CHAPTER 8: ENVIRONMENTAL OVERVIEW

Introduction

FAA Advisory Circular 150/5070-6B, Airport Master Plans identifies an environmental review as one of the elements of effective planning. The purpose behind this element of the airport master planning process is to help the airport sponsor thoroughly evaluate environmental impacts of airport development alternatives, and to provide information for subsequent environmental processing. Key environmental considerations for future development at the Sioux Falls Regional Airport were identified in Chapter 5: Alternatives Analysis based on the existing conditions described in Chapter 2: Inventory.

This environmental review chapter is not intended to fulfill the requirements of environmental review required by National Environmental Policy Act (NEPA) or provide a definitive determination of whether an Environmental Assessment may be required for the proposed improvements. The purpose of this environmental review is to provide community, airport sponsor, and regulatory awareness of the importance of minimizing the environmental impacts of proposed airport development and to provide a general indication of the likely need for further investigation.

The proposed improvements have been identified in the Capital Improvement Program for Sioux Falls Regional Airport, found in Chapter 6: Implementation.

Environmental Review Process

Every Federal action requires an environmental review according to NEPA. Actions shall be thoroughly evaluated and coordinated with resource agencies during the environmental review phase. Impacts should be avoided whenever possible, minimized or mitigated as a final option. Federal actions fall into one of three types of required environmental review:

- **Categorical Exclusion (CATEX):** This environmental documentation is used for actions that do not normally require an Environmental Assessment (EA) or Environmental Impact Statement (EIS), because they do not individually or cumulatively have a significant effect on the human environment. Typical projects that require a CATEX include planning projects and development projects that will not create environmental or socioeconomic impacts. Documentation required here includes the completion of a checklist and supporting research and documentation certifying that the project will not exceed any environmental impact thresholds.

- **Environmental Assessment (EA):** Typical projects that require an EA are those that are not categorically excluded to include significant development projects, land acquisition and runway extensions. Extraordinary circumstances such as impacts to wetlands, historical properties or floodplains will also trigger the need to complete an EA. Documentation required here includes a condensed or comprehensive environmental review of the proposed action and anticipated impacts from the project. Agency review and coordination of the proposed action and impacts is required. The product of this process is a Finding of No Significant Impact (FONSI) issued by FAA, which is typically valid for three years.

- **Environmental Impact Statement (EIS):** Projects that require an EIS include those that will have a significant impact to the surrounding community as determined in the EA process. An
EIS is triggered if an EA concludes that the project will have a significant impact. The EIS is published in the Federal Register. A Record of Decision (ROD) is also produced at the end of the process in support of the Final EIS. The EIS is valid for a period of three years.

Environmental Categories

Descriptions of the existing conditions and potential impacts associated with the proposed improvements are discussed by the impact categories identified in FAA Order 1050.1E, Environmental Impacts: Policies and Procedures. Additional consultation regarding the proposed improvements would be warranted in the future during the environmental review phase for each project action.

Air Quality

Areas identified by EPA as non-attainment areas may require additional analysis if one (1) or more of the six Ambient Air Quality Standards are exceeded. Sioux Falls Regional Airport is not located in a Clean Air Act non-attainment or maintenance area.

The emission inventories at the Airport are at low operation levels and are not likely to predict pollutant discharges high enough to cause degradation to the existing air quality. FAA Air Quality Handbook recommends an air quality analysis if the airport is either a commercial service airport with greater than 1.3 million annual passengers and more than 180,000 general aviation annual operations. The forecasted operations at the Sioux Falls Regional Airport are beneath these levels this an air quality analysis is not required.

Temporary increases in emissions due to construction will be mitigated through the use of Best Management Practices (BMP's).

Coastal Resources

Coastal Resources include Coastal Barriers and Coastal Zone Management. Coastal Barriers include islands that must be maintained to provide a buffer to the shoreline. Coastal Barriers protect fish, wildlife, human life, and property along coasts and shorelines. Facilities are not recommended to be built within the Coastal Barrier Resource System (CBRS). Coastal Zone Management includes development provisions actions to protect major shorelines and associated recreational, historical, cultural, and aesthetic values. The project area is not located in a coastal zone as defined in the Coastal Zone Management Act of 1972. No further analysis is required.

Compatible Land Use

The compatibility of existing and planned land uses in the vicinity of an airport is important to evaluate in terms of aircraft noise, community disruption, relocation, and mitigation impacts of airport projects on the surrounding community. The compatibility of existing land uses in the vicinity of an airport also considers safety, such as compatibility with airport safety zones (i.e. Runway Protection Zone) and whether the area contains land uses that would attract wildlife that could be hazardous to aircraft operations.

Chapter 7: Land Use Compatibility identifies some of the key considerations for future projects including safety, airspace, noise and airport compliance. Maintaining and enhancing compatibility within the existing and Runway Protection Zones (RPZ) is a key safety consideration for runway enhancement projects at Sioux Falls Regional Airport. The FAA strongly recommends the airport control, at least through aviation easements, the land within each runway RPZ. In addition, multi-jurisdictional land use and airspace compatibility overlay safety zoning is recommended to maintain land use compatibility.
Managing wildlife attractants is also a key consideration to maintaining compatible land use. FAA AC 150/5200-33B, Hazardous Wildlife Attractants on or Near Airports, recommends wildlife attractants be located 10,000 feet away from airport operation areas for turbine-powered aircraft. Land uses that could be considered wildlife hazards may include the wetlands located to the west and also to the north of the airport and the Big Sioux River and diversion channel surrounding the airport, but none will be affected by the proposed projects.

A Wildlife Hazard Assessment (WHA) was conducted in 2013-2014 which stated that habitat at and around the Airport have the greatest influence on wildlife activity. Recommendations to alleviate hazards identified in the WHA include: Updating the wildlife management log, reporting all wildlife strikes, continuing with the current hazing and control programs, maintaining federal permits for Canada geese and turkey vultures, managing airfield grass to minimize wildlife activity, replacing alfalfa with grass, removing airfield trees, controlling the ground squirrel population on the airfield, monitoring and controlling medium and large mammal populations, controlling nesting in and on structures, maintaining a 10 foot perimeter fence, filling spots on the Airfield that hold temporary standing water, deterring geese from feeding in the adjacent crop land, excluding geese from Sweetman’s Quarry, removing large adjacent trees, modifying the Big Sioux River canal to reduce bird attraction, continuing to monitor bird activity on the airfield and at off-site locations, and updating the Wildlife Hazard Management Plan (WHMP) which is schedule to be completed in 2015.

**Construction Impacts**

Specific impacts are anticipated to occur as a result of construction activities. These include impacts such as noise from construction equipment on the site, noise and dust from delivery of materials, and potential water pollution from erosion. These impacts are temporary and do not usually produce long-term impacts.

The proposed improvements at the Sioux Falls Regional Airport may involve activities that would produce some amount of airborne material or dust, temporary construction noise, and short-term water quality impacts. Mitigating measures to control and limit the amount of dust would be required by the project specifications, as recommended by the South Dakota Department of Environment and Natural Resources (SD DENR).

Overall, construction impacts associated with the proposed improvements would be minimized through the use of Best Management Practices. Further, the Contractor responsible for the proposed improvements would be advised of the provisions in FAA Advisory Circular 150/5370-10G, Standards for Specifying Construction of Airports, Item P-156 Temporary Air and Water Pollution, Soil Erosion, and Siltation Control, and the need to abide by these specifications throughout the construction of the proposed projects. No further analysis is required.

**Department of Transportation Act Section 4(f)**

Federal Law 23 CFR 774, commonly known as Section 4(f) of the Department of Transportation Act of 1966, as codified in the 49 U.S.C. § 303, provides that the Secretary shall not approve any program or project which requires the use of publicly-owned land from a public park, recreation area, or wildlife and waterfowl refuge of national state, or local significance, or land of an historic site of national, state, or local significance as determined by the officials having jurisdiction thereof, unless: (1) there is no feasible or prudent alternative to the use of such land, and (2) such program or project includes all possible planning to minimize harm resulting from the use.

Elmwood Golf Course is located adjacent to the Airport and is not located within the future project area. An Environmental Assessment was completed in 2013 and actions taken in 2013-2015 to reconfigure the golf course to be compatible with the airport. Veterans Memorial park is located 2.1 miles south of the project area. The Sioux Falls Bike Trail is located adjacent to airport property on the
west and north sides of the airport. Proposed improvements are not anticipated to impact existing publicly owned lands from parks, recreation areas, refuge areas, or historic sites within the vicinity of the airport.

**Farmlands**

The Farmland Protection Policy Act of 1981 provides protection to prime and unique farmlands. The Act defines prime farmland as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. Unique farmland is farmland that is used for production of specific high value food, feed, and fiber crops.

Information from the Natural Resources Conservation Service (NRCS) Web Soil Survey, *Exhibit 8-1: Farmland Classification Map*, for Minnehaha County, SD indicates the land on and adjacent to the airport property contains some areas classified as prime farmland and prime farmland if drained. NRCS Form AD-1006, Farmland Conversion Impact Rating, would need to be completed for any land being purchased to determine the level of impacts to farmland. Section 658.4(c)(3) of the Farmland Protection Policy Act (FPPA) states that sites receiving a score totaling 160 or more be given increasingly higher levels of consideration for protection. No farmland is being acquired and the FPPA would not apply due to the fact that the Airport is within city limits, so no further analysis will be required.

**Fish, Wildlife and Plants**

Pursuant to the Fish and Wildlife Coordination Act, if the proposed improvements would affect water resources (i.e. wetlands; groundwater; impoundment, diversion, deepening, controlling, modifying, polluting, dredging, or filling of any stream or other water body), then consultation with the US Fish and Wildlife Service (USFWS) and the state agency having administration over wildlife resources must be initiated.

In addition, threatened and endangered species are protected under the Endangered Species Act. This Act requires federal agencies to ensure that any action funded or carried out by such agencies is not likely to jeopardize the continued existence of any federally-listed endangered or threatened species or species proposed to be listed, or likely to result in the destruction or adverse modification of habitat of such species which is determined to be critical by the Secretary of the Interior. In accordance with Section 7 of the Endangered Species Act, consultation with USFWS to determine the potential for occurrences of federally-listed threatened and endangered species in the project area would be necessary. Prior to project implementation, further analysis is required to identify the potential for fish, wildlife and plant impacts as a result of the project.

**Floodplains**

Floodplains constitute lands situated along rivers and their tributaries that are subject to periodic flooding on the average interval of 100 years or less. Airport property is located in an area that has a 0.2% annual chance of flood as shown on the attached FEMA Flood Insurance Rate Map (FIRM) map illustrated in *Exhibit 8-2: FEMA FIRM Maps* (Panels 46099C0453E and 46099C0451E). Any enhancement of the approach lighting system for Runway 21 may require a light standard to be located within the floodplain.
Figure 8-1 – Farmland Classification Map
### Farmland Classification

<table>
<thead>
<tr>
<th>Map unit symbol</th>
<th>Map unit name</th>
<th>Rating</th>
<th>Access to AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>A6A</td>
<td>Altoesper-silt loam, cool, 0 to 2 percent slopes</td>
<td>All areas are prime farmland</td>
<td>21.5</td>
<td>1.0%</td>
</tr>
<tr>
<td>A6B</td>
<td>Altoesper-silt loam, cool, 0 to 1 percent slopes</td>
<td>All areas are prime farmland</td>
<td>20.5</td>
<td>0.9%</td>
</tr>
<tr>
<td>Ar</td>
<td>Alto-silt, 6 to 1 percent slopes</td>
<td>Prime farmland &amp; drained</td>
<td>0.1</td>
<td>0.0%</td>
</tr>
<tr>
<td>Ba</td>
<td>Blows silt loam, 0 to 1 percent slopes</td>
<td>Not prime farmland</td>
<td>12.5</td>
<td>0.5%</td>
</tr>
<tr>
<td>BNC</td>
<td>Blodgett-Hexelec fine sandy loam, 2 to 6 percent slopes</td>
<td>All areas are prime farmland</td>
<td>3.4</td>
<td>0.2%</td>
</tr>
<tr>
<td>Cd</td>
<td>Cheyenne loam, 0 to 2 percent slopes</td>
<td>Prime farmland &amp; drained</td>
<td>185.6</td>
<td>8.1%</td>
</tr>
<tr>
<td>Cm</td>
<td>Cimarron silt loam, 0 to 5 percent slopes</td>
<td>Prime farmland &amp; drained</td>
<td>1,841.1</td>
<td>81.6%</td>
</tr>
<tr>
<td>CVD</td>
<td>Croson-Nova complex, 5 to 15 percent slopes</td>
<td>Not prime farmland</td>
<td>28.5</td>
<td>1.3%</td>
</tr>
<tr>
<td>Dv</td>
<td>Dino silt loam, 0 to 2 percent slopes</td>
<td>All areas are prime farmland</td>
<td>1.7</td>
<td>0.1%</td>
</tr>
<tr>
<td>F1B</td>
<td>Flandreau-Thuompson complex, 2 to 6 percent slopes</td>
<td>All areas are prime farmland</td>
<td>1.1</td>
<td>0.0%</td>
</tr>
<tr>
<td>SSA</td>
<td>Graceville silt loam, 0 to 2 percent slopes</td>
<td>All areas are prime farmland</td>
<td>71.5</td>
<td>3.2%</td>
</tr>
<tr>
<td>Ja</td>
<td>Jura-tile sandy loam, 0 to 2 percent slopes</td>
<td>All areas are prime farmland</td>
<td>18.5</td>
<td>0.8%</td>
</tr>
<tr>
<td>N2C</td>
<td>Nona-Crion complex, 6 to 9 percent slopes</td>
<td>Farmland of statewide importance</td>
<td>15.4</td>
<td>0.7%</td>
</tr>
<tr>
<td>W</td>
<td>Water</td>
<td>Not prime farmland</td>
<td>37.4</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

**Totals for Area of Interest**: 2,357.4 100.0%

**Description**

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the “Federal Register,” Vol. 43, No. 21, January 31, 1978.

**Source**: United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)
Figure 8-2 – FEMA FIRM Maps

Source: Federal Emergency Management Agency (FEMA)
Hazardous Materials, Pollution Prevention and Solid Waste

FAA Order 5050.4B requires an analysis of the proposed improvements and their associated solid waste impacts as they relate to waste from the airfield development, waste from terminal area development, and the location of local waste disposal facilities.

The proposed improvements at Sioux Falls Regional Airport are not likely to produce any significant increases in solid waste collection, control, or disposal, other than what is associated with construction activity. De-icing fluid is currently contained through the sanitary sewer system in the passenger terminal complex. De-icing facility improvements will incorporate containment measures consistent with environmental regulations. Development near Sioux Falls Water Wells must also be completed in accordance with local policies. If hazardous materials are encountered project work will be suspended in the impacted area and the SD DENR will be notified within 24 hours. Further analysis may be required for work in proximity to water wells including a future rental car quick turn facility.

Historical, Architectural, Archaeological and Cultural Resources

Section 106 of the National Historic Preservation Act of 1966, as amended, requires that federally funded projects be evaluated for the effects on historic and cultural properties included in, or eligible for listing in, the National Register of Historic Places. The Archaeological and Historic Preservation Act of 1974 provides for the survey, recovery, and preservation of significant scientific, prehistoric, archaeological, or paleontological data when such data may be destroyed or irreparably lost due to a federal, federally licensed, or federally funded project.

Before a project that involves land disturbance is implemented, an analysis to identify the potential for cultural resources would need to be conducted for the project area. Coordination with the State Historic Preservation Office (SHPO) is necessary for projects involving land disturbance. Additionally, any project affecting buildings that have the potential to be listed in the National Register of Historic places would require coordination with SHPO. Further analysis is required prior to project implementation.

There are structures located on the Airport that are 50 years old and so therefore could be potentially eligible for the NRHP. Airport development dates back to the 1940’s with the airline terminal constructed in the 1960s. Further review regarding potential historic sites may be required at the environmental documentation phase particularly for passenger terminal and east general aviation hangar development projects.

Light Emissions and Visual Impacts

Light emissions from the various types of lighting installed on an airport can be a potential annoyance for people living or working in the vicinity of the installation. Simple shielding, changing a beam angle, or considering the location of lighting systems can avoid such an annoyance. Upgrades of existing runway edge, taxiway edge and visual approach slope indicator lighting systems (i.e. VASI to PAPI) are not anticipated to increase existing visual impacts.

Other proposed improvements in the planning period include the upgrade of approach lighting systems to Runway 3 (ALSF-II0 and the installation of a new approach lighting system (ODALS) for Runway 33. The Runway 33 approach lights would be located in proximity to Minnesota Avenue. These lights are not anticipated to significantly increase light emissions or cause visual impacts to the area. The aesthetic value of an area is influenced by its landscape and the viewer’s response to the view, scenic resource, or man-made feature. Further analysis is needed for approach lighting system improvements.
Natural Resources and Energy

Impacts on energy supplies and natural resources are related to changes of stationary facilities, such as airfield lighting or terminal building heating and expansion, as well as any increase of fuel consumption by aircraft or ground vehicles. Proposed improvements at Sioux Falls Regional Airport would require additional energy, but are not anticipated to cause significant impacts to energy supplies or natural resources. No further analysis is required.

Noise

Noise emitted from aircraft can significantly affect the well-being of people living or working near an airport. The FAA requires noise studies for certain projects. If a project involves Airplane Design Groups I and II and have forecasted operations of less than 90,000 annual propeller operations or 700 annual adjusted jet operations, than no further noise analysis is required. Sioux Falls Regional Airport exceeds the annual adjusted jet operations, therefore a noise analysis may be required for future runway or operational improvements. FAA considers a significant impact to cause noise sensitive areas to be located at or above the day-night level (DNL) of 65 decibels (dB) or experience a noise increase of at least DNL 1.5 db. A planning-level noise study conducted in this Master Plan study, as described in Chapter 7: Land Use Compatibility, did not identify any incompatible land uses in the planning period.

Secondary (Induced) Impacts

Induced impacts primarily involve the potential for induced or secondary impacts on surrounding communities. The proposed improvements are not anticipated to significantly affect shifts in patterns of population movement and growth or public service demands. The proposed improvements are not anticipated to encourage growth in the community. No further analysis would be required for secondary impacts.

Socioeconomic Impacts, Environmental Justice and Children’s Environmental Health and Safety Risks

Social impacts from a project depend on how that project affects the character, habits, and economic conditions of the people living within the affected area of the project. The project’s effects on business, employment, transportation, utilities, etc. are factors that affect the social climate of a community. Any action that would either adversely or beneficially affect the factors stated above would be considered as having some type of social impact on the residents of a particular community. Off-airport actions include the acquisition of land use and airspace avigation easements and potential future obstruction mitigation. The proposed improvements do not have the potential to result in significant social impacts. No further analysis is required.

Water Quality

The Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, provides the authority to establish water quality standards, control discharges into surface and subsurface waters, develop waste treatment management plans and practices, issue permits for discharges (Section 402) and for dredged or fill material (Section 404).

Airport activities can affect water quality. This is mainly due to stormwater runoff from paved areas. Providing treatment for stormwater runoff from runway, taxiway and apron areas through the use of best management practices and grassed swale areas would minimize potential impacts to water quality. Stormwater management will be of particular emphasis with the additional of large expanses of pavements for projects such as expanded aircraft parking/de-icing aprons.
A General Permit for Storm Water Discharges Associated with Construction Activities may be required from the SD DENR for the proposed improvements if the area of disturbance exceeds one acre. Permit requirements would need to be reviewed during the environmental documentation phase. Further coordination with the SD DENR may be needed for airport development projects.

**Wetlands**

Wetlands are defined in Executive Order 11990, Protection of Wetlands, as those areas that are inundated by surface or groundwater with a frequency to support, and under normal circumstances does or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Three parameters that define a wetland as outlined in the US Army Corps of Engineers Wetland Delineation Manual are hydric soils, hydrophytic vegetation, and hydrology.

Analysis of the National Wetlands Inventory (NWI) data indicates the presence of wetlands within the study area. Exhibit 8-3: **USFWS National Wetlands Inventory Map** identifies the current NWI data for the Sioux Falls Regional Airport. There are few identified wetlands within airport property. Wetlands in the area would serve a variety of functions, including groundwater recharge, flood control, sediment removal, and nutrient cycling. A wetland delineation and coordination with applicable resource agencies may be necessary prior to project implementation to further analyze the impacts the proposed improvements would have on wetlands. Further analysis is required for future projects.

*Figure 8-3 – USFWS National Wetlands Inventory Map*

*Source: U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory*
**Wild and Scenic Rivers**

The Wild and Scenic Rivers Act of 1968, as amended, identified rivers within the United States that are eligible to be included in a system afforded protection, which are free flowing and possessing outstandingly remarkable scenic recreational, geologic, fish and wildlife, historic, cultural or other similar values. The Sioux Falls Regional Airport is not located near a wild or scenic river. Therefore, no further analysis is required.

**Environmental Summary**

The Environmental Review Summary identified in Table 8-4 summarizes the potential environmental impacts identified in the prior sections of this Chapter. This table is intended to give a general indication of the likely need for further environmental analysis. According to this table, additional environmental investigation is necessary to determine possible impacts associated with the proposed improvements. At the appropriate time, the FAA would decide whether, and to what extent, any additional investigation would be performed. Based on the findings of this environmental review, it is estimated that further environmental analysis is required for the proposed improvements at Sioux Falls Regional Airport.

**Table 8-4 – Environmental Review Summary**

<table>
<thead>
<tr>
<th>NEPA Impact Category</th>
<th>Further Analysis Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality</td>
<td>NO</td>
</tr>
<tr>
<td>Coastal Resources</td>
<td>NO</td>
</tr>
<tr>
<td>Compatible Land Use</td>
<td>NO</td>
</tr>
<tr>
<td>Construction Impacts</td>
<td>NO</td>
</tr>
<tr>
<td>Department of Transportation Act Section 4(f)</td>
<td>NO</td>
</tr>
<tr>
<td>Farmlands</td>
<td>NO</td>
</tr>
<tr>
<td>Fish, Wildlife, and Plants</td>
<td>YES</td>
</tr>
<tr>
<td>Floodplains</td>
<td>NO</td>
</tr>
<tr>
<td>Hazardous Materials, Pollution Prevention and Solid Waste</td>
<td>YES</td>
</tr>
<tr>
<td>Historical, Architectural, Archaeological and Cultural Resources</td>
<td>YES</td>
</tr>
<tr>
<td>Light Emissions and Visual Impacts</td>
<td>YES</td>
</tr>
<tr>
<td>Natural Resources and Energy Supply</td>
<td>NO</td>
</tr>
<tr>
<td>Noise</td>
<td>YES</td>
</tr>
<tr>
<td>Secondary (Induced) Impacts</td>
<td>NO</td>
</tr>
<tr>
<td>Socioeconomic Impacts, Environmental Justice and Children’s Environmental Health and Safety Risks</td>
<td>NO</td>
</tr>
<tr>
<td>Water Quality</td>
<td>YES</td>
</tr>
<tr>
<td>Wetlands</td>
<td>YES</td>
</tr>
<tr>
<td>Wild and Scenic Rivers</td>
<td>NO</td>
</tr>
</tbody>
</table>

*Source: KLJ Analysis, FAA Order 1050.1E, Environmental Impacts: Policies and Procedures*

A review of the proposed improvements (actions) described in Chapter 6: Implementation identifies following projects within the planning period may require an Environmental Assessment (EA) to review the potential for environmental impacts:

- Expand Passenger Terminal Apron, Remain Overnight Parking/De-Icing Apron
- Upgrade Runway 3 to Category II Instrument Landing System
- Construct West Access Road and Bridge
- Expand Passenger Terminal Apron and Terminal Concourse, Construct FIS

The remaining actions described in the implementation plan for the Sioux Falls Regional Airport are anticipated to require a documented Categorical Exclusion (CATEX).