					**SaL**	
12-20	**10YR 5/4**	**100**					**Sa**	

[1] Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2] Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)

☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

☐ Coast Prairie Redox (A16)
☐ Dark Surface (S7)
☐ Iron- Manganese Masses (F12)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)

Type:
Depth:

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)

☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)

☐ Water Stained Leaves (B9)
☐ Aquatic Fauna (B 3)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☒ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches) N/A
Water Table Present? Yes ☐ No ☒ Depth (inches) N/A
Saturation Present? Yes ☐ No ☒ Depth (inches) N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago Rockford Airport, Midfield Development City/County: Rockford / Winnebago Sampling Date: 08/23/2018

Applicant/Owner: Crawford, Murphy, & Tilly, Inc. State: IL Sampling Point: K

Investigator(s) S. Rowley / K. McMahon / P. Meuer Section, Township, Range: S22, T43N, R1E

Landform (hillslope, terrace, etc.): Toe of Hillslope Local Relief (concave, convex, none): Concave

Slope (%): 0% Lat: 42.190832 Long: -89.102849 Datum: Investigated Area 6

Soil Map Unit Name: Comfrey loam, 0 to 2 percent slopes, frequently flooded (3776A) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☐ Soil ☐ Hydrology ☐ significantly disturbed? Are normal circumstances present? Yes ☒ No ☐

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒
Hydric Soils Present ? Yes ☐ No ☒
Wetland Hydrology Present? Yes ☐ No ☒

Is the Sampled Area Within a Wetland? Yes ☐ No ☒

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30’)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15’)			
1. Prunus serotina	60	Y	FACU
2. Rubus occidentalis	5	N	UPL
3.			
4.			
5.			
	65	=Total Cover	
Herb Stratum (Plot size: 5’)			
1. Symphyotrichum pilosum	40	Y	FACU
2. Spartina pectinata	25	Y	FACW
3. Pastinaca sativa	25	Y	UPL
4. Ambrosia trifida	10	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 30’)			
1. Calystegia sepium	10	Y	FAC
2.			
	10	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That are OBL,FACW, or FAC 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species:		x 1 =	
FACW species:		x 2 =	
FAC species:		x 3 =	
FACU species:		x 4 =	
UPL species:		x 5 =	
Column Totals		(A)	

Prevalence Index =B/A = ________

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation
☐ Dominance Test is >50%
☐ Prevalence Index is ≤ 3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes☐ No ☒

Remarks: Photograph 25

SOIL

Sampling Point K

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth	Matrix		Redox Features					
(Inches)	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	**10YR 2/1**	**100**					**SiL**	
12-16	**10YR 3/2**	**100**					**SiL**	

[1]Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2]Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators
- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]
- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron- Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)
Type: **Fill**
Depth: **16”**

Hydric Soil Present? Yes ☐ No ☒

Remarks: 12-16” contained fragments of clay pipe, glass, and coal ash.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)
- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B 3)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☒ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches) N/A
Water Table Present? Yes ☐ No ☒ Depth (inches) N/A
Saturation Present? Yes ☐ No ☒ Depth (inches) N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Chicago Rockford Airport, Midfield Development City/County: Rockford / Winnebago Sampling Date: 08/23/2018

Applicant/Owner: Crawford, Murphy, & Tilly, Inc. State: IL Sampling Point: L

Investigator(s) S. Rowley / K. McMahon / P. Meuer Section, Township, Range: S22, T43N, R1E

Landform (hillslope, terrace, etc.): Toe of Hillslope Local Relief (concave, convex, none): Concave

Slope (%): 0% Lat: 42.190832 Long: -89.102849 Datum: Investigated Area 7

Soil Map Unit Name: Comfrey loam, 0 to 2 percent slopes, frequently flooded (3776A) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no explain in remarks)

Are vegetation ☐ Soil ☐ Hydrology ☐ significantly disturbed? Are normal circumstances present? Yes ☒ No ☐

Are vegetation ☐ Soil ☐ Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒
Hydric Soils Present ? Yes ☐ No ☒
Wetland Hydrology Present? Yes ☐ No ☒

Is the Sampled Area Within a Wetland? Yes ☐ No ☒

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Ptelea trifoliata	30	Y	FACU
2. Rhus glabra	20	Y	UPL
3. Prunus serotina	15	Y	FACU
4. Rubus occidentalis	10	N	UPL
5.			
	75	=Total Cover	
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	50	Y	FACW
2. Equisetum hyemale	50	Y	FACW
3. Pastinaca sativa	10	N	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	110	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. Vitis riparia	5	Y	FACW
2.			
	5	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL,FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That are OBL,FACW, or FAC 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species:		x 1 =	
FACW species:		x 2 =	
FAC species:		x 3 =	
FACU species:		x 4 =	
UPL species:		x 5 =	
Column Totals		(A)	

Prevalence Index =B/A = ________

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤ 3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes☐ No ☒

Remarks: Photograph 27

SOIL

Sampling Point L

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators

Depth	Matrix		Redox Features					
(Inches)	Color (Moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	**10YR 2/1**	**100**					**SiL**	
10-16	**10YR 3/2**	**100**					**SiL**	
16-24	**10YR 2/1**	**100**					**SiL**	

[1]Type: C = Concentration, D= Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains [2]Locaton: PL =Pore Lining, M = Matrix

Hydric Soil Indicators
- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]
- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron- Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if observed)
Type:
Depth:

Hydric Soil Present? Yes ☐ No ☒

Remarks: 10-16" contained fragments of glass and ash.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (Minimum of one is required: check all that apply)
- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B 3)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☒ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches) N/A
Water Table Present? Yes ☐ No ☒ Depth (inches) N/A
Saturation Present? Yes ☐ No ☒ Depth (inches) N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site Photographs

PHOTOGRAPH 1

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Wetland 1 – Sample Point C

Facing North

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 2

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Wetland 1 – Upland Sample Point D

Facing South

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 3

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Wetland 1 - Overview

Facing East

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 4

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Wetland 1 - Overview

Facing East

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 5

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Wetland 1 - Overview

Facing West

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 6

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Wetland 1 - Overview

Facing Northwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 7	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Wetland 1 – Culvert Grate Facing Southeast	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 8	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Wetland 1 – Rip-Rap Drainage Ditch Facing North	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 9

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Wetland 2 – Sample Point G

Facing Northwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 10

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Wetland 2 – Upland Sample Point F

Facing Northwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 11

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Wetland 2 - Culvert

Facing Northwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 12

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Wetland 2 - Overview

Facing East

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 13	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Farmed Wetland 1 – Sample Point H Facing Northeast	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 14	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Farmed Wetland 1 - Overview Facing Southwest	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 15

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Investigated Area 1 – Sample Point A

Facing Southwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 16

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Investigated Area 1 - Overview

Facing Southwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 17	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Investigated Area 2 – Sample Point B Facing Southwest	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 18	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Investigated Area 2 - Overview Facing Northeast	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 19	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Investigated Area 3 – Sample Point E Facing West	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 20	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Investigated Area 3 - Overview Facing South	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 21

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Investigated Area 4 – Sample Point I

Facing Southwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 22

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Investigated Area 4 – Culvert Overview

Facing Northeast

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 23	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Investigated Area 5 – Sample Point J Facing Northeast	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 24	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Investigated Area 5 - Overview Facing Northeast	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 25

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Investigated Area 6 - Sample Point K

Facing Northeast

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 26

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Investigated Area 6 - Overview

Facing Northwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 27

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Investigated Area 7 – Sample Point L

Facing North

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 28

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Investigated Area 7 - Overview

Facing North

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 29

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Cessna Drive

Facing Southeast

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 30

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Cessna Drive

Facing Northeast

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 31

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Open Field

Facing Southeast

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 32

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Tarmac Fence

Facing Northeast

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 33

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Bell Bowl Prairie INAI Site (moderate quality area)

Facing West

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 34

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Bell Bowl Prairie INAI Site (moderate quality area)

Facing Southeast

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 35

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Bell Bowl Prairie INAI Site (high quality area)

Facing Southeast

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 36

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Bell Bowl Prairie INAI Site (high quality area)

Facing Northwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 37

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Bell Bowl Prairie INAI Site (high quality area)

Facing Southeast

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 38

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Bell Bowl Prairie INAI Site (high quality area)

Facing Southwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 39

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Bell Bowl Prairie INAI Site (degraded area)

Facing South

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 40

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Bell Bowl Prairie INAI Site (degraded area)

Facing South

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 41

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Bell Bowl Prairie INAI Site (degraded area)

Facing West

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 42

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Bell Bowl Prairie INAI Site (degraded area)

Facing Southwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 43

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Bell Bowl Prairie INAI Site (degraded area)

Facing Southeast

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 44

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Bell Bowl Prairie INAI Site (degraded area)

Facing Southeast

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 45	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Site Overview – Beltline Road Facing South	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 46	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Site Overview – Beltline Road Facing East	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 47

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Hay Field

Facing Southwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 48

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Hay Field

Facing Northwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 49

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Soybean Field

Facing Northwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 50

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Beltline Road Culvert

Facing Southwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 51

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Beltline Road Culvert

Facing Southwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 52

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Beltline Road Field

Facing West

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 53	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Site Overview – Beltline Road Culvert Facing Southwest	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 54	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Site Overview – Beltline Road Ditch Facing West	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 55

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Beltline Road Ditch

Facing North

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 56

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Beltline Road Ditch

Facing North

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 57

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Soybean Field

Facing North

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 58

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Cessna Way Culvert

Facing East

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 59	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Site Overview – Cessna Way Field Facing Northeast	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 60	
DESCRIPTION: Chicago Rockford International Airport, Midfield Development / CMT Site Overview – Cessna Way Rip-Rap Facing Northeast	
DATE PHOTO TAKEN: August 23, 2018	

PHOTOGRAPH 61

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Tarmac Ditch

Facing Northwest

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 62

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Tarmac Ditch

Facing Northeast

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 63

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Off-site Quarry

Facing West

DATE PHOTO TAKEN:

August 23, 2018

PHOTOGRAPH 64

DESCRIPTION:

Chicago Rockford International Airport, Midfield Development / CMT

Site Overview – Offsite Quarry

Facing West

DATE PHOTO TAKEN:

August 23, 2018

WETS Station Data

Rockford GTR Rockford AP IL822 Winnebago County FORM

WETS Station: IL822

	Average	<30%	>30%
April	3.62	2.46	4.32
May	4.03	2.51	4.86
June	4.8	3.06	5.79
July	4.1	2.57	4.95

CLIMATIC EVALUATION OF PRECIPITATION
3 MONTHS BEFORE AERIAL CROP
HISTORY SLIDES

DATE: ____________________
COUNTY: ____________________
LANDOWNER: ____________________
TRACT NO. ____________________
PREPARED BY: ____________________

Year	April Percip-itation	Type of Month	May Percip-itation	Type of Month	June Percip-itation	Type of Month	July* Percip-itation	Type of Month	April Score 1X	May Score 2X	June Score 3X	Score for Year	Type of Year	Year	Best Years	RECORD OF WETLAND SIGNATURES OBSERVED ON AERIAL PHOTOGRAPHY
78	3.29	Normal	3.84	Normal	5.63	Normal	7.41	Wet	2	4	6	12	NORMAL	78	78	
79	5.2	Wet	1.45	Dry	4.75	Normal	4.34	Normal	3	2	6	11	NORMAL	79	79	
80	2.75	Normal	2.37	Dry	6.06	Wet	3.58	Normal	2	2	9	13	NORMAL	80	80	
81	5.21	Wet	1.84	Dry	5.88	Wet	1.14	Dry	3	2	9	14	NORMAL	81	81	
82	3.47	Normal	4.56	Normal	4.31	Normal	8.89	Wet	2	4	6	12	NORMAL	82	82	
83	3.85	Normal	4.99	Wet	1.55	Dry	3.85	Normal	2	6	3	11	NORMAL	83	83	
84	3.09	Normal	3.95	Normal	3.99	Normal	2.92	Normal	2	4	6	12	NORMAL	84	84	
85	1.1	Dry	3.43	Normal	3.34	Normal	2.98	Normal	1	4	6	11	NORMAL	85	85	
86	2.04	Dry	4.79	Normal	3.77	Normal	3.14	Normal	1	4	6	11	NORMAL	86	86	
87	1.98	Dry	3.73	Normal	3.08	Normal	5.02	Wet	1	4	6	11	NORMAL	87	87	
88	3.14	Normal	1.29	Dry	0.46	Dry	2.39	Dry	2	2	3	7	DRY	88		
89	0.99	Dry	2.93	Normal	2.46	Dry	7.61	Wet	1	4	3	8	DRY	89		
90	2.83	Normal	5.1	Wet	9.24	Wet	4.93	Normal	2	6	9	17	WET	90		
91	2.15	Dry	2.72	Normal	3.29	Normal	0.79	Dry	1	4	6	11	NORMAL	91	91	
92	3.65	Normal	0.48	Dry	1.18	Dry	5.12	Wet	2	2	3	7	DRY	92		
93	6.11	Wet	3.05	Normal	11.85	Wet	3.72	Normal	3	4	9	16	WET	93		
94	2.66	Normal	1.41	Dry	6.04	Wet	2.84	Normal	2	2	9	13	NORMAL	94	94	
95	4.56	Wet	6.3	Wet	3.89	Normal	2.61	Normal	3	6	6	15	WET	95		
96	2.9	Normal	11.75	Wet	4.95	Normal	9.72	Wet	2	6	6	14	NORMAL	96	96	
97	1.9	Dry	5.85	Wet	4.66	Normal	1.69	Dry	1	6	6	13	NORMAL	97	97	
98	4.51	Wet	3.57	Normal	6.27	Wet	3.68	Normal	3	4	9	16	WET	98		
99	7.77	Wet	3.36	Normal	5.74	Normal	3.41	Normal	3	4	6	13	NORMAL	99	99	
0	3.66	Normal	6.62	Wet	8.01	Wet	4.54	Normal	2	6	9	17	WET	0		
1	3.21	Normal	3.98	Normal	2.11	Dry	0.75	Dry	2	4	3	9	DRY	1		
2	3.85	Normal	3.02	Normal	7.45	Wet	1.75	Dry	2	4	9	15	WET	2		
3	2.33	Dry	4.2	Normal	1.98	Dry	4.3	Normal	1	4	3	8	DRY	3		
4	1.79	Dry	8.21	Wet	4.49	Normal	3.65	Normal	1	6	6	13	NORMAL	4	4	
5	1.71	Dry	1.78	Dry	2.45	Dry	1.45	Dry	1	2	3	6	DRY	5		
6	4.3	Normal	3.72	Normal	3.32	Normal	3.64	Normal	2	4	6	12	NORMAL	6	6	
7	2.73	Normal	1.25	Dry	4.07	Normal	2.43	Dry	2	2	6	10	NORMAL	7	7	
8	5.42	Wet	3.12	Normal	6.27	Wet	7.35	Wet	3	4	9	16	WET	8		
9	4.61	Wet	3.46	Normal	7.36	Wet	2.6	Normal	3	4	9	16	WET	9		
10	2.89	Normal	5.82	Wet	6.13	Wet	9.4	Wet	2	6	9	17	WET	10		
11	3.4	Normal	3.94	Normal	3.44	Normal	4.6	Normal	2	4	6	12	NORMAL	11	11	
12	4.13	Normal	1.62	Dry	0.66	Dry	2.68	Normal	2	2	3	7	DRY	12		
13	7.94	Wet	3.14	Normal	7.72	Wet	1.92	Dry	3	4	9	16	WET	13		
14	2.87	Normal	2.33	Dry	8.06	Wet	2.46	Dry	2	2	9	13	NORMAL	14	14	

SCORE
Dry = 1
Normal = 2
Wet = 3

TYPE OF YEAR
Dry = 6 to 9
Normal 10 to 14
Wet = 14 to 18

* July data is only used if the photo appears to have an unusually high number of surface water signatures indicating that the photo was taken soon after an unusally wet period. Otherwise it is assumed that the photo was taken in late June or early July before most of July's precipitation.

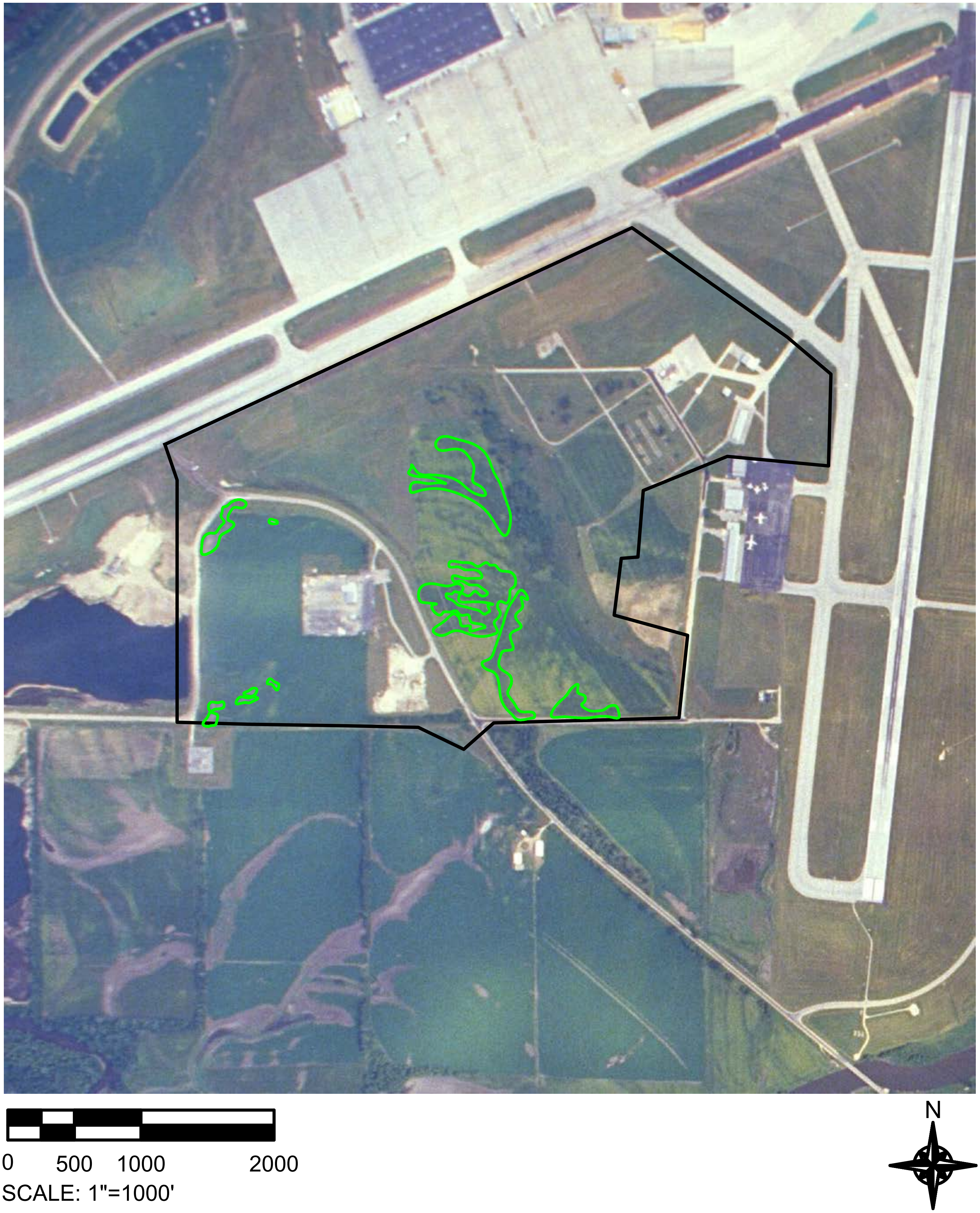
COMMENTS: ____________________

	Next 1	Rochelle IL7349 Ogle County
	Next 2	Oregon 3 SW_IL6490_Ogle County
	Next 3	Beloit_WI0696_Rock County_Wisconsin
Next Closest Site	Next 4	

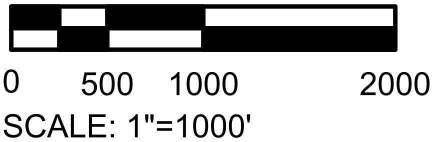
Historical Aerial Slide Photographs:
2000 (WET), 2004, 2006, 2007, 2011, 2014

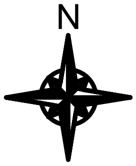
Slide #: il201_00_139

Year: 2000 (WET)

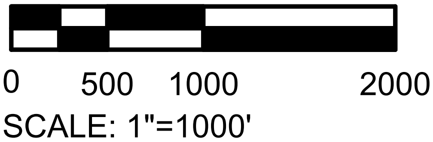


Year: 2004

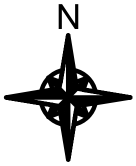




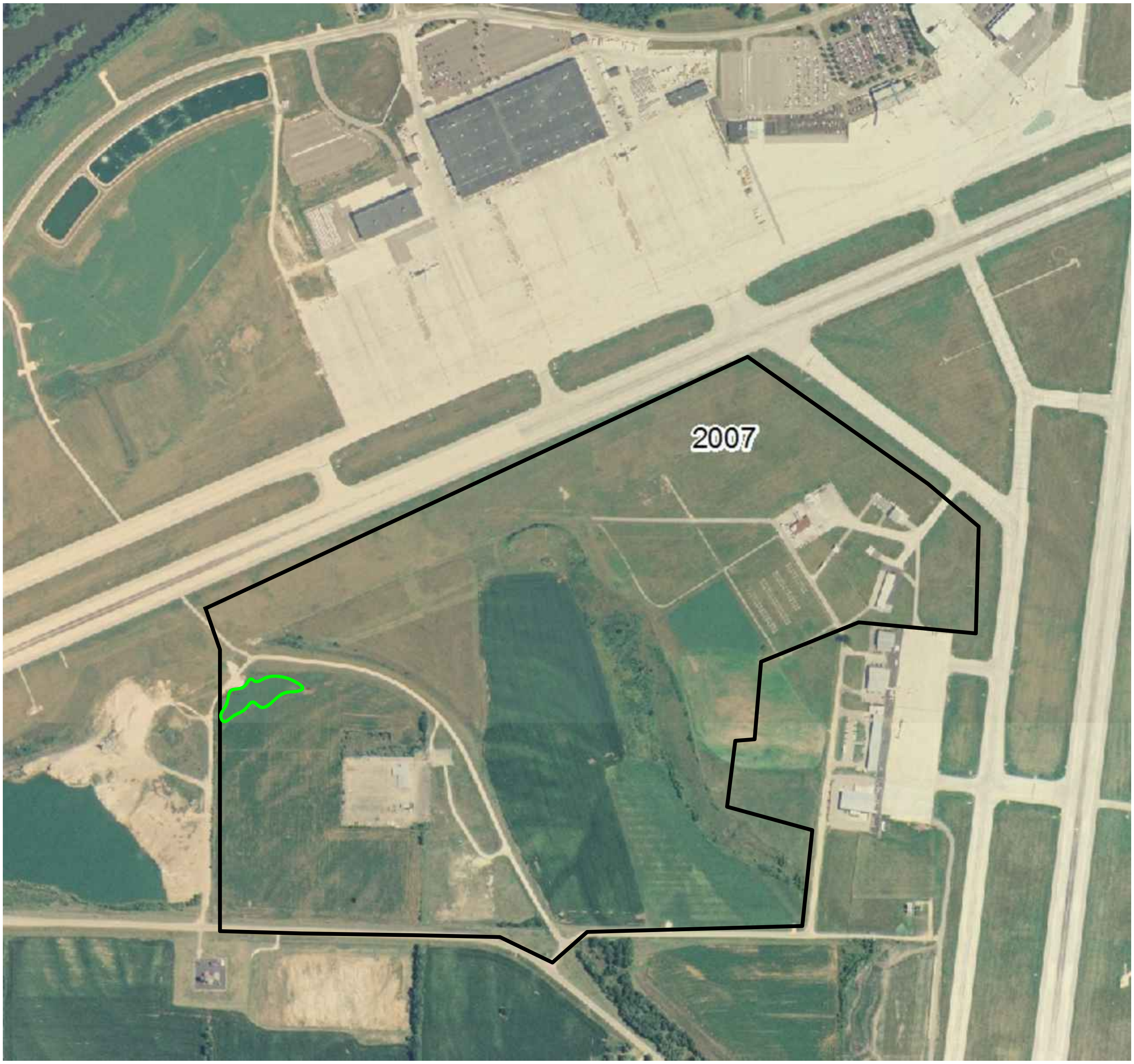
Year: 2006

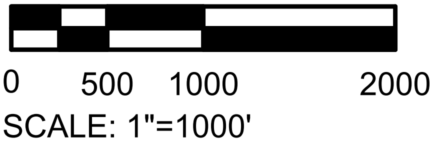


SCALE: 1"=1000'

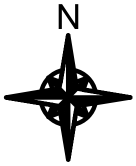


Year: 2007

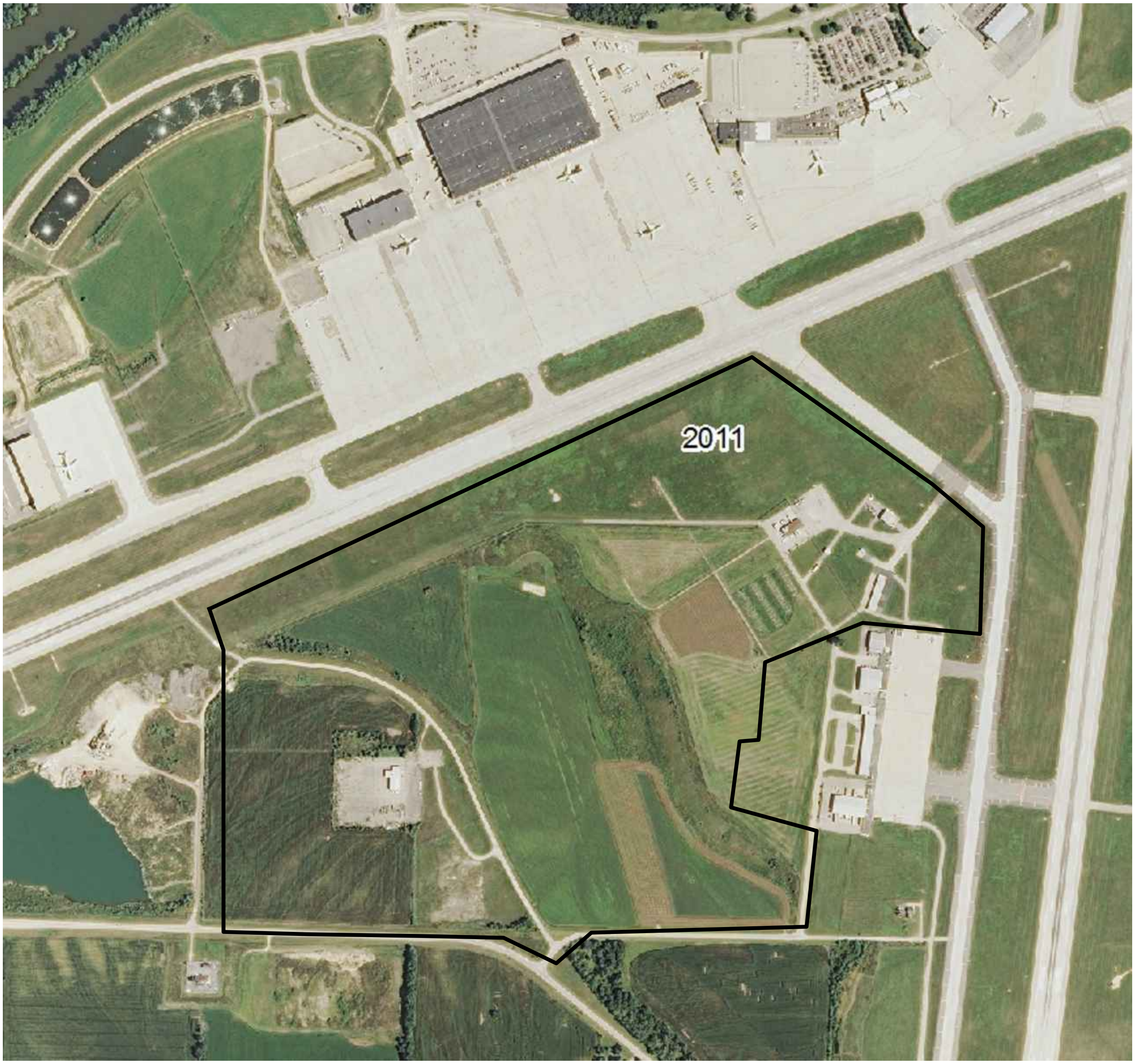


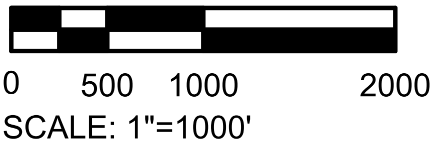


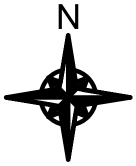
SCALE: 1"=1000'



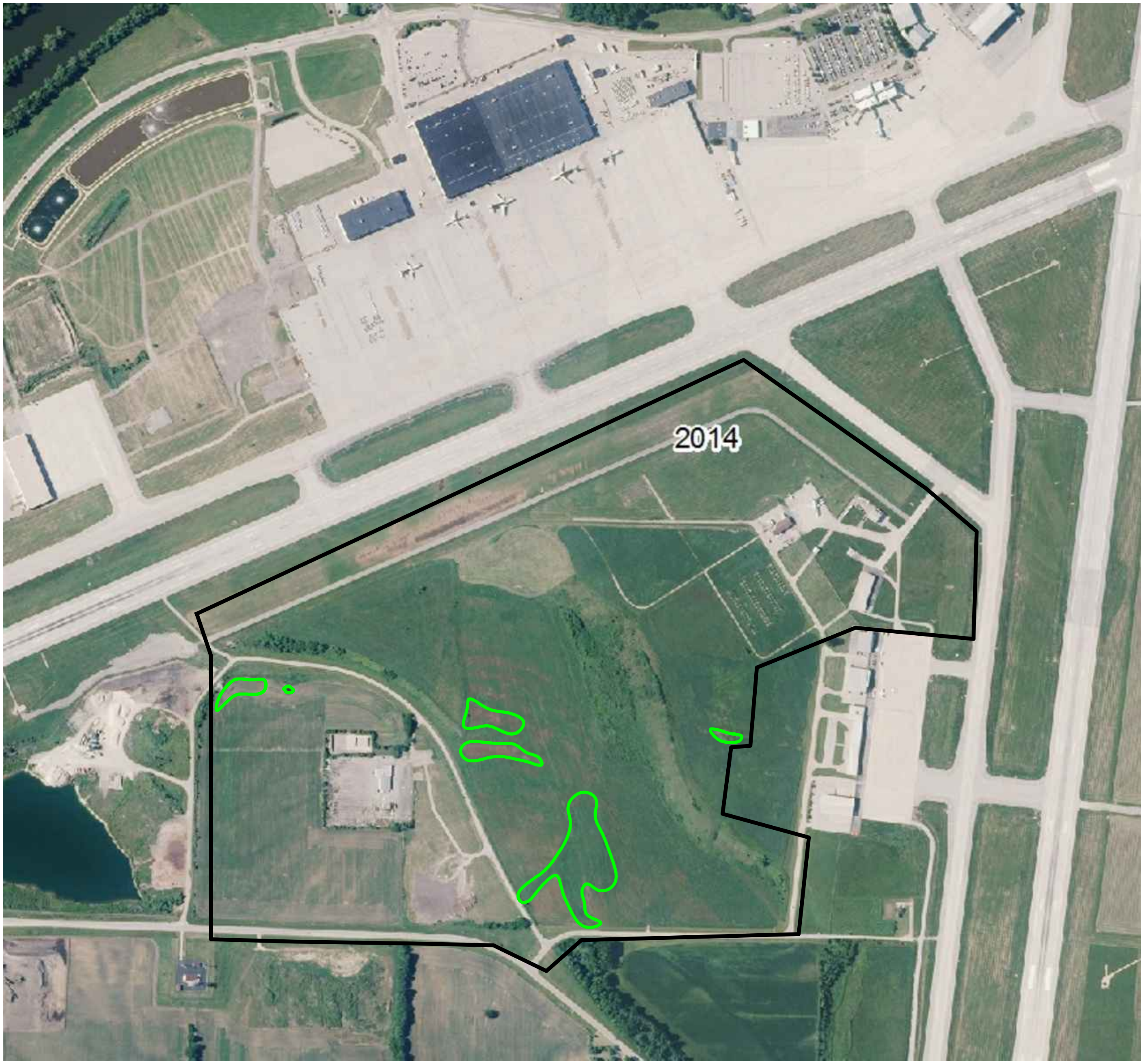
Year: 2011

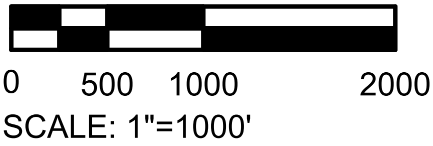


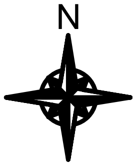




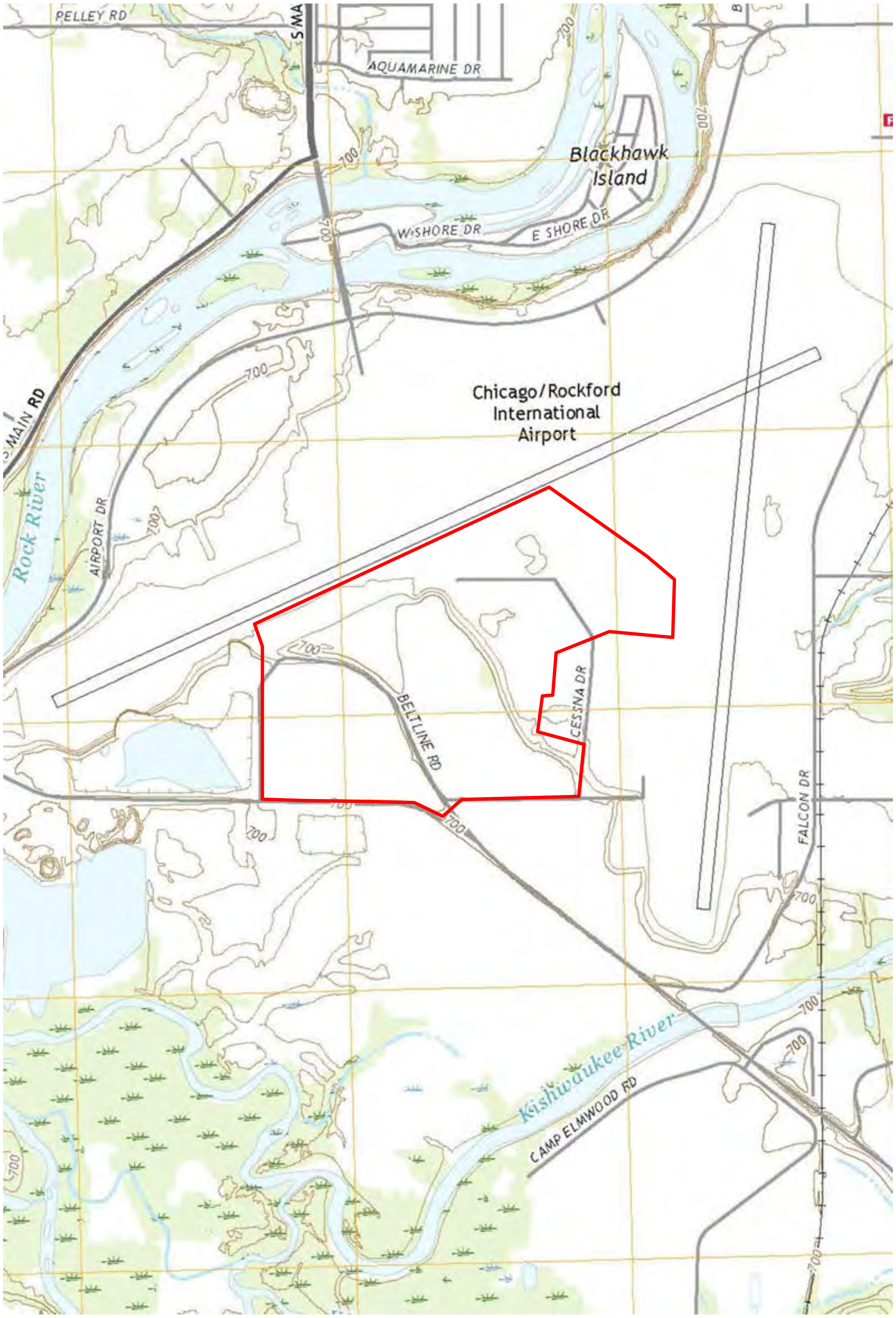
Year: 2014







Exhibits A - H



ENCAP
INCORPORATED

LEGEND:

Project Area —

Location Map

Source: U.S. Geologic Survey
Section 22 T43N R1E
Latitude: 42.190832 Longitude: -89.102849

Chicago Rockford International Airport, Midfield Development

Project Number: 18-0609A

Crawford, Murphy, & Tilly, Inc.

0 1000 2000 4000
SCALE: 1"= 2000'

NORTH

Exhibit A

ENCAP
INCORPORATED

LEGEND:

Project Area —

Wetlands

- 🟦 Estuarine and Marine Deepwater
- 🟩 Estuarine and Marine Wetland
- 🟩 Freshwater Emergent Wetland
- 🟩 Freshwater Forested/Shrub Wetland
- 🟦 Freshwater Pond
- 🟪 Lake
- 🟫 Other
- 🟦 Riverine

National Wetlands Inventory

Source: U.S. Fish & Wildlife Service

Chicago Rockford International Airport, Midfield Development

Project Number: 18-0609A

Crawford, Murphy, & Tilly, Inc.

0 500 1000 2000
SCALE: 1"=1000'

NORTH

Exhibit B

ENCAP
INCORPORATED

LEGEND:

Project Area —

🟥 Hydric (100%)

🟧 Hydric (66 to 99%)

🟨 Hydric (33 to 65%)

🟩 Hydric (1 to 32%)

🟩 Not Hydric (0%)

☐ Not rated or not available

Soil Map

Source: U.S. Department of Agriculture
Natural Resources Conservation Service
Web Soil Survey 3.1

Chicago Rockford International Airport, Midfield Development

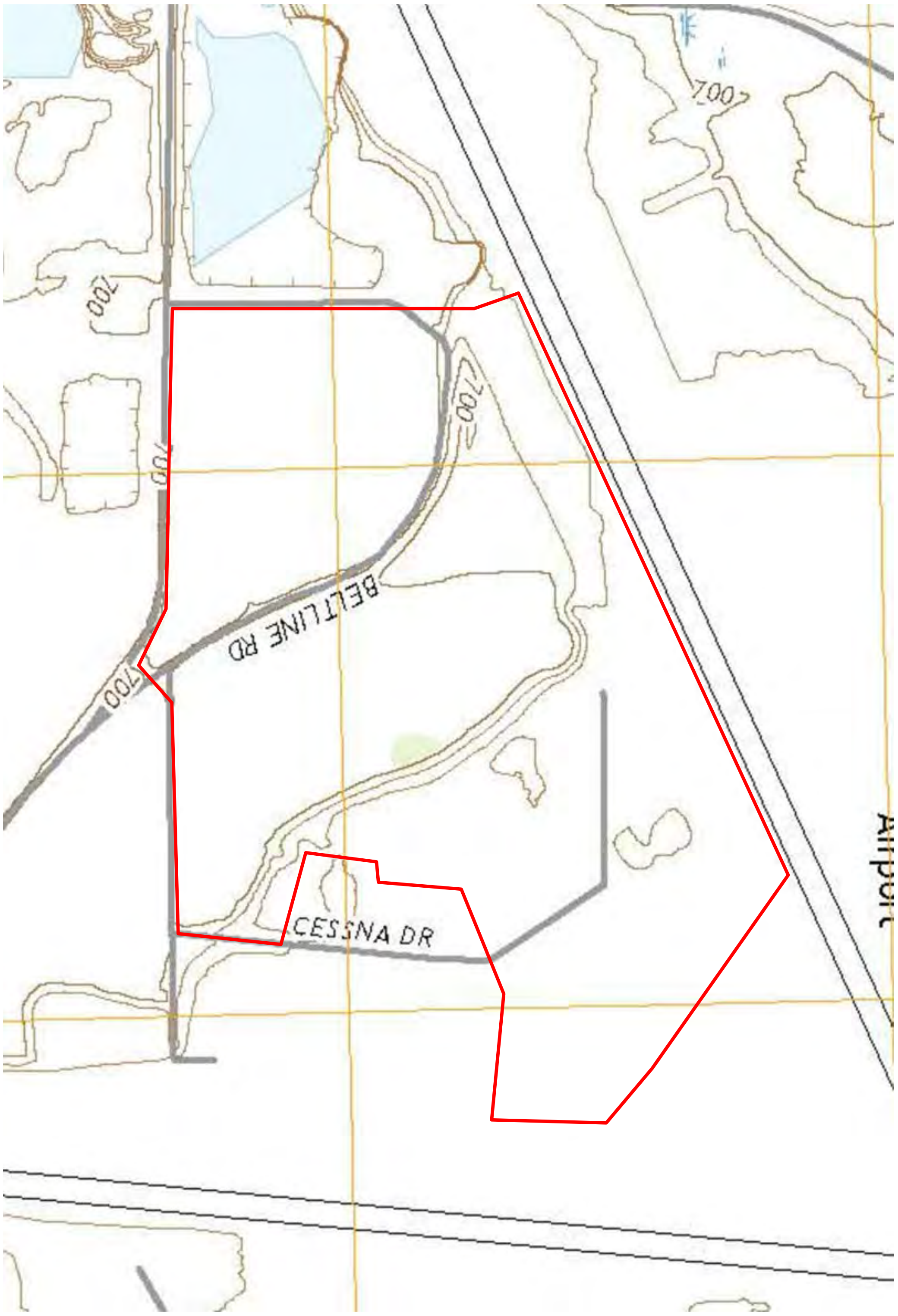
Project Number: 18-0609A

Crawford, Murphy, & Tilly, Inc.

0 500 1000 2000
SCALE: 1"=1000'

NORTH

Exhibit C



ENCAP
INCORPORATED

LEGEND:

Project Area —

2017 USGS Topographic Map

Source: U.S. Geologic Survey
Rockford South Quadrangle

Chicago Rockford International Airport, Midfield Development

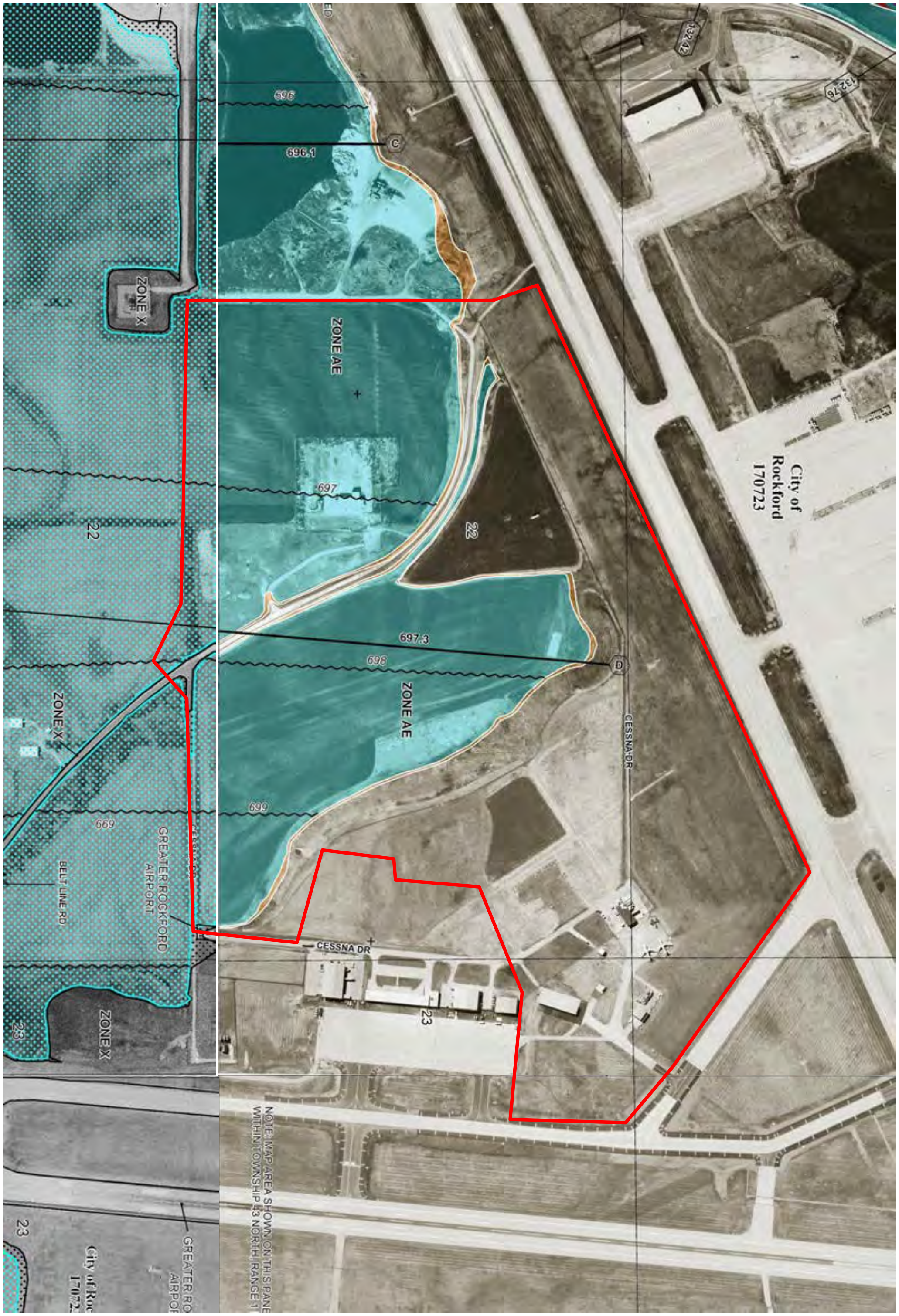
Project Number: 18-0609A

Crawford, Murphy, & Tilly, Inc.

0 500 1000 2000
SCALE: 1"=1000'

NORTH

Exhibit D



ENCAP
INCORPORATED

LEGEND:

Project Area

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
HTTP://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99 With BFE or Depth Zone AE, AO, AH, VE, AR Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X Future Conditions 1% Annual Chance Flood Hazard Zone X Protected by Accredited Levee Zone X
OTHER AREAS	Areas Determined to be Outside the 0.2% Annual Chance Floodplain Zone X Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES	Bridge Channel, Culvert, or Storm Sewer Dam, Jetty, or Weir Levee, Dike or Floodwall
OTHER FEATURES	A 718.7 717.5 Cross Sections with 1% Annual Chance Water Surface Elevation (BFE) 12 Coastal Transect Coastal Transect Baseline Profile Baseline Hydrographic Feature 512 Base Flood Elevation Line (BFE) 148 River Mile Limit of Study Jurisdiction Boundary

Flood Insurance Rate Map

Source: Federal Emergency Management Agency (FEMA)
Panel Numbers: 0378E, 0379E, 0386D, 0387D
Effective Dates: September 6, 2006 & February 17, 2016

Chicago Rockford International Airport, Midfield Development

Project Number: 18-0609A

Crawford, Murphy, & Tilly, Inc.

0 500 1000 2000
SCALE: 1"=1000'

NORTH

Exhibit E

ENCAP
INCORPORATED

LEGEND:

Project Area —

- ▲ Determined eligible for the NR
- ▲ Entered in the NR
- ▲ Part of a NR Historic District
- ▲ Part of a NR Historic District - contributing
- ▲ Part of a NR Historic District - non-contribu
- ▲ Undetermined
- ▨ NR Districts
- ▨ Survey Areas
- ☐ Senate Boundaries
- ☐ House Boundaries
- ☐ Floodplain
- ☐ Chicago Community Areas
- ☐ Certified Local Government Districts
- ☐ High Probability Archeology
- ☐ Local Governments
- 🟩 Federal Lands
- ☐ Counties
- ☐ Cities

Historic Architectural Resources Geographic Information System

Source: Illinois Historic Preservation Agency

Chicago Rockford International Airport, Midfield Development

Project Number: 18-0609A

Crawford, Murphy, & Tilly, Inc.

0 500 1000 2000
SCALE: 1"=1000'

NORTH

Exhibit F

Bell Bowl Prairie INAI Site

Image Courtesy of Google Earth

Chicago Rockford International Airport, Midfield Development

Project Number: 18-0609A

Crawford, Murphy, & Tilly, Inc.

Exhibit G

LEGEND:

Project Area

HIGH QUALITY PRAIRIE AREA
(5.19 Acres Total)

MODERATE QUALITY PRAIRIE AREA
(4.23 Acres Total)

DEGRADED PRAIRIE AREA
(12.32 Acres Total)

0 250 500 1000
SCALE: 1"=500'

NORTH

Aerial Photograph

Image Courtesy of Google Earth

Chicago Rockford International Airport, Midfield Development

Project Number: 18-0609A

Crawford, Murphy, & Tilly, Inc.

Exhibit H

ENCAP INCORPORATED

LEGEND:

Project Area	▬
Approximate On-Site Wetland Boundary	▬
On-Site Farmed Wetland Boundary	▬
Approximate Location of Drainage Ditch (On-Site)	-·-·-
Culvert	>—<
Sample Points	A-L

0 250 500 1000

SCALE: 1"=500'

NORTH

Wetlands

Submittal Date: 10/11/2018 **Sequence No:** 22034

District: 2 **Requesting Agency:** Aero **Project No:**

Contract #: N/A **Job No.:**

Counties: Winnebago

Route: N/A **Marked:** N/A

Street: Airport Drive **Section:** N/A

Municipality(ies): Rockford Township **Project Length:** **km** **miles**

FromTo (At): N/A

Quadrangle: Rockford South **Township-Range-Section:** T43N-R1E-S15

Anticipated Design Approval: 01/15/2019 **Cleared for Design Approval:** 01/11/2019

Cleared for Letting: 01/11/2018 **Mitigation:** No

Wetland Impacts Evaluation

Submittal Date: 01/11/2019 **Submitted By:**

Does the project have wetland impacts? No **Type:**

Briefly describe the measures considered to avoid and minimize adverse impacts to the wetlands:

Summarize briefly why there are no practicable alternatives to the use of the wetland(s):

Wetland mitigation is being proposed: ☑ **Reviewed**

Memo Date: 01/11/2019 **Memo By:** Vince Hamer

Memo: No Impacts to wetlands. This project is cleared for construction with respect to wetlands. (VH)

Wetland Impacts and Mitigation Required

Conditional Letter of Map Revision

File 93258-19-01

CMT 50 years of service

CRAWFORD, MURPHY & TILLY, INC.
CONSULTING ENGINEERS
600 NORTH COMMONS DRIVE, SUITE 107
AURORA, ILLINOIS 60504
(708) 820-1022 FAX (708) 820-0350

April 27, 1995

Greater Rockford Airport Authority
60 Airport Drive
Rockford, Illinois 61109

Attn: Mr. Bill Baylor

Re: 93258-19-01 Greater Rockford Airport Authority
Rockford, Illinois
Master Drainage Study-Phase 2

Dear Mr. Baylor,

On March 31, 1995, we received a copy of the Conditional Letter of Map Revision from FEMA (attached) for the revision to the floodplain delineation as proposed by the Master Drainage Study. This is essentially a permit from FEMA which approves the proposed floodplain/floodway delineation with the condition that the airport is developed according to the submitted plan. The letter states that upon completion of the proposed airport development within the floodplain, Winnebago County must request a revision to the effective Flood Insurance Rate Map (FIRM). As built plans must be submitted, and should any of the development have changed from the concept submittal, revisions to the hydraulic models, and to the floodplain/floodway delineation will need to be made and submitted to FEMA.

Although Winnebago County is to formally request the revision, it is the Airport's responsibility to provide the supporting documents and files for the County to forward to FEMA. The majority of the required documentation will be developed within the Scope of Work for the construction phase engineering services on each project and we believe that should modifications to the approved plan occur, that the necessary models can be developed within the special service phase engineering work scope.

The attached letter from Winnebago County reiterates that responsibility.

Should you have any questions regarding this condition letter of Map Revision, please call our office.

Sincerely,

CRAWFORD, MURPHY & TILLY, INC.

Sandy J. Tsekouras, P.E.

DEB/ajb

cc: Mike Reiter - CMT, Rockford
Rick Mohaupt - Winnebago County
Brad Moberg - City of Rockford
Bryan Vandiver - GRAA

WINNEBAGO COUNTY DEPARTMENT OF PUBLIC WORKS

JOHN T. KRETZER, JR., P.E.
County Engineer
RONALD J. HEINEN, P.E.
Assistant County Engineer
RICHARD B. MOHAUPT, P.E.
Superintendent

APR 3 1995

April 11, 1995

Greater Rockford Airport Authority
60 Airport Drive, P.O. Box 5063
Rockford, IL 61109

Gentlemen:

Attached is a copy of a letter from the Federal Emergency Management Agency (FEMA) to Eugene Quinn, Chairman of the Winnebago County Board. I have discussed this matter with Chairman Quinn and am responding in its regard.

The Greater Rockford Airport is a significant asset to the Winnebago County Area and its citizens; however there are aspects to the Floodplain Map Revision process, referred to in the FEMA letter, which Winnebago County alone will not be able to adequately address. Specifically, these include the provision of fill density certification; as-built drawings; notification of affected property owners (which we understand is exclusively the Airport); assessment of impacts and documentation of any plan revisions (which may also involve additional fees to FEMA); and even deciding upon when all work contemplated is completed so that a request for revision is appropriate. These are matters under the direct purview of the Greater Rockford Airport Authority.

Under the circumstances, and given the fact that this work will take place over a number of years, we propose that Winnebago County continue in its role as local regulatory agency, and review individual aspects of the work within its jurisdiction for compliance with our ordinance and the FEMA Conditional Letter of Map Revision. But when all the development is completed, the Greater Rockford Airport Authority shall provide all necessary documents, certification blanks, exhibits and fees for the final request for map revision. Winnebago County will then act upon the completed package in accordance with National Flood Insurance Program regulations.

Sincerely,

Richard B. Mohaupt

Richard B. Mohaupt
Superintendent of Public Works

RBM/mm

cc: Eugene R. Quinn, Chairman, Winnebago County Board
✓ Ms. Sandra J. Tsekauras, P.E., Crawford, Murphy & Tilly

424 North Springfield Avenue, Rockford, Illinois 61101-5097

ADMINISTRATION: (815) 965-9431
FAX: (815) 965-9433

ENGINEERING: (815) 987-3113
(815) 987-3118
FAX: (815) 965-6406

Federal Emergency Management Agency
Washington, D.C. 20472

MAR 28 1995

MAR 1 1995

Mr. Eugene Quinn
President of the County Board for
Winnebago County
400 West State Street
8th Floor
Rockford, Illinois 61101

Case No.: 94-05-295R
Community: Winnebago County,
Illinois (Unincorporated
Areas)
Community No.: 170720

104

Dear Mr. Quinn:

This is in reference to a August 10, 1994, letter from Ms. Sandra J. Tsekouras, P.E., of Crawford, Murphy and Tilly, Inc., requesting a conditional Letter of Map Revision (LOMR) for the proposed runway and taxiway along Kishwaukee River. This project, which is located near the Rockford Airport, will consist of fill placement in the floodway and floodplain, and relocation of Beltline Road.

In support of this request, Ms. Tsekouras submitted a report, prepared by Crawford, Murphy and Tilly, Inc., entitled Greater Rockford Airport Authority Application for Federal Emergency Management Agency Conditional Letter of Map Revision for Proposed Airport Development, dated August 5, 1994, which contained the following:

- an executive summary that included description of the study, scope of study, hydrologic and hydraulic analyses descriptions, and an evaluation of alternatives to the proposed project;
- HEC-2 hydraulic models, dated June 22, 1994, of the 10-, 50-, 100- and 500-year floods and floodway, duplicating the models used to develop the May 1980 Flood Insurance Study (FIS) for the unincorporated areas of Winnebago County;
- HEC-2 hydraulic models dated January 12, 1994, of the 10-, 50-, 100-, and 500-year floods and floodway, representing the existing conditions;
- HEC-2 hydraulic models dated January 12, 1994, of the 10-, 50-, 100-, and 500-year floods and floodway, representing the proposed project;
- a topographic map entitled FEMA vs. Revised Baseline Floodplain/Floodway Map, dated September 1993, at a scale of 1"=600', with a contour interval of 2 feet. This map shows the 100- and 500-year flood hazard conditions, representing the May 1980 FIS and the existing conditions. This map includes the 100- and 500-year floodplain boundaries and floodway, road alignments, and the location of cross sections used in the hydraulic models;

- a topographic map entitled Proposed Conditions Floodplain/Floodway Map, dated July 28, 1994, at a scale of 1"=600', with a contour interval of 2 feet, showing the 100- and 500-year floodplain boundaries and floodway, road alignments, cross section locations, and property lines used in the proposed conditions hydraulic model;

- a copy of a portion of the Flood Boundary and Floodway Map (FBFM) number 170720, panel 0075, dated November 19, 1980, for the unincorporated areas of Winnebago County, annotated to show the proposed 100-year floodplain boundaries and floodway;

- a copy of the May 1980 FIS report Flood Profile 07P for Kishwaukee River, annotated to show proposed water-surface elevations for the 10-, 50-, 100-, and 500-year floods; and

- completed application/certification forms.

All data necessary to process this request were received by December 23, 1994.

The aforementioned existing conditions HEC-2 model, dated January 12, 1994, reflects more up-to-date information than the hydraulic models used to prepare the May 1980 FIS. Therefore, we used this model as a baseline because it better represents existing conditions. This baseline model reflects increases in 100-year water-surface elevation, with a maximum increase of 0.04 foot in the 100-year water-surface elevation for the Kishwaukee River when compared to the May 1980 FIS. We will revise the FIS, FIRM, and FBFM for Winnebago County to incorporate these changes. However, to do so in a cost-effective manner, we will delay incorporating the changes reflected in the existing conditions model until the proposed development for Rockford Airport is complete and can also be included.

The effects of the proposed project when compared to the baseline model would show both increases and decreases in the 100-year water-surface elevations along Kishwaukee River, with a maximum increase of 0.01 foot at two locations at a point approximately 30 feet upstream of Kishwaukee Road and a maximum decrease of 0.29 foot at a point approximately 1.73 miles upstream of Kishwaukee Road. The increases in water-surface elevation are all contained within the developer's property. The 100-year floodplain would also increase and decrease. The floodway width would increase and decrease, with a maximum increase of 1,241 feet at a point approximately 4,510 feet upstream of Kishwaukee Road and a maximum decrease of 2,760 feet at a point approximately 2.85 miles upstream of Kishwaukee Road.

We have reviewed the submitted data and determined that the proposed project meets the minimum floodplain management criteria of the National Flood Insurance Program (NFIP). If the project were built as proposed, a revision to the FIRM for your county would be warranted. This revision would show both increases and decreases in the 100-year water-surface elevations along Kishwaukee River with a maximum increase of 0.04 foot at a point approximately 100 feet upstream of Kishwaukee Road and a maximum decrease of 1.04 feet at a point approximately at the upstream face of Beltline Road bridge. The 100-year floodplain would also be modified and the floodway width would increase and decrease, with a maximum increase of 642 feet at a point approximately 9,140 feet upstream of Kishwaukee Road and a maximum decrease of 29 feet at a point approximately at the downstream face of Route 251 bridge, as shown on the aforementioned data. Future revisions to the FIRM, or restudies of the flood hazards in this area, could modify this determination.

This determination is based on the 100-year flood discharges computed in the May 1980 FIS for your county and does not consider subsequent changes in watershed characteristics that would tend to increase flood discharges. The development of this project and other projects upstream could result in increased flood discharges, which, in turn, could result in increased 100-year flood elevations. Future restudies of your county's flood hazards would take into account the cumulative effects of development on flood discharges and could, therefore, establish higher 100-year flood elevations in this area.

This conditional LOMR is based on minimum floodplain management criteria established under the NFIP. Your county is responsible for approving all proposed floodplain development, including the project upon which this request is based, and for ensuring that permits required by Federal or State law have been received. State and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If the State of Illinois or Winnebago County has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

NFIP regulations Subparagraph 65.7(b)(1) (copy enclosed), states that when a floodway change is proposed a copy of a public notice distributed by the community stating the community's intent to revise the floodway, or a statement by the community that it has notified all affected property owners and affected adjacent jurisdictions, must be submitted to us. This requirement must be addressed when requesting a map revision to reflect the effects of the completed runway and taxiway along Kishwaukee River.

We remind you that fill placed to raise the ground surface to or above the Base (100-year) Flood Elevation (BFE) to gain exclusion from a special flood hazard area (100-year floodplain) must meet the criteria of NFIP regulations Subparagraph 65.5(a)(6). Specifically, we require that the community's NFIP permit official or a registered professional engineer or soils engineer certify the following:

- that the fill has been compacted to 95 percent of the maximum density obtainable, as measured by the Standard Proctor Test method for fill pads prepared for residential or commercial structure foundations;

- that fill slopes for granular materials are not steeper than one vertical to one-and-one-half horizontal (steeper slopes must be justified); and

- that adequate erosion protection is provided for fill slopes exposed to moving floodwaters (slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during a 100-year flood event must, at a minimum, be protected by stone or rock riprap).

For us to provide due process to property owners who may be affected by increased BFEs, special flood hazard areas, or floodways, the effects of the completed project must be incorporated into the FIS, FIRM, and FBFM through the physical map revision and republication process, in lieu of a LOMR. The physical map revision and republication process, which involves preparing preliminary copies of the revised FIS, FIRM, and FBFM for community review, takes considerably longer than a LOMR.

Upon completion of the proposed airport development project, your county must request a revision to the effective FIRM. The revision request should be submitted to our Regional office in Chicago, Illinois, and include the following data:

1. Evidence of compliance with NFIP regulations Paragraph 65.4(b), which states that "all requests for changes to effective maps . . . must be made in writing by the community's Chief Executive Officer (CEO) or an official designated by the CEO. Should the CEO refuse to submit such a request on behalf of another party, FEMA will agree to review it only if written evidence is provided indicating the CEO or designee has been requested to do so."

2. "As-built" plans of the project, certified by a registered professional engineer.

3. HEC-2 hydraulic models of the 10-, 50-, 100-, and 500-year floods and floodway representing "as-built" conditions. The elevations in the "as-built" HEC-2 models must coincide with the effective FIS elevations at the upstream and downstream ends of the project.

4. Delineation of the 100- and 500-year floodplain boundaries, the floodway, and the locations and alignment of the cross sections and flow line used in the hydraulic model.

    a. This information should be shown on a map of suitable scale and topographic definition to provide reasonable accuracy.

    b. All items should be labeled for easy cross-referencing to the hydraulic model and summary data.

5. Source data and engineering documentation for the previously mentioned items, as well as a bibliographic list of other sources of information used.

6. Evidence of compliance with NFIP regulations Subparagraph 65.7(b)(1) regarding floodway notification, as mentioned earlier.

7. Evidence of approval from all property owners that would be impacted by increases in BFEs or the 100-year floodplain as a result of the project is required in order to incorporate the completed project into your county's FIS and FIRM via the LOMR process.

8. Evidence of compliance with NFIP regulations Subparagraph 65.5(a)(6) regarding fill compaction, as mentioned earlier.

Items 3-5 have been submitted for proposed conditions and do not have to be resubmitted if the project is built as proposed. If any changes take place during construction, however, these items must be resubmitted to reflect "as-built" conditions.

We have enclosed a copy of our application and certification forms for your reference. Typically, these forms are not required if the project is completed as proposed. The enclosed document, entitled "Requirements for Submitting Application/Certification Forms to Support Requests for NFIP Map Revisions," describes in detail the circumstances under which the forms are required.

The NFIP is non-taxpayer funded and its expenses are borne by policyholders. Therefore, to minimize the financial burden on the policyholders while maintaining the NFIP as self-sustaining, we have implemented a procedure to recover costs associated with reviewing and processing requests for modifications to published flood information and maps. Therefore, an initial fee of $225, which represents the minimum charges associated with a request of this type, must be submitted before we can process your revision request. Payment of this fee must be made in the form of a check or money order made payable to the National Flood Insurance Program, and is to be forwarded to the following address:

Federal Emergency Management Agency
Fee Charge System Administrator
P.O. Box 3173
Merrifield, Virginia 22216

Should you wish to use an overnight service to transmit your payment, please forward it to the following address in lieu of the address noted above:

Fee Charge System Administrator
c/o Dewberry & Davis
METS Division
8401 Arlington Boulevard
Fairfax, Virginia 22031
(703) 849-0432

If items 3-5 listed above must be resubmitted, the initial fee could exceed the minimum of $225.

Part 65 of the enclosed NFIP regulations further describes the nature and extent of the material needed to support a request to revise an effective FIS, FIRM, and FBFM. Compliance with the criteria outlined in this document will expedite our review, thus allowing the effective FIS, FIRM, and FBFM for your county to be revised as appropriate, in a timely manner.

Should you have any questions regarding this matter, please do not hesitate to contact the Director, Mitigation Division of the Federal Emergency Management Agency in Chicago, Illinois, at (312) 408-5552, or Philip Myers of our Headquarters staff in Washington, D.C., at (202) 646-2755, or by facsimile at (202) 646-4596.

Sincerely,

Matthew B. Miller for

Michael K. Buckley, P.E., Chief
Hazard Identification Branch
Mitigation Directorate

cc: Ms. Sandra J. Tsekouras, P.E.
State Coordinator

Appendix F

AGENCY AND CITIZEN COORDINATION AND RESPONSE TO COMMENTS

CHICAGO ROCKFORD INTERNATIONAL AIRPORT

December 3, 2018

Mr. Alan Mlacnik, Chief Engineer
Illinois Department of Transportation
Office of Intermodal Project Implementation-Aeronautics
Abraham Lincoln Capital Airport
1 Langhorne Bond Drive
Springfield, IL 62707

Re: Chicago Rockford International Airport, Rockford, Illinois
Midfield Development
Bell Bowl Prairie-INAI Site Number 0916

Dear Mr. Mlacnik:

The Chicago Rockford International Airport is pursuing aeronautical development of a location within the airport known as the Midfield Development. Within this area there is a designated Illinois Natural Areas Inventory site known as the Bell Bowl Prairie (Site Number 0916). As part of the National Environmental Policy (NEPA) review of the proposed Midfield Development, a biotic survey of the prairie was conducted by ENCAP Incorporated of DeKalb, IL. This survey was shared with the Illinois Department of Transportation, Bureau of Design and Environment (BDE). Subsequent to the biotic survey, BDE conducted field verification site reviews.

From these investigations, it was determined that the state-listed, endangered **Large-flowered Beard Tongue** (*Penstemon grandiflorus*) is not present in the Bell Bowl Prairie. It should also be noted that the **Large-flowered Beard Tongue** is not listed as a federally endangered and/or threatened species. Based on these findings and guidance from the Illinois Department of Transportation, Bureau of Design and Environment, the Chicago Rockford International Airport provides our permission for the following:

- *"Take"* of the state-listed **Large-flowered Beard Tongue** flower should be removed from documents noting its existence in the Bell Bowl Prairie (Site Number 0916); and
- Due to the lack of a state-listed endangered species, removal the Illinois Natural Areas Inventory (INAI) designation to the area referred to as the Bell Bowl Prairie.

Therefore, as per a request from the Illinois Department of Natural Resources, the Greater Rockford Airport Authority grants permission to *"take"* the **Large-flowered Beard Tongue** per the Midfield Development. It is our understanding that this notification should remain on file for future coordination and reviews. If you have any questions, please feel free to contact me.

Sincerely,

Michael P. Dunn, Executive Director

c: Vince Hamer, IDOT BDE
Brian Welker, CMT

60 AIRPORT DR ROCKFORD, IL 61109-2902 PHONE 815 969-4000 FAX 815 969-4001 FLYRFD.COM FOREIGN-TRADE ZONE (FTZ) #176

Illinois Department of Transportation

Memorandum

To: Alan Mlacnik

From: Jack A. Elston By: Thomas C. Brooks

Subject: Natural Resources Review

Date: December 10, 2018

Rockford International Airport
T43N/R1E/S15
Winnebago County
Seq. #22034

The proposed project involves construction of a new Air Cargo Development on the south side of the airport. New buildings, aircraft parking, aprons, taxiways and employee parking will be constructed. All work will remain on airport property.

The improvement will not require land acquisition, in-stream work or tree removal. Land cover in the vicinity of the proposed improvement is primarily agricultural land with a large active commercial airfield to the north.

Review for Illinois Endangered Species Protection and Illinois Natural Areas Preservation – Part 1075

The Illinois Natural Heritage Database contains a record of the State-listed plant, the Large-Flowered Beard Tongue. The plant is identified within the limits of the Illinois Natural Area Inventory site the Bell Bowl Prairie. A botanical survey performed by ENCAP on 08/23/18 did not locate the listed plant within the INAI. Due to the nature of the construction, the INAI will be removed indefinitely. An EcoCAT was submitted to IDNR on November 11, 2018. Per IDNR's consultation any disturbance of a state-listed plant requires the express written permission of the landowner. Even though the species was not identified in the survey, a permission letter was obtained from Rockford International Airport for the take of the Large-Flowered Beard Tongue. The permission letter was signed and received on December 2, 2018 and was filed into our project folder. No further coordination is required under Part 1075.**Therefore, consultation under Part 1075 is terminated.**

This review for compliance with 17 Ill. Adm. Code Part 1075 is valid for two years unless new information becomes available that was not previously considered; the proposed improvement is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the proposed improvement has not been implemented within two years of the

date of this memorandum, or any of the above listed conditions develop, a new review will be necessary.

Review for Illinois Interagency Wetland Policy Act – Part 1090

The National Wetlands Inventory shows wetlands in the vicinity of the project location. A survey for wetlands was conducted within the Environmental Survey Request limits for the proposed improvements. All potential sites were examined and three were determined to be wetlands. The Wetland Delineation Report and spatial information (ArcGIS shapefile) are saved in the project folder.

The project sponsor will consider location and design alternatives to avoid and minimize adverse wetland impacts to the extent practical. After the extent of impacts is determined, a Wetland Impact Evaluation (WIE) form will be completed and submitted to the IDOT Bureau of Design and Environment. Unavoidable adverse wetland impacts are subject to the applicable ratios specified in 17 Ill. Adm. Code Part 1090.50 (c)(8). If the project will avoid adverse wetland impacts, the WIE should reflect the determination that adverse wetland impacts will not occur. The WIE form and instructions for its completion can be accessed at http://www.dot.il.gov/environment/wetlands.asp. Pending the submittal of the WIE **our wetland review under Part 1090 is open**.

Review for Endangered Species Act - Section 7

The proposed improvement was reviewed in fulfillment of our obligation under Section 7(a)2 of the Endangered Species Act. Our review included use of the US Fish and Wildlife Service's (USFWS) Information for Planning and Conservation (IPaC) web-based review tool. Through IPaC, an official species list was generated. The list contains the endangered, threatened, proposed and candidate species and proposed and designated critical habitat that may be present within or in the vicinity of the proposed improvement. The following species are listed: Indiana bat (Ibat), northern long-eared bat (NLEB), rusty patched bumble bee, prairie bush-clover and eastern prairie fringed orchid. No proposed or designated critical habitat is listed. Under 50 CFR 402.12(e), **the accuracy of the species list is limited to 90 days.**

We cross-referenced the preferred habitat of each of the listed species with our knowledge of the project area and determined that the proposed improvement will have no effect on those species.

Should the project be modified or new information indicates listed or proposed species may be affected, consultation or additional coordination should be initiated.

VH

Illinois Department of Transportation

Memorandum

To: Alan Mlacnik

From: Jack Elston By: Brad Koldehoff

Subject: Cultural Resources Clearance – No Historic Properties Affected

Date: October 3, 2018

Winnebago County
Rockford International Airport
Rockford
Seq. 21722
ISAS Log #18080

For the above referenced undertaking, IDOT's qualified Cultural Resources staff hereby make a **"No Historic Properties Affected"** finding pursuant to Section 106 of the National Historic Preservation Act.

This finding concludes the Section 106 process in accordance with the stipulations of the Programmatic Agreement Regarding Section 106 Implementation for Federal-Aid Transportation Projects in the State of Illinois, executed March 6, 2018 by FHWA, Illinois SHPO, IDOT and the Advisory Council on Historic Preservation.

No further cultural resources coordination is required for this undertaking.

Brad Koldehoff

Brad H. Koldehoff
Cultural Resources Unit Chief
Bureau of Design & Environment

BK:km

Illinois Department of Transportation

Memorandum

To: Alan Mlacnik, Bureau Chief of Airport Engineering

From: Brad Koldehoff, Chief Archaeologist and Cultural Resources Unit Chief, and
Elizabeth (Becky) Roman, Architectural Historian

Subject: NRHP Eligibility Evaluation – Bell Bowl Archaeological Site (11WO554) and
Historic Resource, Rockford Airport, Winnebago County, Seq#21723

Date: January 31, 2019

We have evaluated the National Register of Historic Places (NRHP) eligibility of the Bell Bowl resource as both an archaeological site (11WO554) and as an above-ground/historic architectural resource, following guidance provided in *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* and *National Register Bulletin 36: Guidelines for Evaluating and Registering Archaeological Properties*. We disagree with the opinion of our consultant, the Illinois State Archaeological Survey (ISAS), who is of the opinion that the Bell Bowl warrants NRHP consideration under Criteria A and C as an example of an outdoor amphitheater, used by the military and local groups at Camp Grant (see attached report). We concur with their opinion that it is not eligible under Criterion D (information potential). In our professional opinion, the Bell Bowl is not eligible for the NRHP under any of the four criteria, either as an archaeological or historical resource.

For the following reasons, the Bell Bowl historic/archaeological site is not eligible for the NRHP:

1. The Bell Bowl is not eligible under Criterion A (events) for its association with Camp Grant and/or its use as an outdoor amphitheater as it lacks the physical integrity and associations needed to convey this past use. The surrounding Camp Grant has been lost through development of its property into the Rockford Airport. A review of historic maps and aerials reveal that almost none of the pre-airport landscape and buildings remain. This is confirmed through a review of webpages that provide the history of Camp Grant. The fragmentary remnants of Camp Grant, including its WW I and WW II military camps and buildings of the Illinois National Guard, have been significantly altered and overprinted by the existing airport and surrounding developments. The resource represents the location of a past outdoor theater that was part of a much larger military complex that is no longer extant. The Bell Bowl has lost its integrity of feeling and association necessary for NRHP listing under Criterion A.

2. The Bell Bowl is not eligible under Criterion B (persons) for its association with Major General George Bell Jr., the last regular army commander stationed at Camp Grant. Though the Bell Bowl is named for General Grant, this resource would not be the best location or place at which to interpret and commemorate his life and military service. Military facilities are commonly named for officers, as was the case for the Bell Bowl, and simple naming does not convey significance under Criterion B.

3. The Bell Bowl is not eligible under Criterion C (architecture) as it no longer retains any man made physical elements from its time in use as an amphitheater. No structural remains or artifacts clearly associated with its use as an amphitheater or its time as part of Camp Grant were found. What remains today is an eroded natural feature, a grass covered bowl in the landscape. The Bell Bowl has lost its integrity of design, materials, workmanship, and feeling needed for NRHP listing under Criterion C.

4. The Bell Bowl is not eligible under Criterion D (information potential) because it lacks integrity (noted above) and information potential. The remnants of the feature cannot yield insights or informational that are not already documented in archival records, as is indicated in the ISAS report.

Given the above assessment, we determine the that the Bell Bowl, as an archaeological and historical resource, is Not Eligible for the NRHP under any of the four criteria. Therefore, a finding of No Historic Properties Effected is supported.

If there are any questions concerning this memorandum, please contact Brad Koldehoff by email at Brad.Koldehoff@illinois.gov or by phone at 217-785-7833

Illinois Department of Transportation

Memorandum

To: Alan Mlacnik

From: Jack Elston By: Brad Koldehoff

Subject: Cultural Resources Clearance – No Historic Properties Affected

Date: January 31, 2019

Winnebago County
Rockford International Airport
Rockford
Seq. 21723

For the above referenced undertaking, IDOT's qualified Cultural Resources staff hereby make a **"No Historic Properties Affected"** finding pursuant to Section 106 of the National Historic Preservation Act.

This finding concludes the Section 106 process in accordance with the stipulations of the Programmatic Agreement Regarding Section 106 Implementation for Federal-Aid Transportation Projects in the State of Illinois, executed March 6, 2018 by FHWA, Illinois SHPO, IDOT and the Advisory Council on Historic Preservation.

No further cultural resources coordination is required for this undertaking.

Brad Koldehoff

Brad H. Koldehoff
Cultural Resources Unit Chief
Bureau of Design & Environment

BK:km

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Illinois Department of
Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

August 8, 2019

Ms. Laura Sakach
Crawford, Murphy & Tilly, Inc.
2750 West Washington Street
Springfield, IL 62702

RE: Draft NEPA Environmental Assessment for the Greater Rockford Airport Authority for the development of Air Cargo facilities at the Chicago Rockford International Airport

Dear Ms. Sakach:

The Illinois Department of Natural Resources has received your request for comments for development of new air cargo facilities at RFD in two areas of the airport; the Northwest Air Cargo Development area and the Modified Air Cargo Development area.

The Northwest Air Cargo Development area will consist of the following development actions:

- Construct, light and mark northwest air cargo apron to accommodate up to 10 wide-body aircraft parking positions (Boeing 747-800 capable)
- Construct proposed service and access roads
- Construct proposed truck parking facilities
- Grading, drainage and storm sewer improvements
- Construct a new detention area to accommodate additional impervious surfaces
- Security and wildlife fencing modifications and installation

The Modified Air Cargo Development area will consist of the following development actions:

- Construct, light and mark partial parallel taxiway to runway7/25, connecting taxiways and taxi lane
- Construct, light and mark modified air cargo apron to accommodate up to 12 wide-body aircraft parking positions (Boeing 767-777 capable)
- Construct new air cargo building (approximately 1 million square feet)
- Construct new ground support equipment and maintenance (GSE) buildings, covered storage and equipment area
- Construct, light and mark proposed truck dock and truck parking area (approximately 14 acres)
- Construct, light and mark proposed employee parking lot (approximately 16 acres)
- Construct new truck and entrance/access roads connecting to Beltline Road, including associated intersection improvements
- Construct new service/access roads
- Grading, drainage and utility extensions/improvements (water, storm sewer, sanitary sewer and electricity)
- Construct new detention areas to accommodate additional impervious services
- Security and wildlife fencing modifications and installation

On November 28, 2019, a portion of this proposed scope of work was reviewed by the Department (EcoCAT submittal #1905066) for the Midfield Air Cargo Development. This evaluation builds upon the Department's previous project review and now includes the Northwest Air Cargo Development.

EcoCAT has identified several Illinois Natural Areas Inventory (INAI) sites, a registered Land and Water Reserve, and state-listed threatened and endangered plant and animal species all within the vicinity of the proposed project.

The Department has determined that impacts to the **John's Mound Group**, **Kishwaukee River**, and **Rock River Rockford Segment** INAI sites; the **John's Mound Group Land and Water Reserve;** the **American Brook Lamprey** (*Lethenteron appendix*), and the **Black Sandshell** (*Ligumia recta*) are unlikely for this project. 1

Documents reviewed indicate that the project will nearly destroy the **Bell Bowl Prairie** INAI site. In addition, the state-listed endangered **Large-flowered Beard Tongue** (*Penstemon grandiflorus*) will be taken by this project, and any disturbance of a state-listed plant requires the express written permission of the landowner (520 ILCS 10). 2

Impacts to the Rock River Segment INAI site are unlikely, however the Departments would like to reinforce the need for properly installed and maintained erosion and sediment control best management practices. Properly installed and regularly maintained BMPs will reduce the likelihood of sedimentation and contamination of the river and reduce the likelihood of adverse impacts to state-listed aquatic species known to occur in this riverine ecosystem. 3

This response to request for comments does not include the IDNR Office of Water Resources.

Thank you for the opportunity to provide comments.
Sincerely,

Adam Rawe
Resource Planner
Consultation Section
Department of Natural Resources
(217) 785-4991
adam.rawe@illinois.gov

cc Vince Hamer, IDOT BDE

Response to
Illinois Department of Natural Resources Review Letter
Letter Dated: August 8, 2019

1. The Department has determined that impacts to the John's Mound Group, Kishwaukee River, and Rock River Rockford Segment INAI sites; the John's Mound Group Land and Water Reserve; the American Brook Lamprey (Lethenteron appendix), and the Black Sandshell (Ligumia recta) are unlikely for this project.

Response: Comments Noted

2. Documents reviewed indicate that the project will nearly destroy the Bell Bowl Prairie INAI site. In addition, the state-listed endangered Large-flowered Beard Tongue (Penstemon grandiflorus) will be taken by this project, and any disturbance of a state-listed plant requires the express written permission of the landowner (520 ILCS 10).

Response: The Midfield Air Cargo Development area (approximately 280 acres in size) contains primarily agricultural land, open fallow fields, airfield infrastructure and a remnant prairie area, referred to as the Bell Bowl Prairie and, in the past, was identified as an Illinois Natural Area Inventory (INAI) site. The Illinois Natural Heritage Database contains a record of the State-listed endangered plant, the Large-Flowered Beard Tongue within the limits of the Bell Bowl Prairie. A botanical survey was performed by ENCAP, Inc. on August 23, 2018 but did not locate this listed plant species within the INAI site. Subsequent to the biotic survey, Illinois Department of Transportation - Bureau of Design and Environment (IDOT-BDE) conducted a field verification site review.

Also, as a part of the IDOT Natural Resources Review, through obligation under Section 7(a)2 of the Endangered Species Act, included a review of the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Conservation (IPaC) web-based review tool. Through IPaC, an official species list was generated. The list contains the endangered, threatened, proposed and candidate species and proposed and designated critical habitat that may be present within or in the vicinity of the proposed improvement. The following species are listed: Indiana bat (lbat), northern long-eared bat (NLEB), rusty patched bumble bee, prairie bush-clover and eastern prairie fringed orchid. No proposed or designated critical habitat is listed. IDOT cross-referenced the preferred habitat of each of the listed species with knowledge of the project area and determined that the listed species are not present. A copy of the IDOT-BDE Natural Resources Review memo, dated December 10, 2018, is included in Appendix F of the Final Environmental Assessment.

Within the Midfield area, there historically has been a designated Illinois Natural Areas Inventory site known as the Bell Bowl Prairie (Site Number 0916). From the field investigations noted above, it was determined that the state-listed, endangered Large-flowered Beard Tongue (Penstemon grandiflorus) is not present in the Bell Bowl. It should also be noted that the Large-

flowered Beard Tongue is not listed as a federally endangered and/or threatened species. Based on these findings and per a request from the Illinois Department of Natural Resources (IDNR), the Greater Rockford Airport Authority grants permission for the following:

- *"Take" of the state-listed Large-flowered Beard Tongue flower should be removed from documents noting its existence in the Bell Bowl Prairie (Site Number 0916); and*
- *Due to the lack of a state-listed endangered species, removal the Illinois Natural Areas Inventory (INAI) designation to the area referred to as the Bell Bowl Prairie.*

A copy of the letter from the Airport to IDOT, dated December 3, 2018, granting these permissions is provided in Appendix F of the Final Environmental Assessment.

3. Impacts to the Rock River Segment INAI site are unlikely, however the Departments would like to reinforce the need for properly installed and maintained erosion and sediment control best management practices.

Response: Best Management Practices for erosion and sediment control will be incorporated into the project.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

SEP 16 2019

REPLY TO THE ATTENTION OF:

Amy B. Hanson
Chicago Airports District Office
Federal Aviation Administration
2300 E. Devon Avenue
Des Plaines, Illinois 60018-4696

Re: **Environmental Assessment for Chicago Rockford International Airport, Winnebago County, Rockford, Illinois**

Dear Ms. Hanson:

The U.S. Environmental Protection Agency has reviewed the Environmental Assessment (EA) for the project referenced above. Our comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act. The Federal Aviation Administration is the lead agency under NEPA, and the Greater Rockford Airport Authority is the project proponent.

The project would develop two areas of the Chicago Rockford International Airport. The Northwest Cargo Development Plan calls for constructing an airport cargo apron expansion and associated airfield infrastructure. The Midfield Cargo Development Plan includes constructing taxiways, an apron, parking, access roads, and associated airfield infrastructure to accommodate a new one-million-square-foot cargo facility. Our enclosed detailed comments offer recommendations to assist in minimizing environmental impacts related to air quality, stormwater, children's health, energy consumption, and waste management.

We appreciate the opportunity to comment. If you would like to discuss our recommendations, please contact Jen Tyler, the lead reviewer for this project, at 312-886-6394 or tyler.jennifer@epa.gov.

Sincerely,

Kenneth A. Westlake
Deputy Director
Office of Multi-Media Programs

Enclosures: EPA's Detailed Comments
Construction Emission Control Checklist

EPA'S DETAILED COMMENTS ON THE ENVIRONMENTAL ASSESSMENT FOR CHICAGO ROCKFORD INTERNATIONAL AIRPORT, WINNEBAGO COUNTY, ROCKFORD, ILLINOIS

Air Quality

The proposed project would result in temporary fugitive dust and diesel exhaust emissions from construction activities, such as material hauling and use of heavy machinery. The operational emissions inventory considers aircraft, ground support equipment, and ground access vehicles. The air quality analysis uses the year 2023 "as a basis for analysis because it is the first projected full implementation year of the proposed air cargo facility developments" (page 50). The purpose of the project is to provide improvements that could accommodate growth in cargo operations by existing carriers and support the addition of new cargo operations and service by new carriers (page 7). The EA is unclear on whether analyzing anticipated emissions in the year 2023 fully accounts for growth in cargo operations that the proposed project would facilitate.

Recommendations:

- Identify measures to minimize air emissions during construction. Consider encouraging construction teams to use applicable practices in the enclosed Construction Emission Control Checklist. 1
- Ensure that the air analysis for the operational period considers an operational year when the new facilities would be used at full capacity. In the subsequent NEPA document, provide a rationale to confirm that the year selected for the operational analysis represents operations at full capacity, including all growth that the proposed project would facilitate. 2
- Consider best practices for reducing operational emissions, such as idling restrictions and electrification of ground support equipment (GSEs) and ground access vehicles (GAVs), where possible. 3

Resiliency & Stormwater Management

The U.S. Global Change Research Program reports that across the Midwestern U.S., statistically significant increases in flooding are well documented, and these increases in flood risk and severity are attributed mostly to increases in precipitation.[1] The proposed action would add approximately 39 acres of impervious surface in the Northwest Air Cargo Development area and approximately 108 acres of impervious surface in the Midfield Air Cargo Development area. The proposal calls for detention areas to address stormwater. (page 63).

Recommendations:

- Consider changing precipitation, flooding, and temperature conditions, as reported by the U.S. Global Change Research Program. 4
- Assess whether project structures would likely be resilient to such changes. Stormwater capture and treatment is particularly important given the proximity of the Northwest Cargo area to the Rock River. 5
- If needed, incorporate resiliency and adaptation measures or plans. For example, consider incorporating permeable pavements when suitable and planning for additional 6

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[1] U.S. Global Change Research Program, 2017 Climate Science Special Report: Fourth National Climate Assessment (NCA4), Volume 1, page 241.

stormwater. Use EPA's Climate Change Adaptation Resource Center as a tool to identify appropriate mitigation strategies, available at: https://www.epa.gov/arc-x.

Children's Health and Safety

Executive Order 13045 on Children's Health and Safety directs each federal agency to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that its policies, programs, activities, and standards address these risks.

Recommendations:

Require contractors to establish material hauling routes away from places where children live, learn, and play, to the extent feasible. Consider homes, schools, daycare centers, and playgrounds. In additional to air quality benefits, careful routing may protect children from vehicle-pedestrian accidents. 7

Energy Efficiency & Environmental Best Practices

Energy efficient design and material selection could reduce operations costs and promote a high-quality work environment, while also better protecting the environment. Recyling construction debris also preserves valuable landfill space and makes use of materials that have high embodied energy.

Recommendations:

- Consider best practices for energy efficiency and sustainable building design for the new one-million square foot cargo facility. Examples include south-facing skylights and windows, motion-sensored lighting, use of Energy Star certified products, and incorporating additional renewable energy onsite. 8
- Consider Leadership in Energy and Environmental Design (LEED) and other green building programs, as well as designing for net-zero energy usage. In addition to reducing the overall environmental footprint, green building certification programs promote health by encouraging practices that protect indoor air quality. 9
- Consider incorporating electric vehicle charging stations in new parking areas. 10

U.S. Environmental Protection Agency
Construction Emission Control Checklist

Mobile and Stationary Source Diesel Controls

Purchase or solicit bids that require the use of vehicles that are equipped with zero-emission technologies or the most advanced emission control systems available. Commit to the best available emissions control technologies for project equipment in order to meet the following standards.

- On-Highway Vehicles: On-highway vehicles project should meet, or exceed, the U.S. EPA exhaust emissions standards for model year 2010 and newer heavy-duty, on-highway compression-ignition engines (e.g., long-haul trucks, refuse haulers, shuttle buses, etc.).[2]
- Non-road Vehicles and Equipment: Non-road vehicles and equipment should meet, or exceed, the U.S. EPA Tier 4 exhaust emissions standards for heavy-duty, non-road compression-ignition engines (e.g., construction equipment, non-road trucks, etc.).[3]
- Locomotives: Locomotives servicing infrastructure sites should meet, or exceed, the EPA Tier 4 exhaust emissions standards for line-haul and switch locomotive engines where possible.[4]
- Low Emission Equipment Exemptions: The equipment specifications outlined above should be met unless: 1) a piece of specialized equipment is not available for purchase or lease within the United States; or 2) the relevant project contractor has been awarded funds to retrofit existing equipment, or purchase/lease new equipment, but the funds are not yet available.

Consider requiring the following best practices through the construction contacting or oversight process:

- Use onsite renewable electricity generation and/or grid-based electricity rather than diesel-powered generators or other equipment.
- Use ultra-low sulfur diesel fuel (15 ppm maximum) in construction vehicles and equipment.
- Use catalytic converters to reduce carbon monoxide, aldehydes, and hydrocarbons in diesel fumes. These devices must be used with low sulfur fuels.
- Use electric starting aids such as block heaters with older vehicles to warm the engine.
- Regularly maintain diesel engines to keep exhaust emissions low. Follow the manufacturer's recommended maintenance schedule and procedures. Smoke color can signal the need for maintenance (e.g., blue/black smoke indicates that an engine requires servicing or tuning).
- Retrofit engines with an exhaust filtration device to capture diesel particulate matter before it enters the construction site.
- Repower older vehicles and/or equipment with diesel- or alternatively-fueled engines certified to meet newer, more stringent emissions standards (e.g., plug-in hybrid-electric

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[2] http://www.epa.gov/otaq/standards/heavy-duty/hdci-exhaust.htm

[3] http://www.epa.gov/otaq/standards/nonroad/nonroadci.htm

[4] http://www.epa.gov/otaq/standards/nonroad/locomotives.htm

vehicles, battery-electric vehicles, fuel cell electric vehicles, advanced technology locomotives, etc.).

- Retire older vehicles, given the significant contribution of vehicle emissions to the poor air quality conditions. Implement programs to encourage the voluntary removal from use and the marketplace of pre-2010 model year on-highway vehicles (e.g., scrappage rebates) and replace them with newer vehicles that meet or exceed the latest U.S. EPA exhaust emissions standards.

Fugitive Dust Source Controls

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative, where appropriate. This applies to both inactive and active sites, during workdays, weekends, holidays, and windy conditions.
- Install wind fencing and phase grading operations where appropriate, and operate water trucks for stabilization of surfaces under windy conditions.
- When hauling material and operating non-earthmoving equipment, prevent spillage and limit speeds to 15 miles per hour (mph). Limit speed of earth-moving equipment to 10 mph.

Occupational Health

- Reduce exposure through work practices and training, such as turning off engines when vehicles are stopped for more than a few minutes, training diesel-equipment operators to perform routine inspection, and maintaining filtration devices.
- Position the exhaust pipe so that diesel fumes are directed away from the operator and nearby workers, reducing the fume concentration to which personnel are exposed.
- Use enclosed, climate-controlled cabs pressurized and equipped with high-efficiency particulate air (HEPA) filters to reduce the operators' exposure to diesel fumes. Pressurization ensures that air moves from inside to outside. HEPA filters ensure that any incoming air is filtered first.

Response to
US Environmental Protection Agency Review Letter
Letter Dated: September 16, 2019

1. Identify measures to minimize air emissions during construction. Consider encouraging construction teams to use applicable practices in the enclosed construction Emission Control Checklist.

Response: Please refer to Appendix D - Northwest and Midfield Air Cargo Development Air Quality Technical Report, Section 3.1 - Construction Activities, Subsection 3.1.1 - Best Management Practices.

2. Ensure that the air analysis for the operational period considers an operational year when the new facilities would be used at full capacity. In the subsequent NEPA document, provide a rationale to confirm that the year selected for the operational analysis represents operations at full capacity, including all growth that the proposed project would facilitate.

Response: Sponsor's Proposed Action in 2023 is compared to the No Action in 2023. The year 2023 is used as a basis for analysis because 2023 is the first projected full implementation year of the proposed air cargo facility developments.

3. Consider best practices for reducing operational emissions. such as idling restrictions and electrification of ground support equipment (GSEs) and ground access vehicles (GA \is), where possible.

Response: Best Management Practices will be considered, as appropriate, for reducing operational emissions to idling restrictions and electrification of Ground Support Equipment (GSE's) and ground access vehicles.

4. Consider changing precipitation, flooding, and temperature conditions, as reported by the U.S. Global Change Research Program.

Response: AEDT input parameters are used per direction of the FAA. Atmospheric settings are based on National Climate Data Center (NCDC) 30 year-normal for the following attributes: wind speed, temperature, pressure, and relative humidity. The NCDC data is based on ASOS weather observations. Emissions calculations for construction activities are based on MOVES analysis. The MOVES database includes default average monthly temperature and humidity data for every county in the country. These default temperature and humidity data are based on average temperatures for each county from the NCDC.

5. Assess whether project structures would likely be resilient to such changes. Stormwater capture and treatment is particularly important given the proximity of the Northwest Cargo area to the Rock River.

Response: It is anticipated that project structures will be designed to withstand changes in climate. Stormwater capture and treatment will be constructed consistent with USEPA/IEPA guidelines and will be consistent with FAA guidance regarding Wildlife Hazard Management. Proximity to the Rock and Kishwaukee Rivers requires this action.

6. If needed, incorporate resiliency and adaptation measures or plans. For example, consider incorporating permeable pavements when suitable and planning for additional stormwater. Use EPA' s Climate Change Adaptation Resource Center as a tool to identify appropriate mitigation strategies, available at: https://www.epa.gov/arc-x.

Response: Consideration will be given to incorporating construction actions (i.e. incorporation of permeable pavements) during the design process.

7. Require contractors to establish material hauling routes away from places where children live, learn, and play, to the extent feasible. Consider homes, schools, daycare centers, and playgrounds. In addition to air quality benefits, careful routing may protect children from vehicle-pedestrian accidents.

Response: Material hauling routes will be on Airport, in an agricultural area devoid of residents, schools, daycare centers or playgrounds.

8. Consider best practices for energy efficiency and sustainable building design for the new one-million square foot cargo facility. Examples include south-facing skylights and windows. motion-sensored lighting, use of Energy Star certified products, and incorporating additional renewable energy onsite.

Response: Consideration will be given to Best Management Practices for the construction of structures associated with the Sponsor's Proposed Action.

9. Consider Leadership in Energy and Environmental Design (LEED) and other green building programs, as well as designing for net-zero energy usage. In addition to reducing the overall environmental footprint, green building certification programs promote health by encouraging practices that protect indoor air quality.

Response: Consideration will be given to the use of LEED and other green building programs as defined in the Sponsor's Proposed Action.

10. Consider incorporating electric vehicle charging stations in new parking areas.

Response: The Airport will consider the addition of electric vehicle charging stations.

Animal and Plant Health
Inspection Service

Wildlife Services

United States Department of Agriculture

3430 Constitution Dr.
Suite 121
Springfield
IL, 62711
Voice 217.241.6700
Fax 217.241.6702

Date: 9/20/2019

To: Seth Nygren, Opertations Manager, Chicago Rockford International Airport

Subject: Environmental Assessment of Chicago Rockford International Airport Review

In response to your request to have USDA APHIS Wildlife Services (WS) review and comment on the Environmental Assessment (EA) conducted on Chicago Rockford International Airport (RFD), WS has prepared the following review.

Seeding

WS recommends that all seeding specifications, when available, are approved by WS in advance of implementation. 1

Basins

The EA shows the development of 1 Detention Area and 5 Stormwater Management basins. Two Stormwater Management Basins in the Midfield Air Cargo Development project are currently planned to be in very close proximity of Runway 7/25. It has been well documented that stormwater basins can become attractants to hazardous wildlife. For example, they are specifically addressed in the FAA Advisory Circular (AC) 150/5200-33B (2007): section 1-3.-"The FAA recommends a separation distance of 10,000 feet at these airports for any of the hazardous wildlife attractants mentioned in Section 2 or for new airport development projects meant to accommodate aircraft movement". WS supports this recommendation by the FAA and therefore, recommends the two basins closest to the runway be moved to a new location that places them further away from any runway. 2

If the basins are built on the airfield, WS recommends designing and installing all detention basins within the specifications listed in the AC mentioned above. The seeding used in these basins to avoid erosion should also use vegetation from the airport approved vegetation list provided by WS to further discourage wildlife use. 3

Another alternative, in an effort to mitigate the wildlife threat in close proximity to a runway, would be to eliminate the basins within 10,000 feet of the runway and increase the size of the basins that are further from the runway to account for the increased stormwater storage needed by removing basins near the runway. This would reduce the number of wildlife attractants that in turn allows for easier wildlife management and decreases the number of areas that need maintenance. These larger basins would still need follow the AC 150/5200-33B (see below). 4

FAA recommends in Advisory Circular 150/5200-33B (effective 8/28/2007) the following in regard to water management facilities design and construction:

1. The basin should be designed, engineered, constructed, and maintained to ensure

a maximum water detention period of 48-hours. (Section 2-3a)

2. The basin should remain completely dry between storms. (Section 2-3a)

3. Where constant water flow is anticipated through the basin, or where any portion of the basin bottom may remain wet, the detention facility should include a concrete or paved pad and/or ditch/swale in the bottom to prevent vegetation that may provide nesting habitat. (Section 2-3a)

4. FAA recommends the use of steep-sided, rip-rap lined, narrow, and linearly shaped water detention basins. (Section 2-3b).

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*One point of clarification, WS interprets the above state that the FAA only recommends lining the sides of a basin with rip-rap and not the bottom of the basin. WS does not recommend lining the basin with rip-rap, as maintenance of the bottom of the basin becomes difficult when vegetation begin to grow up through the rip-rap. Unmanageable vegetation on the bottom of the basin not only restricts water movement that may slow down drainage times, it can also provide a habitat more attractive to wildlife. WS recommends lining the basin with concrete or airport approved vegetation so that it can either be cleaned or mowed easier then with rip rap. Given that, vegetation of the sides of the basin may become difficult and may require an herbicide treatment when vegetation begins to grow up through the rip-rap.

5. If soil conditions and other requirements allow, the FAA encourages the use of underground infiltration systems, such as French drains or buried rock fields, because they are less attractive to wildlife. (Section 2-3b)

For water features that do not drain within the 48 hours specified by Advisory Circular 150/5200-33b, the following measures should be applied to make the feature inaccessible to wildlife:

a) Utilizing a volume of rip rap within the basin to visually obscure the surface of the water from the air.

b) Installation of overhead netting with a mesh size that will exclude waterfowl.

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c) Installation of water covers or floating mats that will prevent bird access to the water.

d) Installation of Bird Balls^{TM} or a similar covering system. The balls must be filled with fluid or the system must include a top net to ensure ball containment during high winds.

e) Installation of an overhead barrier grid wire system spaced at one foot centers using high tensile fishing line, Kevlar wire, or other type of wire placed above the expected high water level. If overhead barrier wires are installed at one foot centers, the basin must be routinely monitored when it contains water to ensure waterfowl, including dabbling ducks, do not breach the barrier. It is possible that a fence may need to be installed around the perimeter of the basin to prevent certain species of wildlife, which may pose a hazard to aircraft, from accessing the structure. In addition, any basin with an overhead grid barrier system must be routinely monitored to identify wire maintenance needs and these deficiencies must be immediately repaired. This recommendation is based upon the most current knowledge regarding the use of overhead wires to discourage wildlife use of basins. Current research on the efficacy of overhead wires may result in different recommendations for similar structures in the future.

Mowing

All airfield vegetation, including in and around the water detention basins, should be maintained in accordance with the RFD WHMP. 7

Fencing

WS also recommends that all perimeter fencing installed throughout this project or any others in the future, follow the recommendations of the FAA outlines in Cert Alert No. 16-03: Recommended Wildlife Exclusion Fencing, which includes the use of a 10 foot fence with 3-strand barbed wire outriggers, along with a 4 to 5 foot skirt of fencing material attached to the bottom of the fence and buried at a 45-degree angle on the outside of the fence. 8

Plan Review

WS also recommends that we review the design/development of all plans (construction, vegetation, etc.) that might affect the presence of wildlife at RFD. 9

Signed:

Samuel Nau
FAA Qualified Airport Wildlife Biologist
USDA APHIS WS

Response to
USDA APHIS Wildlife Services Review Letter
Letter Dated: September 20, 2019

1. WS recommends that all seeding specifications, when available, are approved by WS in advance of implementation.

   Response: The seeding of areas shown on the design plans will be based on the Illinois Standard Specifications for Construction of Airports, Division V Turfing Item 901 Seeding. Seeding shall immediately follow clearing operations and clearing and grubbing operations outside of the grading limits to minimize erosion. Seed shall be furnished separately or in mixtures in standard containers with the seed name, lot number, net weight, percentages of purity and of germination and hard seed, and percentage of maximum weed seed content clearly marked for each kind of seed. The Contractor shall furnish the Resident Engineer duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within 12 months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number for each kind of seed, and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed. Seeding documentation will be submitted to WS during the design process and should be coordinated with WS through construction.

2. The EA shows the development of 1 Detention Area and 5 Stormwater Management basins. Two Stormwater Management Basins in the Midfield Air Cargo Development project are currently planned to be in very close proximity of Runway 7/25. It has been well documented that stormwater basins can become attractants to hazardous wildlife. For example, they are specifically addressed in the FAA Advisory Circular (AC) 150/5200-33B (2007): section 1-3.- "The FAA recommends a separation distance of 10,000 feet at these airports for any of the hazardous wildlife attractants mentioned in Section 2 or for new airport development projects meant to accommodate aircraft movement". WS supports this recommendation by the FAA and therefore, recommends the two basins closest to the runway be moved to a new location that places them further away from any runway.

   Response: The two closest basins (between Runway 7-25 and Taxiway P and between Taxiway P and the cargo apron) will be relocated further away from Runway 7/25 as depicted on Figure 1-4, Sponsor's Proposed Action – Midfield Air Cargo Development in Chapter 1 of the Final EA. After pavement construction, the two areas will be turfed, and natural sheet flow will allow for some ground water infiltration. All airfield detention basins will be constructed as per guidance contained in FAA 150/5200-33B. All dry-bottom detention basins will be constructed to adhere to the FAA 48-hour rule. Design plans should be coordinated with USDA-WS.

3. If the basins are built on the airfield, WS recommends designing and installing all detention basins within the specifications listed in the AC mentioned above. The seeding used in these basins to avoid erosion should also use vegetation from the airport approved vegetation list provided by WS to further discourage wildlife use.

   Response: The seeding of areas shown will be based on the Illinois Standard Specifications for Construction of Airports, Division V Turfing Item 901 Seeding. All airfield detention basins will be constructed as per guidance contained in FAA AC 150/5200-33B. All dry-bottom detention basins will be constructed to adhere to the FAA 48-hour rule. Design plans should be coordinated with USDA-WS.

4. Another alternative to mitigate the wildlife threat in close proximity to a runway, would be to eliminate the basins within 10,000 feet of the runway and increase the size of the basins that are further from the runway to account for the increased stormwater storage needed by removing basins near the runway. This would reduce the number of wildlife attractants that in turn allows for easier wildlife management and decreases the number of areas that need maintenance.

   Response: It is not feasible for all detention basins to be placed over 10,000 feet from the airfield's runway configuration because this distance would be well beyond the Airport property limits. However, design emphasis will be placed on reducing the number of detention basins and/or storage within 10,000 feet of Runway 7-25 and where feasible increase the temporary detention storage capacity in basins further away from the runway. All dry-bottom basins will be constructed to adhere to the FAA 48-hour rule. The airport has successfully created dry-bottom detention on past projects and has worked in collaboration with USDA to develop maintenance and planting requirements to deter wildlife. These same specification and maintenance best practices will be utilized on construction of the improvements included within the sponsors proposed action. Underground storage was considered, however, after evaluation, it was dismissed based on high cost to construct and the success that the airport has had maintaining current dry bottom basins.

5. FAA recommends in Advisory Circular 150/5200-33B (effective 8/28/2007) the following in regard to water management facilities design and construction:

   a. The basin should be designed, engineered, constructed, and maintained to ensure a maximum water detention period of 48-hours.
   b. The basin should remain completely dry between storms.
   c. Where constant water flow is anticipated through the basin, or where any portion of the basin bottom may remain wet, the detention facility should include a concrete or paved pad and/or ditch/swale in the bottom to prevent vegetation that may provide nesting habitat.
   d. FAA recommends the use of steep-sided, rip-rap lined, narrow, and linearly shaped water detention basins.

*One point of clarification, WS interprets the above state that the FAA only recommends lining the sides of a basin with rip-rap and not the bottom of the basin. WS does not recommend lining the basin with rip-rap, as maintenance of the bottom of the basin becomes difficult when vegetation begin to grow up through the rip-rap. WS recommends lining the basin with concrete or airport approved vegetation so that it can either be cleaned or mowed easier then with rip rap. Given that, vegetation of the sides of the basin may become difficult and may require an herbicide treatment when vegetation begins to grow up through the rip-rap.

e. If soil conditions and other requirements allow, the FAA encourages the use of underground infiltration systems, such as French drains or buried rock fields, because they are less attractive to wildlife.

Response: *Concur in items a, b and e. Regarding items c and d, where possible, the dry bottom detention areas are anticipated to be lined with USDA approved vegetation so that the basins can be easily maintained by mowing. Basins that would have flatter bottom slopes would be concrete lined to allow water to flow and drain within a 48-hour period and prevent vegetation growth that could provide nesting habitat. During the design process, plans would be coordinated with USDA WS.*

6. For water features that do not drain within the 48 hours specified by Advisory Circular 150/5200-33b, the following measures should be applied to make the feature inaccessible to wildlife:
   a. Utilizing a volume of rip rap within the basin to visually obscure the surface of the water from the air.
   b. Installation of overhead netting with a mesh size that will exclude waterfowl.
   c. Installation of water covers or floating mats that will prevent bird access to the water.
   d. Installation of Bird Balls™ or a similar covering system. The balls must be filled with fluid or the system must include a top net to ensure ball containment during high winds.
   e. Installation of an overhead barrier grid wire system spaced at one foot centers using high tensile fishing line, Kevlar wire, or other type of wire placed above the expected high water level. If overhead barrier wires are installed at one foot centers, the basin must be routinely monitored when it contains water to ensure waterfowl, including dabbling ducks, do not breach the barrier. It is possible that a fence may need to be installed around the perimeter of the basin to prevent certain species of wildlife, which may pose a hazard to aircraft, from accessing the structure. In addition, any basin with an overhead grid barrier system must be routinely monitored to identify wire maintenance needs and these deficiencies must be immediately repaired. This recommendation is based upon the most current knowledge regarding the use of overhead wires to discourage wildlife use of basins.

Response: *It is anticipated that all detention basins will drain within the FAA's prescribed 48-hour rule. During the design process, plans would be coordinated with USDA WS.*

7. All airfield vegetation, including in and around the water detention basins, should be maintained in accordance with the RFD WHMP.

   Response: Airfield vegetation will be maintained as per the Chicago Rockford International Airport's Wildlife Hazard Management Plan.

8. WS also recommends that all perimeter fencing installed throughout this project or any others in the future, follow the recommendations of the FAA outlines in Cert Alert No. 16-03: Recommended Wildlife Exclusion Fencing, which includes the use of a 10 foot fence with 3-strand barbed wire outriggers, along with a 4 to 5 foot skirt of fencing material attached to the bottom of the fence and buried at a 45-degree angle on the outside of the fence.

   Response: GRAA will implement perimeter security and hazardous wildlife fencing as per FAA Cert Alert No. 16-03 and as design parameters allow.

9. WS also recommends that we review the design/development of all plans (construction, vegetation, etc.) that might affect the presence of wildlife at RFD.

   Response: Airfield design plans for the Northwest Cargo Development and the Midfield Development would be coordinated with USDA WS.

STATE OF ILLINOIS

CITY OF ROCKFORD

COUNTY OF WINNEBAGO

IN RE:)
)
CHICAGO ROCKFORD INTERNATIONAL)
AIRPORT ENVIRONMENTAL ASSESSMENT)
PUBLIC HEARING)

TRANSCRIPT OF PROCEEDINGS had in the above-entitled cause taken September 10, 2019, at the Greater Rockford Airport Authority Offices, 60 Airport Drive, Rockford, Illinois.

PRESENT:

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MR. LESTER: Good afternoon. It is 2:00 on September 10, 2019. My name is Tom Lester. I'm the public hearing officer for the Chicago Rockford Airport's public hearing, and I hereby open the public hearing. Again, it is 2:00 on September 10, 2019. Next to me is our court reporter Kathleen Berg who will be making a transcript of these proceedings.

The airport is pursuing the development of a new air cargo facilities. Federal approval of the development requires the preparation of an environmental assessment. Copies of the environmental assessment are available for review on the airport's website and next door in the public information open house/workshop.

As part of the environmental assessment, public outreach is required. Public outreach will be conducted through today's public hearing. The purpose of this public hearing is to consider the social, economic, and environmental effects of the proposed developments and their consistency with the goals and objectives of the area planning agencies.

I have been asked by the Airport to

enter into the record a copy of the public hearing notice published on August 8, 2019, in the Rockford Register Star, a secular newspaper of general circulation in the Rockford/Winnebago County area. The public hearing notice includes a description of the sponsor's proposed action.

Today it is my responsibility to receive oral testimony regarding the environmental assessment. For those who want to give oral testimony, I ask that you please fill out a public hearing queuing form at the desk outside this room. Based on the submitted forms I will call you on a first-come, first-serve basis. If there is a large number of oral testimony requests, I have the authority to limit your testimony to five minutes. Please note that questions made during oral testimony will not be answered in the public hearing room. Questions can be directed to airport staff in the room next door in the public information open house and workshop. If you want to provide written testimony, please use the preprinted forms and place them in any of the written comment boxes throughout the public outreach area.

We are now open for oral testimony and will accept the same as people sign up.

I would also like to enter into the record the CY 2018 preliminary all-cargo landing weights which ranks the order of airports receiving cargo landing weight. This year the Greater Rockford Airport had moved up from No. 26 to No. 19 in the country on receiving land and cargo airport weight. Their 2018 landed weight was 2,139,318,460 pounds of landed weight, a 54.84 percent increase from 2017, and, of course, is one of the reasons why the airport is looking at further development for air cargo development.

I would also like to enter into the record letters of support of the proposed expansion of the new air cargo facilities received from Congresswoman Cheri Bustos; another letter of support from Congressman Adam Kinzinger, who are the congressional representatives of the region. We also have to enter into the record a letter of support executed by Jake Castanza for Project First Rate in the Rockford area. I also enter into the record a letter of support from State Representative John M. Cabello, C-a-b-e-l-l-o. We have a letter of support also being entered into the record from a Kim Gouker, G-o-u-k-e-r, Chairman of the Board of the Ogle County Board which strongly supports the efforts for the airport expansion. I would also like to enter into the record a letter from State Representative Maurice A. West, II, expressing support for the airport development expansion. We also received a letter of support from Joe Sosnowski, State Representative for the 69th District which incorporates areas of the Airport Authority boundaries, expressing support for the expansion of the premises. A letter of support from Senator Dave Syverson. A letter of support from the Northwestern Illinois Building and Construction Trades Council. And a letter of support from the Board Chairman for Stephenson County located here in Northern Illinois.

So with that and having entered all of those letters of support into the record, we would now open the public meeting or open the public hearing for public comment on the record. As we indicated, please fill out one of the forms and we will call you on a first-come, first-serve basis.

We will go on the record, it is approximately 2:34, to take the public comment of Jake Castanza.

MR. JAKE CASTANZA: Thank you for allowing me to come here today for the testimony.

Again, my name is Jake Castanza. I'm an executive director of an association called Project First Rate. Project First Rate is a labor management association with union contractors and union craftspeople. We represent about 15,000 of those members. I'm here today to act in support of the environmental assessment which showed no negative environmental impact here at the Chicago Rockford International Airport. We want to support the airport and its ability to expand and grow while keeping in mind the sustainability of the environment, its neighbors. We look at this airport as a hub for growth for our jobs and for our community to survive in perpetuity. The airport having the ability to expand will allow for these things, and it will allow us to look into the 21st Century to become more flexible and agile, and so that the airport can fulfill its job of helping our community not only from a cargo

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aspect but from the passenger aspect as well. We're very thankful for the airport and its commitment to seeking these projects and opportunities and we hope -- from 15,000 of us we hope that this assessment is granted. Thank you.

MR. LESTER: Thank you.

(Whereupon, Jake Castanza exited the public hearing room.)

MR. LESTER: We'll go back on the record now. It is approximately 2:40 p.m. and Brad Long from the public would like to place a comment on the record. We would turn the floor over to you, Brad.

MR. BRAD LONG: My name is Brad Long. I'm a life-long resident of the City of Rockford and president and business representative for the Carpenters Union here locally. So we represent over 850 members, many of which have had the opportunity to work on similar projects that are hopefully going to be approved here at the airport. I'm just here to be in support of the approval of the study to move this project for cargo here forward for this airport. 2

I think that's it. I don't know how

longwinded I need to be or if it matters.

MR. LESTER: Take your time. That's fine.

MR. BRAD LONG: Obviously, building trades journeymen and women, you know, earn a living wage and increased opportunities for work such as this will also heighten our ability to bring on new apprentices into the trades and carpenters and afford them the possibility to earn a living wage for them and their family and security in retirement.

MR. LESTER: Thank you, Mr. Long. We appreciate your support.

(Whereupon, Brad Long exited the public hearing room.)

MR. LESTER: We are back on the record at 3:05 for the public comment of Joe Scandroli. The floor is yours, sir.

MR. JOE SCANDROLI: I just wanted to speak that I'm in support of the project for 3 several reasons. What it will do, it will make a positive impact for the community, for the economy, continue the growth and expansion of this airport, and I don't believe that there are any environmental concerns that we would need to be concerned with. So other than that, I think it is wonderful for the region. Thank you.

MR. LESTER: Thank you.

(Whereupon, Joe Scandroli exited the public hearing room.)

MR. LESTER: Back on the record at 3:10, and we are honored to have with us State Representative Maurice West to make a public comment here on the record.

REPRESENTATIVE MAURICE WEST: Awesome. So I gave a written comment or a written statement as well.

MR. LESTER: That's been entered -- just so you know, that has been entered in the record.

REPRESENTATIVE MAURICE WEST: Good deal. This is such an exciting improvement to our -- not to our airport but to our community 4 that I had to make sure I gave a verbal one as well to show my support of this. So the Chicago Rockford International Airport plays an influential role in the City of Rockford and Winnebago County. Rockford and our surrounding areas have seen growth and opportunities that benefit our citizens including hundreds of jobs coming from this airport through UPS or all the other organizations that are here. I'm excited about not only what is happening here but what is going to happen here in our future. This project will bring so many more jobs for the community that I serve. I have the opportunity to be the state rep for the 67th District which the airport sits in and so that's exciting for me as well. I would be remiss if I didn't show my support for what's going on here. I was under the impression before getting into this office that passenger is where we should go as an airport, but after doing my due diligence and studying and talking to people, the way that we're going for this airport is huge, not just for the economy and the revenue that it generates, but for the people who need jobs in this area. So I strongly support this project.

MR. LESTER: Okay. Thank you very much.

(Whereupon, State Representative Maurice West exited the public hearing room.)

MR. LESTER: We're back on the record at approximately 3:20 for comment from the public from Ken Ryan. Mr Ryan, you have the floor.

5 MR. KEN RYAN: I think it is great. The plans or the ideas that the airport has got are excellent for the whole area. Employment which has gone up by over 1,000 so far in the last year, 18 months, and it looks like it is going to go a lot further. The whole development of the airport is central to the development of the region.

MR. LESTER: Okay. Thank you.

MR. RYAN: You're welcome.

(Whereupon, Ken Ryan exited the public hearing room.)

6 MR. LESTER: We're honored to have Ricardo Montoya-Picazo, a representative of Congresswoman Bustos' office be here and do a public comment and make a comment. It is approximately 3:55. Go ahead. Thank you.

MR. RICARDO MONTOYA-PICAZO: So like he said, I'm here to read a public comment from the Congresswoman Cheri Bustos of the Illinois 17th District and it reads: To whom it may concern at the FAA, I'm writing to urge strong consideration of the airport's proposed expansion of new air cargo facilities and the associated draft environmental assessment. I fully support the airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a finding of no significant impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. I also urge the FAA and all elected federal, state, and local officials to find financial means to construct these needed airport facilities in a timely manner. Thank you, and I look forward to your favorable review. Sincerely, Cheri Bustos, member of Congress.

MR. LESTER: Thank you very much.

(Whereupon, Ricardo Montoya-Picazo exited the public hearing room.)

MR. LESTER: It is approximately 4:00. We're honored to have State Senator Dave Syverson here to make a statement on the record. The floor is yours, Senator.

SENATOR DAVE SYVERSON: I certainly 7
support this proposed project. This is the right

location for it, both from a logistic standpoint. As a state, we've invested a lot of money in I-90. We just finished passing our road program that's going to complete a widening and expanding of 39 and 20, so that just makes this location even more vital and key to be able to get goods and services throughout all central parts of the United States. Clearly this facility has the space and has the local support for it. As a state, the state has been strongly supportive of this, and we believe meets all the criteria necessary. So I certainly stand strongly in support of this and believe that this will be a great economic tool for Illinois.

MR. LESTER: Thank you.

(Whereupon, State Senator Dave Syverson exited the public hearing room.)

MR. LESTER: We can go back on the record now. It is approximately 4:25 and we're honored to have Representative Joe Sosnowski here who would like to make a statement on the record.

REPRESENTATIVE JOE SOSNOWSKI: I just wanted to express my support for this project. The Rockford area economic -- the airport, I 8 should say, is an economic engine for our entire region in the area of passenger and cargo. It is essential not just to Rockford but to the State of Illinois. As a local representative, I very much want to support this jobs creating engine in our area and again one that helps continue to keep Illinois the focus of cargo and shipping in the United States.

MR. LESTER: Thank you very much.

(Whereupon, State Representative Joe Sosnowski exited the public hearing room.)

MR. LESTER: The published time for the public hearing was from 2:00 p.m. to 7:00 p.m. The time is now 7:00 p.m. There are no further requests to give oral testimony and I hereby close this public hearing.

Thank you for your participation and I hope everybody has a good evening.

(Whereupon, at 7:00 p.m. the public hearing was closed.)

* * * * *

C E R T I F I C A T E

I, KATHLEEN D. BERG, Certified Shorthand Reporter, do hereby certify that I am a court reporter doing business in the City of Rockford; that I reported in shorthand the testimony in the above-entitled cause on September 10, 2019, and that the foregoing is a true and correct transcript of my shorthand notes so taken aforesaid.

I further certify that I am neither counsel for, not related to or employed by any of the parties to this action and that I am not a relative or employee of any counsel employed by the parties hereto or financially interested in the action.

Dated at Rockford, Illinois, this 16th day of September, 2019.

KATHLEEN D. BERG
Certified Shorthand Reporter
License No. 084-004370
Winnebago County, Illinois

Response to
Chicago Rockford International Airport Environmental Assessment Public Hearing Testimony
Thomas J. Lester – Hearing Officer
Hearing Date: September 10, 2019

VERBAL STATEMENTS

1. Jake Castanza: "I'm here today to act in support of the environmental assessment which showed no negative environmental impact here at the Chicago Rockford International Airport. We want to support the airport and its ability to expand and grow while keeping in mind the sustainability of the environment, its neighbors. We look at this airport as a hub for growth for our jobs and for our community to survive in perpetuity. The airport having the ability to expand will allow for these things, and it will allow us to look into the 21st Century to become more flexible and agile, and so that the airport can fulfill its job of helping our community not only from a cargo aspect but from the passenger aspect as well. We're very thankful for the airport and its commitment to seeking these projects and opportunities and we hope -- from 15,000 of us we hope that this assessment is granted."

Response: Comments Noted

2. Brad Long: "I'm just here to be in support of the approval of the study to move this project for cargo here forward for this airport."

Response: Comments Noted

3. Joe Scandroli: "I just wanted to speak that I'm in support of the project for several reasons. What it will do, it will make a positive impact for the community, for the economy, continue the growth and expansion of this airport, and I don't believe that there are any environmental concerns that we would need to be concerned with."

Response: Comments Noted

4. State Representative Maurice West: "This is such an exciting improvement to our -- not to our airport but to our community that I had to make sure I gave a verbal one as well to show my support of this. So the Chicago Rockford International Airport plays an influential role in the City of Rockford and Winnebago County. Rockford and our surrounding areas have seen growth and opportunities that benefit our citizens including hundreds of jobs coming from this airport through UPS or all the other organizations that are here. I'm excited about not only what is happening here but what is going to happen here in our future. This project will bring so many more jobs for the community that I serve." "the way that we're going for this airport is huge, not just for the economy and the revenue that it generates, but for the people who need jobs in this area. So I strongly support this project."

Response: Comments Noted

5. Ken Ryan: …" I think it is great. The plans or the ideas that the airport has got are excellent for the whole area. Employment which has gone up by over 1,000 so far in the last year, 18 months, and it looks like it is going to go a lot further. The whole development of the airport is central to the development of the region."

Response: Comments Noted

6. Ricardo Montoya-Picazo, a representative of Congresswoman Bustos' office: "I'm here to read a public comment from the Congresswoman Cheri Bustos of the Illinois 17th District and it reads: To whom it may concern at the FAA, I'm writing to urge strong consideration of the airport's proposed expansion of new air cargo facilities and the associated draft environmental assessment. I fully support the airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a finding of no significant impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. I also urge the FAA and all elected federal, state, and local officials to find financial means to construct these needed airport facilities in a timely manner. Thank you, and I look forward to your favorable review. Sincerely, Cheri Bustos, member of Congress.'"

Response: Comments Noted

7. State Senator Dave Syverson: "I certainly support this proposed project. This is the right location for it, both from a logistic standpoint. As a state, we've invested a lot of money in I-90. We just finished passing our road program that's going to complete a widening and expanding of 39 and 20, so that just makes this location even more vital and key to be able to get goods and services throughout all central parts of the United States. Clearly this facility has the space and has the local support for it. As a state, the state has been strongly supportive of this, and we believe meets all the criteria necessary. So I certainly stand strongly in support of this and believe that this will be a great economic tool for Illinois."

Response: Comments Noted

8. Representative Joe Sosnowski: "I just wanted to express my support for this project. The Rockford area economic -- the airport, I should say, is an economic engine for our entire region in the area of passenger and cargo. It is essential not just to Rockford but to the State of Illinois. As a local representative, I very much want to support this jobs creating engine in our area and again one that helps continue to keep Illinois the focus of cargo and shipping in the United States."

Response: Comments Noted

Source: ACAIS

FAA Airports

CY 2018 Preliminary All-Cargo Landing Weights, Rank Order

7/25/2019

Rank	RO	ADO	ST	Locid	Airport Name	City	Svc Lvl	Hub	2018 Landed Weight (lbs.)	2017 Landed Weight (lbs.)	% Change
1	SO	MEM	TN	MEM	Memphis International	Memphis	P	S	24,432,753,510	23,949,525,780	2.02%
2	AL	AAL	AK	ANC	Ted Stevens Anchorage	Anchorage	P	M	18,413,943,946	17,337,337,377	6.21%
3	SO	MEM	KY	SDF	Louisville Muhammad Ali	Louisville	P	S	14,643,310,355	13,403,682,652	9.25%
4	SO	ORL	FL	MIA	Miami International	Miami	P	L	8,398,363,905	7,963,988,407	5.45%
5	WP	LAX	CA	LAX	Los Angeles International	Los Angeles	P	L	7,316,551,753	7,197,930,264	1.65%
6	SO	MEM	KY	CVG	Cincinnati/Northern Kentucky	Greater	P	M	7,031,104,454	5,700,282,994	23.35%
7	GL	CHI	IL	ORD	Chicago O'Hare International	Chicago	P	L	6,458,527,276	10,373,559,593	-37.74%
8	GL	CHI	IN	IND	Indianapolis International	Indianapolis	P	M	5,279,561,245	5,138,500,501	2.75%
9	SW	TEX	TX	DFW	Dallas-Fort Worth International	Fort Worth	P	L	4,303,624,237	4,155,362,297	3.57%
10	WP	LAX	CA	ONT	Ontario International	Ontario	P	M	4,198,558,563	3,522,510,318	19.19%
11	WP	SFO	CA	OAK	Metropolitan Oakland	Oakland	P	M	3,625,227,180	3,272,195,070	10.79%
12	EA	NYC	NY	JFK	John F Kennedy International	New York	P	L	3,278,081,740	2,937,988,820	11.58%
13	SO	ATL	GA	ATL	Hartsfield - Jackson Atlanta	Atlanta	P	L	2,992,813,629	2,781,647,652	7.59%
14	EA	NYC	NJ	EWR	Newark Liberty International	Newark	P	L	2,905,386,775	2,990,957,430	-2.86%
15	WP	HNL	HI	HNL	Daniel K Inouye International	Honolulu	P	L	2,746,649,400	2,487,185,900	10.43%
16	NM	SEA	WA	SEA	Seattle-Tacoma International	Seattle	P	L	2,465,313,646	2,315,645,598	6.46%
17	EA	HAR	PA	PHL	Philadelphia International	Philadelphia	P	L	2,450,565,660	2,017,190,422	21.48%
18	SW	TEX	TX	IAH	George Bush	Houston	P	L	2,197,967,253	1,755,069,631	25.24%
19	GL	CHI	IL	RFD	Chicago/Rockford International	Rockford	P	N	2,139,318,460	1,381,654,780	54.84%
20	WP	PHX	AZ	PHX	Phoenix Sky Harbor	Phoenix	P	L	1,913,451,630	1,757,368,004	8.88%
21	NM	SEA	OR	PDX	Portland International	Portland	P	L	1,688,704,279	1,471,945,867	14.73%
22	NM	DEN	CO	DEN	Denver International	Denver	P	L	1,491,627,380	1,391,967,269	7.16%
23	SO	ORL	FL	TPA	Tampa International	Tampa	P	L	1,270,006,152	653,209,824	48.85%
24	SO	ATL	PR	SJU	Luis Munoz Marin International	San Juan	P	M	1,253,233,704	1,208,323,492	3.72%
25	EA	WAS	MD	BWI	Baltimore/Washington	Glen Burnie	P	L	1,238,312,420	943,878,461	31.19%
26	GL	DET	OH	LCK	Rickenbacker International	Columbus	P	N	1,230,669,536	1,085,726,304	13.35%
27	NM	DEN	UT	SLC	Salt Lake City International	Salt Lake City	P	L	1,198,354,639	1,123,688,279	6.65%
26	GL	DMA	MN	MSP	Minneapolis-St Paul	Minneapolis	P	L	1,080,882,463	1,030,776,385	4.86%
29	WP	SFO	CA	SFO	San Francisco International	San Francisco	P	L	1,072,877,350	1,254,393,000	-14.47%
30	SO	ORL	FL	MCO	Orlando International	Orlando	P	L	1,058,726,130	991,178,133	8.81%
31	NE	ANE	MA	BOS	General Edward Lawrence	Boston	P	L	1,008,332,010	996,320,950	1.21%
32	NE	ANE	CT	BDL	Bradley International	Windsor Locks	P	M	961,967,800	817,966,700	17.80%
33	SW	TEX	TX	SAT	San Antonio International	San Antonio	P	M	922,751,860	844,767,966	9.23%
34	SW	TEX	TX	AFW	Fort Worth Alliance	Fort Worth	R	-	922,593,845	904,874,371	1.96%
35	GL	DET	Mi	DTW	Detroit Metropolitan Wayne	Detroit	P	L	643,725,711	789,037,070	6.93%
36	NM	SEA	WA	BFi	Boeing Field/King County	Seattle	P	N	744,964,183	745,346,446	-0.05%
37	WP	SFO	CA	SMF	Sacramento International	Sacramento	P	M	720,779,550	368,708,250	95.49%
38	SW	TEX	TX	ELP	El Paso International	El Paso	P	S	700,728,342	525,102,662	33.45%
39	SO	MEM	NC	GSO	Piedmont Triad International	Greensboro	P	S	686,034,735	607,083,703	13.33%
40	EA	HAR	PA	ABE	Lehigh Valley International	Allentown	P	N	680,920,840	669,003,342	-1.17%
41	SW	TEX	TX	LRD	Laredo International	Laredo	P	N	674,265,689	587,517,683	14.77%
42	SO	MEM	NC	CLT	Charlotte/Douglas International	Charlotte	P	L	643,432,226	604,310,880	6.47%
43	GL	CHI	WI	MKE	General Mitchell International	Milwaukee	P	M	620,685,314	602,688,514	2.99%
44	WP	LAX	CA	SAN	San Diego International	San Diego	P	L	604,774,200	635,220,350	-4.79%
45	CE	ACE	MO	MCI	Kansas City International	Kansas City	P	M	569,678,364	571,041,998	-0.24%
46	EA	HAR	PA	PIT	Pittsburgh International	Pittsburgh	P	M	559,718,442	470,107,335	19.06%
47	SW	LAN	NM	ABQ	Albuquerque International	Albuquerque	P	M	553,050,388	562,896,132	-1.75%
48	WP	SFO	CA	MHR	Sacramento Mather	Sacramento	R	-	552,094,250	440,980,200	25.20%
49	WP	PHX	NV	RNO	Reno/Tahoe International	Reno	P	S	541,107,720	553,310,545	-2.21%
50	NE	ANE	NH	MHT	Manchester	Manchester	P	S	536,899,230	489,538,104	9.67%
51	SW	TEX	TX	AUS	Austin-Bergstrom International	Austin	P	M	535,768,440	547,734,473	-2.18%
52	EA	WAS	VA	RIC	Richmond International	Highland	P	S	513,771,904	500,165,722	2.72%
53	SO	MEM	NC	RDU	Raleigh-Durham International	Raleigh	P	M	502,913,495	502,893,290	0.04%
54	SO	ATL	PR	BQN	Rafael Hernandez	Aguadilla	P	N	488,086,330	523,499,150	-6.76%
55	SO	ORL	FL	JAX	Jacksonville International	Jacksonville	P	M	486,993,050	414,939,220	17.36%
56	EA	WAS	VA	IAD	Washington Dulles	Dulles	P	L	480,012,017	458,000,764	4.81%
57	SO	ORL	FL	FLL	Fort Lauderdale/Hollywood	Fort	P	L	470,183,900	457,598,800	2.75%
58	NM	SEA	WA	GEG	Spokane International	Spokane	P	S	459,721,903	470,113,311	-2.21%
59	SO	ATL	SC	GSP	Greenville Spartanburg	Greer	P	S	448,961,890	344,330,478	30.39%
60	SO	JAN	AL	HSV	Huntsville International-Carl T	Huntsville	P	S	448,825,129	419,594,598	6.97%
61	SO	ATL	SC	CAE	Columbia Metropolitan	Columbia	P	S	441,102,400	402,908,533	9.48%
62	NM	HLN	MT	BIL	Billings Logan International	Billings	P	N	441,022,220	348,889,570	26.41%
63	CE	ACE	NE	OMA	Eppley Airfield	Omaha	P	M	437,709,788	406,576,402	7.66%

Source: ACAIS
FAA Airports

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7/25/2019

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64	EA	HAR	PA	MDT	Harrisburg International	Harrisburg	P	S	428,755,196	363,446,474	17.97%
65	SW	ARO	OK	TUL	Tulsa International	Tulsa	P	S	424,754,591	354,497,900	19.82%
66	GL	DET	OH	CLE	Cleveland-Hopkins	Cleveland	P	M	420,855,352	381,670,547	10.27%
67	WP	PHX	NV	LAS	McCarran International	Las Vegas	P	L	416,743,600	370,950,370	12.34%
68	SW	LAN	LA	MSY	Louis Armstrong New Orleans	Metairie	P	M	374,668,648	357,091,410	4.92%
69	SW	TEX	TX	LBB	Lubbock Preston Smith	Lubbock	P	S	367,602,589	363,743,489	1.06%
70	CE	ACE	MO	STL	St Louis Lambert International	St. Louis	P	M	365,667,978	347,239,924	5.31%
71	SW	TEX	TX	HRL	Valley International	Harlingen	P	N	365,656,104	300,260,450	21.78%
72	GL	DMA	SD	FSD	Joe Foss Field	Sioux Falls	P	S	365,584,564	358,051,875	2.10%
73	CE	ACE	IA	CID	The Eastern Iowa	Cedar Rapids	P	S	349,223,470	298,628,452	16.94%
74	EA	NYC	NY	SYR	Syracuse Hancock	Syracuse	P	S	348,873,210	324,690,840	7.45%
75	SO	ATL	SC	CHS	Charleston AFB/International	Charleston	P	S	346,698,000	308,727,000	12.30%
76	NM	HLN	ID	BOI	Boise Air Terminal/Gowen	Boise	P	S	343,610,900	340,620,900	0.88%
77	EA	NYC	NY	BUF	Buffalo Niagara International	Buffalo	P	M	321,856,321	283,906,303	13.37%
78	SO	MEM	TN	BNA	Nashville International	Nashville	P	M	308,460,114	292,444,364	5.48%
79	SW	LAN	LA	SHV	Shreveport Regional	Shreveport	P	N	292,834,567	288,092,171	1.65%
80	WP	HNL	HI	KOA	Ellison Onizuka Kona	Kailua Kona	P	S	283,887,500	264,604,200	-0.25%
81	SO	MEM	TN	TYS	McGhee Tyson	Alcoa	P	S	278,836,436	274,964,572	1.41%
82	GL	DMA	ND	FAR	Hector International	Fargo	P	N	275,366,859	248,112,264	10.98%
83	EA	NYC	NY	ROC	Greater Rochester	Rochester	P	S	274,091,038	254,050,350	7.89%
64	WP	SFO	CA	SCK	Stockton Metropolitan	Stockton	P	N	269,981,000	332,058,000	-18.69%
85	CE	ACE	IA	DSM	Des Moines International	Des Moines	P	S	266,859,051	379,333,260	-29.65%
86	SW	ARO	OK	OKC	Will Rogers World	Oklahoma City	P	S	258,211,602	239,856,500	7.65%
87	WP	HNL	HI	OGG	Kahului	Kahului	P	M	256,313,300	266,584,000	-3.85%
88	WP	SFO	CA	SJC	Norman Y Mineta San Jose	San Jose	P	M	249,632,350	250,299,750	-0.27%
89	NE	ANE	RI	PVD	Theodore Francis Green State	Warwick	P	S	243,594,000	174,463,500	39.62%
90	CE	ACE	KS	ICT	Wichita Dwight D Eisenhower	Wichita	P	S	236,763,997	208,996,345	13.29%
91	NM	SEA	WA	PAE	Snohomish County (Paine	Everett	R	-	232,182,000	234,244,000	-0.88%
92	GL	DET	MI	GRR	Gerald R Ford International	Grand Rapids	P	S	229,658,034	227,233,136	1.07%
93	GL	DET	MI	YIP	Willow Run	Detroit	R	-	217,624,487	181,894,392	19.64%
94	EA	WAS	VA	ORF	Norfolk International	Norfolk	P	S	214,434,756	246,273,890	-12.93%
95	GL	DET	MI	LAN	Capital Region International	Clinton	P	N	202,834,826	178,695,639	13.51%
96	GL	CHI	IN	FWA	Fort Wayne International	Fort Wayne	P	N	193,621,754	192,461,217	0.60%
97	WP	HNL	HI	ITO	Hilo International	Hilo	P	S	190,151,500	197,871,700	-3.90%
98	WP	HNL	GU	GUM	Guam International	Tamuning	P	S	189,833,874	108,440,100	75.06%
99	NM	HLN	MT	GTF	Great Falls International	Great Falls	P	N	187,806,483	180,556,493	4.02%
100	SO	ATL	GA	ABY	Southwest Georgia Regional	Albany	P	N	186,110,500	159,973,000	16.34%
101	GL	CHI	WI	MSN	Dane County Regional-Truax	Madison	P	S	164,752,544	0	N/A
102	WP	LAX	CA	SBD	San Bernardino International	San	R	-	181,970,000	20,098,000	805.41%
103	SO	ORL	FL	RSW	Southwest Florida International	Fort Myers	P	M	179,858,250	188,341,690	-4.50%
104	SO	JAN	AL	BHM	Birmingham-Shuttlesworth	Birmingham	P	S	177,936,690	163,825,910	8.61%
105	EA	NYC	NY	SWF	New York Stewart International	Newburgh	P	N	175,631,400	210,255,080	-16.47%
106	EA	NYC	NY	ALB	Albany International	Albany	P	S	167,909,140	167,437,140	0.28%
107	WP	LAX	CA	LGB	Long Beach /Daugherty Field/	Long Beach	P	S	167,624,678	160,857,854	4.21%
108	SO	JAN	AL	BFM	Mobile Downtown	Mobile	GA	-	166,127,628	169,828,110	-2.18%
109	WP	PHX	AZ	TUS	Tucson International	Tucson	P	S	159,178,992	160,435,096	-0.78%
110	CE	ACE	MO	SGF	Springfield-Branson National	Springfield	P	S	141,713,600	197,228,400	-28.15%
111	EA	WAS	VA	ROA	Roanoke-Blacksburg	Roanoke	P	N	138,654,300	134,129,420	3.37%
112	SW	ARO	AR	LIT	Bill and Hillary Clinton	Little Rock	P	S	136,915,592	155,100,226	-11.72%
113	GL	CHI	WI	ATW	Appleton International	Appleton	P	N	128,654,600	125,550,050	2.47%
114	WP	HNL	HI	LIH	Lihue	Lihue	P	S	128,214,200	117,354,600	9.25%
115	SW	TEX	TX	SKF	Kelly Field	San Antonio	GA	-	126,137,297	217,739,374	-42.07%
116	GL	DET	OH	TOL	Toledo Express	Toledo	P	N	122,077,000	122,077,000	0.00%
117	WP	SFO	CA	FAT	Fresno Yosemite International	Fresno	P	S	118,605,000	115,158,200	2.99%
118	GL	CHI	IL	PIA	General Downing - Peoria	Peoria	P	N	112,312,580	122,923,314	-8.63%
119	SW	LAN	LA	LFT	Lafayette Regional/Paul	Lafayette	P	N	110,892,000	111,144,000	-0.23%
120	AL	AAL	AK	FAI	Feirbanks International	Fairbanks	P	S	108,927,136	109,946,749	-0.93%
121	NM	DEN	CO	COS	City of Colorado Springs	Colorado	P	S	86,991,816	89,447,616	-2.75%
122	GL	DET	MI	FNT	Bishop International	Flint	P	N	85,730,928	64,454,392	1.51%
123	SO	JAN	MS	JAN	Jackson-Medgar Wiley Evers	Jackson	P	S	80,577,500	75,249,400	7.08%
124	GL	DET	OH	DAY	James M Cox Dayton	Dayton	P	S	62,995,518	51,788,650	21.64%
125	WP	LAX	CA	RIV	March ARB	Riverside	R	-	60,264,000	7,980,000	655.19%
126	SO	MEM	TN	CHA	Lovell Field	Chattanooga	P	S	55,320,078	55,250,685	0.13%

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127	GL	DMA	MN	TVF	Thief River Falls Regional	Thief River	CS	-	41,335,019	27,645,631	49.52%
128	NE	ANE	ME	BGR	Bangor International	Bangor	P	N	25,088,533	36,608,381	-31.47%
129	CE	ACE	KS	GCK	Garden City Regional	Garden City	P	N	7,968,500	0	N/A
130	SW	TEX	TX	BRO	Brownsville/South Padre Island	Brownsville	P	N	7,615,438	23,106,426	-67.04%
131	GL	DMA	ND	GFK	Grand Forks International	Grand Forks	P	N	6,943,604	7,844,617	-11.49%
132	GL	DET	MI	IWD	Gogebic-Iron County	Ironwood	CS	-	5,280,200	4,793,400	10.16%
133	SW	LAN	NM	GUP	Gallup Municipal	Gallup	GA	-	4,878,425	3,976,550	22.68%
134	WP	SFO	CA	CIC	Chico Municipal	Chico	GA	-	4,821,600	5,949,600	-18.96%
135	NE	ANE	NH	PSM	Portsmouth International at	Portsmouth	P	N	4,760,040	2,517,435	89.08%
136	EA	NYC	NY	IAG	Niagara Falls International	Niagara Falls	P	N	3,602,601	4,383,696	-13.26%
137	SW	LAN	NM	SVC	Grant County	Silver City	CS	-	2,378,350	0	N/A
138	SW	LAN	NM	TCC	Tucumcari Municipal	Tucumcari	GA	-	1,632,830	1,850,470	-11.76%
9999	GL	CHI	IN	SBN	South Bend International	South Bend	P	N	0	99,517,954	-100.00%
9999	SO	ORL	FL	PIE	St Pete-Clearwater	Clearwater	P	S	0	161,110,800	-100.00%

Official Certificate of Publication as Required by State Law and IPA By-Laws

Certificate of the Publisher

Gatehouse Media certifies that it is the publisher of the Rockford Register Star. Rockford Register Star, a secular newspaper, has been continuously published daily for more than 50 weeks prior to the first publication of the attached notice, is published in the City Rockford, County of Winnebago, Township of Rockford, State of Illinois, is of general circulation throughout that county and surrounding area, and is a newspaper as defined by 715 ILCS 5/5.

A notice, a true copy of which is attached, was published 1 time in Rockford Register Star. The first publication of the notice was made in the newspaper, dated and published on **August 8th, 2019**. The notice was also placed on a statewide public notice website as required by 715 ILCS 5/2.1.

In witness, the Rockford Register Star has signed this certificate by Gatehouse Media, its publisher, at Rockford, Illinois, on **August 8th, 2019.**

Crawford, Murphy & Tilly
Ad #RRS000253046

By:

Ashley Anderson

Ashley Anderson
Legal Notice Representative
Rockford Register Star – Gatehouse Media

Publisher

(Note: Unless otherwise ordered, notarization of this document is **not** required.)
Ad attached

NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL ASSESSMENT (DEA) AND NOTICE OF A PUBLIC OPEN HOUSE WORKSHOP & PUBLIC HEARING

The Greater Rockford Airport Authority, owner of the Chicago Rockford International Airport (RFD), intends to submit to the Federal Aviation Administration a request for Federal funds to assist the Authority in constructing the following development items at RFD:

Northwest Air Cargo Development

Construct, light and mark northwest air cargo apron to accommodate up to 10 wide-body aircraft parking positions (Boeing 747-800 capable)

Construct proposed service and access roads

Construct proposed truck parking facilities

Grading, drainage and storm sewer improvements

Construct new detention area to accommodate additional impervious surfaces

Security and wildlife fencing modifications and installation

Midfield Air Cargo Development

Construct, light and mark partial parallel taxiway to Runway 7/25, connecting taxiways and taxilane

Construct, light and mark midfield air cargo apron to accommodate up to 12 wide-body aircraft parking positions (Boeing 767/777 capable)

Construct new air cargo building (approximately 1 million square feet)

Construct new ground support equipment and maintenance (GSE) buildings, covered storage and equipment staging area

Construct, light and mark proposed truck dock and truck parking area (approximately 14 acres)

Construct, light and mark proposed employee parking lot (approximately 16 acres)

Construct new truck and employee entrance/access roads connecting to Beltline Road, including associated intersection improvements

Construct new service/access roads

Grading, drainage and utility extensions/improvements (water, storm sewer, sanitary sewer and electricity)

Construct new detention areas to accommodate additional impervious surfaces

Security and wildlife fencing modifications and installation

The DEA summarizes anticipated environmental effects of the Airport Development. Paper copies of the DEA are available for review at the following locations:

Greater Rockford Airport Authority Offices
60 Airport Drive
Rockford, IL 61109
Region 1 Planning Council
313 North Main Street
Rockford, IL 61101
City of Rockford
Community and Economic Development
425 East State Street, Second Floor
Rockford, IL 61104
Rockford Public Library
214 North Church Street
Rockford, IL 61101

Copies of the DEA are available for download at the following link: https://www.flyrfd.com/EA.

A Public Information Open House Workshop and Public Hearing will be held concurrently at the Authority Auditorium at 60 Airport Drive, Rockford, IL, September 10, 2019, from 2PM to 7PM. Please note that the Workshop & Hearing are not being conducted in the Passenger Terminal. Free parking is available near the Authority Auditorium.

The purpose of this hearing is to consider the **social, economic, and environmental effects of the proposed developments and their consistency with the goals and objectives of area planning agencies.** Staff will be available to answer questions in the Workshop. No formal project presentations will be made there. Written materials provided at the Workshop & Hearing areas will be available in English. All Workshop and Hearing facilities are compliant with the Americans With Disabilities Act. If special assistance is necessary, please contact Kathy Bruggeman, at (815) 969-4468. All special assistance requests must be received by August 27, 2019, 4PM Central.

In the Public Hearing area, a Hearing Officer and Court Reporter will receive verbal testimony. Written comments can be:

Given to the court reporter in the Public Hearing area;

Placed in Comment Boxes throughout the Workshop/Hearing area;

Sent via USPS using the pre-addressed Comments Sheets;

Faxed to the Airport at (815) 757-1515.

Emailed to EAComments@flyrfd.com

All DEA comments will be accepted, if postmarked by and/or received electronically by 5PM Central on September 20, 2019. All comments will be carefully reviewed and addressed in the Final EA.

CHERI BUSTOS
17TH DISTRICT, ILLINOIS

COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON DEFENSE
SUBCOMMITTEE ON LABOR, HEALTH AND HUMAN SERVICES, AND EDUCATION
SUBCOMMITTEE ON MILITARY CONSTRUCTION AND VETERANS AFFAIRS

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Houſe of Repreſentatives
Waſhington, DC 20515-1317

DEMOCRATIC STEERING AND POLICY COMMITTEE
COMMITTEE ON AGRICULTURE

Written Statements

September 10, 2019

Mr. Michael Dunn, Executive Director
Greater Rockford Airport Authority
Chicago Rockford International Airport
60 Airline Drive
Rockford, IL 61109

Dear Mr. Dunn:

I am writing to urge prompt consideration of the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. 1

I also urge the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner. Thank you and I look forward to your favorable review.

Sincerely,

Cheri Bustos

Cheri Bustos
Member of Congress

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WASHINGTON, DC 20515

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ADAM KINZINGER
16th District, Illinois

Deputy Republican Whip

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Fax: (815) 431-9383

September 10, 2019

Mr. Michael Dunn, Executive Director
Greater Rockford Airport Authority
Chicago Rockford International Airport
60 Airline Drive
Rockford, IL 61109

Dear Mr. Dunn:

I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. 2

I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner.

I look forward to the continued work, support and communication between my office and the Chicago-Rockford International Airport.

Sincerely,

Adam Kinzinger
Member of Congress

PROJECT FIRST RATE
PROJECTFIRSTRATE.COM
111 S. Madison St. Rockford, IL 61104
P:815.904.6833
F:815.904.6916

September 10, 2019

Mr. Michael Dunn, Executive Director
Greater Rockford Airport Authority
Chicago Rockford International Airport
60 Airline Drive
Rockford, IL 61109

Dear Mr. Dunn:

I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. 3

I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner.

Sincerely,

Jake Castanza
Executive Director

DISTRICT OFFICE:
1941 HARLEM ROAD
LOVES PARK, ILLINOIS 61111
PHONE: 815.282.0083
FAX: 815.282.0085

CAPITOL OFFICE:
632 CAPITOL
SPRINGFIELD, ILLINOIS 62706
217.782.0455
217.782.1139 (FAX)

EMAIL: CABELLO@ILHOUSEGOP.ORG

JOHN M. CABELLO
STATE REPRESENTATIVE · 68TH DISTRICT

September 10, 2019

Mr. Michael Dunn, Executive Director
Greater Rockford Airport Authority
Chicago Rockford International Airport
60 Airline Drive
Rockford, IL 61109

Dear Mr. Dunn:

I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. 4

I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner.

Sincerely,

John M. Cabello
Illinois State Representative
68th District

OGLE COUNTY BOARD
KIM P. GOUKER, CHAIRMAN • ogle@gouker.net

August 13, 2019

Mr. Michael Dunn, Executive Director
Greater Rockford Airport Authority
Chicago Rockford International Airport
60 Airline Drive
Rockford, IL 61109

Dear Mr. Dunn:

As you know, I have long advocated the fact that Ogle County's economic and demographic health is strongly connected to the well-being of our close neighbors in Winnebago, Boone and Stephenson Counties. No where is this more important than the Chicago Rockford International Airport, which is located nearly on the Ogle County border with Winnebago County, and in fact, the flight paths are frequently over our county.

I have reviewed the Airport's proposed expansion of new air cargo facilities and
the associated Draft Environmental Assessment. I fully support the Airport's
future growth in airfield facilities and request that the Federal Aviation 5
Administration approve the EA through a Finding of No Significant Impact. This
development will be good for the City of Rockford, and also for the citizens of
Winnebago and Ogle Counties.

I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner.

Sincerely,

Kim P. Gouker
Ogle County Board Chairman

105 S. 5TH STREET, SUITE 321 • OREGON, IL 61061 • PHONE: (815) 732-1111
www.oglecounty.org

ILLINOIS HOUSE OF REPRESENTATIVES

DISTRICT OFFICE:
E. J. "ZEKE" GIORGI CENTER
200 S. WYMAN
SUITE 304
ROCKFORD, ILLINOIS 61101
(815) 987-7433

SPRINGFIELD OFFICE:
237-E STRATTON BUILDING
SPRINGFIELD, ILLINOIS 62706
(217) 782-3167
EMAIL: maurice@StateRepWEST.com

MAURICE A. WEST II
STATE REPRESENTATIVE • 67TH DISTRICT

September 10, 2019

Mr. Michael Dunn, Executive Director
Greater Rockford Airport Authority
Chicago Rockford International Airport
60 Airline Drive
Rockford, IL 61109

Dear Mr. Dunn:

I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. 6

I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner.

Be well, talk soon.

Maurice A. West II
State Representative | 67th District

ILLINOIS HOUSE OF REPRESENTATIVES

DISTRICT OFFICE:
305 AMPHITHEATER DRIVE
ROCKFORD, ILLINOIS 61107
815-547-3436
815-516-8434 FAX

CAPITOL OFFICE:
200-2N STRATTON BUILDING
SPRINGFIELD, ILLINOIS 62706
217-782-0548
217-782-1141 FAX

JOE SOSNOWSKI
STATE REPRESENTATIVE
69TH DISTRICT

August 13, 2019

Mr. Michael Dunn, Executive Director
Greater Rockford Airport Authority
Chicago Rockford International Airport
60 Airline Drive
Rockford, IL 61109

Dear Mr. Dunn:

I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. 7

Illinois needs good paying jobs with benefits that will allow families to prosper, not just survive. The Chicago Rockford International Airport Midfield Improvement Project will make that possible for our community by creating a better economic and educational environment.

I am fully committed to assisting the Chicago Rockford International Airport's efforts to secure federal funds for midfield improvements. I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner.

Thank you in advance for your time and consideration of this recommendation. If you have any questions please feel free to contact my district office at (815) 547-3436.

Sincerely,

Joe Sosnowski
State Representative, 69th District

DISTRICT OFFICE:
STATE OF ILLINOIS BUILDING
200 S. WYMAN, STE. 302
ROCKFORD, IL 61101
815/987-7555
FAX 815/987-7563
E-MAIL: info@senatordavesyverson.com

CAPITOL OFFICE:
105E STATE HOUSE
SPRINGFIELD, IL 62706
217/782-5413

SENATOR DAVE SYVERSON
ILLINOIS SENATE – 35TH DISTRICT
DEPUTY REPUBLICAN LEADER

COMMITTEES:
REPUBLICAN SPOKESMAN
- HUMAN SERVICES
- INSURANCE
- PUBLIC HEALTH

MEMBER:
- COMMISSION ON GOVERNMENT FORECASTING & ACCOUNTABILITY
- EXECUTIVE
- ENVIRONMENT & CONSERVATION
- SUBCOMMUNITY ON GAMING

September 10, 2019

Mr. Michael Dunn, Executive Director
Greater Rockford Airport Authority
Chicago Rockford International Airport
60 Airline Drive
Rockford, IL 61109

Dear Mr. Dunn:

I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. **8**

I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner.

Sincerely,

SENATOR DAVE SYVERSON
Deputy Republican Leader

DS:jg

Northwestern Illinois
Building and Construction
Trades Council

AFFILIATED WITH THE
BUILDING AND CONTRUCTION TRADES DEPT.
AFL-CIO

212 South First Street, Suite 106
Rockford, Illinois 61104

Telephone (815) 965-2282 (BCTC)

September 10, 2019

Mr. Michael Dunn, Executive Director
Greater Rockford Airport Authority
Chicago Rockford International Airport
60 Airline Drive
Rockford, IL 61109

Dear Mr. Dunn:

I have reviewed the Airport's proposed expansion of the new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. 9

I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner.

Sincerely,

Alan R Gold

Alan R. Golden
President
Northwestern Illinois Building Trades

County of Stephenson
Office of the County Board Chairman
William N. Hadley
50 W. Douglas St., Suite 1002
Freeport, IL 61032
(815) 235-8277

August 29, 2019

Mr. Michael Dunn, Executive Director
Greater Rockford Airport Authority
Chicago Rockford International Airport
60 Airline Drive
Rockford, IL 61109

Dear Mr. Dunn:

I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and the surrounding areas of Winnebago County. **10**

I am requesting that the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities in a timely manner.

Sincerely,

W. N. Hadley

William N. Hadley,
Stephenson County Board Chairman

WRITTEN STATEMENTS

1. Cheri Bustos, Member of Congress: “I am writing to urge prompt consideration of the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. I also urge the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner. Thank you and I look forward to your favorable review.”

Response: Comments Noted

2. Adam Kinzinger, Member of Congress: “I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner. I look forward to the continued work, support and communication between my office and the Chicago-Rockford International Airport.

Response: Comments Noted

3. Jake Castanza: ”I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. I also call on the FM and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner.”

Response: Comments Noted

4. John M. Cabello, Illinois State Representative: “I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner.

Response: Comments Noted

5. Kim P. Gouker: …"I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford, and also for the citizens of Winnebago and Ogle Counties. I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner."

Response: Comments Noted

6. Maurice A. West II, State Representative: "I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner."

Response: Comments Noted

7. Joe Sosnowski, State Representative: "I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. Illinois needs good paying jobs with benefits that will allow families to prosper, not just survive. The Chicago Rockford International Airport Midfield Improvement Project will make that possible for our community by creating a better economic and educational environment. I am fully committed to assisting the Chicago Rockford International Airport's efforts to secure federal funds for midfield improvements. I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner."

Response: Comments Noted

8. Senator Dave Syverson: "I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago

County. I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities. in a timely manner.”

Response: Comments Noted

9. Alan R. Golden: …”I have reviewed the Airport's proposed expansion of the new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City of Rockford and for the citizens of Winnebago County. I also call on the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities, in a timely manner.”

Response: Comments Noted

10. William N. Hadley: “I have reviewed the Airport's proposed expansion of new air cargo facilities and the associated Draft Environmental Assessment. I fully support the Airport's future growth in airfield facilities and request that the Federal Aviation Administration approve the EA through a Finding of No Significant Impact. This development will be good for the City at Rockford and the surrounding areas of Winnebago County. I am requesting that the FAA and all elected Federal, State and local officials to find financial means to construct these needed airport facilities in a timely manner”

Response: Comments Noted