Des Moines International Airport (DSM)
Replacement Airport Traffic Control Tower (ATCT)
Des Moines, Iowa

Draft Environmental Assessment

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ACRONYMS AND ABBREVIATIONS

ACHP……. Advisory Council on Historic Preservation
AFTIL…….Airport Facilities Terminal Integration Laboratory
AGL.....Above Ground Level
ALP…… Airport Layout Plan
APE……Area of Potential Effect
ASL .....Above Sea Level
ATCT…… Airport Traffic Control Tower
ATO……Air Traffic Organization
ASTM…….American Society for Testing and Materials
BIL…… Bipartisan Infrastructure Law
BLS .....Bureau of Labor Statistics
BMP.....Best Management Practice
CEQ.....Council on Environmental Quality
CERCLA .....Comprehensive Environmental Response, Compensation, and Liability Act
CFR.....Code of Federal Regulations
CO2.....Carbon Dioxide
CONUS……. Continental United States
CWA .....Clean Water Act
DOT .....Department of Transportation
EA.....Environmental Assessment
EIA.....U.S. Energy Information Administration
EJ .....Environmental Justice
EPA.....U.S. Environmental Protection Agency
EO .....Executive Order
ESA .....Endangered Species Act
F&E…….. Facilities and Equipment
FAA.....Federal Aviation Administration
FEMA.....Federal Emergency Management Agency
FHWA.....Federal Highway Administration
FISRWG .....Federal Interagency Stream Restoration Working Group
FST .....Fuel Storage Tank
FWCA .....Fish and Wildlife Coordination Act
FY…… ..Fiscal Year
GHG .....Greenhouse Gas
HUB……. Historically Underutilized Business
IIJA…… Infrastructure Investment and Jobs Act
JO……Joint Order
LAA.....Likely to Adversely Affect
LUST .....Leaking Underground Storage Tank
LOS .....Line of Sight

MBTA..... Migratory Bird Treaty Act
MMT..... Million Metric Tons
NAAQS ..... National Ambient Air Quality Standards
NAS……National Airspace System
NASWATCH…National Airspace System Watch (NASWATCH).
NEPA ..... National Environmental Policy Act
NFIP ..... National Flood Insurance Program
NHPA..... National Historic Preservation Act of 1966
NLAA ..... Not Likely to Adversely Affect
NO2 ..... Nitrogen Dioxide
NOAA..... National Oceanic and Atmospheric Administration
NPDES..... National Pollutant Discharge Elimination System
NPL..... National Priorities List
NPS..... National Park Service
NRCS..... Natural Resources Conservation Service
NRHP..... National Register of Historic Places
NRI ..... Nationwide Rivers Inventory
OE/AAA..... Obstruction Evaluation/Airport Airspace Analysis
OSHA ..... Occupational Safety and Health Administration
PCB..... Polychlorinated Biphenyls
PM..... Particulate Matter
ppm..... parts per million
RCRA..... Resource Conservation and Recovery Act
SEA ..... Supplemental Environmental Assessment
SGCN..... Species of Greatest Conservation Need
SHPO..... State Historic Preservation Officer
SO2 ..... Sulfur Dioxide
TCP..... Traditional Cultural Property
TERPS ..... Terminal Instrument Procedures
THPO ..... Tribal Historic Preservation Officer
TRACON…. Terminal Radar Approach Control Facilities
TRI..... Toxic Release Inventory
USACE ..... U.S. Army Corps of Engineers
USCBP ..... U.S. Customs and Border Protection
U.S.C. ..... U.S. Code
USDA..... U.S. Department of Agriculture
USFWS ..... U.S. Fish and Wildlife Service
USGS ..... U.S. Geological Survey
UST..... Underground Storage Tank

SECTION 1 | INTRODUCTION

1.1 INTRODUCTION

The Federal Aviation Administration (FAA) Central Service Area (CSA) is proposing to replace the existing Airport Traffic Control Tower (ATCT) at the Des Moines International Airport (DSM) in Des Moines, Iowa.

The FAA prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] § 4321 et seq.); the White House Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508); FAA Order 1050.1F, Environmental Impacts: Policies and Procedures; and other applicable federal laws and regulations to provide sufficient evidence and analysis for determining whether to prepare a Finding of No Significant Impact (FONSI) or an Environmental Impact Statement (EIS). NEPA requires that a federal agency prepare a statement of environmental impacts as part of the development process for projects requiring a federal action, such as funding, approving, or permitting projects.

FAA Order 1050.1F states that the "establishment or relocation of facilities such as air route traffic control centers (ARTCC), airport traffic control towers (ATCT), off airport air route surveillance radars (ARSR), air traffic control beacons (ATCB), and next generation radar (NexRad)" are actions that normally require an EA. This EA analyzes the potential environmental consequences of the tower alternatives and considers cumulative impacts of these alternatives (CEQ, 2014).

1.2 PROPOSED ACTION

The FAA's Proposed Action is to replace the existing FAA-owned ATCT at DSM with a modern, sustainable ATCT facility. The Proposed Action is anticipated to include the following activities:

- Acquisition of new lease with the airport authority to construct ATCT in new location.
- Construction and operation of a replacement ATCT, an administrative base building with Terminal Radar Approach Control Facilities (TRACON), and other associated facility support features such as a parking area and security fences.
- Addition of fill material and grading of the ATCT construction site.
- Extension and/or relocation of access roads and utilities to the replacement ATCT.
- Modification and/or relocation of existing National Airspace System (NAS) facilities or airport structures necessary to enable project implementation.
- Installation of modern air traffic control electronic equipment in the replacement ATCT and TRACON.

- Commissioning of the replacement ATCT, cutover of air traffic services to the replacement ATCT, and decommissioning of the existing ATCT.
- Demolition and disposal of the existing ATCT facility and associated infrastructure.
- Termination of existing ATCT lease with airport authority.

The proposed timeframe to replace the DSM ATCT is five years from construction, electronics installation, and air traffic services cutover to demolition of the existing ATCT.

1.3 BACKGROUND

1.3.1 Airport Information

Originally built on 160 acres of farmland in 1933, the Des Moines International Airport (DSM) presently covers over 2,600 acres in Polk County, located about 3 miles southwest of downtown Des Moines (Des Moines Airport Authority, n.d.). DSM is a medium size, multi-use airport, designated as Class C with a ceiling up to and including 5,000 feet mean sea level (MSL) (FAA, 2023b). The FAA categorizes DSM within their National Plan of Integrated Airport Systems (NPIAS) as a primary, small hub airport (U.S. Department of Transportation, FAA, 2022). In 2022, the airport enplaned 1,368,130 commercial airline passengers (FAA, 2023a). The airport provides scheduled commercial passenger service, air cargo, general aviation services, air taxi, military operations, and U.S. Customs and Border Protection (U.S. CBP) services (Air Traffic Organization Technical Operations Facilities and Engineering Services, Terminal Facilities Planning, 2022).

1.3.2 Existing Airport Traffic Control Tower Information

Commissioned in 1975, the existing DSM ATCT is a Tier 3 Facility, Level Seven (7) TRACON facility that operates 24 hours a day, 7 days a week (Air Traffic Organization Technical Operations Facilities and Engineering Services, Terminal Facilities Planning, 2022; Johnston, 2022). The tower is located northwest of the commercial passenger terminal (latitude 41° 31' 58.1196" N, longitude -93° 39' 14.7234" W) and north of the intersection of runway 13/31 and runway 5/23 (FAA, 2023b). The five-sided tower is approximately 77.28 feet to the cab floor above ground level (AGL), with a total height of approximately 98.67 feet. The tower cab is the primary aboveground operating space in the control tower. The cab is approximately 390 square feet (sq. ft.) (Johnston, 2022; Johnston, 2023). The base building is approximately 5,280 sq. ft. with an adjacent parking lot (Johnston, 2023). The total area of the existing DSM ATCT site is approximately 1.1 acres (Johnston, 2023).

1.3.3 Historic and Forecast Airport Activity

The FAA Terminal Area Forecast database maintains a record of historic airport operations and forecasts future operations. This information for DSM can be used to anticipate future changes to demand in air traffic operations (regardless of a new ATCT). Table 1-1 provides the FAA Terminal Area Forecast showing historic and forecasted operations at DSM. (FAA, 2023c)

Table 1-1. DSM Terminal Area Forecast Detail Report

APO TERMINAL AREA FORECAST DETAIL REPORT
Forecast Issued February 2023

DSM

	Enplanements			AIRCRAFT OPERATIONS										
				Itinerant Operations					Local Operations					
Fiscal Year	Air Carrier	Commuter	Total	Air Carrier	Air Taxi & Commuter	GA	Military	Total	Civil	Military	Total	Total Ops	Total Tracon Ops	Based Aircraft
REGION:ACE **STATE:**IA **LOCID:**DSM														
CITY:DES MOINES **AIRPORT:**DES MOINES INTL														
2011	199,464	718,969	918,433	15,676	31,146	25,509	2,558	74,889	6,379	1,549	7,928	82,817	107,126	108
2012	303,340	685,657	988,997	18,509	26,345	26,360	2,679	73,893	6,706	1,460	8,166	82,059	110,094	127
2013	428,533	640,362	1,068,895	20,328	22,607	24,966	1,914	69,815	6,317	1,632	7,949	77,764	101,520	135
2014	514,776	613,037	1,127,813	22,642	19,426	23,079	630	65,777	4,652	114	4,766	70,543	96,154	119
2015	518,706	624,044	1,142,750	27,506	12,855	23,678	1,114	65,153	4,109	465	4,574	69,727	99,467	110
2016	663,943	545,544	1,209,487	28,271	12,174	23,589	1,098	65,132	3,676	531	4,207	69,339	98,589	111
2017	709,947	536,500	1,246,447	32,061	8,536	23,432	1,464	65,493	4,026	665	4,691	70,184	99,869	110
2018	736,344	574,747	1,311,091	30,182	9,315	24,446	1,125	65,068	4,679	514	5,193	70,261	98,201	111
2019	786,385	634,885	1,421,270	33,239	8,833	22,581	1,237	65,890	4,524	589	5,113	71,003	99,002	111
2020	440,060	393,907	833,967	27,197	4,319	18,361	960	50,837	4,727	754	5,481	56,318	82,611	105
2021	415,886	485,948	901,834	27,213	4,974	20,060	1,644	53,891	7,042	1,007	8,049	61,940	89,846	105
2022*	898,881	437,831	1,336,712	29,794	7,017	22,526	1,732	61,069	12,016	692	12,708	73,777	96,780	105
2023*	1,187,852	318,597	1,506,449	30,717	3,234	23,968	1,732	59,651	12,040	692	12,732	72,383	93,861	105
2024*	1,271,837	341,709	1,613,546	33,024	3,536	23,992	1,732	62,284	12,064	692	12,756	75,040	97,086	105
2025*	1,320,826	355,055	1,675,881	34,428	4,064	24,016	1,732	64,240	12,088	692	12,780	77,020	99,696	105
2026*	1,358,096	365,044	1,723,140	35,708	3,533	24,040	1,732	65,013	12,112	692	12,804	77,817	100,101	105
2027*	1,391,709	374,082	1,765,791	36,713	3,303	24,064	1,732	65,812	12,136	692	12,828	78,640	100,797	105
2028*	1,425,900	383,274	1,809,174	37,576	3,339	24,088	1,732	66,735	12,160	692	12,852	79,587	101,867	105
2029*	1,460,490	392,568	1,853,058	38,449	3,376	24,112	1,732	67,669	12,184	692	12,876	80,545	102,950	105
2030*	1,495,550	401,989	1,897,539	39,321	3,413	24,136	1,732	68,602	12,208	692	12,900	81,502	104,033	105

*Indicates estimated values.

Source: (FAA, 2023c)

SECTION 2 | PURPOSE AND NEED

2.1 PURPOSE

The purpose of the Proposed Action is to relocate and construct a taller ATCT at DSM. The Proposed Action would correct the visual and line-of-sight issues occurring at several points on the airport at runways, runway ends, taxiways, and short hold lines when viewed from the existing ATCT. Commissioned in 1975, the existing DSM ATCT is not located to meet current and future airport visual safety requirements. In 2021, there were 155,953 operations (49% commercial, 51% general aviation, military, and air taxi). The Proposed Action would also support the projected increase in operations. Air traffic controllers experience visual obstructions and depth perception issues from the current DSM ATCT. These safety concerns prompted an analysis to identify, review, analyze, and mitigate hazards present at the existing DSM ATCT and find alternate sites to alleviate those hazards.

2.2 NEED

The Proposed Action is needed to correct any safety hazards, such as line of sight (LOS) obstructions, and ensure all visual safety requirements are met. This will ensure that Air Traffic Control has the correct line of sight to the runway ends, runways, taxiways, and short hold lines at DSM. The proposed relocation and tower design is needed to provide increased safety for passengers and personnel at DSM and support increased operations.

SECTION 3 | ALTERNATIVES

The NEPA process requires the identification and evaluation of all reasonable alternatives that might accomplish the objectives of a Proposed Action. This ensures that alternatives which may have a lesser impact on the existing environment are considered and reviewed.

3.1 SITING CRITERIA

Representatives from the FAA CSA and DSM airport conducted siting for this project working with the Airport Facilities Terminal Integration Laboratory (AFTIL) in Atlantic City, New Jersey. Technical siting requirements evaluated included the following:

- Terminal Instrument Procedures (TERPS) assessments.
- Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) Requirements – 14 CFR Part 77.
- Communications, Navigation, and Surveillance Equipment – National Airspace System Watch (NASWATCH).
- Visibility Performance Requirements.
- Safety.
- Operational requirements, including building orientation, weather, look-down angle, look-up angle, and access.
- Economic considerations.
- Environmental issues (Johnston, Des Moines International Airport, Des Moines, Iowa - Airport Traffic Control Tower Siting Report, 2022).

3.2 ALTERNATIVE SITES CONSIDERED

The AFTIL initially evaluated nine sites for the proposed new DSM ATCT. The FAA and DSM Airport selected one ATCT location site for consideration in this EA plus the No Action Alternative. To be considered a reasonable alternative, an alternative needed to meet the technical Siting Criteria (see Section 3.1) and the Purpose and Need (see Section 2). Figure 3-1 provides an aerial image of the existing ATCT, location of the alternative, and the study area, which includes the boundary of DSM.

Figure 3-1. Aerial Image Showing the Existing ATCT, Alternative Site, and Study Area

3.2.1 Alternative 1 (No Action Alternative)

In accordance with CEQ NEPA implementing regulations (40 CFR § 1508.14), an EA requires an evaluation of the No Action Alternative. The No Action Alternative is defined as maintaining the status quo (baseline conditions) without federal agency involvement. The No Action Alternative is used to evaluate the effects of not replacing the existing ATCT and provides a benchmark against which other alternatives may be evaluated.

Under the No Action Alternative, the existing DSM ATCT and associated facilities would not be replaced and demolished. The existing ATCT would continue to be used for air traffic

control operations. A new ATCT would not be constructed, additional space for air traffic operations, and improvements to the safety, efficiency, and resiliency of the NAS would not be realized.

3.2.2 Alternative 2 (Site 2) – Preferred Alternative

Site 2 (Latitude 41° 32' 08.7145" N, Longitude 93° 40' 12.2230" W) is located west and slightly south of the existing ATCT, and about 3,460 ft west of the intersection of the two main runways, oriented to the southeast (see Figure 3-1). The DSM ATCT siting report identified Site 2 as having the best overall viewing angles to the movement areas. The proposed new ATCT would be 209-foot, 8-sided tower with two elevators, a 440 sq. ft. cab, and a cab floor level of 179 ft AGL. The base building/TRACON (estimated 13,000 sq. ft.) would house technical operations personnel and equipment. The airport sponsor plans to designate between 4 to 7 acres of airport property for the new ATCT and base building (Air Traffic Organization Technical Operations Facilities and Engineering Services, Terminal Facilities Planning, 2022; Johnston, 2022). A new access road would be constructed to tie in from SW 42nd Street, northwest of Site 2. In addition, utility connections for water service would tie in from the west along the new proposed access road. The sewer force main would connect from the northeastern corner of the proposed ATCT and tie into an existing sewer manhole on the eastern side of the runway.

3.3 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

The first AFTIL assessment held in June 2019, evaluated six initial sites for the proposed new ATCT (Johnston, Des Moines International Airport, Des Moines, Iowa - Airport Traffic Control Tower Siting Report, 2022). During this assessment, two sites (Sites 3 and 5) were eliminated from consideration as technical elements did not comply with the siting criteria to satisfy the purpose and need of the Proposed Action. Four remaining sites were identified as alternatives (Sites 1, 2, 4, and 6). The second AFTIL assessment, held in January 2022, further evaluated Site 1.

Site 1 (Latitude 47° 56' 55.66" N, Longitude 97° 10' 31.51" W), is located south and west of the existing ATCT, further south and east of Site 2, and approximately 2,073 ft west of the intersections of the two main runways (Air Traffic Organization Technical Operations Facilities and Engineering Services, Terminal Facilities Planning, 2022; Johnston, 2022). Site 1 required a higher degree of Air Traffic Controller rotation within the cab to view traffic simultaneously on the two existing runways and the proposed new runway 13R. The location would cause controllers to turn their back on air traffic on one of the runways when observing the other, and therefore was not preferred by the DSM controllers. Additional staffing could be needed to alleviate the safety issue (Johnston, 2022).

Based on the technical siting criteria (Section 3.1), the FAA eliminated Sites 1, 4, and 6 from further consideration due to terminal instrument procedures (TERPS) penetrations to precision approaches and lack of visibility increases to Runway 31. Site 1 was ultimately not carried forward due to additional safety requirements given the proposed ATCT's location in proximity of runway 05/23.

SECTION 4 | AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

Some resources identified under FAA Order 1050.1F are not present at DSM or would not be affected by the no action, proposed action, and reasonable alternatives. The following resource is not included or analyzed in this EA for the reasons listed below:

- Coastal Resources – The sites identified within DSM for the new ATCT are not adjacent to or near any coastal or inland shorelines regulated by the National Oceanic and Atmospheric Association (NOAA) under the Coastal Zone Management Act (CZMA) (16 U.S.C. §§ 1451 et seq.) (NOAA, 2023). Iowa is a landlocked state and does not have a Coastal Zone Management Plan.

4.2 AIR QUALITY

Air quality is the measure of the type and quantity of pollutants emitted into and currently exist in the atmosphere, the size and topography of the airshed, and meteorological (weather) conditions. Overall, the concentration of pollutants in the atmosphere forms the basis of air quality in an area. Air quality regulations are founded on concerns that high concentrations of air pollutants can harm human health, particularly for the elderly, children, and people with compromised health conditions, in addition to causing potential damage to the natural (e.g., agricultural lands, vegetation) and built environments (e.g., buildings, infrastructure).

4.2.1 Regulatory Setting

The Clean Air Act (CAA), as amended (42 U.S.C. §§ 7409, 7410, and 7502-7514), requires the establishment of National Ambient Air Quality Standards (NAAQS) for six common air pollutants (carbon monoxide [CO], nitrogen dioxide [NO_2], ozone [O_3], particulate matter [PM], sulfur dioxide [SO_2], and lead [Pb]) (40 CFR Part 50) and designating attainment or nonattainment areas based on those NAAQS within a state. The CAA also requires preparation of State Implementation Plans (SIP) for EPA approval for "nonattainment areas" (see Section 4.1.2). The EPA designates areas as "attainment" when meeting NAAQS or "nonattainment" when not meeting NAAQS after collecting monitoring data. In addition, the CAA requires compliance with General and Transportation Conformity regulations.[1]

Section 176(c) of the CAA (42 U.S.C. §§ 7571-7574), Determining Conformity of General Federal Actions to State or Federal Implementation Plans (40 CFR Part 93, Subpart B) identifies criteria for determining if a proposed Federal Action conforms to state (or federal)

[1] The Transportation Conformity Regulations apply to highways and mass transit and establish the criteria and procedures for determining whether transportation plans, programs, and projects funded under title 23 U.S.C. or the Federal Transit Act conform with the SIP (EPA, 2022f).

air quality implementation plans. The FAA is only required to demonstrate general conformity for the Proposed Action.

The CAA established national air quality standards, or NAAQS, for six common air pollutants (CO, NO_2, O_3, PM, SO_2, and Pb) and requires compliance with the NAAQS (40 CFR Part 50). Compliance is when the ambient outdoor levels of the NAAQS air pollutants are safe for human health, public welfare, and environment. These are further divided into primary standards to set limits to protect public health, including sensitive populations (e.g., elderly, children, asthmatics), and secondary standards to establish limits to protect from visibility issues and damage to the natural (e.g., animals, agricultural crops, vegetation) and built environments (e.g., physical structures) (EPA, 2022d).

A variety of sources generate air pollution emissions:

- Carbon dioxide is generated by motor vehicles and from wood burning activities.
- Nitrogen dioxide is a product of combustion; observed as a brown haze.
- Ozone is formed when organic gases react with NO_2.
- Smoke includes particulate matter.
- Fossil fuel burning results in SO_2.
- Lead from ore and metal processing and combustion of leaded fossil fuel.

Compliance with the NAAQS provides a method to enforce air quality standards by establishing measurable maximum allowable amounts. Table 4-1 identifies the primary and secondary NAAQS for the six criteria pollutants.

Table 4-1. National Ambient Air Quality Standards from EPA's Nonattainment Areas for Criteria Pollutants (Green Book)

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8 hours	9 parts per million (ppm)	not to be exceeded more than once per year
Carbon Monoxide (CO)	Primary	1 hour	35 ppm	not to be exceeded more than once per year
Lead (Pb)	Primary and secondary	Rolling 3-month average	0.15 microgram (µg)/meter (m)^3 (1)	not to be exceeded
Nitrogen Dioxide (NO_2)	Primary	1 hour	100 parts per billion (ppb)	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
Nitrogen Dioxide (NO_2)	Primary and secondary	1 year	53 ppb (2)	annual mean

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Ozone (O_3)	Primary and secondary	8 hours	0.070 ppm (3)	annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particulate Matter (PM) - $PM_{2.5}$	Primary	1 year	12.0 µg/m^3	annual mean, averaged over 3 years
Particle Pollution (PM) – $PM_{2.5}$	Secondary	1 year	15.0 µg/m^3	annual mean, averaged over 3 years
Particle Pollution (PM) – $PM_{2.5}$	Primary and secondary	24 hours	35.0 µg/m^3	98th percentile, averaged over 3 years
Particulate Matter (PM) - PM_{10}	Primary and secondary	24 hours	150 µg/m^3	not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)	Primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
Sulfur Dioxide (SO_2)	Secondary	3 hours	0.5 ppm	not to be exceeded more than once per year

Notes:

(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/m^3 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 are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O_3 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 SO_2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

Source: (EPA, 2022d)

Under the CAA, when an area does not meet the NAAQS for a criteria pollutant, it may be subject to a formal rulemaking that designates it as a "nonattainment" area categorized based on the severity of their NAAQS exceedance from marginal, moderate, serious, severe, to extreme (EPA, 2022d). Attainment status can be described in one of four ways and determines whether air pollution control measures are required and for which criteria air pollutants an area may be in attainment for some pollutants and in nonattainment for others (40 CFR Part 81).

The four attainment classifications are:

- Attainment: Area meets the NAAQS (primary or secondary) for the pollutant.
- Nonattainment: Area that does not meet (or that contributes to a nearby area that does not meet) the NAAQS (primary or secondary) for the pollutant.
- Maintenance: Area that once violated the NAAQS (previous nonattainment areas) but currently achieves the NAAQS.
- Unclassifiable: Area that cannot be classified based on available information for the pollutant (40 CFR Part 81).

The CAA requires preparation of State Implementation Plans (SIPs) for EPA approval for "nonattainment areas." A SIP includes those regulations and documents used by a state, territory, or local air district to implement, maintain, and enforce NAAQS (or for a Tribe, a Tribal Implementation Plan (TIP)). A SIP or TIP typically includes control measures (statutes, regulations, or source-specific requirements) adopted by the state, non-regulatory components submitted by the state, or other requirements identified by the EPA to meet Section 110 or Part D of the CAA (EPA, 2022a).

In addition to the NAAQS, air quality can be impacted by hazardous air pollutants (HAP). These are chemicals that might not be as widespread but are potentially more toxic (e.g., benzene, mercury). The 1990 CAA Amendments identified a list of 188 chemicals and compounds considered as HAPs.[2]

Under 72 *Federal Register* 145, Federal Presumed to Conform Actions Under General Conformity, the FAA identified a list of actions presumed to conform to an applicable SIP for the criteria pollutants and their precursors as identified under 40 CFR Part 93.153(b)(1) and (b)(2) and in the NAAQS. With this Rule, under existing exemptions, Routine Installation and Operation of Navigation Aids, the in-kind replacement of navigational aids, such as ATCTs, are "presumed to conform because these activities would not generate emissions that exceed *de minimis* levels" (Federal Register, 2007).

4.2.2 Affected Environment

DSM is in a designated attainment area for all NAAQS criteria pollutants according to the EPA (EPA, 2023c). Iowa follows attainment standards set by the EPA and designates nonattainment areas by county. DSM is located in Polk County, which operates a county local air quality program. The only county in Iowa designated as a nonattainment area is Muscatine County, located at the far western border of the state (Iowa Department of Natural Resources, n.d. (c)).

Polk County operates three air quality monitoring sites. The site closest to DSM is located at the Public Health Department (Carpenter Site), 4.54 miles north of the existing DSM ATCT.

[2] A list of regulated HAPs can be found on the EPA's Air Toxics website at: http://www.epa.gov/ttn/atw/orig189.html.

The monitoring stations test for O_3, NO_2, PM_{10}, $PM_{2.5}$, and air toxics (Polk County, n.d.). In 2022, no NAAQS exceedances were recording at any of the county sites (Iowa Department of Natural Resources, 2022b). As of October 1, 2023, seven days of O_3 exceedances and five days of $PM_{2.5}$ were recorded at the Polk County Public Works site, which is located 9.41 miles northeast of the existing DSM ATCT (Iowa Department of Natural Resources, 2023a). At the Carpenter Site, only two days of $PM_{2.5}$ exceedances were recorded in 2023 (Iowa Department of Natural Resources, 2023a). The exceedances may be explained by the heavy wildfire smoke from Canada that the eastern U.S. experienced during the summer of 2023.

Wind rose data from January 1, 1970, to June 29, 2023, at DSM shows winds originating predominantly from the south with an average wind speed of 10 miles per hour (mph). Winds originate primarily from the south-southeast in late spring to fall (May to November) when winds shift to more dominantly from the northwest (December to April). (Iowa State University, 2023)

Elevation to the west, north, and south of DSM ranges between approximately 1,000 to 1,500 feet above sea level (ASL) and decreases toward Des Moines to around 900 feet ASL (Iowa Department of Natural Resources, n.d. (b)). Elevation directly to the east continues to decrease, ranging from 900 to 500 feet ASL (Iowa Department of Natural Resources, n.d. (b)). Based on the topology, winds, and existing air quality, DSM is not sited where NAAQS pollutants are collected or concentrated. Overall, DSM is not at risk of becoming a nonattainment area with current air quality conditions and geography.

4.2.3 Environmental Consequences

As noted in the FAA Order 1050.1F Desk Reference, the FAA has established a significance threshold for air quality (FAA, 2020a).

- No Impact: Impacts to air quality would not occur as a result of the Proposed Action.
- Significant Impact: The FAA identified the significance threshold as pollutant concentrations to exceed one or more of the NAAQS for "any of the time periods analyzed, or to increase the frequency or severity of any such existing violations" (FAA, 2015).

4.2.3.1 No Action Alternative

Under the No Action Alternative, the current ATCT would not be removed and replaced, and activities associated with the ATCT would remain the same. No impacts to existing air quality conditions or emissions.

4.2.3.2 Alternative 2 (Preferred Alternative)

Demolition of the existing ATCT and construction of the Preferred Alternative replacement tower is unlikely to result in an exceedance of air quality standards or in more than a temporary *de minimis* increase in emissions. Demolition and construction activities are presumed to conform under the CAA. Overall increased energy efficiency of the new ATCT would result in lower long-term emissions than the existing ATCT. Following the CAA, the FAA identified the in-kind replacement of an ATCT as "presumed to conform because these

activities would not generate emissions that exceed *de minimis* levels." Emissions generated by heavy construction equipment are negligible given the temporary nature of these activities and limited number of vehicles involved (Federal Register, 2007).

Emissions would not be expected to exceed NAAQS for criteria air pollutants as described in Table 4-1. It is anticipated that air quality impacts resulting from construction related activities under the Preferred Alternative would be short term and temporary[3] in nature. Demolition of the existing ATCT and construction of a new ATCT is unlikely to result in an exceedance of air quality standards, regulated release of HAPs, or in more than a *de minimis* increase in emissions and are presumed to conform with the CAA. Additional emissions resulting from roadway extensions are not anticipated during construction; Site 2 is accessible through existing access roads. The existing ATCT electricity, sewage, and water is retrieved from commercial and municipal sources. New utility connections would be required to operate the proposed ATCT. The construction of the Proposed ATCT would involve new connections for sewer and water services. The sewer service would connect from a manhole to the east of the runway across the open field adjacent to Site 2. The water service would connect from the west, running along the new proposed access road from SW 42nd Street to Site 2. A utility box is also located 60 feet southwest of the existing ATCT (Google, 2023). The construction of the proposed ATCT is not expected to increase the previously forecast number of future operations; no additional aircraft emissions at DSM would be anticipated by the Proposed Action beyond previous forecasts. The proposed ATCT would support the safety and efficiency of air traffic controls required by any potential increase in operations.

No significant impacts to air quality are expected for Alternative 2 (Preferred Alternative).

4.2.4 Mitigation

Construction and demolition-related emissions can be reduced or mitigated using the following best management practices (BMP). The following BMPs are recommended to help reduce or offset potential emissions:

- Dust control BMPs can include, but are not limited to, spraying water to minimize dust, limiting the area of uncovered soil to the minimum needed for each activity, proper siting of staging areas to minimize fugitive dust, placement of mulch or a temporary gravel cover, using a soil stabilizer (or chemical dust suppressor), limiting the number and speed of construction vehicles at the site, and adding covers to trucks hauling dirt on or off the site.
- Revegetation of sites immediately following ground disturbance.
- Emission BMPs for construction vehicles and equipment can include, but are not limited to, limiting vehicle idling times, usage of low or ultra-low sulfur fuel and

[3] Short-term and temporary refers to the duration of the construction period of the project.

biodiesel, conducting proper vehicle engine maintenance, and using electric instead of gas-powered tools.

- Source locally available products and materials to reduce transportation-related emissions to the site.

4.3 BIOLOGICAL RESOURCES (INCLUDING FISH, WILDLIFE, AND PLANTS)

Biological resources are the singular or collective living things inhabiting the Earth, which include native plants, animals, and their habitats. Protected and sensitive biological resources include federally listed (endangered[4] or threatened[5]), proposed,[6] and candidate[7] species designated by the US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), or a State. Sensitive habitats described in this section include those areas designated by the USFWS as critical habitat[8] protected by the Endangered Species Act of 1973 (ESA; 16 U.S.C. Chapter 35 § 1531 et seq.) and sensitive ecological areas as designated by state or federal rulings. Sensitive habitats also include wetlands, plant communities that are unusual or of limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, and crucial summer and winter habitats). The study area for biological resources is within the airport grounds, bounded by the perimeter fencing, as shown in Figure 3-1.

4.3.1 Regulatory Setting

The Endangered Species Act (ESA;16 U.S.C. §§ 1531-1544) requires federal agencies to conserve endangered species by listing endangered and threatened species of plants and animals and designating critical habitats for animal species. The ESA defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range" and a threatened species as "any species which is likely to become an endangered species within the foreseeable future." Section 7 of the ESA requires federal agencies, in consultation with USFWS and/or NMFS, to ensure their actions are not likely to

[4] Endangered species are "any species which is in danger of extinction throughout all or a significant portion of its range" (ESA, Section 3(6)).

[5] Threatened species are "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (ESA, Section 3(20)).

[6] Proposed species are "any species of fish, wildlife, or plant that is proposed in the *Federal Register* to be listed under Section 4" of the ESA (EA, Section 402.02). USFWS and NMFS issue a rulemaking to propose an ESA species for listing or delisting to allow for public comment.

[7] Candidate species are any species whose status is under review "to determine whether it warrants listing under the ESA" (ESA, Section 4).

[8] Critical habitat refers to "(i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary that such areas are essential for the conservation of the species." (ESA, Section 3(5)(A))

jeopardize the continued existence of any endangered or threatened species or to result in the destruction or adverse modification of critical habitat. The ESA defines critical habitat as specific geographic areas that are essential for the conservation of a threatened or endangered species and that may require special management and protection (USFWS, 2007).

The Fish and Wildlife Coordination Act (16 U.S.C. § 662(a)) identifies that when a federally approved or financed action may result in control or modification of the water of any stream or waterbody, the responsible federal agency must consult with the USFWS regarding the conservation of wildlife resources.

Executive Order (EO) 13112, Invasive Species, as amended EO 13751, directs federal agencies whose actions may affect the status of invasive species to use relevant programs and authorities, to the extent practicable and subject to available resources, to prevent the introduction of invasive species, and to provide for the restoration of native species and habitat conditions in ecosystems that have been invaded. Agencies are directed not to conduct actions that they believe are likely to cause or promote the introduction or spread of invasive species unless the benefits of such actions clearly outweigh the potential harm, and all feasible and prudent measures to minimize risk of harm are taken. Invasive species is defined by the EO as a non-native (regarding a particular ecosystem) organism whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health.

The Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended by the Sustainable Fisheries Act (16 U.S.C. § 1855(b)(2) et seq.; see 50 CFR Part 600 for implementing regulations) prohibits actions that may affect essential fish habitat (EFH) defined as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity" for all managed species. Regional Fishery Management Councils throughout the country identify and describe fishery management plans to protect certain anadromous fish species. If an action would affect an EFH, an impact assessment on the affected EFH is needed. The EFH assessment and any mitigation measures are done in consultation with NMFS.

The Migratory Bird Treaty Act of 1918 (MBTA) (16 U.S.C. §§ 703-711) prohibits actions of taking, selling, or conducting other activities that would harm migratory birds, their eggs, or nests (such as removal of an active nest or nest tree). If it is determined there are no feasible alternatives to taking the migratory bird or its nest, USFWS and the Secretary of Interior must issue a permit for the taking and would require mitigation.

EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, directs federal agencies to further implement and strengthen the Migratory Bird Treaty Act. Specifically, federal agency actions that have, or are likely to have, a measurable negative effect on migratory bird populations require development and implementation of a Memorandum of Understanding (MOU) with USFWS that promotes the conservation of migratory bird populations. The EO and MOUs are the regulatory basis for conservation actions or renewal

of contracts, permits, delegations, or other third-party agreements associated with migratory birds. MOUs established under EO 13186 are published in the *Federal Register*.

Congress passed the Bald and Golden Eagle Protection Act of 1940 (amended in 1962) to protect both these avian species. The bald eagle was officially adopted as the Nation's symbol in 1782. From that time until 1940, population numbers for the bald eagle rapidly declined due to hunting, insecticide use, and habitat loss. To prevent the extinction of the bald eagle, Congress passed the Bald Eagle Act (16 U.S.C. §§ 668-668d) to prohibit the take, possession, sale, purchase, barter, or offer to sell, purchase, or barter, export, or import any part of a bald eagle, including their nests and eggs. In 1962, Congress amended the Bald Eagle Act to include golden eagles, recognizing that the declining population of the golden eagle as it was threatened with extinction. The bald eagle continues to be protected by the Bald and Golden Eagle Protection Act even though it has been delisted under the ESA in August 2007. (USFWS, n.d.)

In addition to the federal laws and EOs protecting biological resources, state regulations applicable to biological resources (e.g., state-listed species or habitats) would be addressed during site-specific analysis of the funded projects, where necessary.

4.3.2 Affected Environment

4.3.2.1 Vegetation

The DSM airport is located in the Western Corn Belt Plains within the northern edge of the Rolling Loess Prairies ecoregion (Chapman, et al., 2002). Typical vegetation within the Rolling Loess Prairies ecoregion includes a mosaic of oak-hickory forest and bluestem prairie (Iowa Department of Natural Resources, n.d. (e)). About 42% of the ecoregion is comprised of grassland, woodland, and wetland habitat with approximately 54% of the land used for agriculture, primarily row crops and hay (Iowa Department of Natural Resources, 2015).

The study area, shown in Figure 3-1, is a mix of development, paved parking lots and runways, landscaped areas, and mowed open space. Site 2 is a previously disturbed borrow area where soil was taken for runway construction. This area is routinely mowed, along with most of the open space area surrounding the runways within the study area. The vegetation found on the proposed ATCT site is comprised of native and non-native species, primarily grasses and forbs. Plants observed during a site visit on August 22, 2023, include a variety of clover species; aster species, including ragweed; a variety of grasses; Queen Anne’s lace; plantain; and field bindweed. A drainage is located about 700 feet to the southeast which supports riparian and other species such as ash, willow, walnut, dogwood, poison ivy, cattail, and grape. The drainage is not mowed, which allows the vegetation to persist. The area surrounding the existing ATCT is landscaped with ornamental grass and small shrubs, bordered by landscape rock, sidewalk, roadway, and parking lots.

4.3.2.2 Wildlife and Fish

Due to the previously disturbed nature of the developed area surrounding the current ATCT and both sites being located within an active airport, many wildlife species do not use the airport study area as permanent habitat. Smaller species, such as insects, reptiles,

amphibians, and small mammals, could inhabit open space or structures within the airport. Insects such as grasshoppers, butterflies, and moths were observed during the August 22, 2023, site visit. The presence of insects in the vegetated lands within the airport property could provide food sources for wildlife species. No reptiles, amphibians, or mammals were seen during the site visit.

Avian and bat species could use the study area for forage or hunting, but due to the lack of trees and shrubs, no roosting or nesting habitat is present. Avian and bat species could use the current ATCT for roosting or nesting if suitable features were present. Ground-nesting birds could use Site 2; however, due to the regular and consistent mowing of the airport lands, it is unlikely that species would use the site for nesting or brood-rearing due to frequent disturbance and loss of cover. Birds were observed during the site visit perched along the drainage area to the southeast of Site 2 and in-flight near the perimeter fence of the airport.

Common wildlife species such as deer, rabbit, coyote, raccoon, and other smaller mammals may find their way onto the airport property and use the open space for forage and hunting, but it is unlikely they would use the study area and proposed site as permanent, long-term habitat. Due to DSM's status as a commercial service airport, they are obligated to comply with the wildlife hazard management requirements, standards, and recommendations made by the FAA in Advisory Circulars and other regulations to maintain a safe operating environment.

4.3.2.3 Special Status Species

The USFWS reports 12 plant and animal species within Polk County where DSM is located, near the southern edge of the Polk-Warren County border, shown in Table 4-2. Appendix A contains the USFWS report containing the federally listed species for Polk County.

Table 4-2. Federally Listed Species in Polk County

Common Name	Scientific Name	ESA Listing Status	Group
Plains Spotted Skunk	*Spilogale interrupta*	Resolved Taxon	Mammals
Tricolored bat	*Perimyotis subflavus*	Proposed Endangered	Mammals
Little brown bat	*Myotis lucifugus*	Under Review	Mammals
Indiana bat	*Myotis sodalis*	Endangered	Mammals
Northern Long-Eared Bat	*Myotis septentrionalis*	Endangered	Mammals
Least tern	*Sternula antillarum*	Recovery	Birds
Rusty patched bumble bee	*Bombus affinis*	Endangered	Insects
Monarch butterfly	*Danaus plexippus*	Candidate	Insects
Regal fritillary	*Speyeria idalia*	Under Review	Insects
Mead's milkweed	*Asclepias meadii*	Threatened	Flowering Plants
Eastern prairie fringed orchid	*Platanthera leucophaea*	Threatened	Flowering Plants
Western prairie fringed Orchid	*Platanthera praeclara*	Threatened	Flowering Plants

Source: (USFWS, 2023a)

A focused search for federally listed species within the airport study area resulted in three bat species: Northern long-eared bat, tricolored bat, and Indiana bat; and one insect species: monarch butterfly (USFWS, 2023b). Appendix A contains the study area-specific list. No critical habitat for these species overlaps with the airport property. Bat roosting habitat and hibernacula (places for bats to hibernate) is not present on Site 2, although bats could use the existing tower as roosting habitat. Bat species could use the proposed site for foraging, although the treeless, open, mowed spaces are not ideal foraging habitat. Adult monarch butterflies feed on the nectar of flowering plants and their larva requires milkweed plants to develop. Monarch butterflies only reproduce where milkweed plants are located (USDA, n.d.). The species could use airport habitat for resting or feeding if flowering plants were present. No milkweed plants were identified during the site survey conducted in August 2023. Given the disturbed nature of the land at the proposed site and consistent mowing of the site, the available habitat and food sources are limited.

Three federally listed species are also identified among 43 others as state listed in Polk County (Iowa Department of Natural Resources, 2023b). Species that are motile such as birds, small or flying mammals, or flying insects could be found within the proposed ATCT site, but due to the disturbed nature of the airport, it is unlikely that suitable habitat is present.

4.3.2.4 Migratory Birds

Based on the USFWS migratory birds listed as having a probability of presence within the study area, nine migratory birds, including bald eagles, could be present at some time throughout the year. Seven of these species could be present during their breeding season which, aside from the bald eagle, ranges from March to October. The bald eagle's breeding season is from mid-October through the end of August. The probability of presence is highest for bald eagles, chimney swift, and red-headed woodpecker, which are species that use tree habitat for nesting, perching, and brood-rearing. All nine migratory bird species could use the airport land for hunting and foraging; however, the proposed site and current ATCT would not provide desirable habitat for long-term use. (USFWS, 2023a)

4.3.2.5 Invasive Species

The Iowa Department of Natural Resources maintains a website with a list of 38 invasive plant species (Iowa Department of Natural Resources, n.d. (d)). Invasive plant species can be spread by vehicles, machinery, wildlife, and by natural forces such as wind or water. Areas that are disturbed through construction, by vehicles, or fire may be vulnerable to the introduction and spread of noxious weeds. Invasive plant species can outcompete native plant species and often are not desired forage for herbivorous wildlife species. The proposed site supports at least one of the species on the Iowa Department of Natural Resources list, Queen Anne's lace, and could contain numerous others. The site where the current ATCT is located could become vulnerable to invasive plant species following removal of the tower if control measures were not implemented.

4.3.3 Environmental Consequences

The FAA does not have a threshold of significance for non-listed species.

- No Impact: Impacts to biological resources (non-listed species) would not occur as a result of the Proposed Action.

Factors to consider include if the action would have the potential for:

- "A long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area (e.g., a new commercial service airport);
- Adverse impacts to special status species (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats;
- Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or
- Adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance." (FAA, 2015)

As noted in the FAA Order 1050.1F Desk Reference, the FAA identified the significance threshold for biological resources (including fish, wildlife, and plants) as when the USFWS or NMFS determines that the action would be likely to jeopardize the continued existence of a federally-listed threatened or endangered species, or would result in the destruction or adverse modification of federally-designated critical habitat (FAA, 2020a). Impacts to federally listed threatened and endangered species were evaluated using terminology defined under the ESA as follows:

- No effect: ESA listed species or designated critical habitat would not be affected or listed species or designated critical habitats are not present.
- May affect/not likely to adversely affect: Effects on ESA listed species or designated critical habitat are insignificant, discountable,[9] or beneficial. During consultation, USFWS or NMFS would provide written concurrence of a "not likely to adversely affect" determination.
- May affect/likely to adversely affect: An adverse effect to an ESA listed species or designated critical habitat may occur as a result of implementing the Proposed Action or its interrelated or independent actions, and the effect is not discountable, insignificant, or beneficial. If a proposed project is "likely to adversely affect," the federal agency initiates a formal Section 7 consultation and may also require the preparation of an EIS.
- Likely to jeopardize proposed species/adversely modify proposed critical habitat: Projects that could jeopardize a proposed species or adversely modify critical

[9] Extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated.

habitat to a species require a conference with USFWS or NMFS, and the preparation of an EIS may also be required.

4.3.3.1 No Action Alternative

Under the No Action Alternative, the current ATCT would not be replaced or removed, and activities associated with the ATCT would remain the same. Under the No Action Alternative, no impacts to vegetation, wildlife, habitat, or invasive species would occur.

4.3.3.2 Alternative 2 (Preferred Alternative)

Federally listed threatened and endangered species are considered to have no effect from the Preferred Alternative. No critical habitat for threatened or endangered species is present within the study area. As noted in the FAA Order 1050.1F Desk Reference and Section 7 of the USFWS ESA, a consultation is not required for determinations of 'No Effect' (FAA, 2020a) (USFWS, 2007).

Construction of a new ATCT on Site 2 (Preferred Alternative) could result in some minimal effects to biological resources from construction traffic and removal of vegetation. Although much of the vegetation found on Site 2 is common or non-native; insects, birds, and other small wildlife could have to find new habitat to feed once the site is cleared and the new tower is constructed. Because the site is within an active airport and consistently mowed, the quality of the existing habitat is low. In addition to the removal of vegetation caused by construction of the new ATCT, minimal effects to biological resources are anticipated from the construction of the new sewer force main to the proposed ATCT. The sewer main is designed to cross the open field to the east of Site 2, through routinely mowed and pre-disturbed grasses and forbs. Prior to demolition of the existing ATCT, a survey should be conducted to ensure the exterior is not being used by wildlife species, such as birds or bats. Mitigation for birds or bats could be implemented if species are encountered, such as delaying demolition until birds have fledged nests, or relocation of bats to appropriate habitat prior to demolition.

A short-term, temporary increase of noise would occur during construction and demolition; however, the existing noise levels at the airport currently affect any noise-sensitive species within proximity of Site 2. Site 2 is located approximately 1,500 feet southwest of runway 13/31 and about 2,350 northwest of runway 5/23 which are lit and operate 24 hours a day. The existing tower is approximately 3,350 feet east-northeast and also illuminated at night. The immediate area surrounding Site 2 is open space and not presently illuminated at night. Effects to migratory or light sensitive species could occur from exterior lighting once the new tower is operational. Mitigation measures such as downward-focused lighting and operation of only required light features would help reduce or prevent effects from lighting to wildlife.

Erosion and runoff from ground clearing, utility installation, and road and tower construction could affect water quality in the drainage southeast of Site 2 and other nearby waterbodies. Soil, sediment, or chemical runoff could directly or indirectly damage water quality or alter instream habitat for aquatic species from sediment build-up. Mitigation and BMPs to prevent, reduce, or capture sediment and runoff would be applied to the construction and demolition sites to diminish or preclude impacts.

An increase of human foot traffic, vehicles, and heavy equipment during construction could introduce noxious weeds and invasive, non-native plant species within and surrounding the construction. This could lead to the introduction or spread noxious weeds into the construction and demolition sites and to surrounding habitat, which could degrade or alter nearby native vegetation and food sources for wildlife species. Mitigation measures such as required cleaning of vehicles and equipment prior to accessing construction and demolition sites are recommended to reduce the potential introduction and spread of noxious weeds.

No significant impacts to biological resources are expected for Alternative 2 (Preferred Alternative).

4.3.4 Mitigation

Mitigation and BMPs that would help preclude impacts to biological resources may be implemented. Examples of such BMPs include those that would prevent or reduce habitat loss, disturbance of wildlife species, and erosion and runoff to habitat and water bodies. Adherence to state guidelines to reduce threats to local fauna could offset potential impacts from introducing or spreading noxious weeds.

4.4 CLIMATE

Climate change is caused by the emission of greenhouse gases (GHG) such as CO_2, methane, nitrous oxide, and other aerosols from human activity and the burning of fossil fuels (EPA, 2022c). GHGs trap heat in the Earth's atmosphere, which results in an increase of average global temperature causing weather changes (EPA, 2022c). Under NEPA, a federal action needs to access the impacts of their project to climate change and the potential impacts that may result from climate change.

4.4.1 Regulatory Setting

The CEQ released a notice of interim guidance (effective immediately on January 1, 2023) to assist federal agencies in their consideration of the effects of GHG emissions and climate change when evaluating proposed major Federal Actions in accordance with NEPA and to improve the efficiency and consistency of reviews of proposed Federal Actions for agencies, decision makers, project proponents, and the public. This guidance provides federal agencies a common approach while recognizing each of their unique circumstances (CEQ, 2023).

EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, directs federal agencies to "immediately review and take action to address the promulgation of recent federal regulations to improve public health and protect our environment; ensure access to clean air and water; limit exposure to dangerous chemicals and pesticides; hold polluters accountable, including those who disproportionately harm communities of color and low-income communities; reduce greenhouse gas emissions; to bolster resilience to the impacts of climate change; restore and expand our national treasures and monuments; and prioritize both environmental justice and employment" (DOE, 2021).

4.4.2 Affected Environment

Small shifts in average temperature cause shifts in climate and weather, which has a wide range of environmental impacts (NASA, 2023). Impacts of climate change include increased frequency and severity of extreme weather events, changes in precipitation patterns, sea level rise, and ocean acidification (EPA, 2022c). The average surface temperature in the continental U.S. "has risen at an average rate of 0.17 °F per decade, although temperatures have risen more quickly since the late 1970s" (EPA, 2022b). Figure 4-1 shows the temperature change between 1901 and 2021 in the area of Des Moines, Iowa experiencing a rate of change of 0.5-1.0 °F throughout the century (EPA, 2022c).

Climate change is correlated with increases in GHG. The Iowa Department of Natural Resources (DNR) measures six GHG, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFC), hydrofluorocarbons (HFC), and sulfur hexafluoride (SF_6) across the state. The DNR complied GHG emissions from 2012 to 2021, showing a ten-year annual average of 128.42 million metric tons carbon dioxide equivalent ($MMtCO_2e$). The highest year was 2018 (132.42 $MMtCO_2e$) and 2020 was the lowest (119.65 $MMtCO_2e$). Iowa DNR projects emissions to increase to 152.63 $MMtCO_2e$ by 2040. For comparison, in 2018, Texas produced 879.99 $MMtCO_2e$ of GHG and Maine produced 17.38 $MMtCO_2e$ (Friedrich, Ge, & Tankou, 2021). (Iowa Department of Natural Resources, 2022a)

Based on the historic and projected climate and GHG emissions changes, Iowa may see higher summer temperatures and increased flooding in the spring (EPA, 2016). The Raccoon River is approximately 1.8 miles to the north and approximately 100 feet lower in elevation than DSM, protecting the study area from future flooding from this river (Google Earth, 2022b). A portion of the parcel containing Site 2 is zoned as a flood (F) area and designated as a floodway (City of Des Moines, 2019). The Federal Emergency Management Agency (FEMA) National Flood Hazard Layer indicates that the scope of the construction and placement of the new ATCT are outside of the area designated as a floodway (FEMA, 2023).

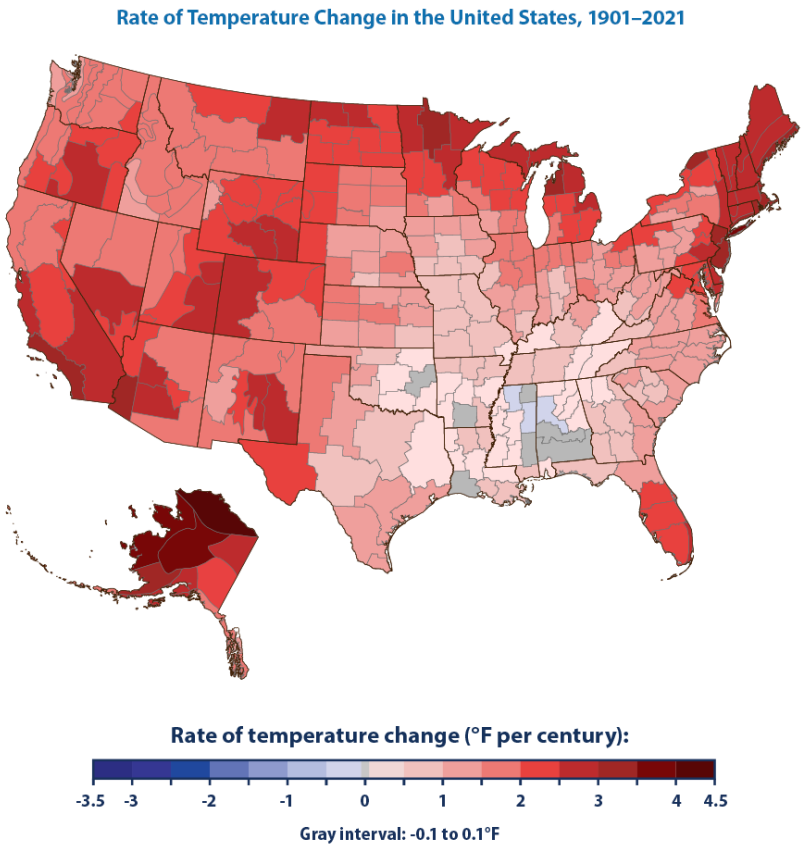

Figure 4-1. Rate of Temperature Change in the U.S.

Source: (EPA, 2022b)

4.4.3 Environmental Consequences

The FAA has not established a significance threshold for climate (FAA, 2015).

- No Impact: Impacts to climate would not occur as a result of the Proposed Action.

As noted in the FAA Order 1050.1F Desk Reference, "there are no significance thresholds for aviation or commercial space launch GHG emissions, nor has the FAA identified specific factors to consider in making a significance determination for GHG emissions. There are currently no accepted methods of determining significance applicable to aviation or commercial space launch projects given the small percentage of emissions they contribute" (FAA, 2020a). Given the ongoing scientific research being undertaken to improve the understanding of climate change, the FAA's guidance notes that significance determination criteria "will evolve as the science matures or if new Federal requirements are established" (FAA, 2020a). However, recent CEQ interim guidance identified an approach for assessing projected GHG emissions using projected climate data (CEQ, 2023).

4.4.3.1 No Action Alternative

Under the No Action Alternative, the current ATCT would not be replaced or removed, and activities associated with the ATCT would remain the same. The No Action Alternative would not change existing ATCT emissions at DSM or emit additional GHGs. The No Action Alternative would not impact the existing climate surrounding DSM or the production of climate impacting substances. Under the No Action Alternative, energy efficiency, resource usage, and GHG emissions at the existing ATCT would remain unchanged.

4.4.3.2 Alternative 2 (Preferred Alternative)

During construction activities, the Preferred Alternative (Site 2) would involve a temporary increase in GHG emissions from burning fossil fuels. Over the long term, reduced energy use from the new efficient ATCT design would result in fewer CO_2 emissions, leading to fewer impacts to climate change. No significant impacts to or from climate resources are expected for Alternative 2 (Preferred Alternative).

4.4.4 Mitigation

The following list includes examples of best practices that could prevent or reduce potential impacts to climate:

- Use of energy efficient equipment.
- Ensure construction vehicle trips are combined or their frequency reduced.
- Use of materials and products free from chemicals known to pose health risks.
- Use of repurposed materials or high-recycled steel and metal products.
- Use of renewable mass timber when usable.

4.5 DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F)

Section 4(f) of the U.S. Department of Transportation (DOT) Act of 1966 (codified in 49 U.S.C. § 303 and 23 U.S.C. § 138) applies to projects that receive funding from or require approval by agencies within the DOT and provides for the consideration of the certain properties of national, state, and/or local significance during transportation project development, such as:

- Publicly owned parks. This includes publicly owned land, open to the public, used as a public park.
- Recreational areas. This includes publicly owned land, open to the public, used as a recreational area, such as a baseball complex, tennis court, or other recreational facility.
- Wildlife and waterfowl refuges. This includes publicly owned land, open to the public, used as a wildlife and waterfowl refuge.
- Public and private historic sites. This includes publicly or privately owned land of an historic site listed or eligible for listing on the National Register of Historic Places (NRHP) and considered a historic property under the National Historic Preservation

Act of 1966 (NHPA) (P.L. 89–665, as amended by P.L. 96-515, 54 U.S.C. § 300101 et seq.) and its implementing regulations (36 CFR Part 800).

Before approving a transportation project requiring the use of these properties, the DOT agency must determine that there is no feasible and prudent alternative to using that land and the project includes all possible planning to minimize harm resulting from the use (FAA, 2020a).

4.5.1 Regulatory Setting

Section 4(f) of the U.S. Department of Transportation Act of 1966 (codified in 49 U.S.C. § 303 and 23 U.S.C. § 138) and its implementing regulations (23 CFR Part 774) provide for the consideration of park and recreation lands, wildlife and waterfowl refuges, and historic sites during transportation project development (FHWA, n.d. (a)). In 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Section 6009, amended Section 4(f) to simplify the process and approval of projects having only *de minimis* impacts (or no adverse effects) on of 4(f) properties (FHWA, n.d. (b)). Procedures for Section 4(f) compliance are in DOT Order 5610.1C (DOT, n.d.).

Under Section 4(f), the DOT agency is responsible for consulting with the relevant agencies and officials with jurisdiction over the Section 4(f) properties. When a draft Section 4(f) evaluation is prepared, it must be provided to the officials with jurisdiction over Section 4(f) properties, the Department of Interior (DOI), and other agencies, as appropriate, for a minimum 45-day review period. Section 4(f) evaluations and determinations must reflect consultation with these parties. The DOT agency must document evidence of concurrence or efforts to obtain concurrence of federal, state, or local officials having jurisdiction over Section 4(f) properties regarding the project's use plans to minimize harm of the Section 4(f) property (FAA, 2020a).

Section 4(f) intersects with the NHPA. Both Section 4(f) and NHPA's Section 106 mandate the consideration of historic properties, or historic sites listed on or eligible for listing on the NRHP. Coordination between the Section 106 process and Section 4(f) evaluation is effective for project-level NEPA documentation, since the Section 106 process identifies, evaluates, and determines impacts on historic properties within a project area. Section 106 findings can also support Section 4(f) determinations for historic sites. Please refer to Section 4.10.1 for more information on the Section 106 process.

For historic properties, under Section 4(f), the official having jurisdiction over the Section 4(f) property is the relevant State Historic Preservation Office (SHPO) or, if located on tribal land, the relevant Tribal Historic Preservation Office (THPO) or appropriate tribal representative. If the Advisory Council on Historic Preservation (ACHP) is involved in Section 106 consultation for a property, the ACHP is also an official having jurisdiction over the Section 4(f) property. If the property is a National Historic Landmark (NHL), the National Park Service (NPS) is also an official with jurisdiction over the Section 4(f) property (23 CFR 774.17). Although there is overlap between Section 4(f) and Section 106, there are key differences. Section 106 identifies historic properties within a project area and considers the

project's effects on them, while Section 4(f) considers whether there is a use of historic properties and requires historic sites be avoided when possible. Please note that an adverse effect finding under the NHPA's Section 106 and a use under Section 4(f) are not the same. Section 4(f) applies to the actual use or occupancy of a historic site, whereas Section 106 assesses adverse effects on historic properties. Unlike Section 106, under Section 4(f), DOT agencies must avoid the use of historic sites when a prudent and feasible avoidance alternative is available. If there is no prudent or feasible alternative to avoid use, the agency must employ planning to minimize harm to historic sites (FHWA, n.d. (a)).

4.5.2 Affected Environment

In accordance with applicable federal laws and regulations, the FAA evaluated the proposed alternatives for Section 4(f) properties. In general, actions having the potential to affect Section 4(f) properties involve a physical or constructive use of such properties. A physical use can include temporary occupancy for construction-related activities; physical occupation of the property; alteration of structures or facilities on the property; or a physical taking, such as purchase or a permanent easement of the property (FAA, 2020a). A constructive use involves the project's proximity significantly impacting a Section 4(f) property so the attributes that qualify the property for protection are substantially impaired; this can include the effects of noise, vibration, access restrictions, visual impacts, and ecological intrusions (FHWA, n.d. (a)).

There are no Section 4(f) properties within the study area; however there is a Section 4(f) property directly adjacent to the western boundary of the study area (see Figure 4-2). A few Section 4(f) properties are located within a mile of DSM. Oak Grove Cemetery is a municipal cemetery and Harmon Park are both located about three-quarters of a mile north of DSM. About 3 miles of the 16.5-mile asphalt surface Great Western Trail Bike Path passes along the Airport's western boundary. The closest wildlife preserve, Brown's Woods, is located about two miles northwest of the Airport (Google, 2023).

State data indicates the Great Western Trail Bike Path is associated with previously recorded archaeological site 13PK609/WA137, a former rail line, recommended not eligible for the NRHP (University of Iowa, 2023). A hundred years after it was a rail line from Des Moines to St. Joseph, Missouri, the Great Western Trail Bike Path opened in 1992 and is named for the Chicago Great Western Company whose trains operated on this line from 1892 to 1968 (Polk County, 2023). The nearest portion of the Great Western Trail Bike Path and its associated archaeological site are located outside of the project area, about 600 ft to the west.

Figure 4-2. Proximity of Section 4(f) Eligible Sites to Study Area

No NRHP-listed historic properties are listed within a mile of the airport (NPS, 2020). State records show Building 100 (ca. 1941), associated with and owned by the Iowa Air National Guard, about 400 feet west of the existing ATCT noted as potentially eligible for the NRHP under criteria A and C (Iowa State University, n.d.). Based on a review of historic aerial photographs, a 2018 Phase I archaeological survey considered the majority of the airport, including the project area, disturbed due to the development and expansion of runways on the airport property throughout the late 20th century (Tallgrass Archaeology LLC, 2018). Recent review of historic aerial photographs indicates 20th century and early 21st century ground disturbance within the project area. As a result of this past ground disturbance, there is little to no potential for archaeological resources within the project area (Nationwide Environmental Title Research, LLC, 2023). As previously noted, the closest archaeological site (13PK609/WA137) to the project area is associated with a portion of the Great Western Trail Bike Path, which was recommended as not eligible for the NRHP (University of Iowa, 2023). Therefore, no known historic properties would be impacted by the Proposed Action.

The existing ATCT on the property is of a Mock standard ATCT design, which consists of an occupied square shaft supporting either a pentagonal or eight-sided (chamfered square) cab. The Mock standard ATCT design was the predominant small to intermediate activity ATCT with TRACON standard design employed starting in the early 1970s and continuing to the mid-1980s. The last Mock standard was commissioned in 1987 (FAA, 2020b). The existing DSM ATCT was originally commissioned in 1975 and is not a property achieving significance within the past 50 years of exceptional importance under Criterion G for NRHP eligibility (NPS, 1997). The DSM ATCT does not qualify as a historic property under the NHPA.

4.5.3 Environmental Consequences

As noted in the FAA Order 1050.1F Desk Reference, the FAA has established significance thresholds for Section 4(f) properties (FAA, 2020a).

- No Impact: Impacts to any Section 4(f) properties would not occur, or such conditions are not present.
- Significant Impact: The action involves more than a minimal physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource. A significant impact under NEPA would not occur if mitigation measures eliminate or reduce the effects of the use below the threshold of significance. If a project would physically use Section 4(f) property, the FAA is responsible for complying with Section 4(f) even if the impacts are less than significant for NEPA purposes (FAA, 2015).

4.5.3.1 Alternative 1 (No Action Alternative)

Under the No Action Alternative, the current ATCT would not be replaced or removed, and activities associated with the ATCT would remain the same. The No Action Alternative would not impact Section 4(f) resources.

4.5.3.2 Alternative 2 (Preferred Alternative)

There are no Section 4(f) properties within the study area (shown in Figure 3-1 and Figure 4-2). As previously mentioned, the nearest eligible Section 4(f) property, the Great Western Trail Bike Path, is located about 600 ft west of the airport (see Figure 4-2). The airport gravel access road crosses the bike path 827 ft from Gate 15; however, it is not anticipated that the gravel access road would need to be widened to support the construction of the proposed ATCT.

As mentioned in Section 3.2, an additional access road would be required for construction of the proposed ATCT. Coordination with design was completed to configure the access road to avoid crossing the Great Western Trail Bike Path. This access road would be constructed northwest of Site 2 to connect with SW 42nd Street, north of the trail crossing. As SW 42nd Street would be utilized during construction of the proposed ATCT, vehicular traffic and noise would increase at the north end of SW 42nd Street temporarily. Once the proposed ATCT is completed, air traffic controllers and maintenance crews would continue to access the ATCT through SW 42nd Street and the new access road on a permanent basis.

Although the proposed replacement ATCT would be approximately 110-ft taller than the existing ATCT, it is not anticipated that the visual character or aesthetic value of the Great Western Trail Bike Path would be impacted by the Proposed Action. Due to existing airport land use east of the trail, and the trail's significant vegetative buffer during summer months, the visual aesthetic of the trail would remain largely unchanged. Trail users are accustomed to existing aviation activities in the area and the addition of a new ATCT within sight of the trail is not anticipated to substantially impact recreational uses. These effects are not anticipated to be significant as the access road to the proposed tower site is designed to avoid the trail (see Figure 3-1).

In accordance with the FAA Order 1050.1 Desk Reference (FAA, 2020a), the value of this resource would not be substantially reduced or lost in terms of prior enjoyment.

As mentioned in Section 4.5.2, no NRHP-listed historic properties listed within a mile of the airport (NPS, 2020). Although Building 100 (ca. 1941), associated with and owned by the Iowa Air National Guard, is located about 400 feet west of the existing ATCT, Building 100 has been located adjacent to the existing ATCT and an active Airport for several years. The proposed ATCT would not introduce any visual, audible, or other elements that would diminish the integrity of the property's significant historic features as compared to the existing conditions. The demolition of the existing ATCT, having no association with Building 100, would similarly not impact the property.

Therefore, the Proposed Action would not require the physical use of or constructively use any Section 4(f) resource. Concurrently with the publication of the Draft EA in May 2024, the FAA initiated consultation with the Iowa SHPO on the Proposed Action with the FAA's Finding of No Historic Properties Affected within the APE.

4.5.4 Mitigation

Because no Section 4(f) properties would be impacted by the project, Section 4(f) does not apply and there would be no need to mitigate for Section 4(f) properties for any of the project alternatives.

4.6 FARMLANDS

Farmland in the U.S. is important to ensure that crop demands of the country are met. This section refers to farmlands that are considered prime, unique, or that have state and local importance as defined by 7 CFR Part 657.5 below:

- Prime farmland: Land having the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimal use of fuel, fertilizer, pesticides, or products.
- Unique Farmland: Land used for producing high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture necessary to produce high quality crops or high yield of crops.
- Statewide or Locally Important Farmland: Land that has been designated as "important" by either a state government (state Secretary of Agriculture or higher office), county commissioners, or an equivalent elected body (FAA, 2020a).

4.6.1 Regulatory Setting

The Farmland Protection Policy Act (FPPA) (P.L. 97-98, 7 U.S.C. §§ 4201-4209), as administered by the Natural Resources Conservation Service (NRCS), regulates Federal Actions with the potential to convert important farmland to non-agricultural uses. The FPPA applies to prime and unique farmlands and those of statewide or local importance and is intended to minimize the unnecessary and irreversible conversion of farmland to non-agricultural uses from Federal Actions.

The CEQ Memorandum on the Analysis of Impacts on Prime or Unique Agricultural Lands in the National Environmental Policy Act (45 *Federal Register* 59189) urges federal agencies to include analysis of the effects on prime or unique agricultural lands as an integral part of the NEPA process.

The FAA may determine whether the project site is prime, unique, state, or locally important farmland using criteria provided in 7 CFR § 658.5. If the FAA does not make its own determination, the FAA may elect to initiate coordination with the NRCS by completing Form AD-1006, a land evaluation and site assessment system used by NRCS to determine a rating score and establish impacts to farmlands.

4.6.2 Affected Environment

According to the United States Department of Agriculture (USDA) NRCS Web Soil Survey Farmland Classification Map, Site 2 (Preferred Alternative) would be located on land classified as "prime farmland if drained" and "farmland of statewide importance" (USDA

NRCS, 2019). Approximately more than 50% of Site 2 is farmland of statewide importance and up to approximately 20% is prime farmland if drained. The area is not currently being used as farmland nor is it committed for future use as farmland. The location of the current ATCT is fully developed, and no open space is present. Proposed access to Site 2 does not involve removal or disruption of any active farmlands.

4.6.3 Environmental Consequences

As noted in the FAA Order 1050.1F Desk Reference, the FAA has determined a significance threshold for farmlands (FAA, 2020a).

- No Impact: Impacts to important farmlands would not occur as a result of the Proposed Action as none are present.
- Significant Impact: When the total combined score on Form AD-1006, "Farmland Conversion Impact Rating," ranges between 200 and 260 points (FAA, 2015).

A factor to consider is whether the action has the potential to convert important farmlands to nonagricultural uses. Important farmlands include pastureland, cropland, and forest considered to be prime, unique, or statewide or locally important land.

4.6.3.1 Alternative 1 (No Action Alternative)

The No Action Alternative would not result in any change to the current ATCT or involve land acquisition. The current ATCT would not be replaced and removed, and activities associated with the ATCTs would remain the same. The No Action Alternative would not have any impact on important farmlands.

4.6.3.2 Alternative 2 (Preferred Alternative)

Site 2 is located on land classified as "prime farmland if drained" and "farmland of statewide importance" by the NRCS (USDA NRCS, 2019). The area is not currently being used as farmland nor is it committed for future use as farmland. The Preferred Alternative would involve construction of the new ATCT and associated paved surfaces resulting in a permanent conversion of the land. While there is no current agricultural production occurring on the property, the Preferred Alternative would remove the option of future agricultural use on the land. No impacts to farmlands are expected for Alternative 2 (Preferred Alternative).

4.6.4 Mitigation

If direct or indirect impacts are identified for farmlands, mitigation measures could include adjusting access routes or project footprints to avoid agricultural uses or working with affected property owners to address any construction or operations-related effects.

4.7 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

Hazardous materials are items that have the potential to cause harm to humans, animals, or the environment by itself or through interaction with other factors and have been determined to be capable of posing unreasonable health, safety, or property risk (EPA, 2022g). Hazardous waste is generated from many sources and takes varying forms; industrial practices can produce used batteries and other forms of waste that must be disposed of properly. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) defines hazardous characteristics as toxicity, ignitability, corrosivity, or reactivity. The EPA regulates hazardous chemicals, substances, and wastes under CERCLA, Superfund Amendments Reauthorization Act (SARA), Resource Conservation and Recovery Act (RCRA) and Toxic Substances Control Act (TSCA). These regulations provide uniform requirements for the generation, transportation, treatment, and disposal of hazardous materials and hazardous waste as well as the operation and maintenance of underground and aboveground storage tanks.

Safety at construction sites is dependent on implementation and adherence to regulatory requirements imposed for the safety and benefit of employees. Regulations and operational practices aim to reduce risks of illness, injury, death, and property damage and are designed to comply with the Occupational Safety and Health Administration (OSHA) standards (USDOL, n.d.).

4.7.1 Regulatory Setting

The Resource Conservation and Recovery Act (RCRA) (42 U.S.C. §§ 6901-6992k) amended the Solid Waste Disposal Act to establish guidelines for hazardous waste and non-hazardous solid waste management activities in the U.S. RCRA also gives the EPA the authority to regulate the generation, storage, treatment, and disposal of waste as well as address environmental problems that could result from underground storage tanks storing hazardous substances (40 CFR Parts 240-299). The RCRA database is updated regularly with relevant information regarding hazardous and solid waste compliance, and violation notices.

The Toxic Substances Control Act (TSCA) (15 U.S.C. §§ 2601-2697), as amended by the Lautenberg Chemical Safety Act (Pub. Law 114–182), provides the EPA with the authority to regulate the production, importation, use, and disposal of chemicals defined as toxic, including lead, radon, asbestos, and polychlorinated biphenyls (PCB), that have the potential to cause unreasonable risk of injury to public health or the environment (40 CFR Parts 745, 761 and 763). This Act also mandates the EPA to execute risk-based chemical assessments with clear and enforceable deadlines.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments Re-authorization Act of 1986 and the Community Environmental Response Facilitation Act of 1992 (42 U.S.C. §§ 9601-9675) establishes joint and several liabilities for those parties responsible for hazardous substance releases to pay cleanup costs and establishes a trust fund to finance cleanup costs in situations in which no

responsible party could be identified. Enables the creation of the NPL, a list of sites with known releases or threatened releases of hazardous substances in the United States and its territories, used to guide the EPA in determining which sites warrant further investigation. As conditions of a sale, release, or transfer of federal lands or facilities used to store hazardous materials or where a release or disposal of hazardous materials has occurred, federal agencies must: identify those lands or facilities, and complete waste or contaminate clean-up of these lands or facilities (40 CFR Parts 300, 311, 355, 370, and 373).

The Emergency Planning and Community Right to Know Act (EPCRA), as amended by America's Water Infrastructure Act (AWIA) (42 U.S.C. §§ 11001-11050), requires hazardous chemical emergency planning by federal, state, and local governments, Indian tribes, and industry. EPCRA also requires industry to report on the storage, use, and releases of hazardous chemicals to federal, state, and local governments. The 2018 AWIA revisions require that community water systems receive prompt notification of any reportable release of an EPCRA extremely hazardous substance or a CERCLA hazardous substance that potentially affects their source water and have access to Tier II information (i.e., hazardous chemical inventory data) (40 CFR Parts 350-372).

The Solid Waste Disposal Act, as amended by the Federal Facilities Compliance Act (42 U.S.C. § 6961), waives any immunity otherwise applicable to federal agencies for substantive or procedural requirement in connection with a federal, state, interstate, or local solid waste or hazardous waste regulatory programs (40 CFR Part 22).

The Hazardous Materials Transportation Act (49 U.S.C. §§ 5101-5128) establishes procedures, reporting requirements, and approval processes for the transport of hazardous materials by common, contract, and private carriers and by aircraft, railcar, vessel, and motor vehicle (49 CFR Parts 100-185).

The Oil Pollution Act (33 U.S.C. §§ 2701-2762) requires oil storage facilities and vessels to submit to the EPA plans detailing how the facilities would respond to large oil discharges. EPA has published regulations for aboveground storage facilities. The Oil Pollution Act also requires the development of Area Contingency Plans to prepare and plan for oil spill response on a regional scale (40 CFR Parts 109-116).

The Pollution Prevention Act (42 U.S.C. §§ 13101-13109) requires pollution prevention and source reduction control so that wastes would have less effect on the environment while in use and after disposal. Source reduction is defined by the EPA as practices that can reduce hazardous substances from being released into the environment prior to recycling, treatment, or disposal (i.e., equipment or technology modifications, product redesign).

Executive Order 12088, Federal Compliance with Pollution Control Standards, directs federal agencies to comply with applicable pollution control standards for prevention, control, and abatement of environmental pollution. EO 12088 also requires agencies to consult with EPA and state and local agencies on the best techniques and methods available for prevention, control, and abatement of environmental pollution (43 *Federal Register* 47707).

The CEQ Memorandum on Pollution Prevention (58 *Federal Register* 6478) and NEPA (42 U.S.C. §§ 4321) provide guidance to federal agencies on incorporating pollution prevention principles, techniques, and mechanisms into planning and decision-making processes and evaluating and reporting those efforts in documents prepared pursuant to NEPA.

4.7.2 Affected Environment

The airfield operates multiple underground storage tanks (UST) and aboveground storage tanks (AST) for daily and emergency operations and de minimis spills and staining are expected as a result. Figure 4-3 maps 85 fuel, deicer, fire suppressant foam, coolant, and used oil storage tanks at DSM; the study area has a black line surrounding the airport. None of these identified sites are within 0.50 miles of Site 2. The FAA Air Traffic Organization (ATO) Fuel Storage Tank (FST) Dashboard indicates that the existing ATCT and its support buildings have an active 1,000-gallon diesel AST, indicated at location 1A in Figure 4-3, and an associated 60-gallon day tank.

Based on information from a 2019 Environmental Assessment, there are 23 leaking underground storage tank (LUST) sites, 42 UST sites, and 1 AST site located within a 1-mile radius of the airport. Site 2 is not within 0.50 miles of any UST site and is separated from the sites by both runways (RS&H Iowa, P.C., 2019(a)).

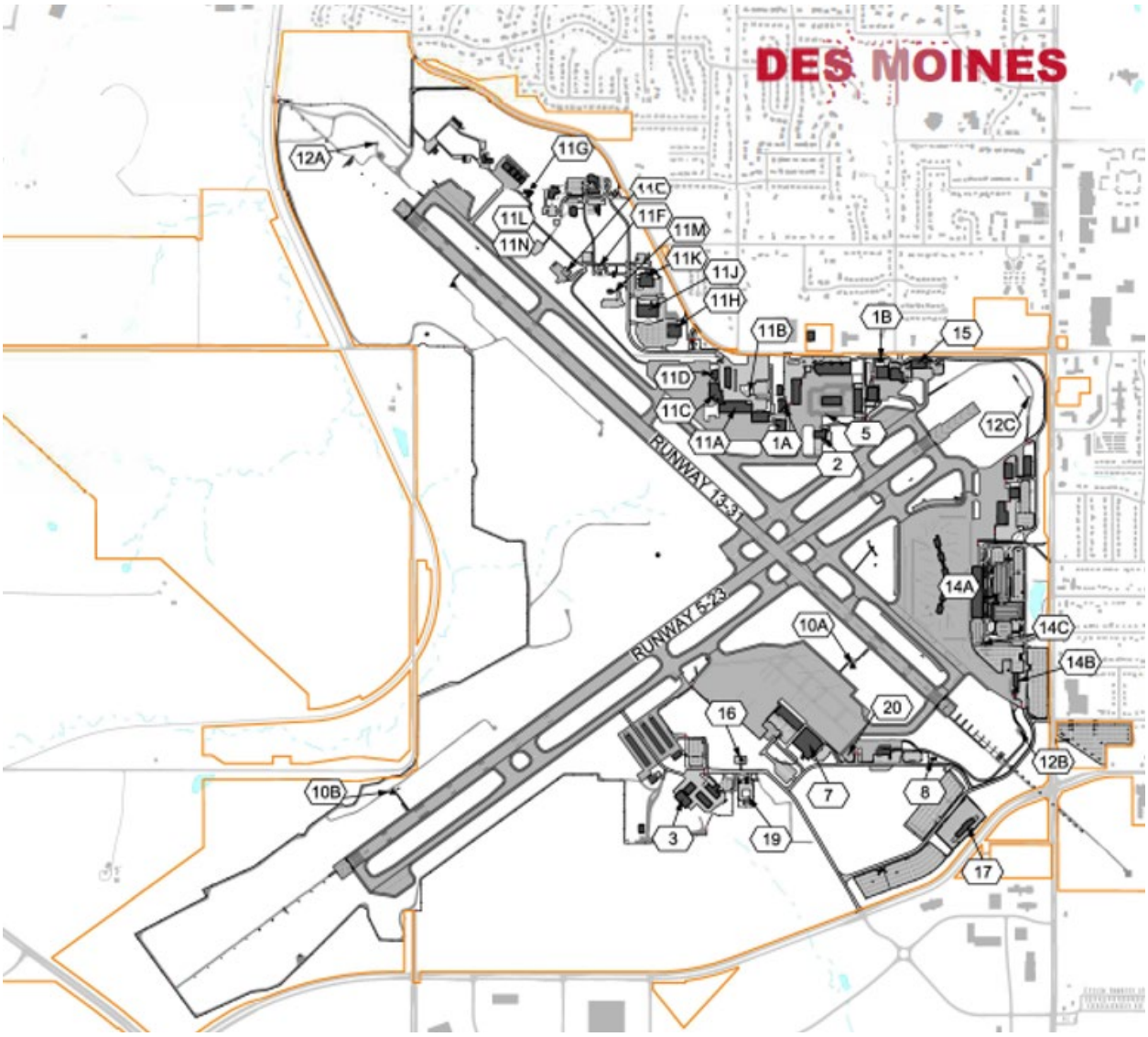

Figure 4-3. DSM Airport Fuel Storage Tank Locations

Source: (Des Moines International Airport, 2020)

The EPA UST Finder indicates three historic UST releases within approximately 0.10 miles of the existing ATCT. All three of these incidents occurred between 1988 and 1992 and have been assigned no further action status. There are no USTs or historic releases within 0.50 miles of the proposed ATCT site (see Figure 3-1). A September 2023 review of the EPA UST Finder and Iowa Department of Natural Resources LUST database search showed there are no UST/LUST sites within 0.50 miles of the proposed site (Iowa Department of Natural Resources, n.d. (a)) (EPA, 2023e).

No National Priorities List (NPL) sites have been identified within 2 miles of the airport (EPA, 2023d). It is possible that other unrecorded sites may contain hazardous materials, hazardous waste, and/or environmental contamination near the proposed sites. Not all sites or spills are publicly reported, therefore, the information contained in this section is

intended for planning purposes and not meant to replace environmental site assessments to be conducted prior to project construction or land acquisition.

Solid waste generated at DSM is disposed at the Metro Waste Authority – Metro Park East Landfill located approximately 17 miles east of the airport. The Metro Waste Authority offers hazardous waste disposal at a facility approximately 14 miles northeast of DSM (RS&H Iowa, P.C., 2019(a)).

The existing DSM ATCT was built in 1975 and constructed using asbestos containing materials, and potentially may contain lead-based paint and PCB containing materials. The FAA identified and marked asbestos areas within the ATCT to alert where these areas are located.

4.7.3 Environmental Consequences

The FAA has not established a significance threshold for hazardous materials, solid waste, or pollution prevention.

- No Impact: Impacts from hazardous materials, solid waste, and pollutants would not occur as a result of the Proposed Action.

Factors to consider include if the action has the potential to:

- "Violate applicable Federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management;
- Involve a contaminated site (including but not limited to a site listed on the National Priorities List). Contaminated sites may encompass relatively large areas. However, not all of the grounds within the boundaries of a contaminated site are contaminated, which leaves space for siting a facility on non-contaminated land within the boundaries of a contaminated site. An EIS is not necessarily required. Paragraph 6-2.3.a of this Order [FAA Order 1050.1F] allows for mitigating impacts below significant levels (e.g., modifying an action to site it on non-contaminated grounds within a contaminated site). Therefore, if appropriately mitigated, actions within the boundaries of a contaminated site would not have significant impacts;
- Produce an appreciably different quantity or type of hazardous waste;
- Generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would exceed local capacity; or
- Adversely affect human health and the environment" (FAA, 2015).

4.7.3.1 Alternative 1 (No Action Alternative)

The No Action Alternative would not result in any change to the current ATCT or involve construction activities associated with building a new ATCT. The current ATCT was built in 1975 and potential safety concerns associated with leaving the existing tower in place include the following:

- Increased exposure of employees to lead-based paint. Lead-based paint was used extensively prior to 1978 and leaving the paint in place would increase the risk of exposure to employees as the paint deteriorates. If lead-based paint is present in the existing ATCT, the No Action Alternative could pose a potential danger to human and environmental health.
- Increased exposure of employees to PCBs. PCBs were manufactured in several construction and industrial materials between 1929 and 1979. Leaving PCB containing materials in place increases the risk of employee exposure over time as materials deteriorate. If PCB containing materials are present in the existing ATCT, the No Action Alternative could pose a potential danger to human and environmental health.
- Increased exposure to asbestos containing material. Asbestos is a fibrous material used commonly in building materials prior to 1979. Leaving asbestos containing material in place increases the risk of employee exposure over time as materials deteriorate. Asbestos containing materials are present in the existing ATCT and the No Action Alternative could pose a potential danger to human and environmental health.

4.7.3.2 Alternative 2 (Preferred Alternative)

Site 2 is not located near any fuel storage tanks, hazardous materials storage, hazardous waste storage, or reported releases or spills. Building the new ATCT at Site 2 would involve the construction and use of a diesel AST and day tank associated with emergency backup power for the ATCT. The presence and operation of an AST and emergency generator at the site increases the risk for a diesel spill or release into the surrounding environment. DSM maintains a Spill Prevention Control and Countermeasure (SPCC) Plan and Storm Water Pollution Prevention Plan (SWPPP) that would be updated to reflect the storage of diesel fuel at this site.

Temporary construction activities could result in de minimis releases of fuel or oil associated with construction equipment and vehicles. Temporary construction activities would not be anticipated to cause significant impacts from hazardous materials at the site. Construction activities could subject workers to heavy machinery, power tools, chemicals, or hazardous conditions. Mitigation measures and BMPs would reduce or prevent impacts to workers and other personnel from these concerns.

Decommissioning and demolishing the existing ATCT would result in industrial and construction material waste generation. The FAA intends to recycle all materials to the greatest extent possible. Proper storage, management, and disposal procedures would be implemented during decommissioning and demolition activities. The FAA would follow local regulations for handling solid waste and intends to comply with those standards by disposing of all waste in the proper licensed sanitary and construction landfills in the vicinity.

Given the age of the existing ATCT, it is likely that hazardous materials such as asbestos, lead-based paint, and PCBs would be encountered during demolition. Appropriate safety

measures and disposal procedures would be followed while identifying and handling these materials.

The Iowa DNR, Environmental Services Division outlines hazardous waste disposal compliance for whole building demolitions. Prior to building demolition, a Certified Asbestos Inspection must be conducted by a licensed asbestos contractor and any asbestos noted during the inspection must be removed prior to planned demolition. The DNR Air Quality Bureau must also be notified using an online form at least 10 days prior to the planned demolition. All demolition waste must be disposed of at a permitted solid waste facility. The nearest permitted construction and demolition landfill is Metro Park East landfill in Mitchellville, Iowa, approximately 25 miles east of DSM (Iowa Department of Natural Resources, 2017).

Demolition waste containing lead-based paint is considered a non-hazardous waste if the paint is left on its surface during disposal as it lowers the overall concentration of lead in the waste. Iowa DNR requires no sampling or analysis of painted components for disposal of materials containing lead-based paint (Iowa Department of Natural Resources, 2017).

Building materials containing PCBs are categorized by the type of waste they are contained in. Coated surfaces and material including caulk, paint, mastics, and sealants can be managed as PCB bulk product waste and safely disposed in certain non-TSCA approved landfills (municipal or non-municipal non-hazardous waste landfill). There is no requirement for the testing of PCBs in bulk product waste, but total PCBs must be below 50 ppm to be disposed of in an Iowa landfill (Iowa Department of Natural Resources, 2017).

During the operation of the new ATCT, similar, if not lesser, volumes of waste would be generated relative to the existing ATCT operation. No additional hazardous wastes would be generated, and minimal quantities of household cleaning products would be stored on site.

No significant impacts from hazardous materials, solid waste, and pollutants would occur under the Preferred Alternative.

4.7.4 Mitigation

Potential measures and BMPs to mitigate impacts related to hazardous materials, solid waste, and pollution include the following:

- Obtain a Construction General Permit (CGP) for Storm Water discharges from construction activities.
- Prepare an ASTM Standard E1527-21 Phase I Environmental Site Assessment prior to the acquisition and termination of leases associated with the replacement ATCT.
- Conduct a Hazardous Materials Survey (HMS) prior to demolition activities and conduct abatement, as necessary.
- Comply with mitigation or monitoring requirements applicable to prior or ongoing cleanup activities.

- Develop a hazardous materials response plan and/or an SPCC plan to identify precautions, training requirements, and response measures that would be taken to prevent and contain the release of hazardous materials.
- Employ source reduction strategies such as recovering, recycling, or composting waste materials.
- Recycle construction debris associated with the action.

Appropriate measures to alert workers of the potential for contamination and provide guidance for proper notification if a spill or release occurs are required during project execution. In such an event, the site would cease operations until protective measures are implemented, and the appropriate regulatory authorities are consulted. Performing environmental due diligence and conducting a hazardous materials survey prior to project execution would minimize exposure to lead, PCBs, asbestos, and other hazardous materials during the demolition of the existing ATCT.

If hazardous materials (such as oil, gas, and/or petroleum) would be required during construction, detailed plans would be developed for site specific protocols on the handling, storage, and management of hazardous materials at the construction site and transportation to and from the construction area.

A CGP would be required by the EPA and Iowa DNR for construction activities disturbing one or more acres of land. The CGP covers storm water discharges like runoff from construction sites and staging areas; dewatering activities; equipment washdown and line flushing without use of detergents; and hydrant flushing. The purpose of this permit is to minimize pollution from soil erosion and contaminants like fuel, oil, and waste. To obtain a CGP from Iowa DNR, a SWPPP must be developed for the construction activity which describes the impacted area, pathway of storm water runoff, and proposed schedule of construction. Once the SWPPP is developed, a Notice of Intent (NOI) is submitted to the Iowa DNR. After the NOI is approved by the Iowa DNR, the project is covered by the permit until a Notice of Termination is submitted upon project completion (Iowa Department of Natural Resources, 2023c).

4.8 HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

Historic and cultural resources are sites, structures, buildings, districts, or objects, associated with important historic events or people, demonstrating design or construction associated with a historically significant movement, or with the potential to yield historic or prehistoric data, that are considered important to a culture, a subculture, or a community for scientific, traditional, religious, or other reasons (NPS, 1997). Historic and cultural resources may be subdivided into the following categories:

- Archaeological resources. This includes prehistoric or historic sites where human activity has left physical evidence of that activity, but few aboveground structures remain standing.

- Architectural resources. This includes buildings or other structures or groups of structures that are of historic or aesthetic significance.
- Native resources. These include resources of traditional, cultural, or religious significance to a Native American Tribe, Native Hawaiian, or Native Alaskan organization.
- Traditional cultural properties (TCPs). These include archaeological resources, structures, neighborhoods, prominent topographic features, habitats, or areas where particular plants, animals, or minerals exist that any cultural group considers to be essential for the preservation of traditional cultural practices (NPS, 1998).

4.8.1 Regulatory Setting

There are multiple federal regulations that protect historic and cultural resources. NEPA (42 U.S.C. § 4321 et seq.), under 40 CFR Part 1508.8, requires federal agencies to consider the effects of actions on historic and cultural resources. It is important to note that NEPA's definitions of historic and cultural resources are broad and can include resources not eligible for the National Register of Historic Places (NRHP) (ACHP, 2013).

The National Historic Preservation Act of 1966 (NHPA) (P.L. 89–665, as amended by P.L. 96-515, 54 U.S.C. § 300101 et seq.) directs the federal government to consider the effects of its actions on historic properties listed or eligible for listing in the NRHP under Section 106 through a compliance process, set forth in the law's implementing regulations, 36 CFR Part 800. The NHPA defines historic properties as sites, structures, buildings, districts, or objects that are typically 50 years old, with some younger exceptions, which are significant within their historical context, retain their historical integrity, and are able to convey their significance. It is noteworthy, however, that the law does not necessarily mandate preservation but does mandate a carefully considered decision making process.

Conducting the Section 106 process in coordination with NEPA review of a Federal Action is an effective way to gather the information needed to assess broad impacts on historical, architectural, archeological, and cultural resources. Steps of the Section 106 compliance process include the following (ACHP, n.d.):

1) Establish whether the Proposed Action constitutes an undertaking. Per 36 CFR Part 800.16, an undertaking is an action funded in whole or in part under the direct or indirect jurisdiction of a federal agency. If the Proposed Action is an undertaking with the potential to affect historic properties, the appropriate State Historic Preservation Office (SHPO) or Tribal Historic Preservation Office (THPO) and other consulting parties (stakeholders), such as relevant Tribes, are identified and consulted with on the project in good faith.
2) Identify NRHP-listed or eligible properties. Eligible historic properties in the geographic area of the Proposed Action (also known as the area of potential effects [APE]) are identified and evaluated for significance, including properties potentially eligible or listed with the NRHP that may be affected by the Proposed Action. If historic properties are not present, the federal agency seeks concurrence of the

SHPO/THPO in a 30-day review period and makes information available to other consulting parties.

3) Assess effects of the Proposed Action on eligible historic properties. If the assessment determines no historic properties or no adverse effect to eligible historic properties, the SHPO/THPO and other consulting parties are informed and given a 30-day review period. If the assessment determines actual or potential adverse effect to eligible historic properties, the SHPO/THPO and other consulting parties are notified for further consultation.
4) Resolve adverse effects to eligible historic properties through consultation with the SHPO/THPO, Advisory Council on Historic Preservation (ACHP), and other consulting parties, as necessary.

Historic properties are also protected under the U.S. Department of Transportation Act of 1966 (49 U.S.C. § 303) Section 4(f) and its implementing regulations (23 CFR Part 774). If there is a physical taking of a historic property, or adverse effects that substantially impair the affected resource's historical integrity, there may be a "use" under Section 4(f). Refer to Section 4.5 for information on Section 4(f).

Other federal laws and regulations involving consideration of actions that have the potential to impact historic and cultural resources include those that affect:

- Cultural items as defined in the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (P.L. 101-601, 25 U.S.C. 3001 et seq.), particularly the inadvertent discovery of Native American cultural items, including human remains, on federal and tribal lands (43 CFR Parts 1025 and 262.8).
- Religious sites and objects that are important to Native Americans, including Alaska Natives and Native Hawaiians, under the American Indian Religious Freedom Act (AIRFA) of 1978 (P.L. 95–341, 42 U.S.C. § 1996).
- Sacred sites under EO 13007, Indian Sacred Sites (61 *Federal Register* 26771), which requires federal agencies to consult on a government-to-government basis with Tribes if a proposed project involves a sacred site.
- Archaeological resources as defined by the Archaeological Resources Protection Act (ARPA) of 1979 (P. L. 96–95, 16 U.S.C. §470).
- Archaeological collections, material remains, religious remains, and associated records as defined by 36 CFR Part 79.

4.8.2 Affected Environment

In accordance with applicable federal laws and regulations, the FAA evaluated the proposed alternatives and APE for historic and cultural resources. The APE is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." (36 CFR § 800.16(d)). The FAA assessed previously identified cultural resources within the APE and the potential for unidentified resources for each alternative.

Actions that have the potential to affect historic and cultural resources typically involve construction, ground disturbance, or modification of a historic property or a property in the viewshed of a historic property or district. Other effects to consider include noise, vibration, lighting, and increased traffic. The APE is defined as the 0.75-mile buffer radius from the center point between the proposed tower site and the existing tower, shown on Figure 4-4.

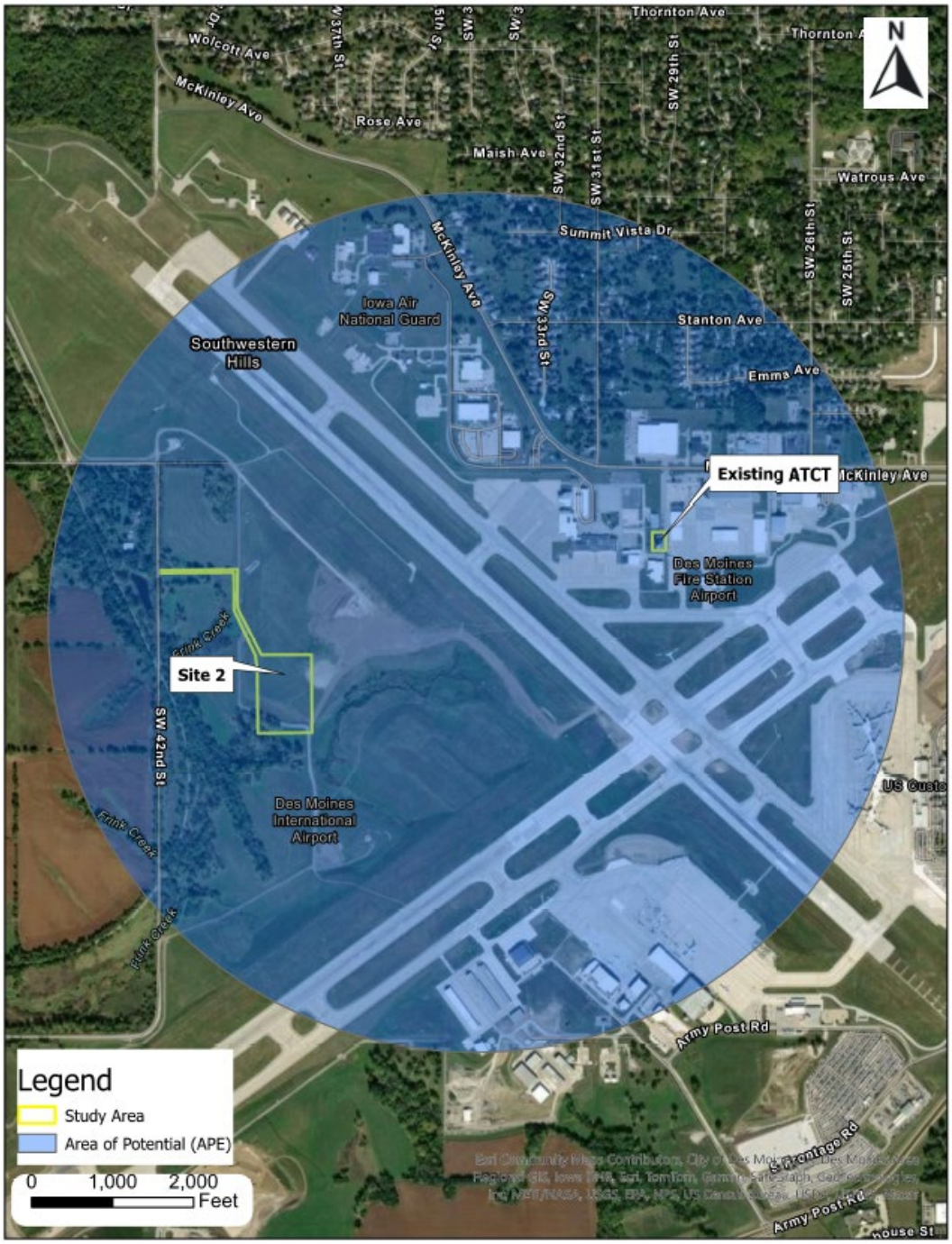

Figure 4-4. Area of Potential Effects (APE) – 0.75-mile Buffer Radius

The existing ATCT on the property is of a Mock standard ATCT design, which consists of an occupied square shaft supporting either a pentagonal or eight-sided (chamfered square) cab. The Mock standard ATCT design was the predominant small to intermediate activity ATCT with TRACON standard design employed starting in the early 1970s and continuing to the mid-1980s. The last Mock standard was commissioned in 1987 (FAA, 2020b). The existing DSM ATCT was originally commissioned in 1975 and is not a property achieving significance within the past 50 years of exceptional importance under Criterion G for NRHP eligibility (NPS, 1997). The DSM ATCT does not qualify as a historic property under the NHPA.

According to the NRHP Database, there are no historic properties listed within a mile of DSM (NPS, 2020). State data shows Building 100 (ca. 1941), associated with and owned by the Iowa Air National Guard, about 400 feet west of the existing ATCT noted as potentially eligible for the NRHP under criteria A and C (Iowa State University, n.d.).

About 3 miles of the 16.5-mile asphalt surface Great Western Trail Bike Path passes along the Airport's western boundary. State data also indicates the Great Western Trail Bike Path is associated with previously recorded archaeological site 13PK609/WA137, a former rail line, recommended not eligible for the NRHP (University of Iowa, 2023). A hundred years after it was a rail line from Des Moines to St. Joseph, Missouri, the Great Western Trail Bike Path opened in 1992 and is named for the Chicago Great Western Company whose trains operated on this line from 1892 to 1968 (Polk County, 2023). The Great Western Trail Bike Path and its associated archaeological site are located outside of the project area, about 600 ft to the west.

Other previously identified archaeological sites within the APE include Sites 13PK818 and 13PK813; both consist of historic scatter, are west of southwest 42nd Street, and are also outside of the project area about over 0.25 miles west of the proposed replacement ATCT's location.

Based on review of historic aerial photographs, a 2018 Phase I archaeological survey considered the majority of the airport, including the project area, disturbed due to the development and expansion of runways on the airport property throughout the late 20th-early 21st centuries (Tallgrass Archaeology LLC, 2018). Recent review of historic aerial photographs indicates late 20th century and early 21st century ground disturbance within the project area (Nationwide Environmental Title Research, LLC, 2023). Previous modern ground disturbance suggests little to no potential for archaeological resources in the project area. Therefore, no known historic properties would be impacted by the Proposed Action.

4.8.3 Environmental Consequences

The FAA has not established a significance threshold for historical, architectural, archeological, and cultural resources (FAA, 2015).

- No Impact: Impacts to historical, architectural, archaeological, and cultural resources would not occur as a result of the Proposed Action.

Factors to consider include if the action "would result in a finding of *Adverse Effect* through the Section 106 process" (FAA, 2015). When evaluating impacts to historic and cultural resources, NHPA's implementing regulations must be followed by federal agencies to properly identify and assess effects to historic properties (resources eligible for listing or are listed within the NRHP) within the APE. Section 106 determinations and findings of effects to historic properties should be included in environmental documentation. Section 106 documentation should provide enough information for consulting parties to understand which historic properties are involved in the undertaking and how the agency determined effects to those properties (ACHP, 2013).

Determinations and findings of effects under Section 106 conclude one of the following:

- No Historic Properties Affected: If no historic properties are identified within the APE or if the undertaking would have no effect on historic properties, then this finding should be documented and shared with consulting parties for a 30-day review period. This finding equates to No Impact on historic properties.
- No Adverse Effect on Historic Properties: If historic properties are identified within the APE and (after consultation with the SHPO/THPO and other consulting parties, as appropriate) it is determined that the undertaking would not affect any historic properties in a way that would alter their NRHP-qualifying characteristics, then this finding should be documented and shared with consulting parties for a 30-day review period.
- Adverse Effect on Historic Properties: If the undertaking would cause direct, indirect, or cumulative impacts on historic properties, then this finding should be documented, and adverse effects resolved through avoidance, minimization, or mitigation in coordination with consulting parties.

Impacts to historic and cultural resources include cumulative, direct, and indirect effects from construction and operation activities. Cumulative effects are impacts that can incrementally accumulate and "result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" (FAA, 2015). Direct effects occur as a direct result of a Proposed Action and often physically change or impact historic and cultural resources, such as through demolition or ground disturbance. Indirect effects occur as an indirect result of a Proposed Action and foreseeably change the character of historic and cultural resources or their viewshed; these typically include audible, visual, and atmospheric effects (ACHP, 2013). To determine the nature of impacts to historic properties, as defined under the NHPA, consultation with the relevant SHPO/THPO may be required.

When determining the significance of environmental impacts, it is important to consider the context and intensity of impacts (FAA, 2015). The significance of impacts on historic and cultural resources and their short- and long-term effects should be analyzed in the context of society, the affected region, the affected interests, and the locality. The intensity or severity of impacts on historic and cultural resources should be evaluated by considering how impacts may:

- Be both beneficial and adverse.
- Affect the unique characteristics of the geographical area such as proximity to historic or cultural resources.
- May establish a precedent for future actions with significant effects.
- Be cumulative.
- Adversely affect resources listed in or eligible for listing in the NRHP.
- Violate a federal, state, or local law or requirements.

In environmental documentation, impacts to historic and cultural resources protected under laws other than NHPA should be evaluated and considered. FAA guidance recommends discussing these resources separately from those evaluated under Section 106 (FAA, 2020a). If no significant historic or cultural resources subject to other laws are identified within the project area, then no further analysis is needed for NEPA documentation.

4.8.3.1 Alternative 1 (No Action Alternative)

Under the No Action Alternative, the current ATCT would not be replaced or removed, and activities associated with the ATCT would remain the same. The No Action Alternative would not impact historic or cultural resources.

4.8.3.2 Alternative 2 (Preferred Alternative)

The preferred Alternative 2 would not impact historic or cultural resources within the APE. No historic properties are within the project area. As described in Section 4.8.2, Building 100 (ca. 1941), associated with and owned by the Iowa Air National Guard, is located about 400 feet west of the existing ATCT and is noted as potentially eligible for the NRHP under criteria A and C (Iowa State University, n.d.).

Building 100 would not be impacted by the construction of the proposed ATCT as compared to existing conditions. The demolition of the existing ATCT, which does not qualify as a historic property and has no association with Building 100, would similarly not impact the property. Because Building 100 has been located adjacent to the existing ATCT and active Airport for several years, the proposed ATCT (Alternative 2) would not introduce any visual, audible, or other elements that would diminish the integrity of the property's significant historic features as compared to the existing conditions. Therefore, no known historic properties would be impacted by the demolition of the existing ATCT.

Past ground disturbance indicates there is little to no potential for archaeological resources within the project area, and the closest archaeological site (13PK609/WA137), associated with the Great Western Trail Bike Path, was recommended not eligible for the NRHP. Other previously identified archaeological sites within the APE include Sites 13PK818 and 13PK813. These belowground resources are outside of the project area and would not be physically affected by the proposed undertaking. Therefore, no known historic or cultural resources would be impacted by the Proposed Action.

Concurrently with the publication of the Draft EA in May 2024, the FAA initiated consultation with the Iowa SHPO on the Proposed Action and notified federally recognized tribes with known interests or affiliations with the project area of the FAA's Finding of No Historic Properties Affected within the APE.

4.8.4 Mitigation

If unanticipated discovery of cultural resources occurs during project implementation, activities would immediately stop in the area of the resource (FAA, 2020a). In compliance with all applicable laws and regulations, the FAA would consult with the SHPO and Tribes on the discovery. The FAA would take into account their recommendations, carry out appropriate actions, then provide a report of those actions after they are completed (36 CFR 800.13).

4.9 LAND USE

Land use is considered within the airport and for the lands surrounding an airport. Land surrounding airports may be used in a variety of ways, such as for agriculture, an open space buffer surrounding an airport, industrial use for manufacturing or commercial operations, or residential development. Land use is important when planning airport actions and should consider the existing use of the lands that could be affected by airport operations and projects, and future uses of adjacent lands. Ownership of the land in addition to local, county, state, tribal, or federal laws and zoning regulations provide direction for how the land may be used or developed.

4.9.1 Regulatory Setting

In addition to applicable federal laws and Acts regulating land use, state regulations related to land use (e.g., state-listed requirements or restrictions) would be addressed during site-specific analysis of the funded projects, where necessary.

There are no federal geology and soils regulations.

4.9.2 Affected Environment

Site 2, shown on Figure 3-1, is located on a parcel owned by the City of Des Moines (Parcel 07289-001-000) and zoned for public, civil, and institutional use (P2) (Polk County Iowa, 2023). A portion of the parcel containing Site 2 is zoned as a flood (F) area and is designated as a floodway (City of Des Moines, 2019). The FEMA National Flood Hazard Layer indicates that the scope of the construction and placement of the new ATCT are outside of the area designated as a floodway (FEMA, 2023). Site 2 is currently undeveloped with mowed vegetation covering the area.

4.9.3 Environmental Consequences

The FAA has not established a significance threshold for land use, nor has the FAA provided specific factors to consider in making a significance determination for land use. The determination that significant impacts exist in the land use impact category is normally

dependent on the significance of other impact categories, such as land use impacts in relation to aircraft noise (FAA, 2015).

- No Impact: Impacts to land use would not occur as a result of the Proposed Action.

4.9.3.1 No Action Alternative

The No Action Alternative would not change the existing land use as the existing ATCT would remain operational and no new ATCT would be constructed at the proposed site. The No Action Alternative would not affect land use.

4.9.3.2 Alternative 2 (Preferred Alternative)

The Preferred Alternative would involve the conversion of currently undeveloped land where the new ATCT would be built. The land at Site 2 has previously been disturbed by removal of soil and machinery and presently is open space with mowed vegetation. Building the new ATCT on this site would replace a portion of the existing open grassy space with the ATCT, associated support building, and necessary paved surfaces for parking and access. In addition to being zoned as public, civil, and institutional district, a portion of the Site 2 property is zoned as a floodway. The new ATCT as associated access roads would not directly impact the portion of the property designated as a floodway. Construction and operation of the new ATCT at this site is consistent with the public, civic, and institutional zoning attached to the parcel.

4.9.4 Mitigation

Because no land use changes would occur by the project, there would be no need to mitigate for land use for any of the project alternatives.

4.10 NATURAL RESOURCES AND ENERGY SUPPLY

The term natural resources are often used to refer to finite forms of energy generating materials (coal, natural gas, oil, etc.) that are federally regulated for efficiency and conservation. Natural resources can also refer to water, wood, aggregate, and asphalt.

Public services and utilities are the essential systems that support daily operations in a community and cover a broad array of public services, such as electricity, water, wastewater, and solid waste. Utility lines often cross or run along stream corridors, either overhead or underground. Public services and utilities include fire protection, law enforcement, Emergency Medical Services, schools, water, wastewater, sanitation, solid waste disposal, storm water drainage, electric utilities, natural gas, and telephone/telecommunications.

There are no specific federal requirements in place to regulate the consumption and use of natural resources and energy supply, it is the policy of the FAA to encourage the development of facilities that exemplify the highest standards of design, including principles of sustainability. All elements of the transportation system should be designed with a view to their aesthetic impact, conservation of resources such as energy, pollution prevention, harmonization with the community and environment, and sensitivity to the concerns of the traveling public (USFWS, 2007).

4.10.1 Regulatory Setting

Energy Independence and Security Act (42 U.S.C. § 17001 et seq.) requires federal agencies to take actions to move the U.S. toward greater energy independence and security, to increase the production of clean renewable fuels, to protect consumers, to increase the efficiency of products, buildings, and vehicles, to promote research on and deploy GHG capture and storage options, and to improve the energy performance of the federal government.

EO 13834, Efficient Federal Operations (83 *Federal Register* 23771), requires federal agencies to meet energy and environmental performance statutory requirements in a manner that increases efficiency, optimizes performance, eliminates unnecessary use of resources, and protects the environment. Agencies are tasked to prioritize actions that reduce waste, cut costs, and enhance the resilience of federal infrastructure and operations.

4.10.2 Affected Environment

The use of natural resources and energy for this project would involve raw materials, electricity, fuel, and water. MidAmerican Energy supplies electricity and gas to the airport while Des Moines Water Works provides potable water sourced from the Racoon River, Des Moines River, and various reservoirs, wells, and aquifers (RS&H Iowa, P.C., 2019(a)). The Airport electrical vault and emergency generator are located in the northern quadrant of the Airport near the east cargo facility. The passenger terminal emergency generator is in the passenger terminal in between the two concourses on the southern portion of the airport. The fuel farm is also located on the southern portion of the study area about 1,800-feet north of Army Post Road.

4.10.3 Environmental Consequences

As noted in the FAA Order 1050.1F Desk Reference, the FAA has not established a significance threshold for natural resources and energy supply.

- No Impact: Impacts to natural resources or energy supply would not occur as a result of the Proposed Action.

The factor to consider is "if the action would have the potential to cause demand to exceed available or future supplies of these resources" (FAA, 2020a).

4.10.3.1 No Action Alternative

Under the No Action Alternative, the current ATCT would not be replaced and removed, and energy consumption would remain the same. Outdated materials and design of the existing ATCT would not be upgraded for energy efficiency and conservation goals. The No Action Alternative would not result in any new effects to natural resources and energy supplies.

4.10.3.2 Alternative 2 (Preferred Alternative)

In the unlikely event that the materials are scarce or unusual, the FAA would identify appropriate alternatives for sourcing the materials. During construction activities, energy,

water, and fuel consumption could temporarily increase. To ensure local capacity to sustain this increase, energy managers would be consulted to review demand and usage for the duration of construction activities.

In addition to generating energy, fuel would be used to transport the necessary construction materials and to operate heavy equipment. Beyond this standard use, it is not expected that a major increase in fuel consumption would occur. Demolition and removal of the old ATCT would require machinery and equipment for the short term, powered by fossil fuels and electricity. Components of the old ATCT would be repurposed or recycled whenever possible to reduce resource waste.

Under the Preferred Alternative, the proposed ATCT is designed to be thermally efficient and use less energy than the existing ATCT. The proposed ATCT would also implement efficient plumbing appliances, reducing overall potable water consumption. With completion of the new ATCT, it is likely that long-term beneficial impacts would result because the new ATCT would consume less energy and natural resources. Consumption and impacts to natural resources would be evaluated and monitored prior to and during the Proposed Action.

The Airport and its tenants implement pollution prevention measures specific to their operations and material storage areas in accordance with the requirements of their respective SWPPPs (RS&H Iowa, P.C., 2019(a)). The Airport's SWPPP, certified in January 2018, requires routine inspections and monitoring/reporting of storm water discharges from the airport in accordance with the National Pollutant Discharge Elimination System (NPDES) permit issued by the Iowa DNR (NPDES Permit No. 77-27-0-08 and EPA No. IA0075931, expires April 30, 2022).

4.10.4 Mitigation

The sustainable design of the ATCT considers several measures to prevent or reduce impacts to natural resources and energy supply, which include the following:

- Ensure that vehicle trips are combined or reduced when possible.
- Use repurposed materials or high-recycled steel and metal products.
- Use of energy efficient equipment.
- Use of materials or products free from chemicals known to pose health risks.
- Use of renewable mass timber when usable.

4.11 NOISE

Sound is a physical phenomenon consisting of pressure fluctuations that travel through a medium, such as air, and are sensed by the human ear. Noise is considered unwanted sound that can disturb routine activities (e.g., sleep, conversation, student learning) and can cause annoyance (FAA, 2020a).

Noise can come from several sources and at varying frequencies and may be continuous or intermittent, persistent, or occasional. Noise and sound share the same physical aspects; however, noise is generally considered a disturbance, whereas sound is defined as a

particular auditory effect produced by a given source (e.g., motor running). Sound is interpreted, as either pleasant (e.g., bird song) or unpleasant (e.g., jackhammer), depending on the listener's current activity, past experience, and attitude toward the source.

4.11.1 Regulatory Setting

The Aviation Safety and Noise Abatement Act (49 U.S.C. § 47501 et seq.) directs the FAA to establish, by regulation, a single system for measuring noise and determining the exposure of people to noise; which includes noise intensity, duration, frequency, and time of occurrence; and to identify land uses normally compatible with various noise exposures (14 CFR Part 150).

There may be state and local noise laws and ordinances that apply to the proposed ATCT projects. This would be determined on a site-specific basis by contacting relevant state and local regulatory agencies in the initial stages of any project-specific planning.

4.11.2 Affected Environment

Noise associated with demolishing and constructing an ATCT would be the highest at the construction sites and along access roads leading to and from the sites. There are 13 schools listed within a mile of the DSM property, but no schools listed within 1.50 miles of the study area (EPA, 2023c). The proposed site is located centrally within DSM property and near the western boundary of the airport's 65 decibel noise contour shown below on Figure 4-5 (RS&H Iowa, P.C., 2019(a)). A private homestead is located near the proposed construction vehicle access point and approximately 0.3 miles from Site 2. Residents in this area are accustomed to ongoing noise emissions from the airport property due to construction traffic and aircraft overhead.

FIGURE 4-10
2006 AIRPORT DNL 65 dBA CONTOUR

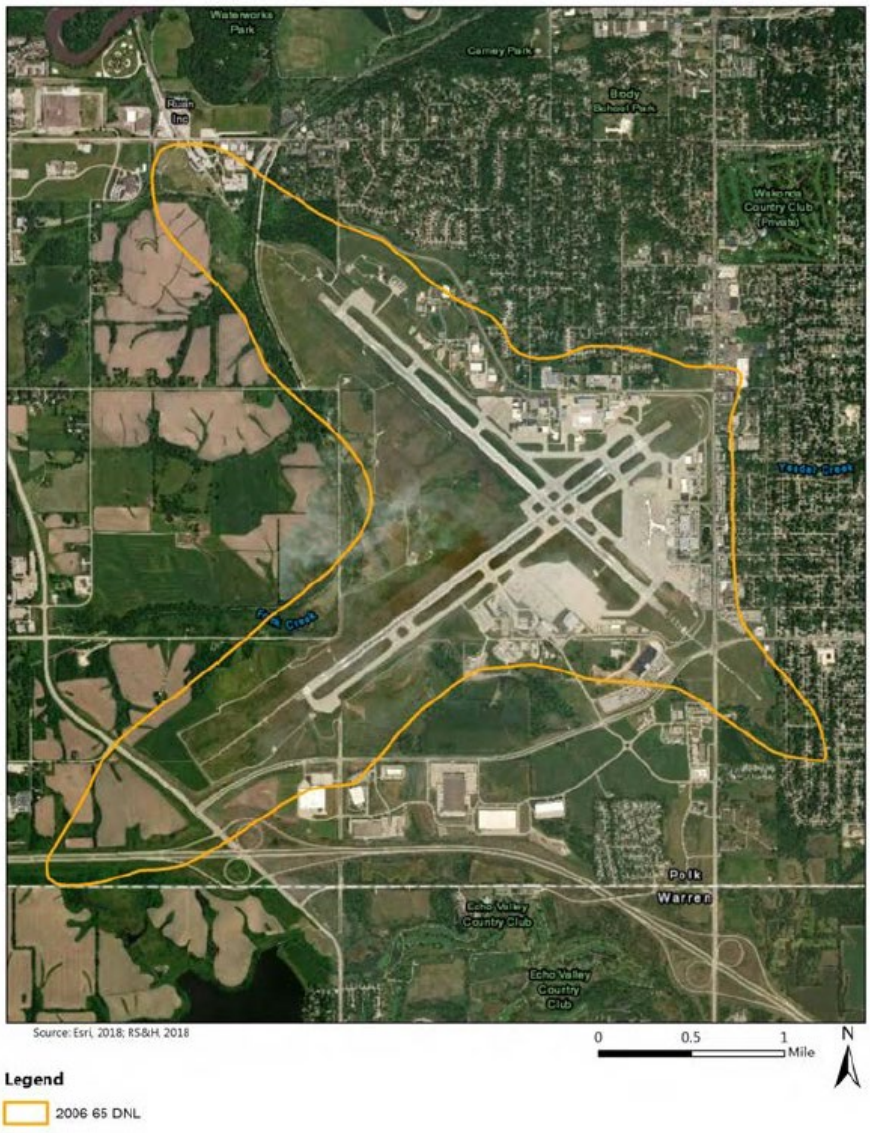

Figure 4-5. DSM 65 Decibel Noise Contour

Source: (RS&H Iowa, P.C., 2019(a))

4.11.3 Environmental Consequences

For some noise analyses, it is necessary to include noise sources other than aircraft departures and arrivals. Here, the relevant noise impact analysis is temporary construction noise. FAA Order 1050.1F includes significant thresholds for noise related to aircraft operations at an airport; however, the FAA does not have a threshold of significance for construction noise (FAA, 2020a). If appropriate, surface transportation impacts, including construction noise, should be conducted using accepted methodologies from the appropriate modal administration, such as the Federal Highway Administration for highway noise."

- No Impact: Impacts of noise would not occur as a result of the Proposed Action.

In general, special attention should be given to noise sensitive areas when developing mitigation. In addition, FAA 1050.1F notes that special consideration needs to be given to the evaluation of the significance of noise impacts on noise sensitive areas within Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR part 150 are not relevant to the value, significance, and enjoyment of the area in question.

4.11.3.1 No Action Alternative

Under the No Action Alternative, the existing ATCT would not be replaced and removed, and activities associated with the tower would remain the same. Noise levels would remain the same and would result in no change to existing noise conditions. No impacts from noise are anticipated from the No Action Alternative.

4.11.3.2 Alternative 2 (Preferred Alternative)

A temporary increase in noise generation would be expected with construction and demolition activities involved with replacing the ATCT at Site 2. Additional noise sources would likely include the presence and operation of construction vehicles, operation of construction/demolition equipment on site, and the operation of generators as a power source. Noise levels would temporarily exceed natural (ambient) sounds but would not exceed typical noise levels produced by heavy equipment. The short-term, temporary increase in construction noise would take place during daytime working hours and avoid early morning and evening hours due to the sensitive nature of those times. As such, it is not anticipated that major concerns would be raised by stakeholders or nearby residential communities. Construction access and future access to Site 2 would be provided via a gate near the intersection of SW McKinley Avenue and SW 42nd Street. This intersection is adjacent to a private residential property. Long term usage of this access would increase with operation of the new ATCT at Site 2.

The existing ATCT is located approximately 0.35 miles from a place of worship and 0.75 miles from two schools and two additional places of worship. Only one of these sites (a place of worship approximately 0.94 miles northeast of the existing ATCT) is located along a major road that could be a route for construction vehicles. The proposed ATCT sites and existing ATCT are not located near any wildlife refuges or historic sites that could be impacted by an increase in noise. No significant long-term noise impacts from construction or demolition activities are anticipated to occur.

Once construction of the new ATCT is complete, it is expected that noise would return to levels equivalent to those prior to demolition and construction. Noise due to air traffic controller vehicle access would remain at existing levels but be relocated from the area of the existing ATCT to the Site 2 area. The new ATCT would not change the flight operations (number of arrivals or departures), fleet mix, flight paths, or landing or takeoff procedures at DSM airport to lead to increases in noise levels.

4.11.4 Mitigation

Best practices to reduce potential impacts from noise include the following construction-related actions:

- Use of proper mufflers for construction equipment.
- Limit construction activities to daytime hours.
- Apply measures to limit noise from machinery or trucks as they traverse streets in noise sensitive areas.

4.12 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

The socioeconomics of a project encompass economic or social aspects, or a combination of both. Elements such as employment, housing, population, and public services are socioeconomic attributes considered in a NEPA document. Environmental justice focuses on "the fair treatment of populations and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (EPA, 2023b). EO 13045, Children's Environmental Health and Safety Risks, prioritizes four areas due to the vulnerability of young people to these conditions—asthma, cancer, unintentional injuries, and developmental disorders (e.g., lead poisoning) when compared to adults (FAA, 2020a).

4.12.1 Regulatory Setting

The Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970 (42 U.S.C. § 61 et seq.) contains provisions that must be followed if acquisition of real property or displacement of people would occur as a result of implementing the selected alternative (49 CFR Part 24).

Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. §§ 2000d-2000d-7), states that "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance." Title VI explicitly prohibits any discrimination in federally funded programs and projects, including those sponsored by the FAA (28 CFR § 42.401).

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 *Federal Register* 7629), requires federal agencies to incorporate environmental justice into their programs, policies, and activities.

EO 14096, Revitalizing Our Nation's Commitment to Environmental Justice for All (88 *Federal Register* 25251), builds upon and strengthens EO 12898 by requiring federal agencies to create their own environmental justice plans, conducting research on issues related to environmental justice, and the establishment of a new Environmental Justice Interagency Council and White House Office of Environmental Justice.

The CEQ's *Environmental Justice: Guidance Under the National Environmental Policy Act* outlines how environmental justice could be considered in NEPA documents. This guidance provides widely used definitions of minority, low-income, and other environmental justice concepts (CEQ, 1997).

The *Memorandum of Understanding on Environmental Justice and Executive Order 12898* identified that participating federal agencies (which includes the FAA) agreed to declare the continued importance of identifying and addressing environmental justice considerations in their programs, policies, and activities (White House, 1994).

The DOT's Environmental Justice Strategy describes the framework for comprehensively incorporating environmental justice into all of DOT's programs, policies, and activities (DOT, 2023). In addition, DOT Order 5610.2(a), Environmental Justice in Minority and Low-Income Populations (77 *Federal Register* 27534), establishes principles for integrating environmental justice into current policies and practices.

The EPA's Interagency Working Group on Environmental Justice and NEPA Committee published *Promising Practices for EJ (Environmental Justice) Methodologies in NEPA Reviews*, a compilation of methodologies obtained from current federal agency practices concerning the interface of environmental justice considerations through NEPA (EPA, 2022e).

EO 13045, Protection of Children from Environmental Health Risks and Safety Risks (62 *Federal Register* 19885), directs federal agencies to analyze their policies, programs, activities, and standards for any environmental health or safety risks that may disproportionately affect children. Included in these categories are risks to health or safety that are attributable to products or substances that a child is likely to encounter or ingest, such as air, food, water, recreational waters, soil, or products they might use or be exposed to.

4.12.2 Affected Environment

There are approximately 17,950 people residing within a 1-mile buffer of the DSM study area according to the EPA's Environmental Justice Mapping Tool Community Report (EPA, 2023a). Figure 4-6 displays the community information of the residents within the 1-mile boundary surrounding DSM Airport, including age and race.

There are five schools and at least five daycare centers within 1-mile of the airport's boundary. Two hospitals are located within 1-mile of DSM; however, neither are children's health clinics. (EPA, 2023a)

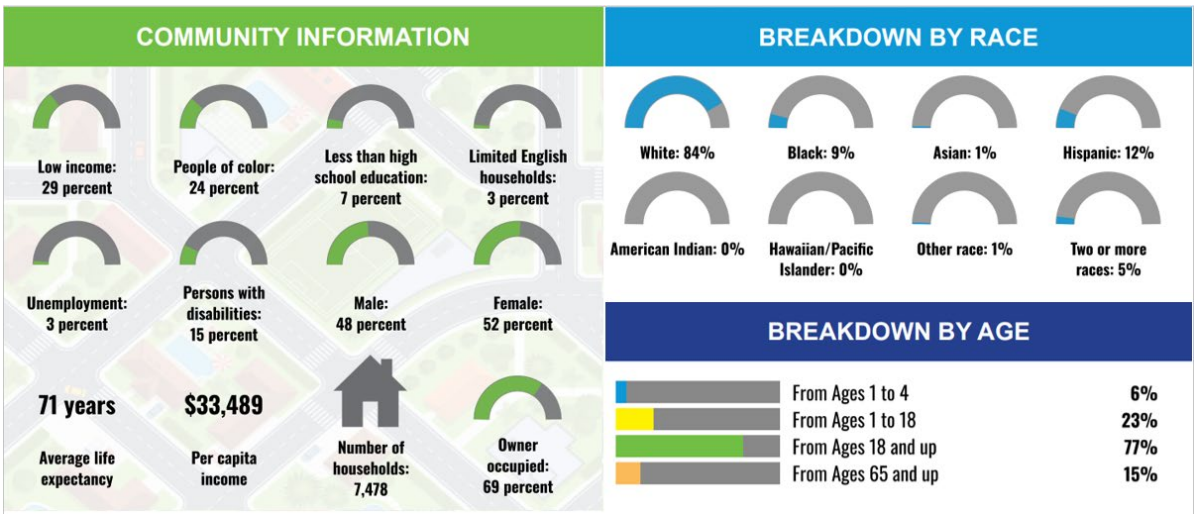

Figure 4-6. EJScreen Community Information for a 1-Mile Boundary around DSM

Source: (EPA, 2023a)

Data points included in the community information shown in Figure 4-6 are similar to the state average for most metrics and lower than the U.S. for all. A summary of these data points is displayed in Table 4-3.

Table 4-3. Socioeconomic Comparison of DSM, Iowa, and U.S.

Socioeconomic Indicator	DSM and One-Mile Boundary	Iowa	U.S.
Low Income	29%	29%	31%
People of Color	24%	15%	39%
Unemployment Rate	3%	4%	6%
Limited English-Speaking Households	3%	2%	5%
Less than High School Education	7%	8%	12%
Under Age 5	6%	6%	6%
Over Age 64	15%	18%	17%

Source: (EPA, 2023a)

4.12.3 Environmental Consequences

Effects to socioeconomics, environmental justice, and children's environmental health and safety risks would vary due to the location of the airport and the existing conditions surrounding the location. Site-specific analysis would identify if any significant effects could occur.

The FAA has not established significance thresholds for socioeconomics, environmental justice, and children's environmental health and safety; however, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts for socioeconomics. environmental justice, and children's environmental health and

safety (see Exhibit 4-1 of FAA Order 1050.1F). The determination that significant impacts exist in the socioeconomic impact category is normally dependent on whether the potential socioeconomic impact(s) are interrelated with or inseparable from a physical or natural environmental effect. Note these factors are not intended to be thresholds. If these factors exist, there is not necessarily a significant impact; rather, the FAA must evaluate these factors considering context and intensity to determine if there are significant impacts (FAA, 2020a). The FAA has also identified factors to consider when evaluating the context and intensity of potential environmental impacts for environmental justice and for children's environmental health and safety. (FAA, 2015)

- No Impact: Impacts to socioeconomics, environmental justice, and children's environmental health and safety would not occur as a result of the Proposed Action.

Factors to consider that may be applicable to socioeconomic resources, if they are interrelated with natural or physical environmental impacts (see 40 CFR § 1508.14), include, but are not limited to, situations in which the action would have the potential to:

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

The factors to consider that may be applicable to environmental justice include, but are not limited, to a situation in which the Proposed Action or alternative(s) would have the potential to lead to a disproportionately high and adverse impact to an environmental justice population (i.e., low-income or minority population) due to:

- Significant impacts in other environmental impact categories; or
- Impacts on the physical or natural environment that affect an environmental justice population in a way that the FAA determines is unique to the environmental justice population and significant to that population.
- The factor to consider that may be applicable to children's environmental health and safety includes, but is not limited to, situations in which the Proposed Action or alternative(s) would have the potential to lead to a disproportionate health or safety risk to children.

4.12.3.1 Alternative 1 (No Action Alternative)

Under the No Action Alternative, the current ATCT would not be replaced and removed, and activities would remain the same. No changes would occur to the existing socioeconomic,

environmental justice, and children's environmental health and safety risk conditions. No impacts to socioeconomics, environmental justice, or children's environmental health and safety risks are anticipated from the No Action Alternative.

4.12.3.2 Alternative 2 (Preferred Alternative)

Under the Preferred Alternative, a slight increase in local employment could occur during construction; however, the workforce could originate from existing businesses with current employees, having a minimal effect on local employment levels. Expenditures to local economies and businesses could show a slight increase during the implementation of the ATCT with purchases of materials, fuels, and equipment from the local area. This project location would likely have minor, short-term increases in employment and local expenditures until the activities are complete. No permanent jobs are expected to result from the Preferred Alternative.

Temporary, minor increases of construction vehicle noise and traffic may occur during daytime hours but would be less than significant due to the project being located on an active airport. Operation and staffing of the new ATCT would be the same or similar to previous conditions. The Preferred Alternative would not cause the relocation of residences, businesses, or schools. No long-term effects or significant impacts to socioeconomics, environmental justice, and children's environmental health and safety risks are anticipated.

4.12.4 Mitigation

Best practices to reduce noise or other impacts to socioeconomics, environmental justice, and children's environmental health and safety risks can include outreach to share ongoing information about the new ATCT and the NEPA process.

4.13 VISUAL EFFECTS

Visual effects are considered under two categories, light emissions, and visual resources/character. Light emissions from outdoor lighting in parking lots, streets, and within businesses or homes affect the darkness of the night sky, particularly in rural areas where fewer light sources are present. Light emissions also occur from reflective surfaces during the daytime when sunlight reflects off windows, metals, and other shiny surfaces. Visual resources are natural or human-made features such as traditional cultural properties, buildings, and the natural landscape. Visual character is the overall description of an area, such as rural, farmland, urban, coastal, or mountainous. (FAA, 2020a)

4.13.1 Regulatory Setting

There are no special purpose laws or requirements for visual effects. Some visual resources are protected under federal, state, or local regulations. Protected visual resources may include, but are not limited to:

- Federal, state, or local scenic roadways/byways.
- Wild and scenic rivers.

- National scenic areas.
- Scenic easements.
- Trails protected under the National Trails System Act or similar state or local regulations.
- Biological resources.
- Parks, recreation areas, and wildlife/waterfowl refuges.
- Historic properties.
- Features protected under other federal, state, or local regulations.

Although there are no federal special purpose laws or requirements specific to light emissions and visual effects, there are special purpose laws and requirements that may be relevant. In addition to NEPA, laws protecting resources that may be affected by visual effects include Section 106 under the NHPA (see Section 4.8), Section 4(f) of the U.S. DOT Act (see Section 4.5), and the Wild and Scenic Rivers Act (see Section 4.14). Visual resources are protected and managed on federal resource lands, such as U.S. Forest Service Resource Management Plans and the Bureau of Land Management Visual Resource Management System. In addition, there may be state and local regulations, policies, and zoning ordinances that apply to visual effects.

4.13.2 Affected Environment

The potential new ATCT site (Site 2) is located on existing airport property within the study area (see Figure 3-1) within the city limits of Des Moines, Iowa. The proposed site is located on unlit land west of the existing runways and main airport terminal. The surrounding area includes agricultural and forested land further to the west and suburbs of Des Moines to the east. A private homestead is located near the proposed construction vehicle access point (approximately 0.3 miles from Site 2), which is obscured by trees surrounding the residence and the open space between the location and the airport perimeter. The nearest sensitive receptors are Brown's Woods and the Great Western Trail Bike Path, located north and northwest of the airport, respectively. An Air National Guard facility is located less 0.5 miles west of the existing ATCT that may be eligible for the NRHP under criteria A and C.

The assessment of visual impacts and aesthetic qualities of structures and light emissions are a highly subjective process due to the difference in perception and value that a user associates with the specific feature and its surrounding landscape.

4.13.2.1 Light Emission

Light from electrical or reflective surfaces may be considered aesthetically pleasing to some, but detrimental to others due to light obscuring stars and other nighttime features. Wildlife may also be affected by light emissions, altering migration, nighttime feeding, or other nocturnal activities. The proposed ATCT location is within DSM airport property which maintains operation 24 hours a day. DSM is located within the Des Moines city limits which is an area of relatively high levels of nighttime light pollution (Earth Observation Group,

2022). Airport facilities remain lit for safety and security purposes. The proposed site location is presently in an unlit area with no existing light infrastructure. The current ATCT is located approximately 0.20 miles from the nearest residential neighborhood where street lighting is present.

Site 2 is bordered by illuminated runways to the northeast and southeast and unlit open space to the northwest and southwest. The open space contains natural areas of trees and vegetation and closer to Site 2, within the study area, is mowed vegetation and unlit open space. The closest residential area is approximately 0.30 miles northwest of Site 2 and includes one secluded residential parcel. The line of site between the residential property and Site 2 is obscured by trees surrounding the residence and within the open space between the airport and the residence.

4.13.2.2 Visual Resources and Visual Character

The visual character of the immediate area consists of the airport facilities, runways, and terminal to the east, and vegetation and farmland to the west. The proposed site location is located on grassy land with low-lying vegetation. Directly east of the airport are residential neighborhoods, businesses, and industrial and commercial facilities. Some further residential and commercial development is directly north and transitions to forested and open space moving west. Most land to the west of the airport is open space, farmland, and dispersed homesteads. To the south is more open space, farmland, and larger industrial and commercial businesses. The land has some topology, with low, rolling hills, ranging from about 900 feet elevation at the airport to about 990 feet at the highest point in Brown's Woods. (Google Earth, 2022b)

4.13.3 Environmental Consequences

The FAA has not established a significance threshold for visual effects. The factors listed below may be considered when determining impacts from light emissions and to visual resources and visual character.

- No Impact: Impacts to visual effects would not occur as a result of the Proposed Action.

For light emissions, factors to consider include the extent the action has the potential to:

- Create annoyance or interfere with normal activities from light emissions; and
- Affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources.

For visual resources and visual character, factors to consider include the extent the action has the potential to:

- Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources.
- Contrast with the visual resources and/or visual character in the study area.

- Block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations. (FAA, 2015).

4.13.3.1 No Action Alternative

The No Action Alternative would not involve the alteration of any existing light emission or visual resources and character at DSM. No impacts to visual resources would occur from the No Action Alternative.

4.13.3.2 Alternative 2 (Preferred Alternative)

The Preferred Alternative would involve construction and placement of the new ATCT on land that is currently undeveloped, unlit, and adjacent to vegetated areas. The ATCT would introduce light emissions to this area of the airport. Construction of a lit access road and parking lot associated with the ATCT would also increase light emissions along the western portion of the airport property. Light emissions would be slightly reduced following the removal and decommissioning of the existing ATCT.

Wildlife species may be affected by nighttime lighting (see Section 4.3.2 for more detailed information). Migratory birds may become disoriented by bright nighttime lighting and some bat species may avoid brightly illuminated areas. Artificial lighting of habitat supporting bat roosts, access points, and foraging pathways can be disturbing to bat species and should be avoided throughout construction. The light-sensitive Northern long-eared bat was not identified as a species of concern within the study area, but bat species could forage within airport grounds and may avoid the new tower and adjacent illuminated area following tower construction.

Temporary construction of the new ATCT and removal of the existing ATCT would not affect or obstruct visually important resources. Construction would occur during the daytime and no additional nighttime lights would be required. The temporary presence of construction vehicles would likely have a negligible effect on visual resources. Demolition of the existing ATCT would result in a change to the visual character of the airport. Impacts to the visual character of the airport from removing the existing tower would likely be negligible. Because an ATCT has been present within the study area, construction of a new, taller ATCT in a slightly different location would result in minimal, if any, effects to visual resources. Although the proposed new ATCT would be closer to and more visible from the Great Western Trail Bike Path, it is not anticipated that trail users would be adversely impacted. The overall enjoyment and aesthetic of the trail would remain largely the same, as trail users are already accustomed to having airport facilities within the viewshed of the trail. No significant impacts are expected to visual resources.

4.13.4 Mitigation

Best practices that could be applied, where appropriate, to mitigate potential impacts to visual resources and light emissions including shielding/baffles to reduce light emissions.

4.14 WATER RESOURCES

Water resources include wetlands, floodplains, surface water, groundwater, and wild and scenic rivers. These resources provide drinking water, irrigation, and other water uses for communities, in addition to recreation and transportation opportunities, and habitat for vegetation and wildlife species. Water resources are interconnected and can be affected through impacts above ground and below the surface.

4.14.1 Regulatory Setting

The Clean Water Act (33 U.S.C. §§ 1251-1387) establishes the basic structure for regulating the discharge of pollutants into waters of the United States and the NPDES permit program.

The Fish and Wildlife Coordination Act (16 U.S.C. §§ 661-667d) requires federal agencies to consult with the USFWS, NMFS, and appropriate state fish and wildlife agencies regarding the conservation of wildlife resources when proposed federal or applicant projects may result in control or modification of the water of any stream or other water body (including wetlands).

EO 11990, Protection of Wetlands (42 *Federal Register* 26961), requires federal agencies to "avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative." The stated purpose of EO 11990 is to "minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands."

DOT Order 5660.1A, Preservation of the Nation's Wetlands, implements the guidelines set forth in EO 11990. Transportation facilities should be planned, constructed, and operated to assure the protection and enhancement of wetlands to the fullest extent practicable.

EO 11988, Floodplain Management (42 *Federal Register* 26951), requires federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of 100-year floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.

DOT Order 5650.2, Floodplain Management and Protection, implements the guidelines set forth in EO 11988. This DOT Order states that DOT agencies should ensure that proper consideration is given to avoid and mitigate adverse floodplain impacts in agency actions, planning programs, and budget requests.

The Safe Drinking Water Act (42 U.S.C. §§ 300(f)-300j-26) prohibits federal agencies from funding actions that would contaminate any EPA-designated sole source aquifer or its recharge area (40 CFR Parts 141-149).

The Wild and Scenic Rivers Act (WSRA) (16 U.S.C. §§ 1271-1287) preserves certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations and established the National Wild and Scenic

River System, which consists of those rivers and river segments deemed by Congress to have one of more "outstandingly remarkable" scenic, recreational, geologic, fish and wildlife, historic or cultural values. Rivers in the system are classified based on the degree of development present along the river, and whether the river is wild, scenic, or recreational.

There may be additional state and local surface water, wetlands, floodplains and groundwater statutes and regulations in addition to the federal requirements discussed above. This would be determined on a case-by-case basis by contacting relevant state and local regulatory agencies in the initial stages of project planning.

4.14.2 Affected Environment

4.14.2.1 Wetlands

A wetland delineation report was conducted in 2018 and indicates 10 wetland areas totaling 3.51 acres of wetland south of Runway 5/23, as shown in Figure 4-7 (RS&H Iowa, P.C., 2019(b)). The proposed ATCT site is located north of Runway 5/23 on land not identified as having wetland characteristics by this delineation. The National Wetlands Inventory Map indicates a temporary freshwater emergent wetland and riverine habitat labeled Frink Creek approximately 0.1 miles southeast of Site 2 (USFWS, 2023c). It is likely that these features collect runoff from the airport property.

Figure 4-7. Wetlands within the DSM Study Area

4.14.2.2 Floodplains

According to the FEMA National Flood Hazard Layer Viewer, DSM and the proposed ATCT location is in an area of minimal flood hazard. DSM is not located within a 100-year floodplain. (FEMA, 2023)

4.14.2.3 Surface Water

There is no standing surface water within 1-mile of the proposed ATCT sites. Frink Creek (shown in Figure 4-8) is a seasonally flooded riverine habitat approximately 0.1 miles from the proposed site and discharges to Racoon River approximately 2.18 miles north of the airport.

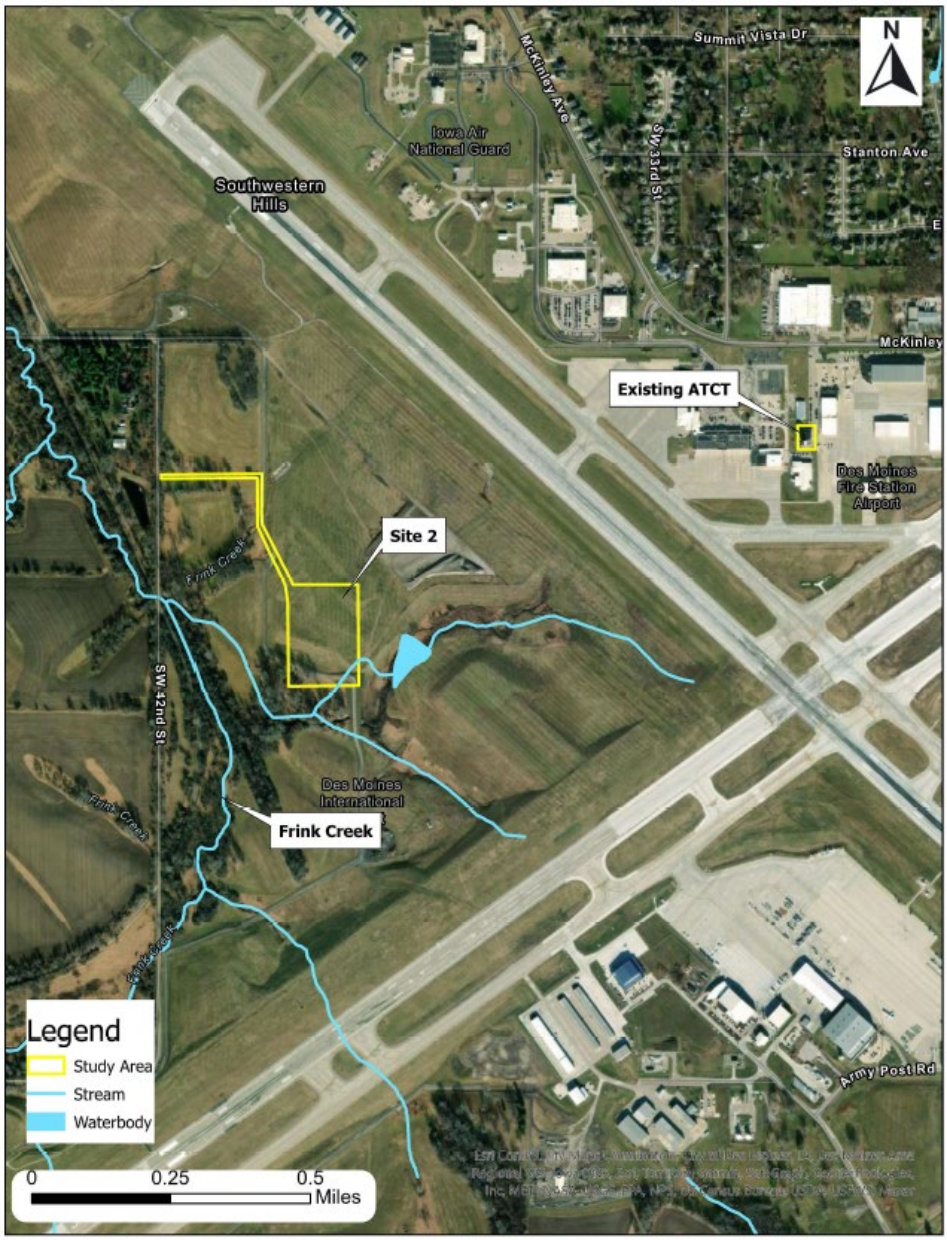

Figure 4-8. Surface Waters within the DSM Study Area

4.14.2.4 Groundwater

The Greater Des Moines area sources water from the Racoon River, Des Moines River, reservoirs, wells, and aquifers. Approximately one-third of the water comes from an infiltration system along a stretch of the Raccoon River located 2.18 miles north of DSM. (RS&H Iowa, P.C., 2019(a))

The Iowa Private Well Tracking System and Iowa Geological Survey GeoSam Wells map indicate no active, plugged, or abandoned wells at the potential ATCT sites (Iowa Department of Natural Resources, 2023d) (Iowa Geological Survey, 2023).

4.14.2.5 Wild and Scenic Rivers

Iowa contains no designated wild and scenic rivers (National Wild and Scenic Rivers System, n.d.).

4.14.3 Environmental Consequences

Significance criteria for water resources are included in the "Significant Impact" descriptions in the bullet lists below.

- No Impact: Current water quality, hydrologic conditions, wetlands, floodplains, and wild and scenic rivers would not be altered, or conditions do not exist for impacts to occur.
- Significant Impact – Wetlands:
  - If an action would "adversely affect a wetland's function to protect the quality or quantity of municipal water supplies, including surface waters and sole source and other aquifers.
  - Substantially alter the hydrology needed to sustain the affected wetland system's values and functions or those of a wetland to which it is connected.
  - Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare.[10]
  - Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands.
  - Promote development of secondary activities or services that would cause the circumstances listed above to occur.
  - Be inconsistent with applicable state wetland strategies." (FAA, 2015)
- Significant Impact – Floodplains: "The action would cause notable adverse impacts on natural and beneficial floodplain values," as defined in Paragraph 4.k of DOT Order 5650.2, *Floodplain Management and Protection*. (FAA, 2015)

[10] The term "welfare" includes cultural, recreational, and scientific resources or property important to the public.

- Significant Impact – Surface Water: "The action would exceed water quality standards established by federal, state, local, and tribal regulatory agencies; or contaminate public drinking water supply such that public health may be adversely affected" (FAA, 2015). Factors to consider include if an action would have the potential to "[A]dversely affect natural and beneficial water resource values to a degree that substantially diminishes or destroys such values; adversely affect surface waters such that the beneficial uses and values of such waters are appreciably diminished or can no longer be maintained, and such impairment cannot be avoided or satisfactorily mitigated; or present difficulties based on water quality impacts when obtaining a permit or authorization." (FAA, 2015)
- Significant Impact – Groundwater: "The action would exceed groundwater quality standards established by federal, state, local, and tribal regulatory agencies; or contaminate an aquifer used for public water supply such that public health may be adversely affected" (FAA, 2015). Factors to consider include if an action would have the potential to: "adversely affect natural and beneficial groundwater values to a degree that substantially diminishes or destroys such values; adversely affect groundwater quantities such that the beneficial uses and values of such groundwater are appreciably diminished or can no longer be maintained, and such impairment cannot be avoided or satisfactorily mitigated; or present difficulties based on water quality impacts when obtaining a permit or authorization." (FAA, 2015)
- Wild and Scenic Rivers: The FAA has not established criteria; however, factors to consider that may be applicable to wild and scenic rivers include, but are not limited to, situations in which the Proposed Action and or alternative(s) would have an adverse impact on the values for which a river was designated (or considered for designation) through the following:
  - "Destroying or altering a river's free-flowing nature;
  - A direct and adverse effect on the values for which a river was designated (or under study for designation);
  - Introducing a visual, audible, or other type of intrusion that is out of character with the river or would alter outstanding features of the river's setting;
  - Causing the river's water quality to deteriorate;
  - Allowing the transfer or sale of property interests without restrictions needed to protect the river or river corridor (which cannot exceed an average of 320 acres per mile which, if applied uniformly along the entire designated segment, is one-quarter of a mile on each side of the river);
  - Any of the above impacts preventing a river on the Nationwide Rivers Inventory (NRI) or a Section 5(d) river not included in the NRI from being included in the Wild and Scenic River System or causing a downgrade in its classification (e.g., from wild to recreational)." (FAA, 2015).

4.14.3.1 No Action Alternative

Under the No Action Alternative, the existing ATCT would remain the same and a new tower would not be built. Conditions of wetlands, floodplains, surface water, groundwater, and wild

and scenic rivers would remain the same. No impacts to water resources would occur from the No Action Alternative.

4.14.3.2 Alternative 2 (Preferred Alternative)

Site 2 is not located within a 100-year floodplain or near any wild and scenic rivers. No impacts to floodplains, groundwater, and wild and scenic rivers would occur as a result of the Preferred Alternative.

Construction of a new ATCT would cause temporary, short-term surface disturbing activities, involving increased vehicle traffic and use of heavy machinery. Disruption of soil surfaces, introduction of non-native plant species through transfer of seeds, and contamination of soils from chemicals, such as hydraulic fluids or petroleum leaks, could occur during ground disturbing activities. Soil erosion or runoff from the construction site could result in offsite interface with offsite wetlands or surface water either adjacent to or downstream from the ATCT site. Soil, sediment, or chemical runoff could directly or indirectly damage water quality, alter habitat from sediment build-up, or cause changes to the ecosystems from the introduction of non-native plant species. Any additional impervious surface beyond the original ATCT and surrounding development could result in a minimal increase of runoff into waterbodies, resulting in increased erosion, vegetation loss, and sediment inputs. Mitigation measures and BMPs to contain runoff and prevent erosion or the introduction of non-native plants surrounding the project area would help reduce or prevent effects from construction activities and associated equipment.

Demolition and removal of the decommissioned ATCT could result in disturbance of soils and loss of vegetation within and adjacent to the project area. Use of heavy machinery (construction equipment) could cause disruption of soil surfaces, dust, introduction of non-native plant species through transfer of seeds, and contamination of soils from chemicals such as hydraulic fluids or petroleum leaks. Soil, sediment, or chemical runoff could directly or indirectly damage water quality, alter habitat from sediment build-up, or cause changes to the ecosystems from introduction of non-native plant sources. Mitigation measures to contain runoff and prevent the introduction of non-native plants surrounding the project area would help reduce or prevent effects from demolition and removal of the ATCT.

During the winter months, DSM conducts pavement deicing and anti-icing operations using potassium and/or sodium acetate for airfield pavement and sodium chloride on landside surfaces (Foth, 2020). Operation of the ATCT at Site 2 would likely involve the seasonal use of a sand and sodium chloride mixture to prevent the buildup of ice along paved road surfaces and parking lots at the new ATCT. Runoff from melting snow that contains sand and salt from treatment could harm aquatic wildlife, contaminate water resources, and lead to increased soil erosion (EPA, 2020). Snow is typically stockpiled in designated areas where meltwaters are directed to tanks which are, upon approval from the City of Des Moines, discharged into the sanitary sewer system. Given Site 2's proximity and runoff potential to Frink Creek and the nearby wetland, DSM would likely have to evaluate and include the new site in the airports SWPPP to prevent runoff and salt contamination to the wetland, Frink Creek, and eventually into Raccoon River.

No significant impacts to water resources, including water quality, wetlands, floodplains, surface water, groundwater, and wild and scenic rivers, are expected.

4.14.4 Mitigation

Mitigation measures and BMPs to offset unavoidable impacts to water resources allow for on-site absorption or rainwater such as permeable surfaces, allowing natural drainage processes, and erosion prevention measures. Descriptions of mitigation examples for wetlands, surface water, and ground water are below.

Mitigation measures to prevent or reduce impacts to wetlands include avoidance and minimization. Avoidance and minimization measures include adjusting plans to reduce or prevent any encroachment or damage to wetlands and directing runoff from construction or demolition activities away from wetlands or other aquatic habitat (FAA, 2020a). Measures for reducing runoff and erosion, as described below, would prevent or reduce sediment and introduction of non-native plant species from degrading nearby wetlands. These measures should be implemented within the study area to avoid the potential for temporary construction impacts to Frink Creek and its associated wetlands.

Direct impacts to surface waters are unlikely, but if a project were to intersect a pond, stream, or other surface water body, the following mitigation measures could reduce effects to surface waters:

- Limit ground disturbance to the areas necessary for project-related construction.
- Employ erosion control methods to minimize sedimentation of surface waters.
- Restore vegetation on disturbed areas to prevent soil erosion following project completion.
- Develop oil response plans designed to contain any potential spills of oil or oil-based products associated with the Proposed Action and alternatives.

Mitigation and BMPs to reduce direct impacts to groundwater include, but are not limited to, the following:

- Limit ground disturbance and depth to areas necessary for project-related construction in sensitive and shallow groundwater areas,
- Protect water quality of surface water runoff that may infiltrate into the ground.
- Restore vegetation on disturbed areas to prevent soil erosion following project completion.
- Limit the area of new impervious surfaces to the areas necessary for project-related construction.
- Develop oil response plans designed to contain any potential spills of oil or oil-based products associated with the Proposed Action and alternatives.

4.15 CUMULATIVE IMPACTS

The FAA regulations implementing the procedural provisions of NEPA define cumulative impacts as:

> *"Cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, whether Federal or non-Federal." (FAA, 2015)*

Based on these regulations, if an alternative does not have direct or indirect effects, there can be no cumulative effects resulting from the project because there would be no impacts added to past, present, or reasonably foreseeable actions.

The CEQ regulations also describe cumulative impacts as impacts that "can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR Part 1508.7). On a programmatic level and combined with other actions, Alternative 2 (Preferred Alternative) could lead to cumulative impacts depending on the scale (number of projects), geography (localized area) in which the actions are performed, and other construction-related activities that may occur at DSM.

In addition to the construction of a new DSM ATCT and demolition of the existing ATCT covered within this EA, several airport improvement projects have recently occurred at DSM or are proposed to occur to support aircraft operations and address facility needs. These include the reconstruction of Cowles Drive, replacement of the passenger terminal building, development of a rental car concession, passenger boarding bridge relocations, parking garage maintenance, construction of Building 57, Phase 1A Terminal Project, construction of sand and salt storage building. These activities are expected to have no significant impacts because they do not involve significant risks or impacts to sensitive areas at DSM Airport.

Other recent project activities in the vicinity of the DSM Airport include a FY2021 update to Register Drive (located south of the airport property boundary) and the FY2023-2024 reconstruction of Fleur Drive (northeast and outside of the airport property boundary) (Moines, City of Des, 2024). Completion of the Fleur Drive reconstruction is expected in Fall 2024. While the construction may temporarily increase traffic and noise emissions in the area, these impacts are not anticipated to cause significant cumulative impacts. Fleur Drive construction would be northeast of the airport boundary, with the proposed ATCT on the southwest portion of the study area.

Temporary cumulative impacts may result related to construction emissions, noise emissions, and construction-related traffic. During construction activities, minor erosion and sedimentation may occur. The proposed ATCT would not contribute to a significant adverse cumulative impact to natural resources or energy supply. The sustainable design of the proposed ATCT exhibits energy and water efficiencies, thereby reducing energy and resource supply needs. The preferred alternative would result in a permanent conversion of state important farmland as designated in the airport's master plan; future planned projects could permanently remove additional farmland from operation.

Related to noise, air quality emissions, and climate, the ATCT construction and demolition activities would contribute to an adverse cumulative impact, but on a temporary basis, if other projects are occurring during the same period at the airport. The ATCT project would support an increase in construction funding, a positive benefit to the local economy at DSM.

Implementation of BMPs would further reduce the potential for any identified limited impacts. The cumulative impact of the replacement ATCT presented in this EA is not anticipated to result in significant impacts or significant cumulative impacts to either human health or the environment.

4.16 MITIGATION

Mitigation measures may be applied to reduce or prevent potential environmental impacts to or from each resource area. Construction activities would follow the FAA's Construction Specifications 01575, "Temporary Environmental Controls," to ensure that procedures are met. The EA includes best practices and mitigation measures, where applicable, for resources in Sections 4.1 to 4.15.

SECTION 5 | SUMMARY OF IMPACTS

Table 5-1 summarizes the potential impacts of each alternative on the resource areas discussed in Section 4.

Table 5-1. Potential Impacts from the No Action and Alternative 2

Resource Area	No Action Alternative	Alternative 2 (Preferred Alternative)
Air Quality	No impact	Short-term and temporary increase in emissions and dust (particulate matter) during construction and demolition activities. Less than significant impact.
Biological Resources	No impact	Short-term impacts from noise, vegetation removal, and soil erosion during construction activities. Temporary impacts from noise and soil erosion during demolition. No significant impact.
Climate	No impact	Short-term increase in GHG emissions during construction and demolition activities. Long-term reduction in GHG emissions from reduced energy use with new ATCT. No significant impact.
DOT Act, Section 4(f)	No impact	Short-term impacts due to an increase in construction noise and traffic. Permanent but negligible noise and visual impacts due to tower location and height. No significant impact to recreational enjoyment. *De minimis* determination.
Farmlands	No impact	Permanent conversion of state-important farmland. Would not impede current agricultural production on the property but could prevent future agricultural use on the land. No significant impact.
Hazardous Materials, Solid Waste, and Pollution Prevention	Increased exposure to PCBs, lead based paint, and asbestos containing materials.	Temporary construction activities could result in de minimis releases of fuel or oil associated with construction equipment. During the operation of the new ATCT, similar, if not lesser, volumes of waste would be generated relative to the existing ATCT operation. No additional hazardous wastes would be generated, and minimal quantities of household cleaning products would be stored on site. No significant impact.
Historical, Architectural, Archeological, and Cultural Resources	No impact	No impact.
Land Use	No impact	No impact.

Resource Area	No Action Alternative	Alternative 2 (Preferred Alternative)
Natural Resources and Energy Supply	No impact	The proposed ATCT is designed to be thermally efficient and use less energy than the existing ATCT. No significant impact.
Noise and Noise-Compatible Land Use	No impact	A temporary, slight increase in noise generation expected with construction and demolition activities. A permanent but negligible increase in noise generation is expected from road access and use of the new tower location. No significant impact.
Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks	No impact	Minor, short-term increases in employment and local expenditures during construction. No permanent jobs are expected. Temporary, minor increases of construction vehicle noise and traffic. No significant impact.
Visual Effects	No impact	Permanent but negligible change to visual character of airport from demolition of the existing ATCT. New nighttime lighting could alter existing conditions primarily for sensitive wildlife. No significant impact.
Water Resources	No impact	Potential addition of new ATCT in SWPP to prevent runoff concerns. No significant impact.

Based on the analysis within this Draft EA, the FAA has preliminarily determined there would not be a significant impact to the human environment from implementation of the Proposed Action.

SECTION 6 | PUBLIC INVOLVEMENT

The FAA is providing a 508-compliant electronic copy of this Draft EA for review by the public on the following website: https://www.faa.gov/airtraffic/atf. A Notice of Availability advertisement published in the Des Moines Register on May 10, 2024 identified the availability of the Draft EA to allow the public to view the document electronically and where/how to submit comments.

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SECTION 8 | REFERENCES

ACHP. (2013, March). *NEPA and NHPA: A Handbook for Integrating NEPA and Section 106.* Retrieved January 18, 2023, from ACHP: https://www.achp.gov/sites/default/files/2017-02/NEPA_NHPA_Section_106_Handbook_Mar2013_0.pdf

ACHP. (n.d.). *The Four-Step Review Proces.* Retrieved January 18, 2023, from ACHP: https://www.achp.gov/protecting-historic-properties/section-106-process/introduction-section-106

Air Traffic Organization Technical Operations Facilities and Engineering Services, Terminal Facilities Planning. (2022, August). Des Moines International Airport, Iowa, Airport Traffic Control Tower Terminal Radar Approach Control Requirements Document. Washington, DC, USA.

CEQ. (1997, December 10). *Environmental Justice: Guidanace under the National Environmental Policy Act .* Retrieved from https://ceq.doe.gov/docs/ceq-regulations-and-guidance/regs/ej/justice.pdf

CEQ. (2023, January 9). *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change*. Retrieved from https://www.federalregister.gov/documents/2023/01/09/2023-00158/national-environmental-policy-act-guidance-on-consideration-of-greenhouse-gas-emissions-and-climate

Chapman, S., Omernik, J., Griffith, G., Schroeder, W., Nigh, T., & and Wilton, T. (2002). Ecoregions of Iowa and Missouri (color poster with map, descriptive text, summary tables, and photographs). Reston, VA, USA. Retrieved September 27, 2023, from https://gaftp.epa.gov/EPADataCommons/ORD/Ecoregions/mo/moia_front.pdf

City of Des Moines. (2019). *Summary of Ordinances.* Retrieved September 05, 2023, from https://councildocs.dsm.city/ordinances/15816.pdf

Des Moines Airport Authority. (n.d.). *About Us*. Retrieved August 11, 2023, from Des Moines International Airport: https://www.flydsm.com/about-us

Des Moines International Airport. (2020). *Storm Water Pollution Prevention Plan.* Retrieved November 24, 2023

DOE. (2021). *Executive Order 13990*. Retrieved from https://www.energy.gov/sites/default/files/2021/02/f83/eo-13990-protecting-public-health-environment-restoring.pdf

DOT. (2023, February 22). *Environmental Justice-EPJ*. Retrieved from Environmental Policy and Justice Division: https://www.phmsa.dot.gov/planning-and-analytics/environmental-policy-and-justice-division/environmental-justice-

epj#:~:text=What%20is%20an%20Environmental%20Justice%20Strategy%3F%20Executive%20Order,those%20principles%20into%20DOT%20programs%2C%20policie

DOT. (n.d.). *DOT Order 5610.1C.* Retrieved January 23, 2023, from DOT: https://www.transportation.gov/sites/dot.gov/files/docs/Procedures_Considering_Environmental_Impacts_5610_1C.pdf

Earth Observation Group. (2022, March). *Night Lights in Google Maps - 2022*. Retrieved January 18, 2023, from NASA Blue Marble Navigator: https://blue-marble.de/nightlights/2022

EPA. (2016, August). What Climate Change Means for Iowa. Retrieved November 21, 2023, from https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-ia.pdf

EPA. (2020, November). *Winter is Coming! And with it, tons of salt on our roads*. Retrieved October 10, 2023, from United States Environmental Protection Agency: https://www.epa.gov/snep/winter-coming-and-it-tons-salt-our-roads#:~:text=In%20addition%2C%20road%20salt%20can,fish%2C%20bugs%2C%20and%20amphibians.

EPA. (2022a, January 20). *Basic Information about Air Quality SIPs*. Retrieved from https://www.epa.gov/air-quality-implementation-plans/basic-information-about-air-quality-sips

EPA. (2022b, August 1). *Climate Change Indicators*. Retrieved from US and Global Temperature: https://www.epa.gov/climate-indicators/climate-change-indicators-us-and-global-temperature

EPA. (2022c, December 30). *Impacts of Climate Change*. Retrieved from Climate Change Science: https://www.epa.gov/climatechange-science/impacts-climate-change

EPA. (2022d, December 30). *Nonattainment Areas for Criteria Pollutants (Green Book)*. Retrieved from EPA: https://www.epa.gov/green-book

EPA. (2022e, October 3). *Promising Practices for EJ Methodologies in NEPA Reviews.* Retrieved from Environmental Justice and National Environmental Policy Act: https://www.epa.gov/environmentaljustice/ej-iwg-promising-practices-ej-methodologies-nepa-reviews

EPA. (2022f, June 29). *Transportation Conformity Regulations and the General Conformity Regulations*. Retrieved from EPA General Conformity: https://www.epa.gov/general-conformity/transportation-conformity-regulations-and-general-conformity-regulations

EPA. (2022g). *U.S. EPA*. Retrieved from Hazardous Waste: https://www.epa.gov/hw/learn-basics-hazardous-waste

EPA. (2023a). *EJScreen Community Report - DSM.* Retrieved August 23, 2023

EPA. (2023b, January 10). *Environmental Justice*. Retrieved January 21, 2023, from United States Environmental Protection Agency: https://www.epa.gov/environmentaljustice

EPA. (2023c, 2 23). *NEPAssist*. Retrieved from United States Environmental Protection Agency: https://www.epa.gov/nepa/nepassist

EPA. (2023d, September 07). *Superfund National Priorities List (NPL)*. Retrieved September 29, 2023, from Environmental Protection Agency: https://www.epa.gov/superfund/superfund-national-priorities-list-npl

EPA. (2023e). *UST Finder*. Retrieved September 29, 2023, from Environmental Protection Agency: https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=b03763d3f27544 61adf86f121345d7bc

FAA. (2015, July 16). *FAA Order 1050.1F.* Retrieved from https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf

FAA. (2020a). *FAA Order 1050.1F Desk Reference.* Retrieved from https://qa-www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/faa_nepa_order/desk_ref#:~:text=This%20Desk%20Reference%20provides%20explanatory%20guidance%20for%20environmental,%28FAA%29%20Order%201050.1F%20Environmental%2

FAA. (2020a). *FAA Order 1050.1F Desk Reference.* Retrieved from https://qa-www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/faa_nepa_order/desk_ref#:~:text=This%20Desk%20Reference%20provides%20explanatory%20guidance%20for%20environmental,%28FAA%29%20Order%201050.1F%20Environmental%2

FAA. (2020b). *ATO - Terminal ATCT & TRACON Facility Design Types - Executive Reference Guide.* Washington, DC: FAA.

FAA. (2023a, June 23). Preliminary Calendar Year 2022 Commercial Service Airports, Rank Order. Washington, DC, USA. Retrieved August 11, 2023, from https://www.faa.gov/sites/faa.gov/files/2023-06/preliminary-cy22-commercial-service-enplanements.pdf

FAA. (2023b, August 3). *Des Moines International Airport (DSM)*. Retrieved August 11, 2023, from FAA- From the Flight Deck: https://www.faa.gov/dsm

FAA. (2023c, February). *Terminal Area Forecast (TAF)*. Retrieved September 27, 2023, from Federal Aviation Administration: https://taf.faa.gov/

Federal Register. (2007, July 30). *Federal Presumed To Conform Actions Under General Conformity.* Retrieved from https://www.federalregister.gov/documents/2007/07/30/07-3695/federal-presumed-to-conform-actions-under-general-conformity

FEMA. (2023, March 8). *FEMA Flood Map Service Center*. Retrieved from FEMA: https://msc.fema.gov/portal/home

FHWA. (n.d. (a)). *Environmental Review Toolkit, Section 4(f) Tutorial.* Retrieved January 20, 2023, from FHWA: https://www.environment.fhwa.dot.gov/env_topics/4f_tutorial/overview.aspx?h=e

FHWA. (n.d. (b)). *A Summary of Highway Provisions in SAFETEA-LU.* Retrieved January 23, 2023, from FHWA: https://www.fhwa.dot.gov/safetealu/summary.htm

Foth. (2020). *Stormwater Pollution Prevention Plan.* Retrieved October 03, 2023, from https://www.flydsm.com/filesimages/airport%20business/dmaa%20swppp.pdf

Friedrich, J., Ge, M., & Tankou, A. (2021, August). *8 Charts to Understand U.S. State Greenhouse Gas Emissions*. Retrieved November 21, 2023, from World Resources Institute: https://www.wri.org/insights/8-charts-understand-us-state-greenhouse-gas-emissions

Google. (2023). *Google Maps*. Retrieved June 12, 2023, from Google: https://www.google.com/maps

Google Earth. (2022b, July 27). *Google Earth*. Retrieved October 12, 2023, from https://earth.google.com/web/search/Des+Moines+Airport+(DSM),+Terminal,+Fleur+Drive,+Des+Moines,+IA/@41.51965495,-93.66281594,284.74269301a,1848.72561214d,35y,-0h,0t,0r/data=CigiJgokCaf8JSCioU5AEYdWcU0Vnk5AGbLJUm_At2LAIQYi-ACPu2LAOgMKATA

Google Earth. (2024, January 18). Des Moines International Airport (DSM). Retrieved September 21, 2023

Iowa Department of Natural Resources. (2015). Iowa's Wildlife Action Plan: Securing a Future for Fish and Wildlife. Des Moines, Iowa, USA. Retrieved September 30, 2023, from https://www.iowadnr.gov/Conservation/Iowas-Wildlife/Iowa-Wildlife-Action-Plan

Iowa Department of Natural Resources. (2017). *Whole Building Demolition Compliance.* Retrieved from

https://www.iowadnr.gov/Portals/idnr/uploads/waste/swfact_wholebuildingdemolition.pdf

Iowa Department of Natural Resources. (2022a, December 27). 2021 Iowa Statewide Greenhouse Gas Emissions Inventory Report. Des Moines, Iowa, USA. Retrieved November 21, 2023, from https://www.iowadnr.gov/Portals/idnr/uploads/air/ghgemissions/2021%20GHG%20REPORT.pdf

Iowa Department of Natural Resources. (2022b). Iowa Exceedances of the National Ambient Air Quality Standards, 2022. Iowa, USA. Retrieved November 17, 2023, from https://www.iowadnr.gov/Portals/idnr/uploads/air/monitoring/2022%20NAAQS%20Exceedances%20Final.pdf

Iowa Department of Natural Resources. (2023a, October 1). Iowa Exceedances of the National Ambient Air Quality Standards, 2023. Iowa, USA. Retrieved November 17, 2023, from https://www.iowadnr.gov/Portals/idnr/uploads/air/monitoring/2023%20NAAQS%20Exceedances.pdf

Iowa Department of Natural Resources. (2023b, October 3). *Listed Species in a County - Polk County, IA.* Retrieved from Natural Areas Inventory: https://programs.iowadnr.gov/naturalareasinventory/pages/RepDistinctSpeciesByCounty.aspx?CountyID=77

Iowa Department of Natural Resources. (2023c). *National Pollutant Discharge Elimination System (NPDES) General Permit No. 2.* Retrieved November 30, 2023, from https://www.iowadnr.gov/Portals/idnr/uploads/water/npdes/gp2.pdf

Iowa Department of Natural Resources. (2023d, August 23). *Private Well Tracking System*. Retrieved August 23, 2023, from Iowa DNR: https://programs.iowadnr.gov/pwts/Default

Iowa Department of Natural Resources. (n.d. (a)). *Document Search*. Retrieved September 29, 2023, from Iowa Department of Natural Resources: https://programs.iowadnr.gov/documentsearch/Home/NextPage?page=1

Iowa Department of Natural Resources. (n.d. (b)). *Data 3m Posts Derived from LiDAR*. Retrieved November 17, 2023, from Iowa Elevation Tools: https://programs.iowadnr.gov/maps/elevation/?_gl=1*1g7mbjm*_gcl_au*MTgzNTM0NTkwOS4xNzAwMjQwMzM3

Iowa Department of Natural Resources. (n.d. (c)). *Environmental Protection - Air Quality*. Retrieved August 22, 2023, from Iowa Department of Natural Resources: https://www.iowadnr.gov/environmental-protection/air-quality/implementation-plans

Iowa Department of Natural Resources. (n.d. (d)). *Invasive Plants*. Retrieved October 3, 2023, from Iowa Department of Natural Resources: https://www.iowadnr.gov/Conservation/Forestry/Forest-Health/Invasive-Plants

Iowa Department of Natural Resources. (n.d. (e)). *Iowa Department of Natural Resources*. Retrieved September 27, 2023, from BioNet: https://programs.iowadnr.gov/bionet/Docs/Ecoregions/47f

Iowa Geological Survey. (2023). *GeoSam - Iowa Geological Survey*. Retrieved August 23, 2023, from GeoSam: https://www.iihr.uiowa.edu/igs/geosam/home

Iowa State University. (2023, June 29). *Wind Roses*. Retrieved November 17, 2023, from Iowa State University - Iowa Environmental Mesonet: https://mesonet.agron.iastate.edu/sites/windrose.phtml?network=IA_ASOS&station=DSM

Iowa State University. (n.d.). *Iowa Geographic Map Server*. Retrieved September 18, 2023, from Iowa State University Geographic Information Systems Support and Research Facility: https://isugisf.maps.arcgis.com/apps/webappviewer/index.html?id=47acfd9d3b6548d498b0ad2604252a5c

Johnston, P. (2022, August 22). Des Moines International Airport, Des Moines, Iowa - Airport Traffic Control Tower Siting Report. Atlantic City, NJ, USA.

Johnston, P. (2023, August 31). Director of Engineering DSM. *email*. Des Moines, IA.

Moines, City of Des. (2024). *Projects and Capital Improvements*. Retrieved from City of Des Moines Engineering Division: https://maps.dsm.city/projects/

NASA. (2023, January 12). *The Effects of Climate Change*. Retrieved from Global Climate Change: https://climate.nasa.gov/effects/

National Wild and Scenic Rivers System. (n.d.). *Iowa*. Retrieved August 23, 2023, from rivers.org: https://www.rivers.gov/iowa#:~:text=Iowa%20is%20blessed%20with%20a,designated%20wild%20and%20scenic%20rivers.

Nationwide Environmental Title Research, LLC. (2023). *Historic Aerials*. Retrieved November 20, 2023, from Historic Aerials by NETRONLINE: https://www.historicaerials.com/viewer#

NCSHPO. (n.d.). *Directory.* Retrieved January 18, 2023, from NCSHPO: https://ncshpo.org/directory/

NOAA. (2023, August 30). *Coastal Zone Management Plans*. Retrieved August 30, 2023, from NOAA Office for Coastal Management: https://coast.noaa.gov/czm/mystate/

NPS. (1997). *How to Apply the National Register Criteria for Evaluation.* Retrieved January 18, 2023, from NPS: https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf

NPS. (1998). *Guidelines for Evaluating and Documenting Traditional Cultural Properties.* Retrieved January 18, 2023, from NPS: https://www.nps.gov/subjects/nationalregister/upload/NRB38-Completeweb.pdf/

NPS. (2020, September). *National Register of Historic Places*. Retrieved 4 28, 2023, from National Park Service US Department of the Interior: https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466

Polk County. (2023). *Great Western Trail*. Retrieved November 20, 2023, from Polk County: https://www.polkcountyiowa.gov/conservation/parks-trails/great-western-trail/

Polk County Iowa. (2023). *Polk Auditor Real Estate Map*. Retrieved August 30, 2023, from Polk County, Iowa: https://gisp1.polkcountyiowa.gov/portal/apps/sites/#/gis-maps/apps/49db18638f614d51b693660400daccb2/explore

Polk County. (n.d.). *Monitoring Sites*. Retrieved November 17, 2023, from Polk County Public Works: https://www.polkcountyiowa.gov/public-works/air-quality/air-quality-monitoring/monitoring-sites/

RS&H Iowa, P.C. (2019(a)). *Final Environmental Assessment Volume I.*

RS&H Iowa, P.C. (2019(b)). *Final Environmental Assessment Volume II.*

Tallgrass Archaeology LLC. (2018). *Des Moines International Airport Replacement Terminal Environmental Assessment, City of Des Moines, Polk County, Iowa: Phase I Archaeological Investigation.* Denver: RS&H.

U.S. Department of Transportation, FAA. (2022, September 30). National Plan of Integrated Airport Systems (NPIAS) 2023-2027. Washington, DC, USA. Retrieved August 11, 2023, from https://www.faa.gov/sites/faa.gov/files/npias-2023-2027-narrative.pdf

University of Iowa. (2023). *Iowa Site File Search No. 2024076.* Iowa City: The University of Iowa.

USDA. (n.d.). *Monarch Butterfly Habitat Needs*. Retrieved October 3, 2023, from United States Department of Agriculture, US Forest Service: https://www.fs.usda.gov/wildflowers/pollinators/Monarch_Butterfly/habitat/

USDA NRCS. (2019, July 31). *Web Soil Survey*. Retrieved August 30, 2023, from Soil Data Explorer: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm?TARGET_APP=Web_Soil_Survey_application_okuddobqcdk33o0upqdnfzdp

USDOL. (n.d.). *Occupational Safety and Health Administration*. Retrieved from About OSHA: https://www.osha.gov/aboutosha

USFWS. (2007). *Consultations with Federal Agencies Section 7 of the Endangered Species Act.*

USFWS. (2023a, October 2). *Environmental Conservation Online System -ECOS*. Retrieved from Listed species believed to or known to occur in Polk, Iowa: https://ecos.fws.gov/ecp/report/species-listings-by-current-range-county?fips=19153

USFWS. (2023b, October 2). *Explore Location*. Retrieved from IPaC - Information for Planning and Consultation: https://ipac.ecosphere.fws.gov/location/3OBBHNKJPVHBVCUMXL54XMIPBE/resources

USFWS. (2023c). *National Wetlands Inventory surface waters and wetlands*. Retrieved 5 10, 2023, from FWS Wetlands Mapper: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/

USFWS. (n.d.). *Bald Eagle*. Retrieved from https://www.fws.gov/species/bald-eagle-haliaeetus-leucocephalus

White House. (1994, February 11). *Memorandum of Understanding on Environmental Justice and Executive Order 12898.* Retrieved from https://www.epa.gov/sites/default/files/2015-02/documents/clinton_memo_12898.pdf

APPENDICES

APPENDIX A | FEDERALLY LISTED SPECIES REPORTS FOR POLK COUNTY AND THE STUDY AREA

This appendix contains the list of threatened, endangered, candidate, or species under review by the U.S. Fish and Wildlife Service for Polk, Iowa. Appendix A also provides site-specific species list, critical habitat, migratory birds, and other information.

U.S. Fish & Wildlife Service

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ECOS / Species Reports / Species County Report

Listed species believed to or known to occur in Polk, Iowa

This report includes species only if they have a **Spatial Current Range** in ECOS.

The following report contains species that are known to or are believed to occur in this county, based on the species current range, as defined by the USFWS. The definition of current range that the FWS uses is the general geographic area where we know or suspect that a species currently occurs.

This list of species by county cannot be used for consultation purposes. To obtain an official list of species that should be considered during consultation, please visit IPaC.

CSV

Show 25 entries Search:

12 Species Listings

Group	Name	Population		Status	Lead Region	Lead Office	Recovery Plan
Mammals	Plains Spotted Skunk (Spilogale interrupta)	Wherever found	Resolved Taxon	3	Missouri Ecological Services Field Office		
Flowering Plants	Mead's milkweed (Asclepias meadii)	Wherever found	Threatened	3	Missouri Ecological Services Field Office	Approved Recovery Plan for the Mead's Milkweed (Asclepias meadii)	Implementati Progress
Insects	Rusty patched bumble bee (Bombus affinis)	Wherever found	Endangered	3	Minnesota-Wisconsin Ecological Services Field Office	Recovery Plan for Rusty Patched Bumble Bee (Bombus affinis)	Implementati Progress

Mammals	Tricolored bat (Perimyotis subflavus)	Wherever found	Proposed Endangered	5	Pennsylvania Ecological Services Field Office		
Insects	Monarch butterfly (Danaus plexippus)	Wherever found	Candidate	3	Assistant Regional Director-Ecological Services		
Mammals	Little brown bat (Myotis lucifugus)	Wherever found	Under Review	3	Indiana Ecological Services Field Office		
Insects	Regal fritillary (Speyeria idalia)	Wherever found	Under Review	6	South Dakota Ecological Services Field Office		
Flowering Plants	Eastern prairie fringed orchid (Platanthera leucophaea)	Wherever found	Threatened	3	Chicago Ecological Service Field Office	Eastern Prairie Fringed Orchid	Implementati Progress
Mammals	Indiana bat (Myotis sodalis)	Wherever found	Endangered	3	Indiana Ecological Services Field Office	Indiana Bat (Myotis sodalis) Draft Recovery Plan: First Revision	Implementati Progress
Birds	Least tern (Sternula antillarum)	U.S.A. (AR, CO, IA, IL, IN, KS, KY, LA_Miss. R. and tribs. N of Baton Rouge, MS_Miss. R., MO, MT, ND, NE, NM, OK, SD, TN, TX_except within 50 miles of coast)	Recovery	4	Mississippi Ecological Services Field Office		
Flowering Plants	Western prairie fringed Orchid (Platanthera praeclara)	Wherever found	Threatened	3	Minnesota-Wisconsin Ecological Services Field Office	Western Prairie Fringed Orchid	Implementati Progress
Mammals	Northern Long-Eared Bat (Myotis septentrionalis)	Wherever found	Endangered	3	Minnesota-Wisconsin Ecological Services Field Office		

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IPaC Information for Planning and Consultation U.S. Fish & Wildlife Service

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Polk County, Iowa

Local office

Illinois-Iowa Ecological Services Field Office

(309) 757-5800
(309) 757-5807

Illinois & Iowa Ecological Services Field Office
1511 47th Ave
Moline, IL 61265-7022

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Indiana Bat Myotis sodalis Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5949	**Endangered**
Northern Long-eared Bat Myotis septentrionalis Wherever found **No critical habitat has been designated for this species.** https://ecos.fws.gov/ecp/species/9045	**Endangered**
Tricolored Bat Perimyotis subflavus Wherever found **No critical habitat has been designated for this species.** https://ecos.fws.gov/ecp/species/10515	**Proposed Endangered**

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found **No critical habitat has been designated for this species.** https://ecos.fws.gov/ecp/species/9743	**Candidate**

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

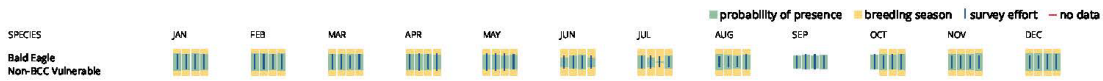
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/ documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31
Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will Antrostomus vociferus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.