Attachment #2

SD DEPARTMENT OF TRANSPORTATION

Division of Finance & Management
Office of Air, Rail & Transit
700 East Broadway Avenue
Pierre, SD 57501
O: 605.773-3574 | F: 605.773.2804
dot.sd.gov

TO: South Dakota Aeronautics Commission

FROM: Jack Dokken, Office of Aeronautics

DATE: April 10, 2023

SUBJECT: Airport Improvement Program (AIP)/Bipartisan Infrastructure Law (BIL) Grant Applications

Airport sponsors are requesting funding from the State Aeronautics Fund for the following AIP or BIL projects.

Flandreau 3-46-0077-015-2023
AIP: Design hangar taxi lane reconstruction with geotechnical exploration.

Federal Share	$ 61,200.00
State Share	$ 3,400.00
Local Share	$ 3,400.00
Total	$ 68,000.00

Gregory 3-46-0018-021-2023
AIP: Design revenue producing T-hangars with geotechnical exploration.

Federal Share	$67,500.00
State Share	$ 0
Local Share	$ 7,500.00
Total	$75,000.00

Huron 3-46-0022-043-2023
AIP: Design partial parallel taxiway with geotechnical exploration, aquatic resource survey, and level I record search.

Federal Share	$ 162,000.00
State Share	$ 9,000.00
Local Share	$ 9,000.00
Total	$ 180,000.00

Pine Ridge 3-46-0045-018-2023

AIP: Procure snow removal equipment – industrial loader with attachments.

Federal Share	$ 450,000.00
State Share	$ 25,000.00
Local Share	$ 25,000.00
Total	$ 500,000.00

Springfield 3-46-0052-012-2023

AIP: Design reconstruction of runway 15/33, taxiway A, apron, and realign taxiway turnaround.

Federal Share	$ 235,043.00
State Share	$ 13,058.00
Local Share	$ 13,059.00
Total	$ 261,160.00

Vermillion 3-46-0056-019-2023

AIP: Design AWOS IIIP.

Federal Share	$54,000.00
State Share	$ 3,000.00
Local Share	$ 3,000.00
Total	$60,000.00

Wagner 3-46-0057-020-2023

AIP: Design AWOS-IIIP and aquatic resource survey

Federal Share	$ 72,000.00
State Share	$ 4,000.00
Local Share	$ 4,000.00
Total	$ 80,000.00

Watertown 3-46-0058-042-2023

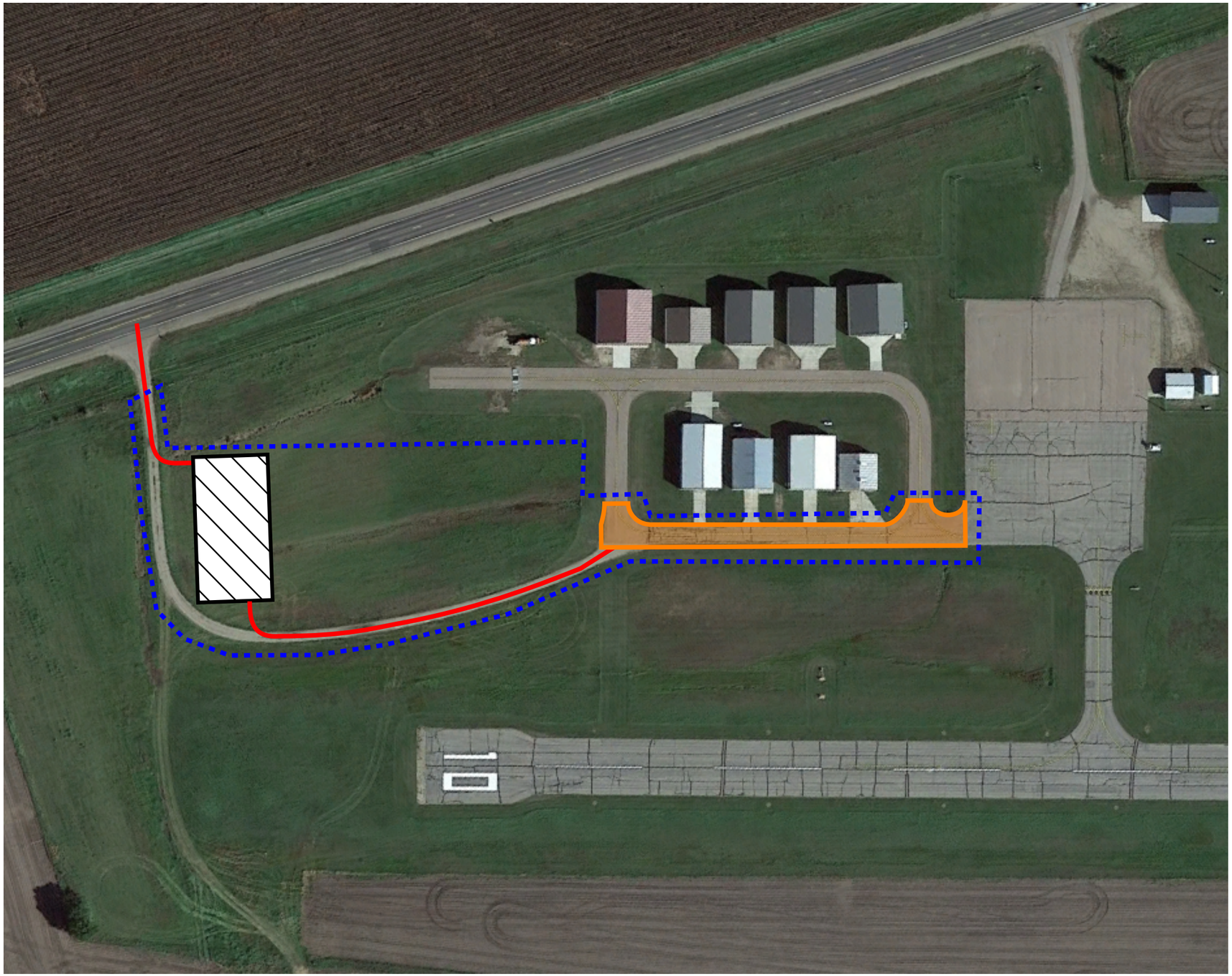
BIL - Purchase snow removal equipment

Federal Share	$ 783,000.00
State Share	$ 43,500.00
Local Share	$ 43,500.00
Total	$ 870,000.00

Webster 3-46-0059-016-2023

AIP: Design fuel system (100LL) with card reader.

Federal Share	$ 63,000.00
State Share	$ 0
Local Share	$ 7,000.00
Total	$ 70,000.00



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LEGEND

- Haul Route
- Proposed Taxilane Reconstruction
- Staging Area
- Construction Limits

No.	Revisions	By	App.	Date

I Hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the law of the State of South Dakota.
Registration No.

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bobb@helmsengineering.com

Helms & Associates
CIVIL ENGINEERS & LAND SURVEYORS

Hangar Taxilane Improvements
Preliminary Project Sketch

Flandreau Municipal Airport
Flandreau, SD

Drawn By:

Chk' By:

Proj. No:

Dwg. No:
VP. No:

Date:

OF

Project Narrative (Justification)

Design of Hangar Taxilane Reconstruction w/Geotechnical Exploration

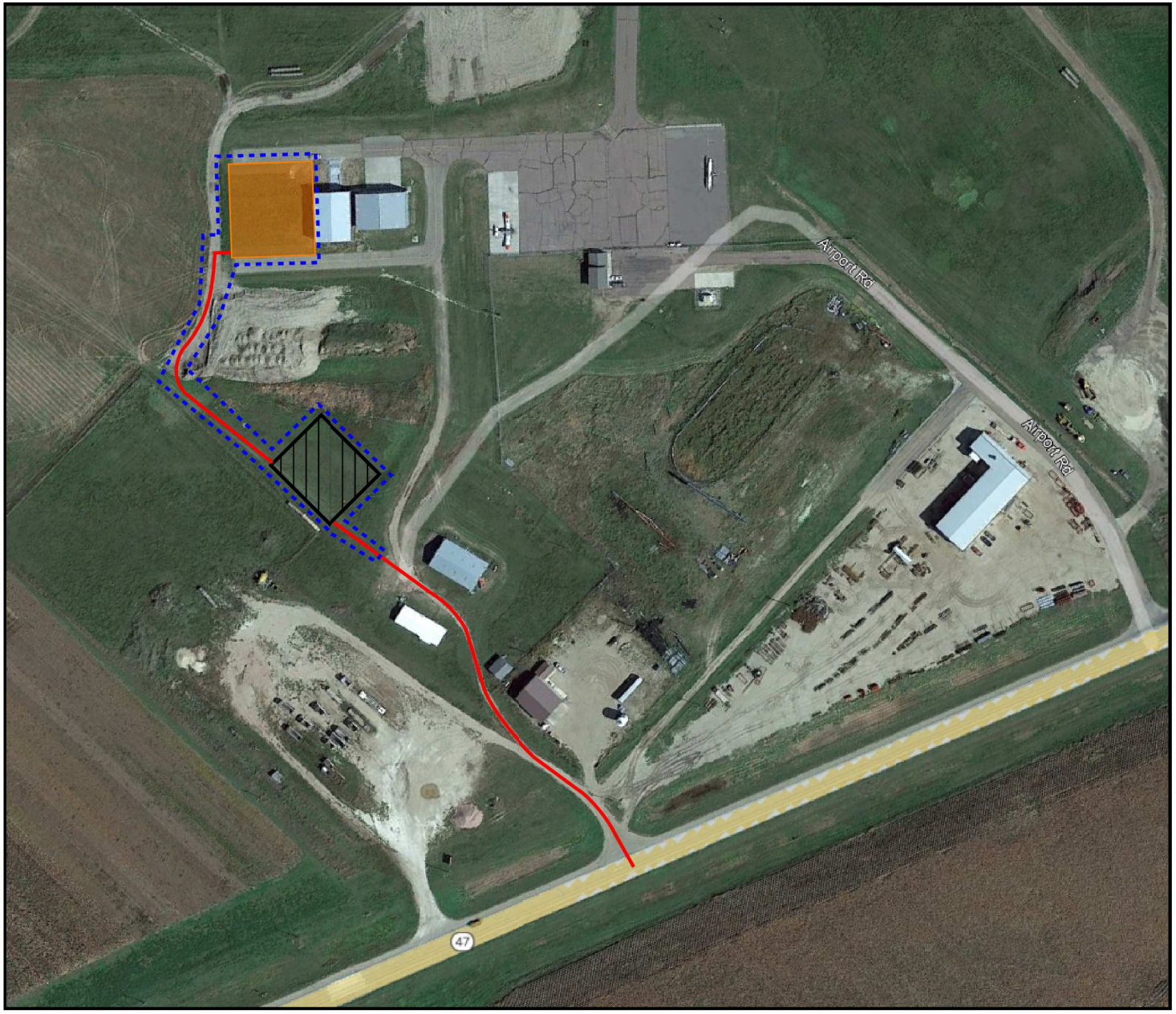
The purpose of this project is to complete the design of hangar taxilane reconstruction with geotechnical exploration at the Flandreau Municipal airport. Portions of the hangar taxilanes have reached the end of their useful life and are in need of reconstruction. The airport is home to 10 based aircraft and supports an average of 66 aircraft operations/day according to AIRNAV, updated July 2021.

The taxilanes were originally constructed in 1987 and consisted of 8" of subbase course and 6" of Aggregate Base Course and were overlain with 3" of asphalt in 1998. In 2008, a project was completed that reconstructed a majority of the taxilanes at 4P3, however some of the older pavement remained. The taxilanes were included in the SDDOT Pavement Maintenance project in 2013, 2017, and 2020 at which time crack sealing, patching and crack leveling was completed. The latest results from the 2021 Pavement Condition Index (PCI) surveys indicated a PCI value of 72 for the newer taxilane sections and a 25 for the older taxilane section. According to FAA AC 150/5320-6G, pavement sections with a PCI value of less than 55 are candidates for reconstruction. The table below shows the gradual degradation of the taxilanes since 2012. The older section's PCI of 25 puts it well below the minimum values determined by the FAA for operation and need for reconstruction.

FLANDREAU MUNICIPAL AIRPORT (4P3)										
Branch ID	Pavement		2012		2015		2018		2021	
	Age	Material	PCI	Condition	PCI	Condition	PCI	Condition	PCI	Condition
Hangar Taxilane	1998	Asphalt	76	Satisfactory	76	Poor	56	Fair	25	Failed
Hangar Taxilane	2008	Asphalt	100	Good	79	Satisfactory	84	Satisfactory	72	Satisfactory

It is proposed that the reconstructed taxilanes be constructed to an adequate depth to provide frost protection (up to 65% of frost depth), and include underdrain to reduce the susceptibility to frost heaves in order to extend the life of the pavement. The existing asphalt and base course will be recycled and reused as subbase material for the new pavement section.

Geotechnical exploration shall utilize sub-surface soil borings within the project area, to determine the geotechnical characteristics of the existing subgrade. The results and data obtained from the soil borings will be used in the design of the new pavement section.



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LEGEND

- Haul Route
- Construction Area
- Staging Area
- Construction Limits

No.	Revisions	By	Appr.	Date

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CIVIL ENGINEERS & LAND SURVEYORS

T-HANGAR CONSTRUCTION

GREGORY MUNICIPAL AIRPORT

Drawn By:	
Chk' By:	
Proj. No:	
Dwg. No:	
VP. No:	
Date:	

OF

Project Narrative (Justification)

Gregory Municipal Airport

Gregory, SD

Design of Revenue Producing T-Hangars with Geotechnical Exploration

There has been great interest from local and transient users to have storage for temporary and/or long-term situations. The addition of a T-Hangar building will allow the airport to have more hangar space available for aircraft. The city-owned T-Hangars will be rented out to users allowing the city to collect revenue. Currently, there are two hangars at the airport, one of which is privately owned. During the fall the airport experiences higher traffic volumes due to hunters traveling to the area. With the shortage of hangar space available, pilots are forced to park their aircraft on the apron or utilize other airports. For example, 3 pilots live in Gregory and are forced to hangar their aircraft in Winner. Each of them have expressed the desire to be back at the Gregory airport and plan to rent a t-hangar if the project were to be constructed. By constructing the T-Hangars, the City of Gregory will have space available to accommodate those aircraft.

The geotechnical exploration will determine the soil types present at the site to aid in design of the foundation and footings of the pre-engineered building. Other design elements will include approach pavement to provide access to the hangar taxilanes and proper site grading and drainage.

It is anticipated that the airport will utilize three grants for the completion of the project. They will have approximately $314,000 in AIP entitlements to use for construction and $330,000 in BIL for Engineering. It is anticipated that the following will occur:

AIP 3-46-0018-021-2023 will be for the design of the project.

AIP entitlements	$67,500
Local Share	$ 7,500
Total Project	**$75,000**

AIP 3-46-0018-022-2024 will be for the construction of the project.

AIP entitlements	$314,000
AIP entitlement transfers	$121,000
Local Share	$ 48,300
Total Project	**$483,300**

BIL 3-46-0018-023-2024 will be for the construction of the Civil Construction and Engineering for the project.

BIL Funds	$330,000
Local Share	$ 36,600
Total Project	**$366,600**

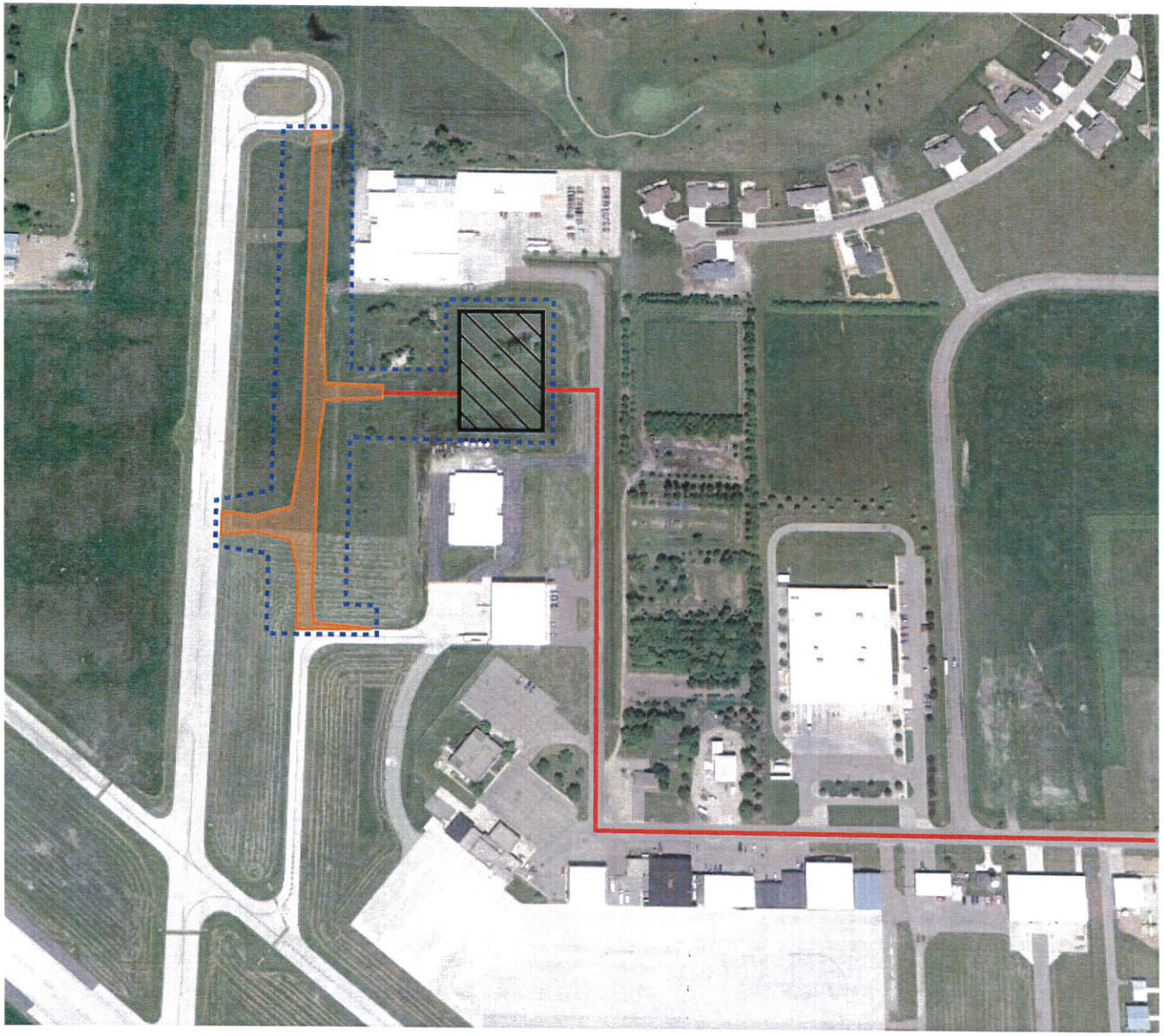
Project Narrative (Justification)
Huron Regional Airport
Huron, SD

Design of Phase I Partial Parallel Taxiway with Aquatic Resource Survey, Geotechnical Exploration, Level I Record Search, and TCS Survey

This project shall include the design of the partial parallel taxiway that will include the Geotechnical work and Aquatic Resources Survey. A Level I Record Search was completed and a TCS survey will be completed in spring of 2023. The project includes a partial parallel taxiway, and taxilane. The construction work includes grading, unclassified excavation, disposal of excess material, geotextile separator fabric, subbase course, aggregate base course, PCC Paving, underdrain piping, topsoiling, seeding, fencing, and other items of related construction.

The proposed Expansion site is currently undeveloped. It is proposed that the taxilane and parking area be designed in the undeveloped land to the north of the existing Ag Areas to accommodate the 2 additional Ag businesses that will need to utilize the airfield. The proposed Area will take advantage of the expanded parallel taxiway and will allow for better accessibility and maneuverability for aircraft using the airfield, especially the Ag operators.
HON has the two largest Ag Spray Operators in the State based at their airfield. Each of those companies has planes spraying throughout the region but they ultimately end up back in Huron for maintenance, repairs, and storage. With the addition of two new spray businesses, the Huron airport will have 4 spray businesses based on the airfield which is more than any other airport in the state. Having an area separate from the General Aviation Traffic for the Ag Operators is beneficial allowing the GA traffic to utilize the airfield as they normally would without being a hindrance to the busy spray planes.

Included with the design of the Ag area expansion is a geotechnical exploration of the proposed partial parallel taxiway and hangar taxilane locations. This exploration provides vital information about the type of soils present at the proposed site. In order to properly design the pavement section of the taxiway and taxilane, geotechnical exploration is essential. Different types of soils have different effects on pavement sections; so properly identifying key soil properties of the existing site will allow the best possible pavement design to be completed.



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LEGEND

- Haul Route
- Proposed Partial Parallel Taxiway
- Staging Area
- Construction Limits

No.	Revisions	By	App.	Date

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Partial Parallel Taxiway
Preliminary Project Sketch
Huron Regional Airport
Huron, SD

Drawn By	
Chk' By	
Proj. No	
Dwg. No.	
VP. No	
Date	

OF

Oglala Sioux Tribe – Pine Ridge Airport, Pine Ridge, South Dakota

Project Narrative

1. Procure Snow Removal Equipment - Industrial Loader with Attachments
    a. The airport does not currently have snow removal equipment and would like to procure an industrial load with attachments to aid in snow removal. The airport is heavily used by air ambulance and having quick access to snow removal equipment to keep the airport open is critical to the community. This would be a dedicated piece of snow removal equipment that will be housed on the airport.
    b. The airport already has a building to store the snow removal equipment in and this equipment will be stored there.

Project Narrative

Reconstruct Runway 15/33, Taxiway A, Apron, and Realign Taxiway Turn Around

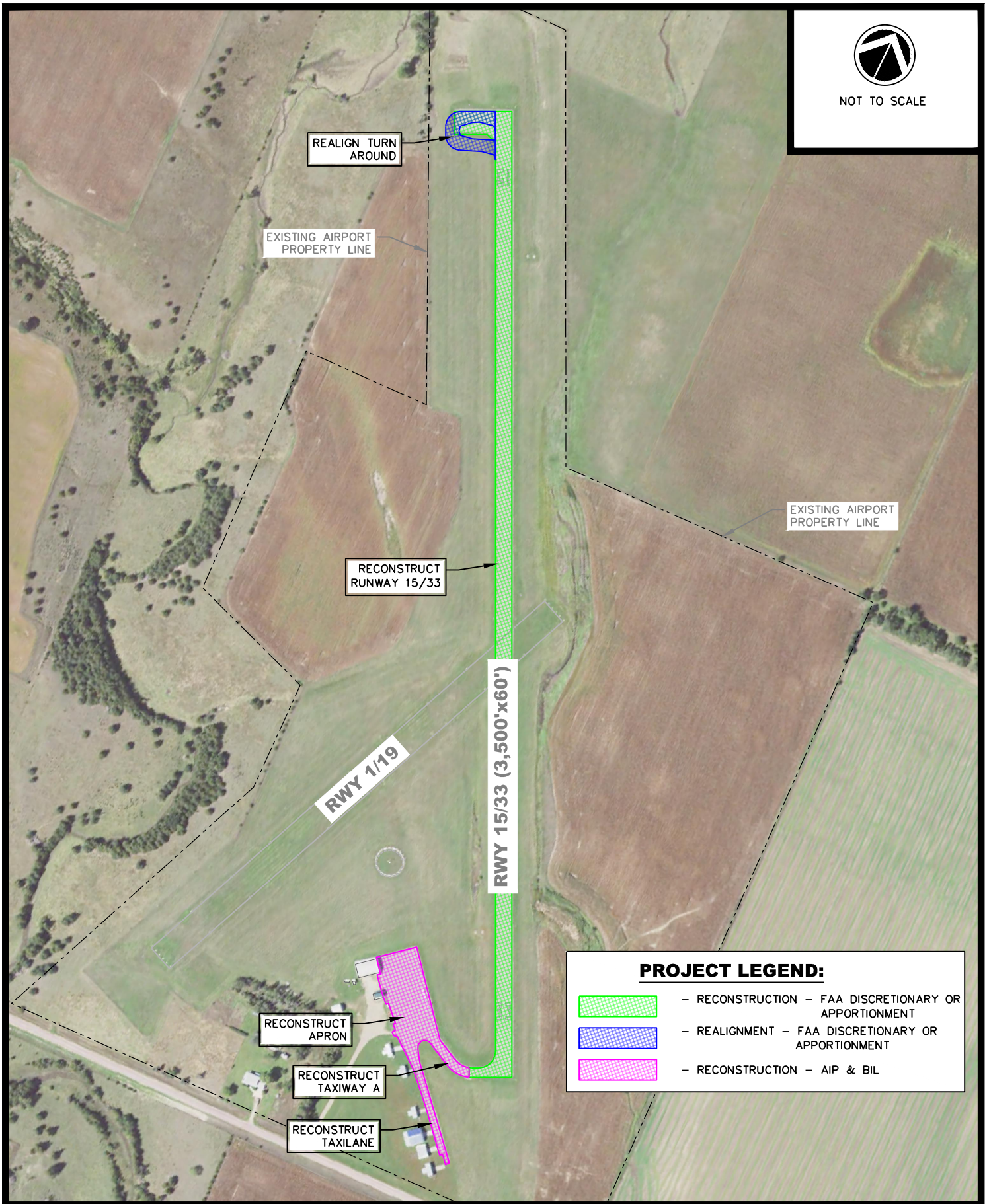
Springfield Municipal Airport
Springfield, South Dakota

The condition of the existing runway, taxiways, taxilanes, and apron pavement is degrading yearly, causing constant attention, repairs, and maintenance. There are significant longitudinal and transverse cracks. The pavement is in significantly poor condition from all operational, maintenance, and safety standpoints.

The pavement will become unusable without reconstruction. The SDDOT Pavement Maintenance Report indicates the pavement has a PCI rating in the 20s, making it the worst pavement in South Dakota. The pavement was originally constructed in the 1980s and it was rehabilitated in 2005. The State completed a runway crack repair project in 2019. The cracks were beyond joint sealant repair causing the contractor to run out of joint sealer material.

The repairs were expected to provide some extra life, hopefully a few years, but even that was optimistic. Some of the joints are collapsing already and the pavement is generally beyond additional crack repairs.

The proposed project will include a base bid consisting of reconstructing the existing runway, taxiways, taxilanes, and apron pavement and realignment of the taxiway turn around. The proposed project will include a bid alternate consisting of reconstructing the existing runway; rehabilitating taxiways, taxilanes, and apron pavement; and realignment of the taxiway turn around. The project would meet the needs of the airport users and would bring the airport operations into alignment with current safety and compliance standards. Refer to the attached sketches.



SPRINGFIELD MUNICIPAL AIRPORT
FFY 2024 CIP

RUNWAY 15/33, TAXIWAY A, TAXILANE & APRON RECONSTRUCTION, TURN AROUND REALIGNMENT

DGR ENGINEERING
1300 S. HIGHLINE AVENUE
SIOUX FALLS, SD 57110
(605) 339-4157 office
(605) 339-4175 fax
dgr.com

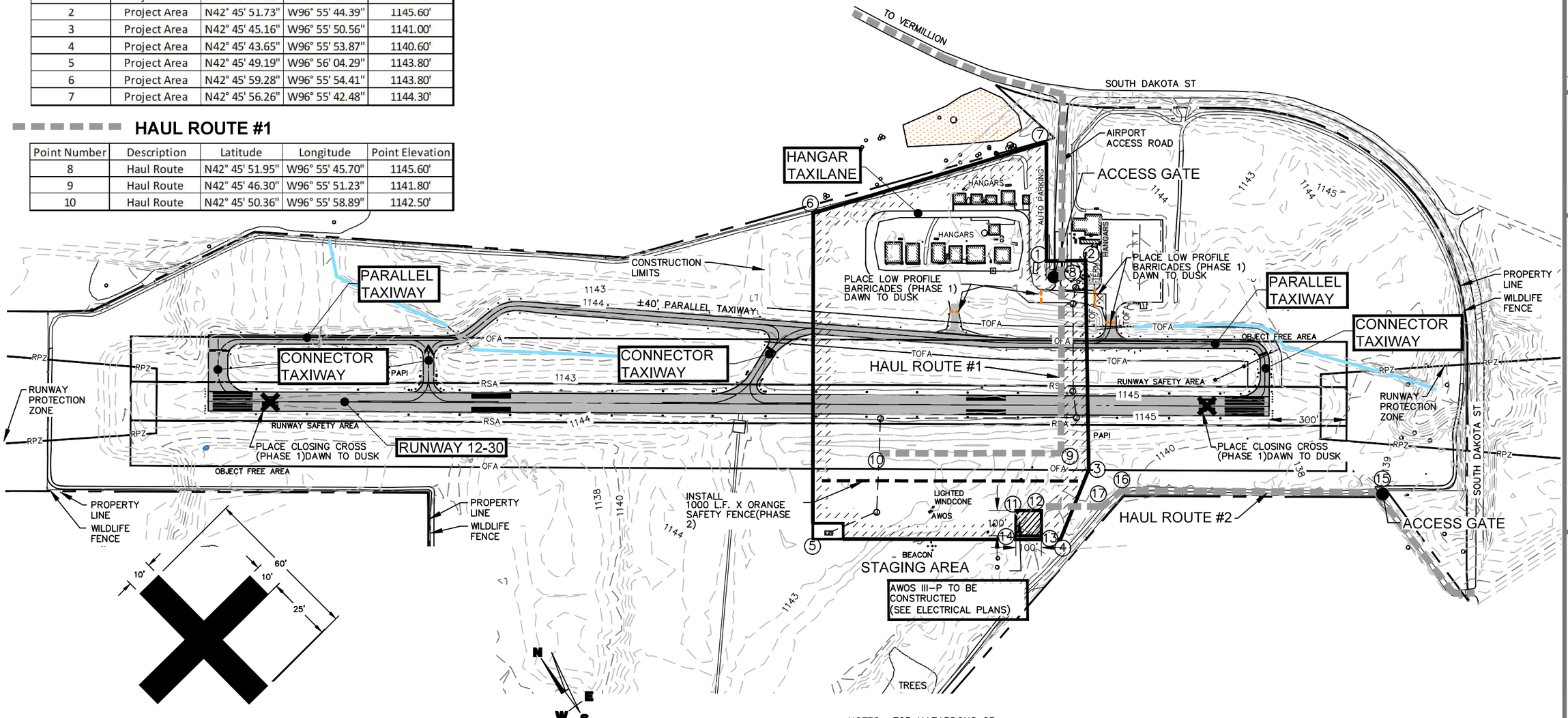
Plot Date: 10/6/2022 12:45:45 PM P:\07\300 SOUTH DAKOTA\311 SPRINGFIELD\731100\ACIP DATA\FFY23\731100 - Y03 CIP.DWG

PROJECT AREA

Point Number	Description	Latitude	Longitude	Point Elevation
1	Project Area	N42° 45' 52.58"	W96° 55' 46.02"	1145.20'
2	Project Area	N42° 45' 51.73"	W96° 55' 44.39"	1145.60'
3	Project Area	N42° 45' 45.16"	W96° 55' 50.56"	1141.00'
4	Project Area	N42° 45' 43.65"	W96° 55' 53.87"	1140.60'
5	Project Area	N42° 45' 49.19"	W96° 56' 04.29"	1143.80'
6	Project Area	N42° 45' 59.28"	W96° 55' 54.41"	1143.80'
7	Project Area	N42° 45' 56.26"	W96° 55' 42.48"	1144.30'

HAUL ROUTE #1

Point Number	Description	Latitude	Longitude	Point Elevation
8	Haul Route	N42° 45' 51.95"	W96° 55' 45.70"	1145.60'
9	Haul Route	N42° 45' 46.30"	W96° 55' 51.23"	1141.80'
10	Haul Route	N42° 45' 50.36"	W96° 55' 58.89"	1142.50'



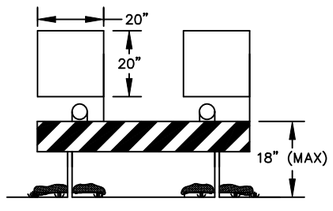
RUNWAY CLOSING X

GRAPHIC SCALE

(IN FEET)
1 inch = 200 ft.
HALF SCALE HORIZ.: 1" = 400'

PROJECT LEGEND

- RSA — RUNWAY SAFETY AREA
- OFA/OFZ — OBJECT FREE AREA/OBSTACLE FREE ZONE
- RPZ — RUNWAY PROTECTION ZONE
- SECTION LINE
- QUARTER LINE
- X — EXISTING FENCE
- OHE — OVERHEAD ELECTRIC LINE
- PROPERTY CORNER
- RUNWAY THRESHOLD LIGHTS
- RUNWAY LIGHTS
- TAXIWAY LIGHTS
- RUNWAY MARKERS/CONES
- LIGHT POLE
- BEACON
- TIE DOWNS
- WETLANDS
- BUILDINGS
- POWER POLE
- SURVEY MARKER
- CULVERTS
- STORM SEWER MANHOLES
- DECIDUOUS TREE
- CONIFEROUS TREE
- EXISTING ASPHALT SURFACING
- EXISTING GRAVEL SURFACING



LOW PROFILE BARRICADE DETAIL
NO SCALE

NOTES:
1. FOR HAZARDOUS OR CLOSED AREAS.
2. BARRICADES SHALL BE PLACED SO THAT BASED AIRCRAFT WILL BE RESTRICTED FROM TAXIING INTO ANY CLOSED AREA
3. ORANGE FLAGS 20"X 20" SQUARE EXTENDED AT ALL TIMES.
4. FOR NIGHT TIME USE, BARRICADES SHALL HAVE FLASHING RED BEACONS.
5. ALTERNATING ORANGE AND WHITE STRIPES

HAUL ROUTE #2

Point Number	Description	Latitude	Longitude	Point Elevation
15	Haul Route	N42° 45' 38.05"	W96° 55' 39.22"	1140.00
16	Haul Route	N42° 45' 43.79"	W96° 55' 49.85"	1141.00
17	Haul Route	N42° 45' 43.70"	W96° 55' 51.13"	1141.00

STAGING AREA

Point Number	Description	Latitude	Longitude	Point Elevation
11	Staging Area	N42° 45' 45.53"	W96° 55' 54.88"	1141.00'
12	Staging Area	N42° 45' 44.96"	W96° 55' 53.80"	1141.00'
13	Staging Area	N42° 45' 44.18"	W96° 55' 54.57"	1141.00'
14	Staging Area	N42° 45' 44.74"	W96° 55' 55.63"	1141.00'

No. | Revisions | By | App. | Date

I Hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the law of the State of South Dakota. Registration No.

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CIVIL ENGINEERS & LAND SURVEYORS

CONSTRUCTION SAFETY PHASING PLAN LAYOUT

AUTOMATED WEATHER OBSERVING SYSTEM
HAROLD DAVIDSON FIELD
VERMILLION, SOUTH DAKOTA

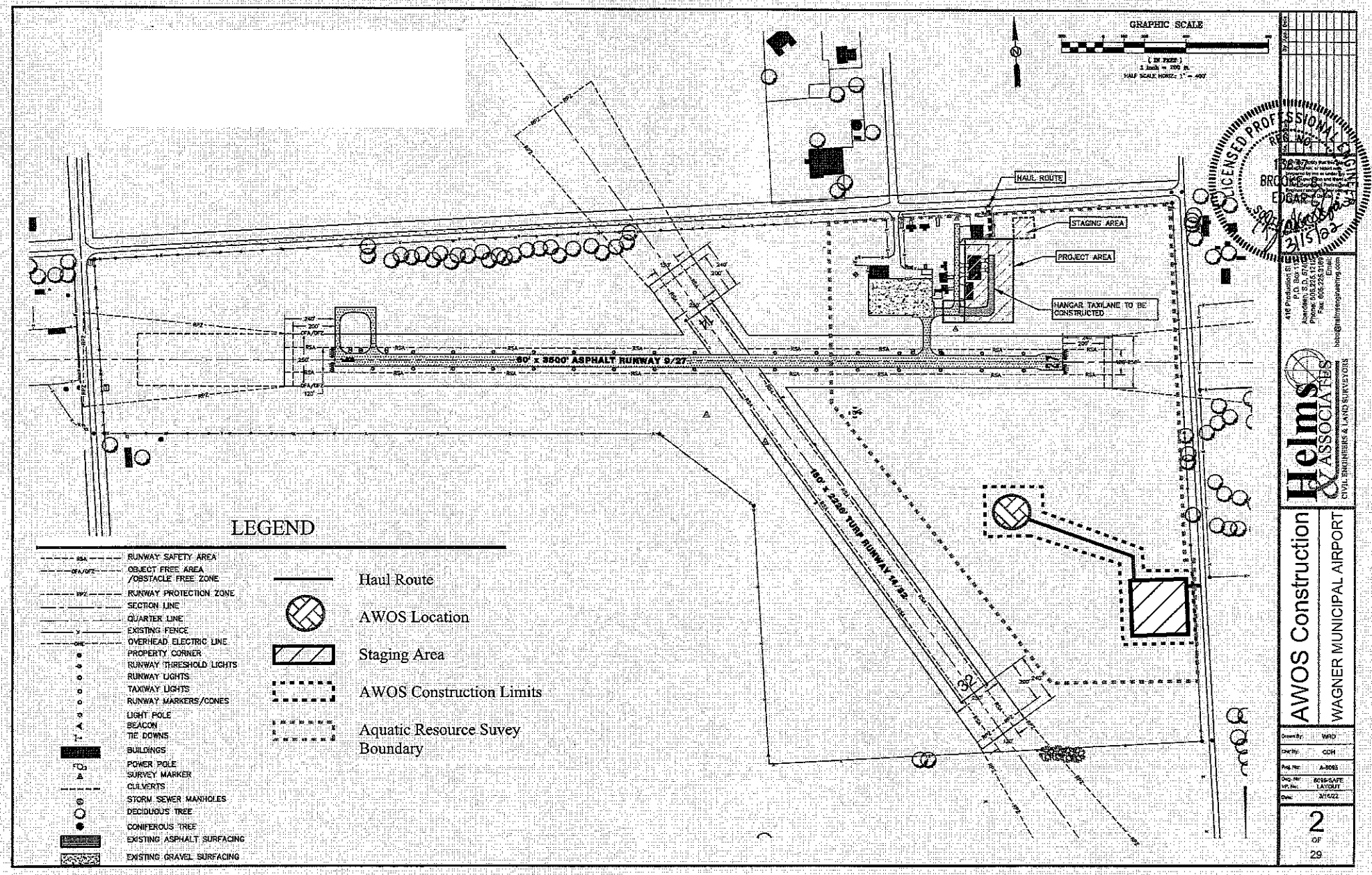
Drawn By:	MAS
Chk' By:	CLB
Proj. No:	A-8808
Dwg. No:	8808-PNT
VP. No:	SAF
Date:	1/21/23

Project Narrative (Justification)

Design of AWOS-III-P Automated Weather Observing Station

The purpose of this project is to complete the design of an airport improvement project to provide Harold Davidson Field with an Automated Weather Reporting System (AWOS III-P). The addition of an AWOS III-P will provide pilots with detailed weather information needed to more safely and effectively operate in and out of the airport. An AWOS III-P will provide pilots with accurate real time weather readings, including: visibility, cloud ceiling, wind velocity and direction, as well as the type of precipitation if it is raining or snowing. Harold Davidson Field sees an average of 79 operations/week at the airport according to the AIRNAV, updated May 25, 2021. Users of the airport have expressed a great deal of interest in the airport acquiring onsite weather reporting equipment.

This project will include the design work required to install an AWOS III-P weather system to satisfy the need at this facility. Design work will include electrical load calculations, site grading and foundation plans, determination of electrical power cable routing, and specifying the electrical and computer equipment, software, and other appurtenances needed to complete the AWOS System. An internet connection would also to be established in order for the National Weather Service (NWS) to connect with the National Airspace Data Interchange Network (NADIN) in order to relay weather information to pilots. Additionally, environmental clearance for the project has been completed with previous projects.



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AWOS Construction

WAGNER MUNICIPAL AIRPORT

Drawn By:	WRD
Chk'by:	CDH
Proj. No:	A-8095
Dwg. No: / VP. No:	8095-SAFE LAYOUT
Date:	3/15/22

Project Narrative (Justification)

Design of Automated Weather Observation System (AWOS-III-P) and Aquatic Resource Survey

The purpose of this project is to complete the design of an Automated Weather Observing System (AWOS III-P) at the Wagner Municipal Airport. The design of an AWOS III-P will provide pilots with the detailed weather information needed to more effectively and safely operate in and out of the airport. AWOS III-P stations provide pilots with many weather information readings including: visibility, cloud ceiling, wind velocity, wind direction, and the type of precipitation if it is raining or snowing. The Wagner Municipal Airport has an average of 9 operations/day at the airport according to AIRNAV, updated May 4, 2022. Users have expressed great interest in onsite certified weather reporting equipment.

Having a certified weather station on the airport is great way to increase the safety of the pilots using the airport. Being able to have real time, certified weather data available allows pilots to make informed decisions about their flight plans. The addition of a weather station will help to eliminate operations that take place in fog, high winds, or other types of inclement weather. One of the most dangerous weather conditions experienced by pilots is fog. By having an AWOS system installed, pilots can be informed of any foggy conditions that might be present and plan their flights accordingly.

Wagner currently possesses a RNAV (GPS) approach for both Runway 9 and Runway 27.

The proposed Aquatic Resources Survey will establish a strong foundation for proposed future projects at the airport. These future projects include design and construction of an AWOS III-P, and Revenue Producing Hangar. These projects have an anticipated start and completion of 2023-2024, and 2026-2028 respectively.

The field delineation will be conducted in accordance with the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (1987 Edition) and Regional Supplement to the Corps of Engineers Wetland Manual: Great Plains Region.

Project Narrative (Justification)

Snow Removal Equipment

The Watertown Regional Airport currently operates a fleet of Snow Removal Equipment that consists of Oshkosh Snow Blowers ('98 and '13), Oshkosh Truck Chassis ('05 and '09) equipped with 12' Reversible Tip Plows, 1 Case IH Front End Loader ('14), and a 22' MB Sweeper Broom Attachment that can be mounted onto one of the Oshkosh Snow Blowers (1998). The Airport is proposing to purchase two pieces of equipment for the airport, one to be reimbursed with 2022 BIL funds and the second with 2023 funds.

In order to justify the use of federal money for the purchase of SRE Equipment, the FAA developed a SRE Calculator spreadsheet that uses different variables to quantify the equipment needed to meet the requirements they set in their advisory circulars. The following justifications of the variables used in completing the spreadsheet. Figure 1 provides the results of the spreadsheet that was prepared using the following variables:

- The average annual snowfall of 34 inches was determined from the historical average monthly data from 1949 to 2022 from the Watertown Regional Airport's National Weather Service Station.
- The Watertown Regional Airport is a Commercial Service facility.
- The Number of Operations was obtained from the most recent Airport Master Record. The total operations for 12 months ending 1/1/2015 was 12,276. However, that is not an accurate overview of what is occurring at the airport. The July, 2019 Concept Budget Report analyzed the enplanements based on the FAA's Terminal Area Forecast (TAF), it was identified that the TAF is extremely inaccurate for ATY. The TAF matches the Airport Master Record.
  The current Air Carrier on the field is Denver Air and has **1,460** operations annually.
  ATY Aviation, the FBO on the airfield started their flight school in 2019, recently hired a second flight instructor and has had a growing number of students since inception. They estimate that they have an average of **8,600** annual operations and growing.
  Lake Area Technical College (LATC) has also had a growing aviation department in recent years. They have had an Aviation Maintenance Technology program for years, started the Unmanned Aerial Systems Pilot Systems program, and have expanded into a Professional Fixed Wing Pilot program that also allows students to become Certified Flight Instructors. LATC has 9 registered aircraft on the field and estimates that they have an average of **15,000** operations annually with anticipated annual growth.
  The airport has one ag spray operator on the airfield for years. This operator has 3 aircraft and estimates more than **1,000** operations annually. A second operator has joined the airport in a temporary location until a taxilane can be constructed allowing him to construct a hangar. He believes that he will have greater than **1,000** operations annually. Additionally, the airport is working to construct additional taxilane to allow that additional ag operator and another to base operations at ATY.
  With the operations discussed above and the estimated **10,000** annual local GA operations of the 45 based aircraft and estimated **5,000** itinerant operations by the FBO, the total operations at ATY is greater than **41,000**.

- The sizes of the Priority 1 snow removal areas are:
  - Runway 17/35 is 6,900 ft x 100 ft.
  - Parallel Taxiway C is ± 5850 ft. x 50 ft and totals approximately 323,000 ft^2 of pavement. This area includes Connector Taxiways C1, A3, a portion of Taxiway A from A3 to 17/35, and all applicable taxiway radius pavements.
  - Taxiway B is ± 2,150' x 75' ft. The total area is approximately 165,000 ft inclusive of applicable taxiway fillets.
  - The Terminal Access Taxiway is ±875 ft x 60 ft and totals approximately 59,000 ft^2 of pavement inclusive of all applicable taxiway fillets.
  - The Terminal Apron is approximately 128,000 ft^2.
  - The ARFF Access Road is ±970 ft x 25 ft and includes 24,250 ft of pavement.

Figure 1 is the completed "Airport Snow Removal Equipment" for the Watertown Regional Airport. The Airport is proposing to purchase two (2) additional Class III or IV snow plows. ATY has the capability of maintenance and repairs for these pieces of equipment. ATY has adequate storage to store the currently owned and proposed snow removal equipment indoors.

ATY is proposing to replace the 1998 Oshkosh Chasis with Plow, Snow Blower, and MB Broom attachment. It is greater than 24 years old and in need of replacement. All of the gauge clusters are inoperative, it has several small hydraulic leaks, and the block heaters melted down and started on fire 3 years ago and had to be replaced.

BEFORE the acquisition and replacement of the Snow Removal Equipment, ATY will have the following equipment purchased with AIP funds:	According to the Snow Removal Equipment Calculations spreadsheet, the maximum number of eligible items for ATY is as follows:	AFTER the acquisition and replacement of the Snow Removal Equipment, ATY will have:
2 – Snow Blowers	2 – Snow Blowers	1 – Snow Blowers
2 – Plows	4 – Plows	3 – Plows
1 – Sweeper	2 – Sweepers	2 – Sweeper
0 – Hopper Spreaders	2 – Hopper Spreaders	0 – Hopper Spreaders
1 – Front End Loader	0 – Front End Loader	1 – Front End Loader.

Airport Snow Removal Equipment Inventory Sheet

ATTACHMENT 1
Airport Name: Watertown Regional Airport
The airport has the following snow removal equipment:

	Type Example: Blower	Make Example: John Deere	Any Federal Funding?
1.	Blower	OshKosh (1998) to be replaced	Yes
2.	Plow	OshKosh (1998) to be replaced	Yes
3.	Sweeper	MB (1998) to be replaced	Yes
4.	Plow	Oshkosh (2005)	Yes
5.	Chasis	Oshkosh (2009)	Yes
6.	Blower Attachment	OshKosh (2013)	Yes
7.	Loader	Case IH (2014)	Yes
8.			Yes
9.			

Acquisition would be for:

1. 2 – Multi-Tasking Pieces of Equipment – Plow and Broom
2.
3.

Signature of Airport Representative, Date

Snow Removal Equipment Calculations

* Data entry required

Airport Name: Watertown Regional Airport
Location: Watertown, SD
*Average Annual Snow Fall: 34
*Type of Airport: Commercial Service
*Annual Operations: >40,000

Users requiring assistance or reasonable accommodation may contact the FAA Central Region at 816-329-2600

Refer to AC 150/5220-20, Airport Snow and Ice Control Equipment, and AC 150/5200-30, Airport Winter Safety and Operations for specific guidance.

Time allowed for removal per AC 150/5200-30: **0.5** hours

Critical Snow Removal Areas:

***Primary Runway (usually one)**

6,900	length (ft) x	100	width (ft)	=	690,000	sq. ft.
	length (ft) x		width (ft)	=	0	sq. ft.

***Parallel taxiway and one or two principle connecting taxiways**

Taxiway C - Priority 1 Areas (includes A3 and access to 17/35)				=	323,000	sq. ft.
Taxiway B - Priority 1 Areas (includes Radius Pavement)				=	165,000	sq. ft.
Terminal Access Taxiway (includes Radius Pavement)				=	59,000	sq. ft.
	length (ft) x		width (ft)	=	0	sq. ft.

***Terminal, Cargo, and General Aviation Aprons**

Terminal Apron - Priority 1 Area				=	128,000	sq. ft.
	length (ft) x		width (ft)	=	0	sq. ft.
	length (ft) x		width (ft)	=	0	sq. ft.
	length (ft) x		width (ft)	=	0	sq. ft.
	length (ft) x		width (ft)	=	0	sq. ft.

Other critical areas (ie. emergency or ARFF access roads)

970	length (ft) x	25	width (ft)	=	24,250	sq. ft.
	length (ft) x		width (ft)	=	0	sq. ft.
	length (ft) x		width (ft)	=	0	sq. ft.

Total Area= **1,389,250** sq. ft.

*Snow Depth (in): 1
*Snow Density (lbs/cu ft): 25

Tons of Snow: **1,447** tons

Rotary Plow

*Rotary Plow Efficiency %: 70
Minimum Rotary Plow snow removal rate: **4,134** tons/hr

Displacement Plow

*Operating Speed (mph): 20
*Plow Efficiency %: 75
*Plow Cutting Angle (degrees): 30

Effective Blade Length (ft) Required: **35.1** ft.
Actual Blade Length (ft) Required: **41.0** ft.

Snowfall Maps can be found here:

Iowa:
http://www.hprcc.unl.edu/wrcc/states/ia.html

Kansas:
http://www.hprcc.unl.edu/wrcc/states/ks.html

Missouri:
http://www.hprcc.unl.edu/wrcc/states/mo.html

Nebraska:
http://www.hprcc.unl.edu/wrcc/states/ne.html

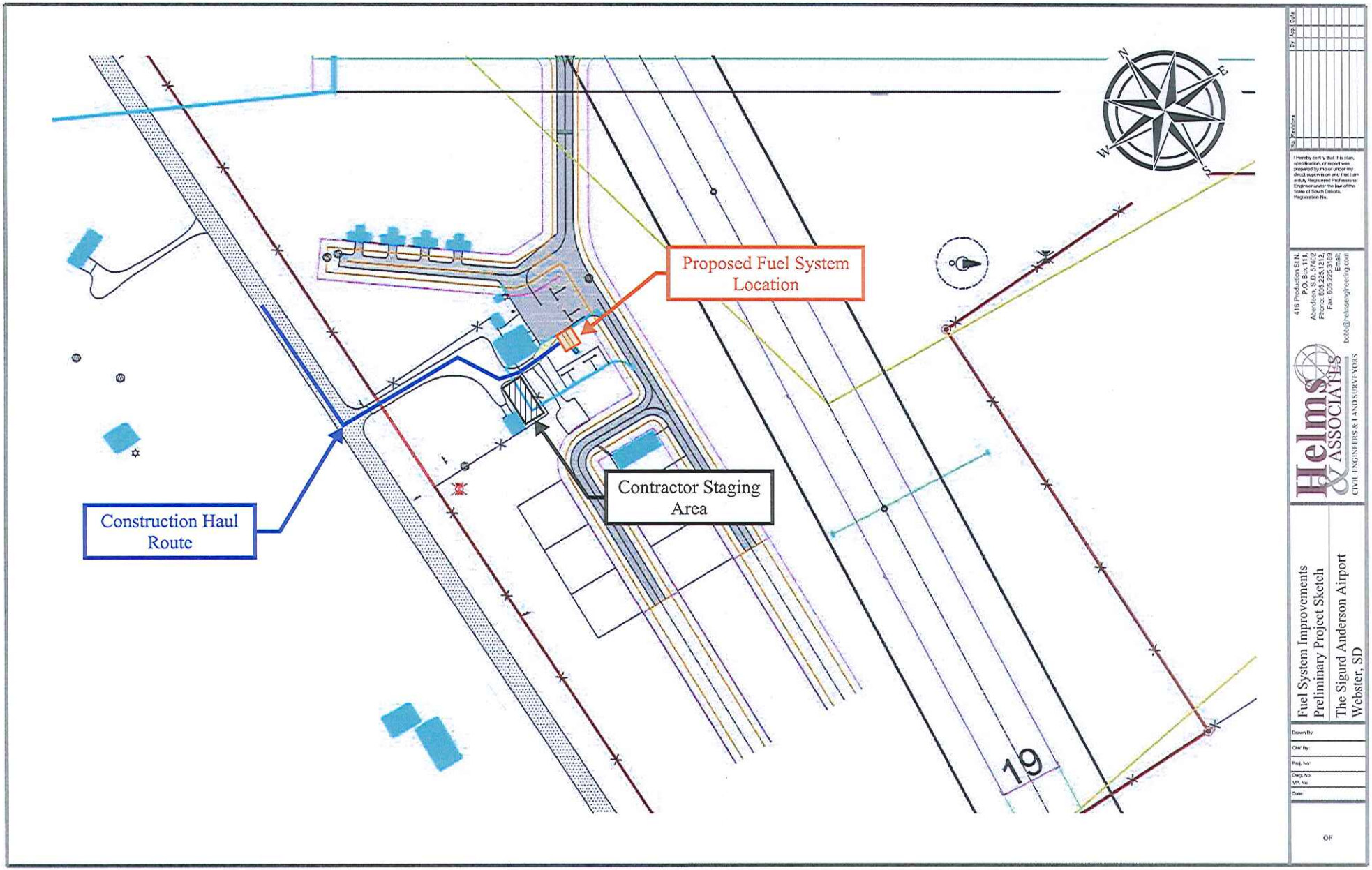
Eligible Items	Max Quantity	Size	
Rotary Plow	2	4,134	tons/hr Total: Class 4 (up to 3000 tons/hr, 100' casting distance
Displacement Plow	4	41	ft, Total
Sweeper	2		Up to 2 times the # of snow blowers (displacement plows should have equal capacity as max rotary plow capacity)
Hopper Spreader	2		1 Sweeper per 750,000 sq. ft. of pavement (rounded up)
Front End Loader	0		1 Hopper Spreader per 750,000 sq. ft. of pavement
			1 Front End Loader per 500,000 sq. ft. of critical apron

- Refer to Figure 2-6 AC 150/5220-20 for GVW & HP rating @ carrier vehicles.

- Refer to AC 150/5220-20, Chapter 6, Paragraph 38for minimum equipment requirements at Commercial Service and General Aviation airports. Program Guidance Letter, PGL 08-04 limits non Primary airports to one SRE vehicle

This program assumes at least 15" annual snow fall.

Rev Date: 01-5-2012



No. Revisions | By | App. | Date

I Hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the law of the State of South Dakota. Registration No.

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Helms & ASSOCIATES
CIVIL ENGINEERS & LAND SURVEYORS

Fuel System Improvements
Preliminary Project Sketch

The Sigurd Anderson Airport
Webster, SD

Drawn By:
Chk' By:
Proj. No:
Dwg. No:
Sh. No:
Date:

OF

Project Narrative (Justification)

Design Fuel System (100LL) w/Card Reader System

This project will include the completion of the design work for a new revenue producing fuel system at The Sigurd Anderson Airport in Webster, SD. The airport's existing fuel system is inoperable, not having worked for many years, and was likely not installed using federal dollars. Installing a new fuel system will allow pilots to purchase fuel for their aircraft directly from the airport. The new fuel system will include a new storage tank (above or underground) and will be equipped with an electronic card reader. By including an electronic card reader, the airport will be able to provide 24-hour self-serve fuel service to pilots.

The new fuel system will be located adjacent to the existing GA apron, providing easy access for any aircraft wanting to use the system. The location of the fuel system, access road, and staging area are shown in the attached project sketch. The addition of the new airport owned fuel system will provide an additional source of revenue for the airport, helping it to become more financially independent from the City of Webster