

ENGINEER'S DESIGN REPORT

REHABILITATE RUNWAY, TAXIWAY, AND
APRON
OELWEIN MUNICIPAL AIRPORT
OELWEIN, IOWA

FAA AIP PROJECT NO. 3-19-0067-012

Prepared For:

OELWEIN MUNICIPAL AIRPORT
OELWEIN, IOWA



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SECTION 1 GENERAL SCOPE OF PROJECT

The project involves the rehabilitation of the runway, taxiway, apron, and re-stripping pavement markings. The following list summarizes the elements of construction that are anticipated.

Runway 13-31:

- Existing joint re-sealant.
- Random crack routing and sealing.
- Diamond grinding along joints.
- Full depth PCC patching of full and half panels and corner breaks, which includes the removal of pavement and base.
- Paint re-stripping and paint removal.

Taxiway:

- Existing joint re-sealant.
- Random crack routing and sealing.
- Diamond grinding along joints.
- Full depth PCC patching of full and half panels and corner breaks, which includes the removal of pavement and base.
- Paint re-stripping and paint removal.

Apron:

- Existing joint re-sealant.
- Random crack routing and sealing.
- Diamond grinding along joints.
- Full depth PCC patching of full and half panels and corner breaks, which includes the removal of pavement and base.
- Paint re-stripping and paint removal.

The work described above will be funded under an AIP grant allocated to the airport. All items of work are AIP eligible.

SECTION 2 DESIGN ADVISORY CIRCULARS

The following FAA Advisory Circulars (AC) and Engineering Briefs were used.

- Painting , Marking and Lighting of Vehicles Used on an Airport – AC 150/5210-5D
- Airport Design - AC 150/5300-13A
- Airport Pavement Design and Evaluation – AC 150/5320-6F
- Standards for Airport Marking – AC 150/5340-1L
- Design and Installation Details for Airport Visual Aids – AC 150/5340-30J
- Specification for L-853, Runway and Taxiway Retroreflective Markers – AC 150/5345-39D
- Specification for Runway and Taxiway Light Fixtures – AC 150/5345-46E
- Standards for Airport Sign Systems – AC 150/5340-18F
- Operational Safety on Airports During Construction – AC 150/5370-2G

SECTION 3 DESIGN STANDARDS

The Oelwein Municipal Airport is an Airplane Design Group B-II aircraft airfield. The Advisory Circular has the following requirements for this classification:

Dimension	Runway 13-31	Runway 18-36 (Turf)
Airplane Design Group	B-II	A-I
Runway Safety Area Width	150 ft	120 ft
Runway Safety Area Length Beyond Runway End	300 ft	240 ft
Runway Object-Free Area Width	500 ft	250 ft
Runway Object-Free Area Length Beyond Runway End	300 ft	240 ft
Taxiway Pavement Width	35 ft	N/A
Taxiway Safety Area Width	79 ft	N/A
Taxiway Object-Free Area Width	131 ft	N/A
Taxiway Design Group	1A	N/A

SECTION 4 NON-AIP WORK

All work associated with this project is AIP eligible.

SECTION 5 AIRPORT OPERATIONAL SAFETY

Contractor is responsible for compliance with the requirements of FAA Advisory Circular (AC) 150/5370-2G, Operational Safety on Airports During Construction. Contractor is required to submit a Safety Plan Compliance Document (SPCD) in accordance with AC 150/5370-2G.

The Contractors will place and maintain barricades at the positions indicated on the Construction Safety Plan of the plan sheets. The Contractors shall give the sponsor a minimum of 72 hours' notice for a request to close the runway or taxiways.

All authorized vehicles required to work on the airport property will have a rotating beacon affixed to the uppermost point on the vehicle at all times. The beacon must be visible from all directions day and night, including from the air. If it is not practical to mount a rotating beacon on construction equipment, the equipment shall have a 3'x3' orange and white checkered flag affixed meeting the requirements in AC 150/5210-5D. Vehicle heights within the various construction phases have been limited to 25 feet. See Appendix B for the Safety Operations and Phasing Plans.

SECTION 6 SITE CONDITIONS

Soil Conditions

Not applicable to this project.

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Groundwater Conditions

Not applicable to this project.

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SECTION 7 PAVEMENT DESIGN

Existing Pavement Section

Oelwein's existing pavement section is as follows

Runway 13-31:

5-inches of PCC

3.5-inches of Asphalt Cement

5.5-inches of Base Course

Taxiway:

5-inches of PCC

3.5-inches of Asphalt Cement
5.5-inches of Base Course

Apron:

5-inches of PCC
6-inches of Asphalt Cement
5-inches of Base Course

Aircraft Mix

Not applicable to this project.

**SECTION 8
DRAINAGE DESIGN**

Not applicable to this project.

**SECTION 9
MATERIAL AVAILABILITY**

All materials are locally available.

**SECTION 10
PAVEMENT MARKING**

The airfield markings were designed in accordance with AC 150/5340-1L. This advisory circular defines markings for runway and taxiway pavements and vehicle roadways. Temporary marking may be used as a method of marking the taxiway and runway until final marking is performed at the completion of paving.

**SECTION 11
LIGHTING**

During rehabilitation, no lighting shall be affected. During Phase 1 and Phase 2, NAVAIDS and lights will be de-energized and will be energized prior to reopening the airfield.

**SECTION 12
SIGNAGE**

Not applicable to this project.

**SECTION 13
MISCELLANEOUS WORK ITEMS**

Temporary erosion control measures will be used for the duration of the project. Items include silt fence. All graded areas will be mulched and seeded after paving.

**SECTION 14
FAA OWNED FACILITIES**

During Phase 1 Runway 13-31 will remain closed and Runway 18-36 will remain open. During Phase 2 the airfield will be closed until the construction has been completed.

**SECTION 15
UTILITY LINES**

The information concerning underground utilities was completed from information and sketches furnished by or obtained from utility companies, the Owner, the FAA, or the National Weather Service. The Contractor is advised to determine the exact locations from the available sources of information or provide his own means of detection.

**SECTION 16
ENVIRONMENTAL CONCERNS**

There are no notable environmental concerns. Erosion control devices will be used to control sediment runoff from the project limits.

**SECTION 17
 ENGINEERS ESTIMATE**

Item No.	Spec No.	Description	Unit	Plan Quantity	Estimated Unit Price	Extended Total
1	C-105	Mobilization	LS	1	\$19,000.00	\$19,000.00
2	GP 40-05	Traffic Control	LS	1	\$9,500.00	\$9,500.00
3	P-101-5.1	Patches, Full-Depth, Full Slab	SY	120	\$200.00	\$24,000.00
4	P-101-5.1	Patches, Full-Depth Finish, Partial Slab	SY	35	\$200.00	\$7,000.00
5	P-101-5.1	Patches, Full-Depth Finish, Corner Break	SF	450	\$25.00	\$11,250.00
6	P-101-5.2	Diamond Grinding	SF	1,020	\$5.00	\$5,100.00
7	P-101-5.3	Saw and Seal Joints (Apron)	LFT	8,650	\$2.50	\$21,625.00
8	P-101-5.3	Saw and Seal Joints (Runway and Taxiway)	LFT	58,000	\$2.50	\$145,000.00
9	P-101-5.3	Route and Seal Cracks	LFT	900	\$2.00	\$1,800.00
10	P-208-5.1	Crushed Aggregate Base Course – 6 Inch	SY	150	\$25.00	\$3,750.00
11	P-620-5.1	Runway and Taxiway Marking	SF	29,400	\$2.00	\$58,800.00
12	P-620-5.2	Reflective Media (Type I, Gradation A)	LB	1,375	\$2.00	\$2,750.00
13	P-620-5.3	Runway Paint Removal	SF	3,625	\$2.00	\$7,250.00
		Total				\$316,825.00

Table 1: Engineers Estimate

The complete Engineers Cost Estimate can be found in Appendix A.

**SECTION 18
 SPONSOR MODIFICATION TO STANDARDS**

No design standards have been modified for the proposed work on the FY 2022 Airport Improvement Program.

**SECTION 19
 DBE PARTICIPATION**

Not applicable to this project.

APPENDIX A: Engineers Cost Estimate

