# Council Bluffs Municipal Airport

## Pavement Management Report


**PREPARED BY**

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applied pavement TECHNOLOGY

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# COUNCIL BLUFFS MUNICIPAL AIRPORT
# PAVEMENT MANAGEMENT REPORT

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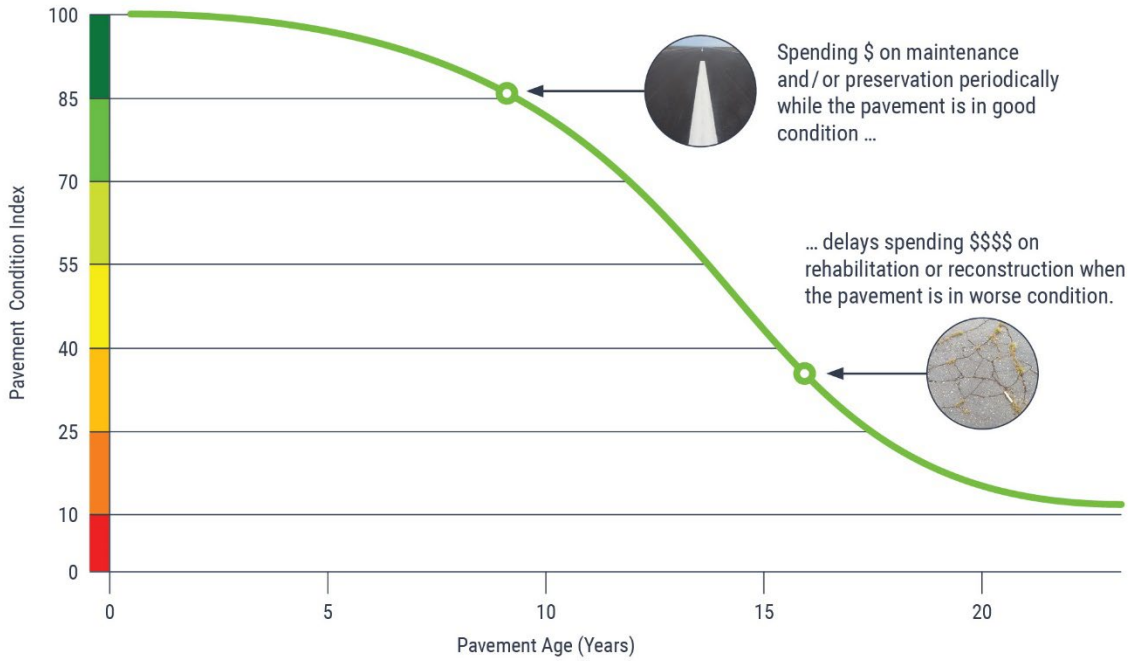
# INTRODUCTION

Applied Pavement Technology, Inc. (APTech), with assistance from Robinson Engineering Company Consulting Engineers (Robinson), updated the Airport Pavement Management System (APMS) for the Iowa Department of Transportation, Modal Transportation Bureau (Iowa DOT). The APMS provides a means to monitor the condition of the pavements within the state of Iowa and to proactively plan for their preservation.

As part of this project, pavement conditions at Council Bluffs Municipal Airport were assessed in November 2022 using the Pavement Condition Index (PCI) procedure. During a PCI inspection, the types, severities, and amounts of distress present in a pavement are quantified. This information is then used to develop a composite index that represents the overall condition of the pavement in numerical terms, ranging from 0 (failed) to 100 (excellent). The PCI provides an overall measure of condition and an indication of the level of work that will be required to maintain or repair a pavement. The distress information also provides insight into what is causing the pavement to deteriorate, which is the first step in selecting the appropriate repair action to correct the problem.

Programmed into an APMS, PCI information is used to determine when preventive maintenance actions (such as crack or joint sealing) are advisable and to identify the most cost-effective time to perform major rehabilitation (such as an overlay or whitetopping). Delaying maintenance and rehabilitation (M&R) until a pavement structure has seriously degraded can cost many times more than if M&R was applied earlier in a pavement's life cycle, as shown in Figure 1. From a safety perspective, pavement distresses, such as cracks and loose debris, may pose risks in terms of the potential for aircraft tire damage and the ability of a pilot to safely control aircraft.

Figure 1. Pavement condition versus cost of repair.



The pavement evaluation results for Council Bluffs Municipal Airport are presented within this report and can be used by Council Bluffs Municipal Airport, the Iowa DOT, and the Federal Aviation Administration (FAA) to identify, prioritize, and schedule pavement M&R actions at the airport. In addition to this report, the web-based interactive pavement data visualization tool IDEA, containing the information collected during this project, was updated and may be accessed from the Iowa DOT's website or directly (Iowa APMS IDEA).

# PAVEMENT INVENTORY

The project began with a review of the existing inventory information pertaining to the pavements at Council Bluffs Municipal Airport. The date of original construction, along with the date of any subsequent rehabilitation; the location of completed work; and the type of work undertaken were gathered. The information was used to update the pavement management database and associated maps, as necessary, to account for pavement-related work that had been undertaken since the last time the airport was evaluated in 2019.

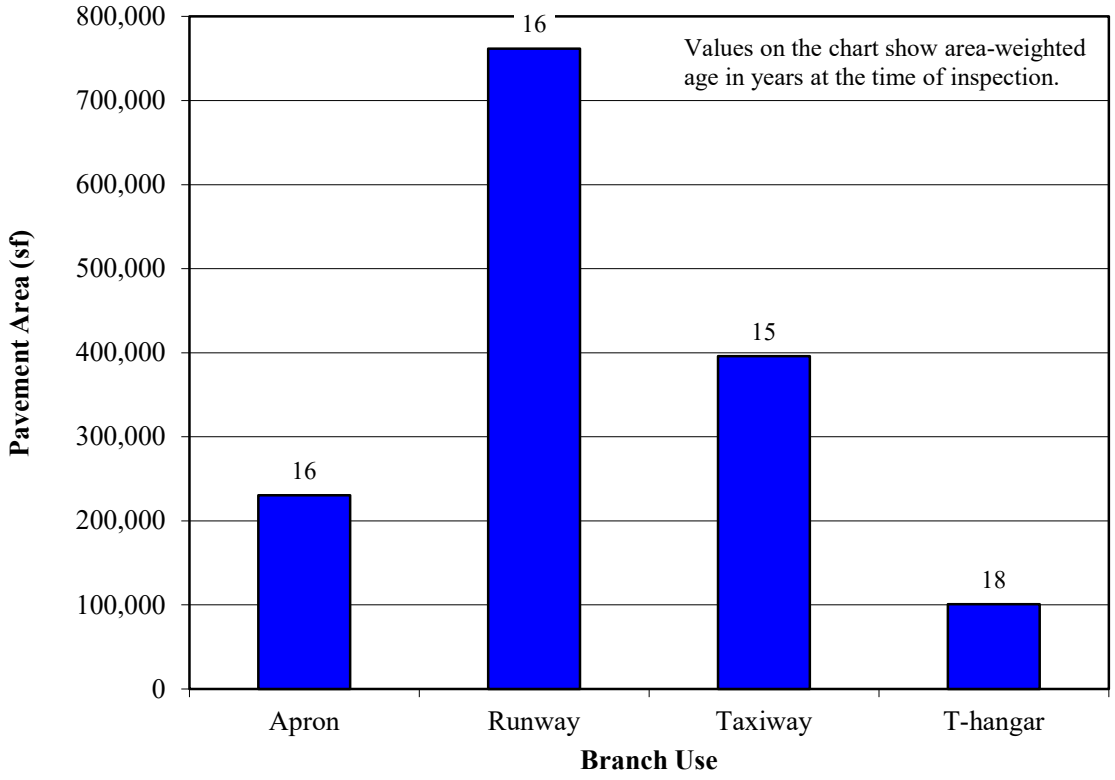
The pavement network at Council Bluffs Municipal Airport was then divided into branches, sections, and sample units. A branch is a single entity that serves a distinct function. For example, a runway is considered a branch because it serves a single function (allowing aircraft to take off and land). Taxiways, aprons, and T-hangars are also separate branches.

Each branch was further divided into sections. Traditionally, sections are defined as parts of the branch that share common attributes, such as cross-section, date of last construction, traffic level, and performance. Using this approach, if a runway was built in 1968 and then extended in 1984, it would contain two separate sections.

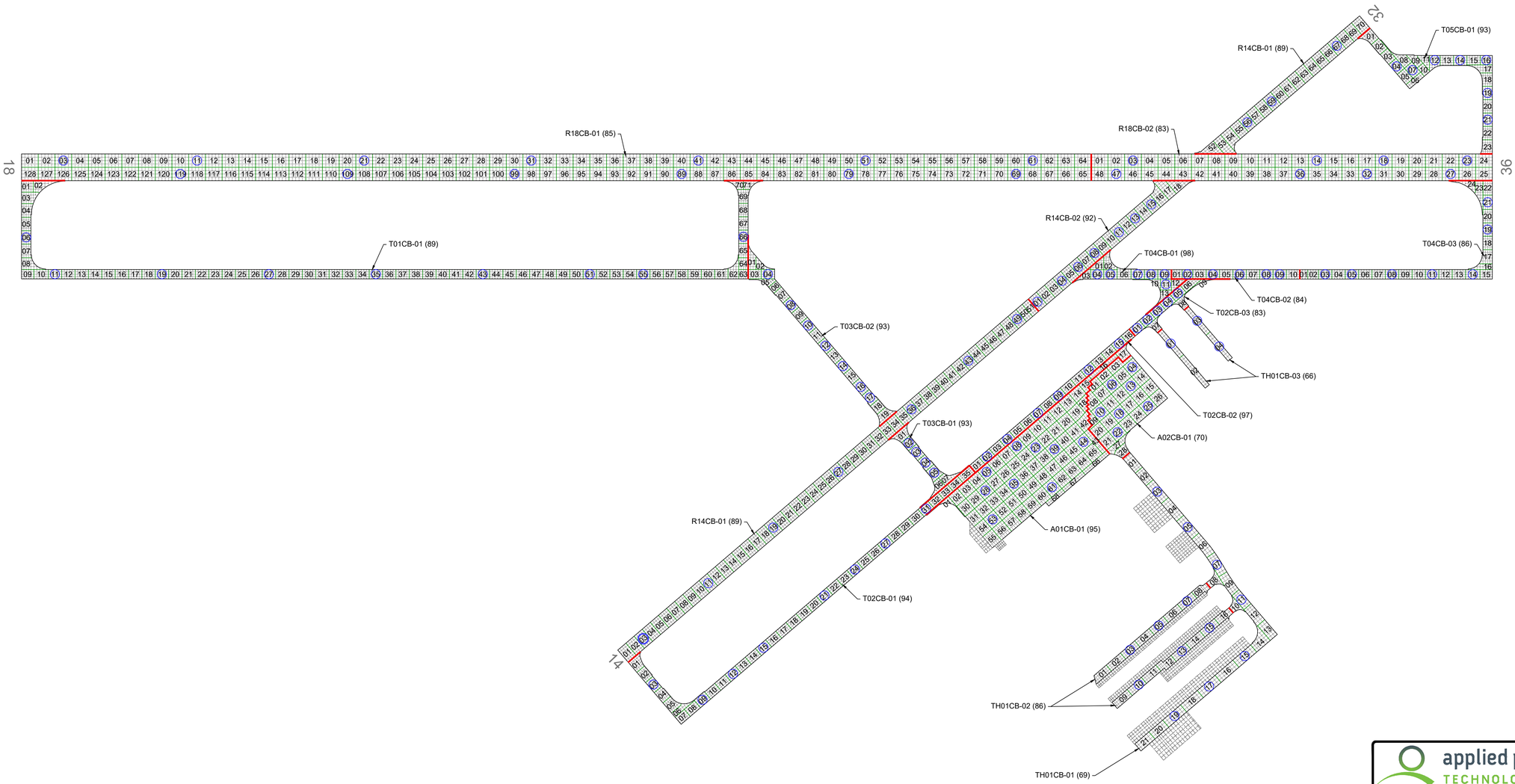
To estimate the overall condition of a pavement section, each section was subdivided into sample units. Portions of these sample units were evaluated during the pavement inspection, and the collected information was extrapolated to predict the overall section condition and quantities of distress.

Approximately 1,488,700 square feet of pavement were evaluated at Council Bluffs Municipal Airport, as illustrated in Figure 2. This figure also shows the area-weighted age, in years, of the pavements at the time of the inspection. Figure 3 provides a map that details how the pavement network was divided into management units and identifies the sample units that were evaluated during the pavement inspection at Council Bluffs Municipal Airport.

Figure 2. Pavement area by branch use at Council Bluffs Municipal Airport.



# FIGURE 3. NETWORK DEFINITION MAP.




## NETWORK DEFINITION LEGEND

- BRANCH IDENTIFIER
- SECTION IDENTIFIER
- PCI VALUE

R18CB-01 (77)

- SECTION BREAK LINE
- SAMPLE UNIT BREAK LINE
- SLAB JOINT
- 03 SAMPLE UNIT NUMBER
- (03) SAMPLE UNIT INSPECTED
- (03) ADDITIONAL SAMPLE UNIT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| | |
|---|---|
| AGENCY: | Iowa Department of Transportation<br>Modal Transportation Bureau |
| LOCATION: | Council Bluffs Municipal Airport<br>Council Bluffs, Iowa |
| PAGE TITLE: | Network Definition Map |

| PROJECT DATE: | CREATION DATE: | PROJECT MANAGER: | JOB NUMBER: |
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| 1"=200' | JAN. 2023 | DMS | KEW |
| FILENAME: | | LAYOUT NAME/NUMBER: | PAGE NUMBER: |
| Council Bluffs.dwg | | NET. DEF. | 5 |

# PAVEMENT EVALUATION

## Pavement Evaluation Procedure

APTech inspected the pavements at Council Bluffs Municipal Airport using the PCI procedure described in:

- FAA Advisory Circular 150/5380-6C, *Guidelines and Procedures for Maintenance of Airport Pavements*.
- FAA Advisory Circular 150/5380-7B, *Airport Pavement Management Program (PMP)*.
- ASTM D5340-20, *Standard Test Method for Airport Pavement Condition Index Surveys*.

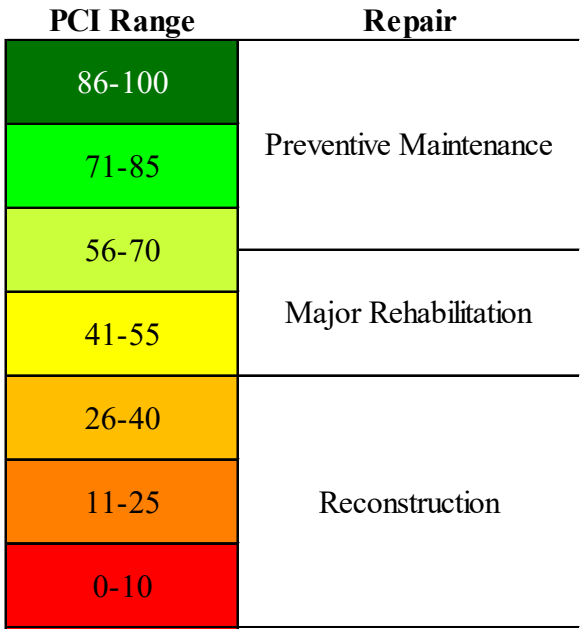
The PCI provides a numerical indication of overall pavement condition, as illustrated in Figure 4. The types and amounts of deterioration are used to calculate the PCI of the section. The PCI ranges from a value of 0, which represents a pavement in a failed condition, to a value of 100, which represents a pavement in excellent condition. It is important to note that factors other than overall PCI need to be considered when identifying the appropriate type of repair, including types of distress present and rate of deterioration. Also, since the PCI does not assess the structural integrity or capacity of the pavement structure, further testing may be needed to validate and refine the treatment strategy.

Figure 4. Visual representation of PCI scale on typical pavement surfaces.


Note: Photographs shown are not specific to Council Bluffs Municipal Airport.

Generally, pavements with relatively high PCIs that are not exhibiting significant load-related distress will benefit from preventive maintenance actions, such as crack sealing or joint resealing. As the PCI drops, the pavements may require major rehabilitation, such as an overlay or whitetopping. In some situations where the PCI has dropped low enough, reconstruction may be the only viable alternative due to the substantial damage to the pavement structure. Figure 5 illustrates how the appropriate repair type varies with the PCI of a pavement section and provides the corresponding colors used for the maps and charts in this report for each range of PCIs.

Figure 5. PCI versus repair type.




The types of distress identified during the PCI inspection provide insight into the cause of pavement deterioration, which is useful when selecting M&R strategies. Understanding the cause of distress helps in selecting a rehabilitation alternative that corrects the cause and thus eliminates or delays its recurrence. PCI distress types are characterized as:

- Load-related—These distress types are defined as being caused by aircraft or vehicular traffic and may indicate a structural deficiency. Examples of load-related distress include alligator cracking on asphalt-surfaced pavements and corner breaks on portland cement concrete (PCC) pavements.
- Climate/durability-related—These distress types often signify the presence of aged or environmentally susceptible (or both) material and include durability-related issues. Examples of climate/durability-related distress include weathering on asphalt-surfaced pavements, which is climate-related, and durability cracking on PCC pavements, which is durability-related.
- Other—Distress types that fall into this category cannot be attributed solely to load or climate/durability. Examples of this type of distress include depressions on asphalt-surfaced pavements and shrinkage cracking on PCC pavements.

Appendix A identifies the distress types considered during a PCI inspection and describes the likely cause of each distress type. It should be noted that a PCI is based on visual signs of pavement deterioration and does not provide a measure of structural capacity.

## Pavement Evaluation Results

The pavements at Council Bluffs Municipal Airport were inspected in November 2022. The 2022 area-weighted condition of Council Bluffs Municipal Airport is 87, with conditions ranging from 66 to 98 (on a scale of 0 [failed] to 100 [excellent]). During the previous pavement inspection in 2019, the area-weighted PCI of the airport was 73.

Figure 6 summarizes the overall condition of the pavements at Council Bluffs Municipal Airport, and Figure 7 presents area-weighted condition (average PCI adjusted to account for the relative size of the pavement sections) by branch use. Figure 8 is a map that displays the condition of the evaluated pavements. Table 1 summarizes the results of the pavement evaluation. Appendix B presents photographs taken during the PCI inspection, and Appendix C contains detailed information on the distress types observed during the visual survey. Appendix D includes detailed work history information that was collected during the record review process.

Figure 6. Pavement area by PCI range at Council Bluffs Municipal Airport.

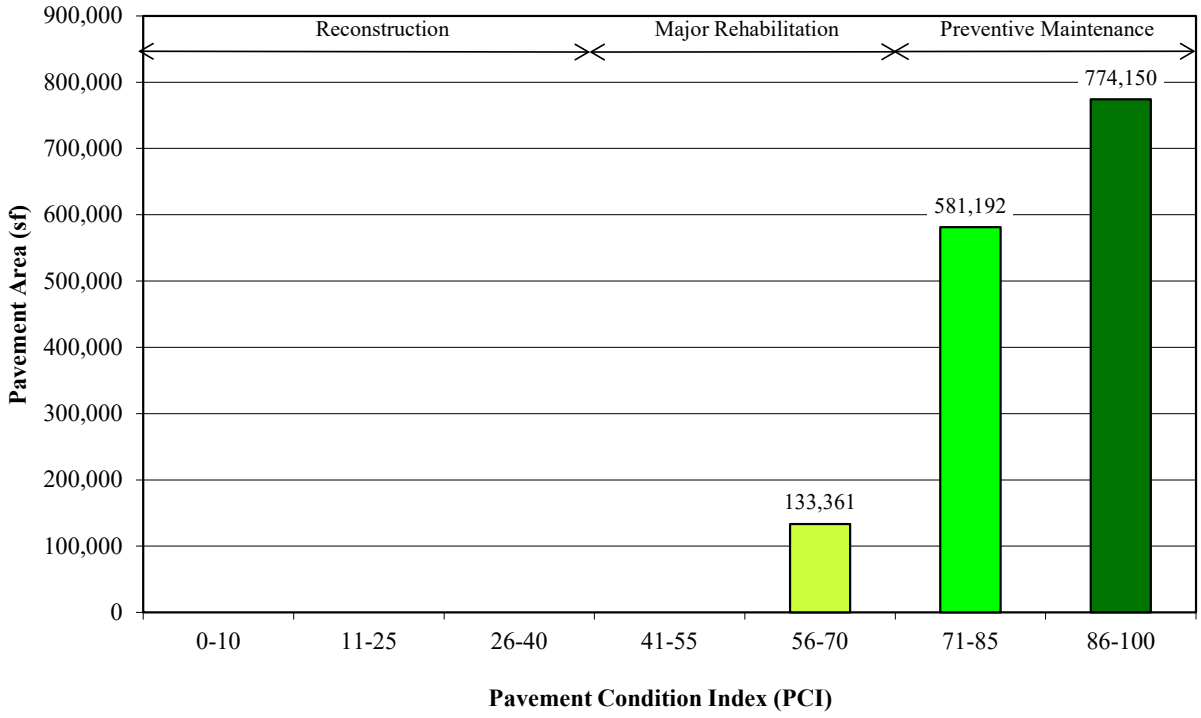
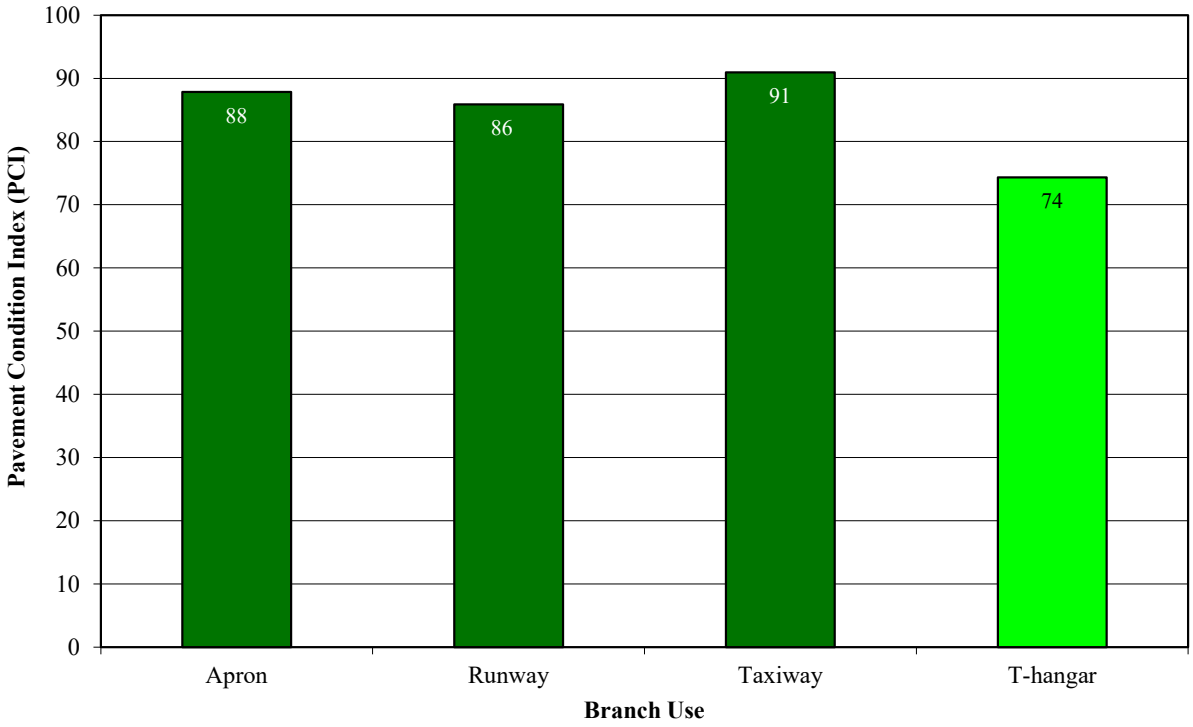
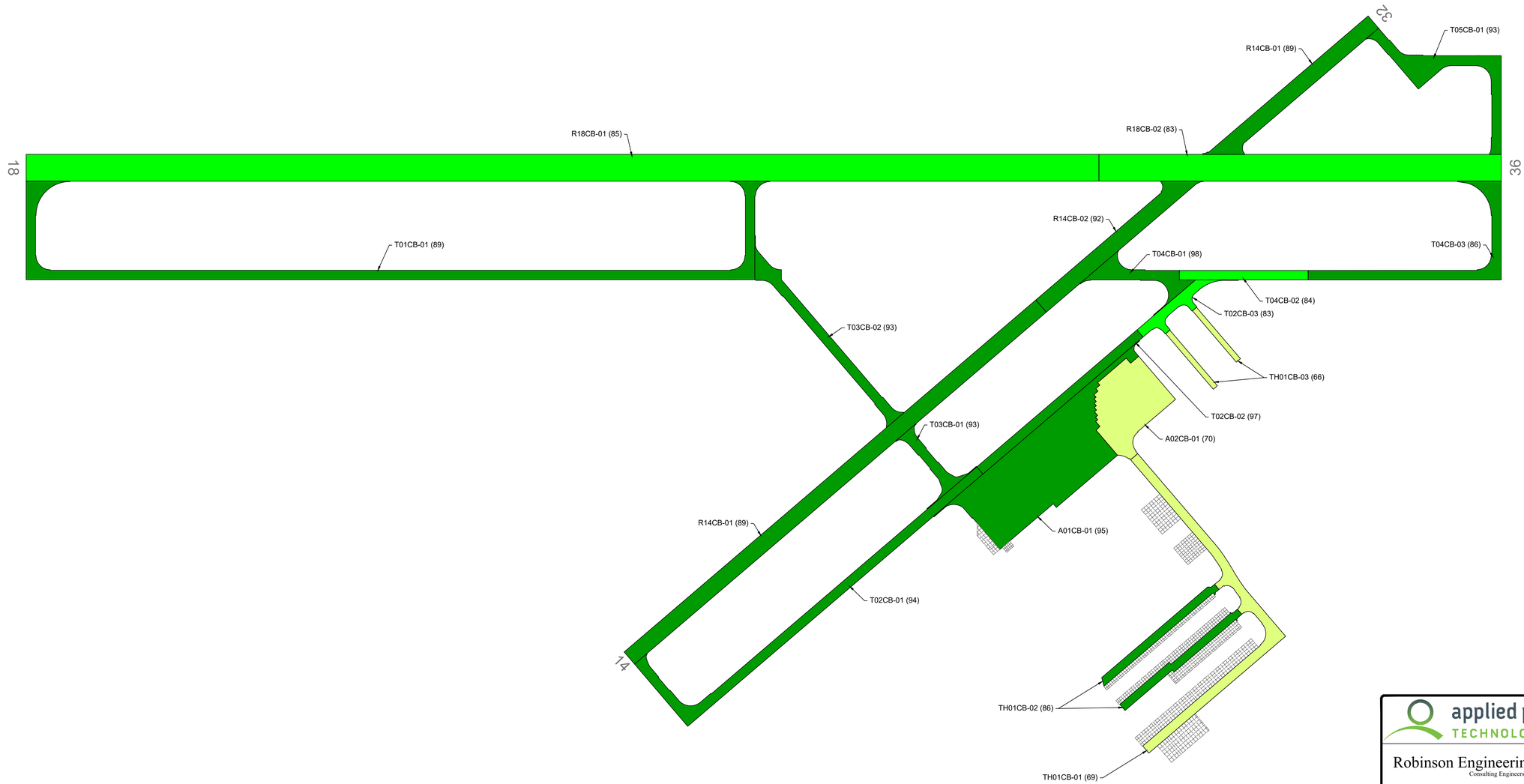


Figure 7. Area-weighted PCI by branch use at Council Bluffs Municipal Airport.
(Values on chart are area-weighted)



# FIGURE 8. PCI MAP.




## LEGEND

BRANCH IDENTIFIER
SECTION IDENTIFIER
PCI VALUE
R18CB-01 (77)
SECTION BREAK LINE

## PAVEMENT CONDITION INDEX

PCI

| |
|---|
| 86-100 |
| 71-85 |
| 56-70 |
| 41-55 |
| 26-40 |
| 11-25 |
| 0-10 |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| | |
|---|---|
| AGENCY: | Iowa Department of Transportation<br>Modal Transportation Bureau |
| LOCATION: | Council Bluffs Municipal Airport<br>Council Bluffs, Iowa |
| PAGE TITLE: | 2022 Pavement Condition Index Map |

| PROJECT DATE: | CREATION DATE: | PROJECT MANAGER: | JOB NUMBER: |
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| 1"=200' | MAR. 2023 | DMS | KEW |
| FILENAME: | | LAYOUT NAME/NUMBER: | PAGE NUMBER: |
| Council Bluffs.dwg | | PCI | 10 |

Table 1. 2022 pavement evaluation results.

| Branch | Section | Surface Type | Section Area (sf) | LCD | 2022 PCI | % Distress Due to Load | % Distress Due to Climate/ Durability | % Distress Due to Other | Type of Distress |
|---|---|---|---|---|---|---|---|---|---|
| A01CB | 01 | PCC | 164,387 | 6/3/2010 | 95 | 16 | 81 | 3 | Corner Spalling, Joint Seal Damage, LTD Cracking |
| A02CB | 01 | PCC | 66,015 | 9/1/1995 | 70 | 41 | 21 | 38 | ASR, Corner Break, Corner Spalling, Faulting, Joint Spalling, Joint Seal Damage, LTD Cracking, Shattered Slab, Shrinkage Cracking |
| R14CB | 01 | PCC | 167,703 | 6/3/2007 | 89 | 51 | 35 | 14 | Corner Break, Faulting, Joint Seal Damage, LTD Cracking, Popouts, Shattered Slab |
| R14CB | 02 | PCC | 44,038 | 6/3/2007 | 92 | 26 | 57 | 17 | Faulting, Joint Spalling, Joint Seal Damage, LTD Cracking, Shrinkage Cracking |
| R18CB | 01 | PCC | 400,000 | 6/3/2006 | 85 | 9 | 72 | 19 | Corner Spalling, Faulting, Joint Seal Damage, LTD Cracking, Scaling, Small Patch |
| R18CB | 02 | PCC | 150,000 | 6/3/2007 | 83 | 0 | 53 | 47 | Corner Spalling, Faulting, Joint Spalling, Joint Seal Damage, Popouts |
| T01CB | 01 | PCC | 125,508 | 6/3/2006 | 89 | 39 | 46 | 15 | Corner Break, Corner Spalling, Joint Spalling, Joint Seal Damage, LTD Cracking, Shrinkage Cracking |
| T02CB | 01 | PCC | 62,015 | 6/3/2007 | 94 | 0 | 29 | 71 | Corner Spalling, Faulting, Joint Spalling, Joint Seal Damage, Popouts, Scaling, Shrinkage Cracking |
| T02CB | 02 | PCC | 27,570 | 11/3/2009 | 97 | 0 | 70 | 30 | Corner Spalling, Joint Seal Damage |
| T02CB | 03 | PCC | 14,392 | 6/3/2007 | 83 | 0 | 64 | 36 | Corner Spalling, Faulting, Joint Spalling, Joint Seal Damage |
| T03CB | 01 | PCC | 13,340 | 6/3/2007 | 93 | 0 | 100 | 0 | Joint Seal Damage |

Table 1. 2022 pavement evaluation results (continued).

| Branch | Section | Surface Type | Section Area (sf) | LCD | 2022 PCI | % Distress Due to Load | % Distress Due to Climate/ Durability | % Distress Due to Other | Type of Distress |
|---|---|---|---|---|---|---|---|---|---|
| T03CB | 02 | PCC | 32,471 | 6/3/2007 | 93 | 0 | 25 | 75 | Joint Spalling, Joint Seal Damage, Popouts |
| T04CB | 01 | PCC | 21,182 | 6/3/2009 | 98 | 0 | 85 | 15 | Joint Spalling, Joint Seal Damage |
| T04CB | 02 | PCC | 16,800 | 6/3/2009 | 84 | 0 | 40 | 60 | Corner Spalling, Faulting, Joint Seal Damage |
| T04CB | 03 | PCC | 41,805 | 6/3/2006 | 86 | 31 | 40 | 29 | Corner Break, Faulting, Joint Spalling, Joint Seal Damage, LTD Cracking, Shrinkage Cracking, Small Patch |
| T05CB | 01 | PCC | 40,675 | 9/3/2009 | 93 | 0 | 100 | 0 | Joint Seal Damage |
| TH01CB | 01 | PCC | 56,846 | 6/1/2004 | 69 | 52 | 32 | 16 | ASR, Corner Spalling, Joint Spalling, Joint Seal Damage, LTD Cracking, Shattered Slab, Shrinkage Cracking |
| TH01CB | 02 | PCC | 33,456 | 11/3/2008 | 86 | 23 | 42 | 35 | Corner Break, Corner Spalling, Faulting, Joint Spalling, Joint Seal Damage, LTD Cracking, Shrinkage Cracking |
| TH01CB | 03 | PCC | 10,500 | 1/1/1995 | 66 | 61 | 30 | 9 | Corner Break, Faulting, Joint Seal Damage, LTD Cracking, Shattered Slab, Shrinkage Cracking |

Table Notes:

1. See Figure 3 for the location of the branch and section.
2. Surface Type: AC = asphalt cement concrete; AAC = asphalt overlay on AC; PCC = portland cement concrete; APC = asphalt overlay on PCC.
3. LCD = last construction date.
4. Distress due to load includes distress types that are attributed to a structural deficiency in the pavement, such as alligator cracking or rutting on asphalt-surfaced pavements or shattered slabs on PCC pavements.

Table 1. 2022 pavement evaluation results (continued).

5. Distress due to climate or durability includes distress types that are attributed to either the aging of the pavement and the effects of the environment (such as weathering, raveling, or block cracking on asphalt-surfaced pavements) or to a materials-related problem (such as durability cracking or alkali-silica reaction [ASR] on PCC pavements). If materials-related distresses were recorded during the inspection, further laboratory testing is required to definitively determine the type present.
6. Distress due to other refers to distress types that are not attributed to one factor but rather may be caused by a combination of factors.
7. Distress types are defined by ASTM D5340-20. L&T Cracking = Longitudinal and Transverse Cracking; LTD Cracking = Longitudinal, Transverse, and Diagonal Cracking; ASR = Alkali-Silica Reaction.

## Inspection Comments

Council Bluffs Municipal Airport was inspected on November 17, 2022. There were nineteen pavement sections defined during the inspection. Suspected alkali-silica reaction (ASR) was recorded at this airport in accordance with ASTM D5340-20. It should be noted that laboratory testing in the form of petrographic analysis is the only definitive way to validate the presence of ASR; however, the formation of a precipitate is evidence of a reaction consistent with this type of materials-related distress.

### *Runways*

Runway 14/32 was defined by two sections. Low-severity faulting; medium-severity longitudinal, transverse, and diagonal (LTD) cracking; low- and medium-severity joint seal damage; and popouts were identified in Section 01. An atypical area of medium-severity corner break and shattered slab was observed and recorded as an additional sample unit in accordance with ASTM D5340-20. Section 02 contained low-severity joint spalling and faulting, low- and medium-severity joint seal damage and LTD cracking, and shrinkage cracking.

Runway 18/36 contained two sections. Low- and medium-severity corner spalling, low-severity small patching and faulting, medium-severity LTD cracking and scaling, and medium- and high-severity joint seal damage were observed in Section 01 at the time of inspection. Section 02 contained areas of medium-severity joint spalling and corner spalling, all severities of faulting, medium- and high-severity joint seal damage, and popouts.

### *Taxiways*

Taxiway 01 consisted of one section. Areas of medium-severity corner break, corner spalling, joint seal damage, and LTD cracking; low- and medium-severity joint spalling; and shrinkage cracking were noted in Section 01.

Taxiway 02 was defined by three sections. Section 01 contained low-severity corner spalling, faulting, joint seal damage, joint spalling, and scaling; popouts; and shrinkage cracking. Section 02 was in excellent condition with only medium-severity corner spalling and low-severity joint seal damage noted at the time of inspection. Low- and medium-severity faulting, medium- and high-severity joint seal damage, and medium-severity corner spalling and joint spalling were identified in Section 03.

Taxiway 03 consisted of two sections. Medium-severity joint seal damage was recorded throughout Section 01. Areas of popouts, low-severity joint seal damage, and low-severity joint spalling were observed in Section 02.

Taxiway 04 contained three sections. Section 01 was in excellent condition with low-severity joint seal damage identified throughout, along with an isolated amount of low-severity joint spalling. Section 02 contained areas of low-severity faulting and medium-severity corner spalling and joint seal damage. Low-severity corner break, faulting, and small patching; medium-severity joint seal damage; low- and medium-severity joint spalling and LTD cracking; and shrinkage cracking were observed in Section 03.

Taxiway 05 was defined by one section that contained all severities of joint seal damage.

### *Aprons*

Apron 01 contained one section. Section 01 was in excellent condition with low-severity corner spalling, low- and high-severity joint seal damage, and medium-severity LTD cracking noted at the time of inspection.

Apron 02 was defined by one section. Low- and medium-severity joint spalling and ASR; medium-severity LTD cracking, shattered slab, and corner break; all severities of corner spalling; low-severity faulting; high-severity joint seal damage; and shrinkage cracking were recorded in Section 01 during the inspection.

### *T-Hangar*

The T-hangar area consisted of three sections. Areas of low-severity ASR, low- and medium-severity corner spalling and LTD cracking, medium- and high-severity joint seal damage, medium-severity joint spalling and shattered slab, and shrinkage cracking were noted in Section 01. Section 02 contained areas of low-severity corner break, corner spalling, and faulting; medium-severity LTD cracking and joint seal damage; low- and medium-severity joint spalling; and shrinkage cracking. Medium-severity corner break, shattered slab, and faulting; medium- and high-severity joint seal damage; low- and medium-severity LTD cracking; and shrinkage cracking were observed in Section 03.

# PAVEMENT MAINTENANCE AND REHABILITATION PROGRAM

Using the information collected during the pavement inspection, the PAVER pavement management software was used to develop a 5-year M&R program for Council Bluffs Municipal Airport. In addition, a 1-year plan for localized preventive maintenance (such as crack sealing and patching) was prepared.

## Analysis Parameters

### *Critical PCIs*

PAVER uses critical PCIs to determine whether localized preventive maintenance or major rehabilitation is the appropriate repair action. Above the critical PCI, localized preventive maintenance activities are recommended. Below the critical PCI, major rehabilitation actions, such as an overlay or reconstruction, are recommended. The Iowa DOT set the critical PCIs at 65 for runways, 60 for taxiways, and 55 for aprons and T-hangars.

### *Localized Preventive Maintenance Policies and Unit Costs*

Localized preventive maintenance policies were developed for asphalt-surfaced and PCC pavements. These policies, shown in Appendix E, identify the localized preventive maintenance actions that the Iowa DOT considered appropriate to correct the different distress types and severities. The Iowa DOT provided unit costs for each of the localized preventive maintenance actions included in these policies, and these costs are detailed in Appendix E. Please note that this information is of a general nature for the entire state. The localized preventive maintenance policies and unit costs may require adjustment to reflect specific conditions at Council Bluffs Municipal Airport.

### *Major Rehabilitation Unit Costs*

PAVER estimates the cost of major rehabilitation based on the predicted PCI of the pavement section. The Iowa DOT provided the costs for major rehabilitation, and they are presented in Appendix E. If major rehabilitation is recommended in the 5-year program, further engineering investigation will be needed to identify the most appropriate rehabilitation action and to estimate the cost of such work more accurately.

### *Budget and Inflation Rate*

An unlimited budget with a start date of July 1, 2023 and an inflation rate of 4.0 percent was used during the analysis.

## Analysis Approach

The 5-year M&R program was prepared with the goal of maintaining the pavements above established critical PCIs. During this analysis, major rehabilitation was recommended for pavements in the year they dropped below their critical PCI. For the first year (2023) of the analysis only, a localized preventive maintenance plan was developed for those pavement sections that were above their critical PCI. If major rehabilitation was triggered for a section in 2024 or 2025, then localized preventive maintenance was not recommended for 2023. While localized preventive maintenance should be an annual undertaking at Council Bluffs Municipal Airport, it is not possible to accurately predict the propagation of cracking and other distress types. Therefore, the airport should budget for maintenance every year and can use the 2023

localized preventive maintenance plan as a baseline for that work. As the pavements age, it can be assumed that the amount of localized preventive maintenance required will increase.

## Analysis Results

A summary of the M&R program for Council Bluffs Municipal Airport is presented in Table 2. Detailed information on the recommended localized preventive maintenance plan for 2023 is provided in Appendix F.

Table 2. 5-year M&R program under an unlimited funding analysis scenario.

| Year | Branch | Section | Surface Type | Type of Repair | Estimated Cost |
|---|---|---|---|---|---|
| 2023 | A01CB | 01 | PCC | Preventive Maintenance | $12,653 |
| 2023 | A02CB | 01 | PCC | Preventive Maintenance | $68,738 |
| 2023 | R14CB | 01 | PCC | Preventive Maintenance | $37,110 |
| 2023 | R14CB | 02 | PCC | Preventive Maintenance | $7,352 |
| 2023 | R18CB | 01 | PCC | Preventive Maintenance | $248,622 |
| 2023 | R18CB | 02 | PCC | Preventive Maintenance | $105,271 |
| 2023 | T01CB | 01 | PCC | Preventive Maintenance | $80,640 |
| 2023 | T02CB | 02 | PCC | Preventive Maintenance | $276 |
| 2023 | T02CB | 03 | PCC | Preventive Maintenance | $9,438 |
| 2023 | T03CB | 01 | PCC | Preventive Maintenance | $7,624 |
| 2023 | T04CB | 02 | PCC | Preventive Maintenance | $10,111 |
| 2023 | T04CB | 03 | PCC | Preventive Maintenance | $25,404 |
| 2023 | T05CB | 01 | PCC | Preventive Maintenance | $17,290 |
| 2023 | TH01CB | 01 | PCC | Preventive Maintenance | $37,756 |
| 2023 | TH01CB | 02 | PCC | Preventive Maintenance | $18,306 |
| 2023 | TH01CB | 03 | PCC | Preventive Maintenance | $9,895 |
| | | | | **Total Estimated Cost:** | **$697,000** |

Table Notes:

1. See Figure 3 for the location of the branch and section.
2. Surface Type: AC = asphalt cement concrete; AAC = asphalt overlay on AC; PCC = portland cement concrete; APC = asphalt overlay on PCC.
3. Type of Repair: Major Rehabilitation such as pavement reconstruction or an overlay; Localized Preventive Maintenance such as crack sealing or patching.
4. The estimated costs provided are of a general nature for the entire state and may require adjustment to reflect specific conditions at Council Bluffs Municipal Airport.

The recommendations made in this report are based on a broad network-level analysis and meant to provide Council Bluffs Municipal Airport with an indication of the type of pavement-related work required during the next 5 years. Further engineering investigation may be necessary to identify which repair action is most appropriate. In addition, the cost estimates provided are based on overall unit costs for the entire state, and Council Bluffs Municipal Airport should adjust the plan to reflect local costs.

Because an unlimited budget was used in the analysis, it is possible that the pavement repair program may need to be adjusted to consider economic or operational constraints. The identification of a project need does not necessarily mean that state or federal funding will be available in the year it is indicated. It is important to remember that regardless of the recommendations presented within this report, Council Bluffs Municipal Airport is responsible for repairing pavements where existing conditions pose a hazard to safe operations.

## General Maintenance Recommendations

In addition to the specific maintenance actions presented in Appendix F, it is recommended that the following strategies be considered for prolonging pavement life:

1. Regularly inspect all safety areas of the airport and document all inspection activity. A sample form that can be used to perform these inspections is provided in Table 3 of this report.
2. Provide a method of tracking all maintenance activities that occur as a result of inspections. These need to be reported to the FAA and the Iowa DOT. This information is used to update the APMS records and is required to remain in compliance with Public Law 103-305 (see the next section of this report for further information on this law).
3. Conduct an aggressive campaign against weed growth through timely herbicide applications and mowing programs of the safety areas. Vegetation growth in pavement cracks is destructive and significantly increases the rate of pavement deterioration.
4. Implement a periodic crack and joint sealing program. Keeping water and debris out of the pavement system by sealing cracks and joints is a proven and cost-effective method of extending the life of the pavement system.
5. Ensure that dirt does not build up along the edges of the pavements. This can create a "bathtub" effect, reducing the ability of water to drain away from the pavement system.
6. Closely monitor the movement of heavy equipment (particularly farming, construction, and fueling equipment) to make sure it is only operating on pavements that are designed to accommodate heavy loads. Failure to restrict heavy equipment to appropriate areas may result in the premature failure of airport pavements.

## FAA Requirements (Public Law 103-305)

Because Council Bluffs Municipal Airport is in the National Plan of Integrated Airport Systems (NPIAS), the airport sponsor is required to keep the airport in a viable operating condition. This includes maintaining airport pavements in accordance with Public Law 103-305. Public Law 103-305 states that after January 1, 1995, NPIAS airport sponsors must provide assurances or certifications that an airport has implemented an effective airport pavement maintenance management system (PMMS) before the airport will be considered for federal funding of pavement replacement or reconstruction projects. To be in full compliance with the federal law, the PMMS must include the following components at minimum: pavement inventory, pavement inspections, record keeping, information retrieval, and program funding.

This report serves as a complete pavement inventory and detailed inspection. To remain in compliance with the law, Council Bluffs Municipal Airport will also need to undertake monthly drive-by inspections of pavement conditions and track pavement-related maintenance activities.

FAA Advisory Circular 150/5380-7B provides detailed guidance pertaining to the requirements for an acceptable pavement management program (PMP). Appendix A of the FAA Advisory Circular 150/5380-7B outlines what needs to be included in a PMP to remain in compliance with this law and Grant Assurance #11. The following is a copy of this Appendix, along with instructions for supplementing this report so that all requirements are met. Note that the italicized words are direct quotations from the FAA Advisory Circular.

### *FAA Advisory Circular 150/5830-7B, Appendix A. Pavement Management Program (PMP)*

***A-1.0.*** *An effective PMP specifies the procedures to follow to assure that proper preventative and remedial pavement maintenance is performed. The program should identify funding or anticipated funding and other resources available to provide remedial and preventive maintenance activities. An airport sponsor may use any format deemed appropriate, but the program needs to, as a minimum, include the following:*

***A-1.1. Pavement Inventory.*** *The following must be depicted:*

a. *Identification of all runways, taxiways, and aprons with pavement broken down into sections each having similar properties.*

   The network definition map provided in Figure 3 of this report shows the location of all runways, taxiways, aprons, and T-hangars at Council Bluffs Municipal Airport. If any new pavements are constructed or any pavement areas are permanently closed, this map must be updated. Project plans should be submitted to the Iowa DOT after project completion.

b. *Dimensions of pavement sections.*

   The dimensions of all runways, taxiways, aprons, and T-hangars are stored in the PAVER database. Appendix C provides information on length, width, and area. In addition, the network definition map provided in Figure 3 is drawn to scale. Any changes to pavement dimensions must be recorded.

c. *Type of pavement surface.*

   The type of pavement for each section at Council Bluffs Municipal Airport is listed in Table 1 of this report and is also stored in the PAVER database. Any changes to the pavement type (through an overlay or reconstruction) must be recorded.

d. *Year of construction and/or most recent major rehabilitation.*

   Dates for pavement construction, rehabilitation, or reconstruction must be recorded. The current pavement history for Council Bluffs Municipal Airport is provided in Appendix D of this report.

e. *Whether AIP [Airport Improvement Program] or PFC [Passenger Facility Charge] funds were used to construct, reconstruct, or repair the pavement.*

   Funding sources for all pavement projects should be recorded.

***A-1.2. PMP Pavement Inspection Schedule.*** *Airports must perform a detailed inspection of airfield pavements at least once a year for the PMP. If a pavement condition index (PCI) survey is performed, as set forth in ASTM D5340, Standard Test Method for Airport Pavement Condition Index Surveys, the frequency of the detailed inspection by PCI surveys may be extended to three years. Less comprehensive routine daily, weekly, and monthly maintenance inspections required for operations should be addressed.*

This report consists of a detailed inspection that will extend the inspection period to 3 years. It is the airport sponsor's responsibility to perform monthly drive-by inspections. A sample pavement inspection report form is provided in Table 3 of this report.

***A-1.3. Record Keeping.*** *The airport must record and keep on file complete information about all detailed inspections and maintenance performed until the pavement system is replaced. The types of distress, their locations, and remedial action, scheduled or performed, must be documented. The minimum information recorded includes:*

a. *Inspection date*

*b. Location*

*c. Distress types*

*d. Maintenance scheduled or performed*

Items a through c are satisfied by this inspection report. Item d is the responsibility of the airport, as is record keeping of the monthly drive-by inspections.

***A-1.4. Information Retrieval.*** *An airport sponsor may use any form of record keeping it deems appropriate so long as the information and records from the pavement survey can generate required reports, as necessary.*

Keep this report, monthly drive-by inspection reports, construction updates, and all records of maintenance activities in a readily accessible location so that they can be easily retrieved as requested by the FAA.

Table 3. Pavement inspection report.

Inspected By: _____

Date Inspected: _____

| Branch | Section | Distress Description/Dimensions/Severity/ Recommended Action | Description of Repair | Date Performed | Cost | Funding Source |
|---|---|---|---|---|---|---|
| A01CB | 01 | | | | | |
| A02CB | 01 | | | | | |
| R14CB | 01 | | | | | |
| R14CB | 02 | | | | | |
| R18CB | 01 | | | | | |
| R18CB | 02 | | | | | |

Table 3. Pavement inspection report (continued).

Inspected By: _____

Date Inspected: _____

| Branch | Section | Distress Description/Dimensions/Severity/ Recommended Action | Description of Repair | Date Performed | Cost | Funding Source |
|---|---|---|---|---|---|---|
| T01CB | 01 | | | | | |
| T02CB | 01 | | | | | |
| T02CB | 02 | | | | | |
| T02CB | 03 | | | | | |
| T03CB | 01 | | | | | |
| T03CB | 02 | | | | | |

Table 3. Pavement inspection report (continued).

Inspected By: _____

Date Inspected: _____

| Branch | Section | Distress Description/Dimensions/Severity/ Recommended Action | Description of Repair | Date Performed | Cost | Funding Source |
|---|---|---|---|---|---|---|
| T04CB | 01 | | | | | |
| T04CB | 02 | | | | | |
| T04CB | 03 | | | | | |
| T05CB | 01 | | | | | |
| TH01CB | 01 | | | | | |
| TH01CB | 02 | | | | | |

Table 3. Pavement inspection report (continued).

Inspected By: _____

Date Inspected: _____

| Branch | Section | Distress Description/Dimensions/Severity/ Recommended Action | Description of Repair | Date Performed | Cost | Funding Source |
|---|---|---|---|---|---|---|
| TH01CB | 03 | | | | | |

Table Note: See Figure 3 for the location of the branch and section.

# SUMMARY

This report documents the results of the pavement evaluation conducted at Council Bluffs Municipal Airport. A visual inspection of the pavements in 2022 found that the overall condition of the pavement network is a PCI of 87. A 5-year pavement repair program, shown in Table 2, was generated for Council Bluffs Municipal Airport, which revealed that approximately $697,000 needs to be expended on M&R. Council Bluffs Municipal Airport should utilize these study results to assist in planning for future maintenance needs as part of the airport CIP planning process.

# APPENDIX A

# CAUSE OF DISTRESS TABLES

Table A-1. Cause of pavement distress, asphalt-surfaced pavements.

| Distress Type | Probable Cause of Distress |
|---|---|
| Alligator Cracking | Fatigue failure of the asphalt surface under repeated traffic loading. |
| Bleeding | Excessive amounts of asphalt cement or tars in the mix or low air void content, or both. |
| Block Cracking | Shrinkage of the asphalt and daily temperature cycling; it is not load associated. |
| Corrugation | Traffic action combined with an unstable pavement layer. |
| Depression | Settlement of the foundation soil or can be "built up" during construction. |
| Jet-Blast Erosion | Bituminous binder has been burned or carbonized. |
| Joint Reflection Cracking | Movement of the concrete slab beneath the asphalt surface due to thermal and moisture changes. |
| L&T Cracking | Cracks may be caused by (1) a poorly constructed paving lane joint, (2) shrinkage of the asphalt surface due to low temperatures or hardening of the asphalt, or (3) reflective cracking caused by cracks in an underlying PCC slab. |
| Oil Spillage | Deterioration or softening of the pavement surface caused by the spilling of oil, fuel, or other solvents. |
| Patching | N/A |
| Polished Aggregate | Repeated traffic applications. |
| Raveling | Asphalt binder may have hardened significantly, causing coarse aggregate pieces to dislodge. |
| Rutting | Usually caused by consolidation or lateral movement of the materials due to traffic loads. |
| Shoving | Where PCC pavements adjoin flexible pavements, PCC "growth" may shove the asphalt pavement. |
| Slippage Cracking | Low strength surface mix or poor bond between the surface and the next layer of the pavement structure. |
| Swelling | Usually caused by frost action or by swelling soil. |
| Weathering | Asphalt binder and/or fine aggregate may wear away as the pavement ages and hardens. |

Table A-2. Cause of pavement distress, PCC pavements.

| Distress Type | Probable Cause of Distress |
|---|---|
| ASR | Chemical reaction of alkalis in the portland cement with certain reactive silica minerals. ASR may be accelerated by the use of chemical pavement deicers. |
| Blowup | Incompressible materials in the joints. |
| Corner Break | Load repetition combined with loss of support and curling stresses. |
| Durability Cracking | Concrete's inability to withstand environmental factors such as freeze-thaw cycles. |
| Faulting | Upheaval or consolidation. |
| Joint Seal Damage | Stripping of joint sealant, extrusion of joint sealant, weed growth, hardening of the filler (oxidation), loss of bond to the slab edges, or absence of sealant in the joint. |
| LTD Cracking | Combination of load repetition, curling stresses, and shrinkage stresses. |
| Patching (Small and Large) | N/A |
| Popouts | Freeze-thaw action in combination with expansive aggregates. |
| Pumping | Poor drainage, poor joint sealant. |
| Scaling | Over finishing of concrete, deicing salts, improper construction, freeze-thaw cycles, and poor aggregate. |
| Shattered Slab | Load repetition. |
| Shrinkage Cracking | Setting and curing of the concrete. |
| Spalling (Joint and Corner) | Excessive stresses at the joint caused by infiltration of incompressible materials or traffic loads; weak concrete at the joint combined with traffic loads. |

# APPENDIX B

# INSPECTION PHOTOGRAPHS

A01CB-01. Overview.

A01CB-01. Joint Seal Damage (Sample Unit No. 23).

A01CB-01. LTD Cracking (Sample Unit No. 61).

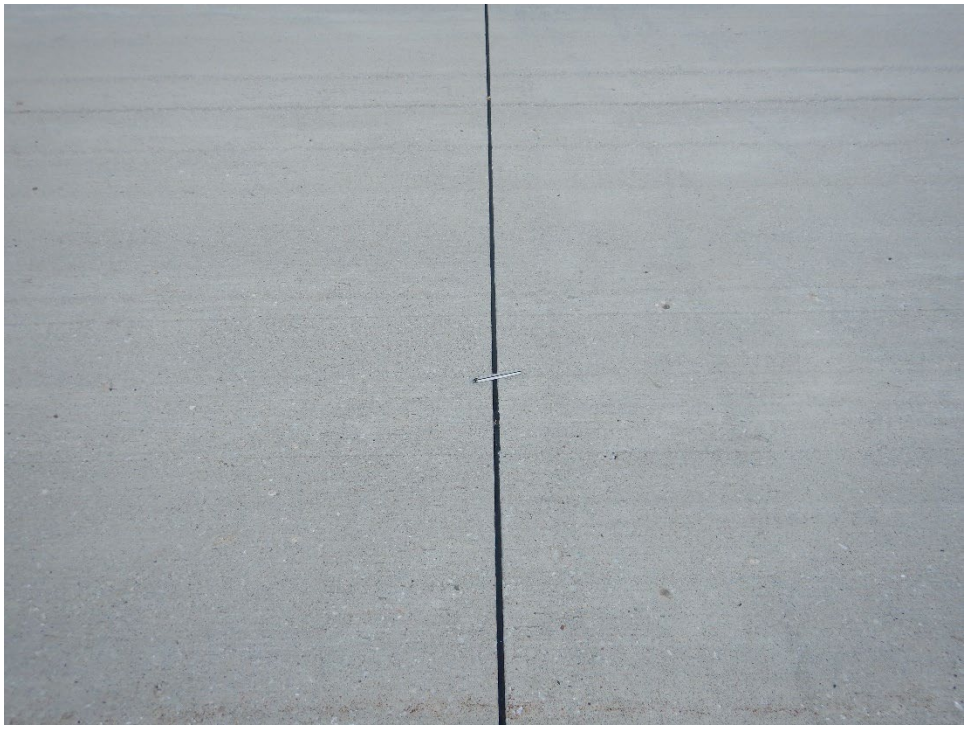
A02CB-01. Overview.

A02CB-01. ASR (Sample Unit No. 22).

A02CB-01. LTD Cracking (Sample Unit No. 25).

R14CB-01. Overview.

R14CB-01. Joint Seal Damage (Sample Unit No. 27).



R14CB-01. LTD Cracking (Sample Unit No. 36).

R14CB-01. Shattered Slab (Additional Sample Unit No. 03).

R14CB-02. Overview.

R14CB-02. Faulting (Sample Unit No. 15).

R18CB-01. Overview.

R18CB-01. Corner Spalling (Sample Unit No. 119).

R18CB-01. Joint Seal Damage (Sample Unit No. 99).

R18CB-02. Overview (1).

R18CB-02. Overview (2).

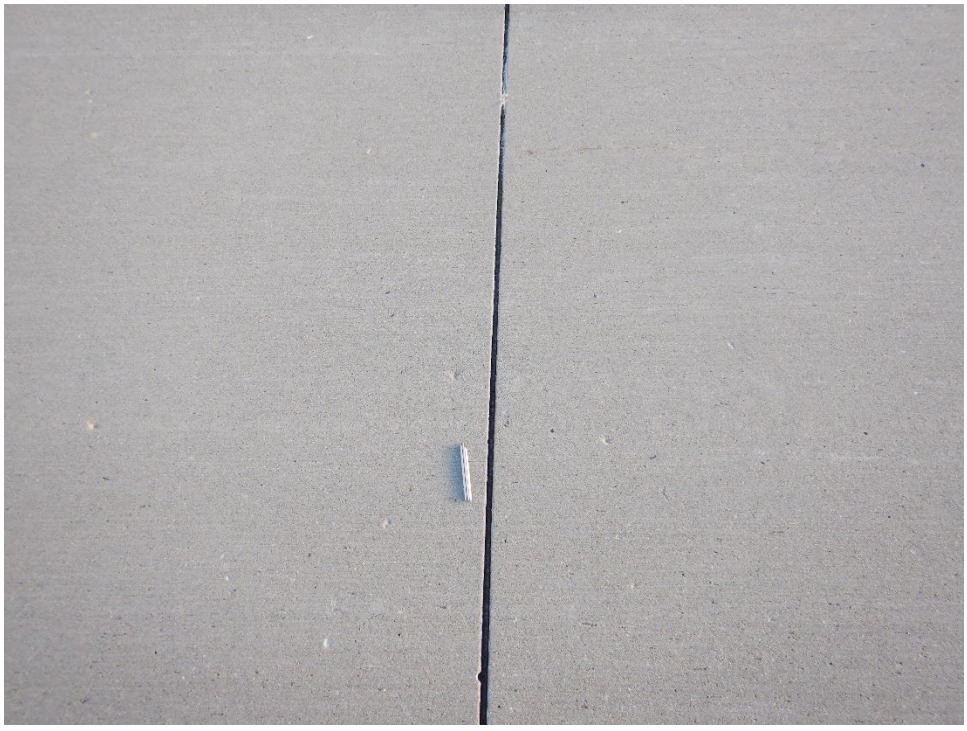
R18CB-02. Popouts (Sample Unit No. 47).

T01CB-01. Overview.

T01CB-01. LTD Cracking (Sample Unit No. 55).

T02CB-01. Overview.

T02CB-01. Joint Seal Damage (Sample Unit No. 24).



T02CB-02. Overview.

T02CB-02. Corner Spalling (Sample Unit No. 09).

T02CB-02. Joint Seal Damage (Sample Unit No. 02).

T02CB-03. Overview.

T02CB-03. Joint Spalling (Sample Unit No. 05).

T03CB-01. Overview.

T03CB-01. Joint Seal Damage (Sample Unit No. 03).

T03CB-02. Overview.

T03CB-02. Popouts (Sample Unit No. 17).

T04CB-01. Overview.

T04CB-01. Joint Seal Damage (Sample Unit No. 09).

T04CB-02. Overview.

T04CB-02. Joint Seal Damage (Sample Unit No. 08).

T04CB-03. Overview.

T04CB-03. Small Patching (Sample Unit No. 11).

T05CB-01. Overview.

T05CB-01. Joint Seal Damage (Sample Unit No. 12).

TH01CB-01. Overview.

TH01CB-01. ASR (Sample Unit No. 03).

TH01CB-01. LTD Cracking (Sample Unit No. 03).

TH01CB-02. Overview.

TH01CB-02. Shrinkage Cracking (Sample Unit No. 13).

TH01CB-03. Overview.

TH01CB-03. LTD Cracking (Sample Unit No. 03).

# APPENDIX C

# INSPECTION REPORT

# RE-INSPECTION REPORT
# COUNCIL BLUFFS MUNICIPAL AIRPORT

Pavement Database: IA 2022 Generate Date: 6/14/2023

Network ID: CBF 

## Branch - Section ID: A01CB - 001

Branch Name: APRON 01 Use: APRON

LCD: 6/3/2010
Surface Type: PCC
Rank: P
Section Area (sf): 164,387.00
Length (ft): 530.00
Width (ft): 255.00
From: HANGER
To: TAXIWAY

PCI Family: IowaPCCAPSW

Slabs: 1,315
Slab Length (ft): 12.50
Slab Width (ft): 10.00
Joint Length (ft): 28,634.84

Section Comments:

Last Insp Date: 11/17/2022
PCI: 95
Total Samples: 68
Surveyed: 9

Inspection Comments:

### Sample Number: 05

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 08

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 23

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 28

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 35

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 39

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

# RE-INSPECTION REPORT
# COUNCIL BLUFFS MUNICIPAL AIRPORT



**Sample Number: 44**

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00
Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

**Sample Number: 53**

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00
Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

**Sample Number: 61**

Sample Type: R
Sample PCI: 76
Sample Area (Slabs): 25.00
Sample Comments:

| | | | |
|---|---|---|---|
| 63 LINEAR CRACKING | M | 2.00 | Slabs |
| 65 JOINT SEAL DAMAGE | H | 25.00 | Slabs |
| 75 CORNER SPALL | L | 1.00 | Slabs |

# RE-INSPECTION REPORT
# COUNCIL BLUFFS MUNICIPAL AIRPORT



## Branch - Section ID: A02CB - 001

Branch Name: APRON 02 Use: APRON

LCD: 9/1/1995
Surface Type: PCC
Rank: P
Section Area (sf): 66,015.00
Length (ft): 300.00
Width (ft): 220.00
From: A01CB-01
To: TAXIWAY 02

PCI Family: IowaPCCAPSW

Slabs: 532
Slab Length (ft): 10.00
Slab Width (ft): 12.40
Joint Length (ft): 11,405.17

Section Comments: avg slab width entered and drawn

Last Insp Date: 11/17/2022
PCI: 70
Total Samples: 28
Surveyed: 7

Inspection Comments:

### Sample Number: 04

Sample Type: R
Sample PCI: 83
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |
| 74 JOINT SPALL | M | 2.00 | Slabs |

### Sample Number: 06

Sample Type: R
Sample PCI: 81
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 1.00 | Slabs |
| 74 JOINT SPALL | L | 1.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |

### Sample Number: 10

Sample Type: R
Sample PCI: 82
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |
| 76 ASR | L | 3.00 | Slabs |

### Sample Number: 13

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |

### Sample Number: 18

Sample Type: R
Sample PCI: 83
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |
| 75 CORNER SPALL | M | 2.00 | Slabs |

**Sample Number: 22**

Sample Type: R
Sample PCI: 46
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 63 LINEAR CRACKING | M | 1.00 | Slabs |
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |
| 71 FAULTING | L | 1.00 | Slabs |
| 74 JOINT SPALL | L | 1.00 | Slabs |
| 74 JOINT SPALL | M | 1.00 | Slabs |
| 75 CORNER SPALL | H | 1.00 | Slabs |
| 75 CORNER SPALL | L | 1.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |
| 76 ASR | L | 14.00 | Slabs |
| 76 ASR | M | 1.00 | Slabs |

**Sample Number: 25**

Sample Type: R
Sample PCI: 29
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 62 CORNER BREAK | M | 5.00 | Slabs |
| 63 LINEAR CRACKING | M | 6.00 | Slabs |
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |
| 72 SHATTERED SLAB | M | 1.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 2.00 | Slabs |
| 76 ASR | L | 3.00 | Slabs |

## Branch - Section ID: R14CB - 001

Branch Name: RUNWAY 14/32 Use: RUNWAY

LCD: 6/3/2007
Surface Type: PCC
Rank: S
Section Area (sf): 167,703.00
Length (ft): 2,957.00
Width (ft): 60.00
From: RUNWAY END 14
To: RUNWAY END 32

PCI Family: IowaPCCRWSW_Enhanced

Slabs: 1,677
Slab Length (ft): 10.00
Slab Width (ft): 10.00
Joint Length (ft): 30,688.84

Section Comments:

Last Insp Date: 11/17/2022
PCI: 89
Total Samples: 70
Surveyed: 10

Inspection Comments:

### Sample Number: 03

Sample Type: A
Sample PCI: 68
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 62 CORNER BREAK | M | 2.00 | Slabs |
| 65 JOINT SEAL DAMAGE | M | 24.00 | Slabs |
| 71 FAULTING | L | 1.00 | Slabs |
| 72 SHATTERED SLAB | M | 1.00 | Slabs |

### Sample Number: 11

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 24.00 | Slabs |

### Sample Number: 19

Sample Type: R
Sample PCI: 91
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 24.00 | Slabs |
| 71 FAULTING | L | 2.00 | Slabs |

### Sample Number: 27

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 24.00 | Slabs |

### Sample Number: 36

Sample Type: R
Sample PCI: 77
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 63 LINEAR CRACKING | M | 2.00 | Slabs |
| 65 JOINT SEAL DAMAGE | L | 24.00 | Slabs |
| 71 FAULTING | L | 2.00 | Slabs |

**Sample Number: 43**

Sample Type: R
Sample PCI: 73
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 63 LINEAR CRACKING | M | 3.00 | Slabs |
| 65 JOINT SEAL DAMAGE | L | 24.00 | Slabs |
| 68 POPOUTS | N | 1.00 | Slabs |

**Sample Number: 49**

Sample Type: R
Sample PCI: 91
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 24.00 | Slabs |
| 71 FAULTING | L | 2.00 | Slabs |

**Sample Number: 56**

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 24.00 | Slabs |

**Sample Number: 59**

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 24.00 | Slabs |

**Sample Number: 67**

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 24.00 | Slabs |

## Branch - Section ID: R14CB - 002

Branch Name: RUNWAY 14/32 Use: RUNWAY

LCD: 6/3/2007
Surface Type: PCC
Rank: S
Section Area (sf): 44,038.00
Length (ft): 711.00
Width (ft): 60.00
From: R14CB-01
To: RUNWAY 18

PCI Family: IowaPCCRWSW_Enhanced

Slabs: 440
Slab Length (ft): 10.00
Slab Width (ft): 10.00
Joint Length (ft): 8,011.70

Section Comments:

Last Insp Date: 11/17/2022
PCI: 92
Total Samples: 18
Surveyed: 7

Inspection Comments:

### Sample Number: 01

Sample Type: R
Sample PCI: 89
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 24.00 | Slabs |
| 71 FAULTING | L | 2.00 | Slabs |
| 74 JOINT SPALL | L | 1.00 | Slabs |

### Sample Number: 04

Sample Type: R
Sample PCI: 91
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 24.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 3.00 | Slabs |

### Sample Number: 06

Sample Type: R
Sample PCI: 97
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 24.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 1.00 | Slabs |

### Sample Number: 08

Sample Type: R
Sample PCI: 75
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 63 LINEAR CRACKING | L | 1.00 | Slabs |
| 63 LINEAR CRACKING | M | 2.00 | Slabs |
| 65 JOINT SEAL DAMAGE | M | 24.00 | Slabs |

### Sample Number: 11

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 24.00 | Slabs |

**Sample Number: 13**

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 24.00 | Slabs |

**Sample Number: 15**

Sample Type: R
Sample PCI: 94
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 24.00 | Slabs |
| 71 FAULTING | L | 1.00 | Slabs |

## Branch - Section ID: R18CB - 001

Branch Name: RUNWAY 18/36 Use: RUNWAY

LCD: 6/3/2006
Surface Type: PCC
Rank: P
Section Area (sf): 400,000.00
Length (ft): 4,000.00
Width (ft): 100.00
From: 18 APPROACH END
To: R18CB-02

PCI Family: IowaPCCRWSW_Enhanced

Slabs: 2,560
Slab Length (ft): 12.50
Slab Width (ft): 12.50
Joint Length (ft): 59,900.00

Section Comments:

Last Insp Date: 11/17/2022
PCI: 85
Total Samples: 128
Surveyed: 13

Inspection Comments:

### Sample Number: 003

Sample Type: R
Sample PCI: 86
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |
| 75 CORNER SPALL | L | 1.00 | Slabs |

### Sample Number: 011

Sample Type: R
Sample PCI: 84
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 71 FAULTING | L | 2.00 | Slabs |
| 75 CORNER SPALL | L | 1.00 | Slabs |

### Sample Number: 021

Sample Type: R
Sample PCI: 78
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 63 LINEAR CRACKING | M | 1.00 | Slabs |
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 66 SMALL PATCH | L | 2.00 | Slabs |
| 70 SCALING | M | 1.00 | Slabs |

### Sample Number: 031

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |

### Sample Number: 041

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |

**Sample Number: 051**

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 20.00
Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

**Sample Number: 061**

Sample Type: R
Sample PCI: 83
Sample Area (Slabs): 20.00
Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |
| 66 SMALL PATCH | L | 1.00 | Slabs |
| 70 SCALING | M | 1.00 | Slabs |

**Sample Number: 069**

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 20.00
Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |

**Sample Number: 079**

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 20.00
Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |

**Sample Number: 089**

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 20.00
Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |

**Sample Number: 099**

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 20.00
Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |

**Sample Number: 109**

Sample Type: R
Sample PCI: 83
Sample Area (Slabs): 20.00
Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |
| 71 FAULTING | L | 2.00 | Slabs |

**Sample Number: 119**

Sample Type: R
Sample PCI: 75
Sample Area (Slabs): 20.00
Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 70 SCALING | M | 1.00 | Slabs |
| 71 FAULTING | L | 3.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |

## Branch - Section ID: R18CB - 002

Branch Name: RUNWAY 18/36 Use: RUNWAY

LCD: 6/3/2007
Surface Type: PCC
Rank: P
Section Area (sf): 150,000.00
Length (ft): 1,500.00
Width (ft): 100.00
From: R18CB-01
To: 36 APPROACH END

PCI Family: IowaPCCRWSW_Enhanced

Slabs: 960
Slab Length (ft): 12.50
Slab Width (ft): 12.50
Joint Length (ft): 22,400.00

Section Comments:

Last Insp Date: 11/17/2022
PCI: 83
Total Samples: 48
Surveyed: 8

Inspection Comments:

### Sample Number: 03

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 68 POPOUTS | N | 2.00 | Slabs |

### Sample Number: 14

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

### Sample Number: 18

Sample Type: R
Sample PCI: 89
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 74 JOINT SPALL | M | 1.00 | Slabs |

### Sample Number: 23

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

### Sample Number: 27

Sample Type: R
Sample PCI: 53
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |
| 68 POPOUTS | N | 2.00 | Slabs |
| 71 FAULTING | H | 2.00 | Slabs |
| 71 FAULTING | M | 3.00 | Slabs |

**Sample Number: 32**

Sample Type: R
Sample PCI: 75
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 71 FAULTING | L | 4.00 | Slabs |
| 71 FAULTING | M | 1.00 | Slabs |

**Sample Number: 36**

Sample Type: R
Sample PCI: 89
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |

**Sample Number: 47**

Sample Type: R
Sample PCI: 83
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 68 POPOUTS | N | 2.00 | Slabs |
| 71 FAULTING | L | 1.00 | Slabs |

## Branch - Section ID: T01CB - 001

Branch Name: TAXIWAY 01 Use: TAXIWAY

LCD: 6/3/2006
Surface Type: PCC
Rank: P
Section Area (sf): 125,508.00
Length (ft): 3,364.00
Width (ft): 35.00
From: 18 APPROACH END
To: TAXIWAY 03

PCI Family: IowaPCCTWSW ENHANCED

Slabs: 1,420
Slab Length (ft): 10.10
Slab Width (ft): 8.75
Joint Length (ft): 23,147.05

Section Comments: avg length of slabs entered and drawn on map

Last Insp Date: 11/17/2022
PCI: 89
Total Samples: 71
Surveyed: 9

Inspection Comments:

### Sample Number: 06

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

### Sample Number: 11

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

### Sample Number: 19

Sample Type: R
Sample PCI: 92
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 1.00 | Slabs |

### Sample Number: 27

Sample Type: R
Sample PCI: 89
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |

### Sample Number: 35

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

### Sample Number: 43

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

**Sample Number: 51**

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

**Sample Number: 55**

Sample Type: R
Sample PCI: 59
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 62 CORNER BREAK | M | 1.00 | Slabs |
| 63 LINEAR CRACKING | M | 3.00 | Slabs |
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 1.00 | Slabs |
| 74 JOINT SPALL | L | 1.00 | Slabs |
| 74 JOINT SPALL | M | 1.00 | Slabs |

**Sample Number: 66**

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

## Branch - Section ID: T02CB - 001

Branch Name: TAXIWAY 02 Use: TAXIWAY

LCD: 6/3/2007
Surface Type: PCC
Rank: P
Section Area (sf): 62,015.00
Length (ft): 1,720.00
Width (ft): 35.00
From: 14 APPROACH END
To: TAXIWAY 03

PCI Family: IowaPCCTWSW ENHANCED

Slabs: 709
Slab Length (ft): 10.00
Slab Width (ft): 8.75
Joint Length (ft): 11,481.02

Section Comments:

Last Insp Date: 11/17/2022
PCI: 94
Total Samples: 35
Surveyed: 8

Inspection Comments:

### Sample Number: 03

Sample Type: R
Sample PCI: 94
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |
| 70 SCALING | L | 2.00 | Slabs |
| 74 JOINT SPALL | L | 1.00 | Slabs |

### Sample Number: 09

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 25.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 25.00 | Slabs |
| 71 FAULTING | L | 1.00 | Slabs |
| 74 JOINT SPALL | L | 1.00 | Slabs |

### Sample Number: 12

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 15

Sample Type: R
Sample PCI: 94
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |
| 68 POPOUTS | N | 1.00 | Slabs |

### Sample Number: 21

Sample Type: R
Sample PCI: 96
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 2.00 | Slabs |

**Sample Number: 24**

Sample Type: R
Sample PCI: 84
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |
| 71 FAULTING | L | 3.00 | Slabs |
| 75 CORNER SPALL | L | 1.00 | Slabs |

**Sample Number: 27**

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

**Sample Number: 31**

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

## Branch - Section ID: T02CB - 002

Branch Name: TAXIWAY 02 Use: TAXIWAY

LCD: 11/3/2009
Surface Type: PCC
Rank: P
Section Area (sf): 27,570.00
Length (ft): 790.00
Width (ft): 35.00
From: TAXIWAY 03
To: T02CB-03

PCI Family: IowaPCCTWSW ENHANCED

Slabs: 315
Slab Length (ft): 10.00
Slab Width (ft): 8.75
Joint Length (ft): 5,085.24

Section Comments:

Last Insp Date: 11/17/2022
PCI: 97
Total Samples: 16
Surveyed: 6

Inspection Comments:

### Sample Number: 02

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 04

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 07

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 09

Sample Type: R
Sample PCI: 94
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |

### Sample Number: 12

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 15

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

## Branch - Section ID: T02CB - 003

Branch Name: TAXIWAY 02 Use: TAXIWAY

LCD: 6/3/2007
Surface Type: PCC
Rank: P
Section Area (sf): 14,392.00
Length (ft): 330.00
Width (ft): 35.00
From: T02CB-02
To: TAXIWAY 04

PCI Family: IowaPCCTWSW ENHANCED

Slabs: 164
Slab Length (ft): 10.00
Slab Width (ft): 8.75
Joint Length (ft): 2,629.19

Section Comments:

Last Insp Date: 11/17/2022
PCI: 83
Total Samples: 9
Surveyed: 5

Inspection Comments:

### Sample Number: 01

Sample Type: R
Sample PCI: 72
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 71 FAULTING | L | 2.00 | Slabs |
| 71 FAULTING | M | 2.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |

### Sample Number: 02

Sample Type: R
Sample PCI: 87
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 71 FAULTING | L | 2.00 | Slabs |

### Sample Number: 03

Sample Type: R
Sample PCI: 84
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |
| 74 JOINT SPALL | M | 1.00 | Slabs |

### Sample Number: 04

Sample Type: R
Sample PCI: 89
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |

### Sample Number: 05

Sample Type: R
Sample PCI: 84
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |
| 74 JOINT SPALL | M | 1.00 | Slabs |

## Branch - Section ID: T03CB - 001

Branch Name: TAXIWAY 03 Use: TAXIWAY

LCD: 6/3/2007
Surface Type: PCC
Rank: P
Section Area (sf): 13,340.00
Length (ft): 270.00
Width (ft): 35.00
From: TAXIWAY 02
To: RUNWAY 14-32

PCI Family: IowaPCCTWSW ENHANCED

Slabs: 152
Slab Length (ft): 10.00
Slab Width (ft): 8.75
Joint Length (ft): 2,428.02

Section Comments:

Last Insp Date: 11/17/2022
PCI: 93
Total Samples: 7
Surveyed: 4

Inspection Comments:

### Sample Number: 02

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

### Sample Number: 03

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 24.00 | Slabs |

### Sample Number: 04

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 24.00 | Slabs |

### Sample Number: 05

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 30.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 30.00 | Slabs |

## Branch - Section ID: T03CB - 002

Branch Name: TAXIWAY 03 Use: TAXIWAY

LCD: 6/3/2007
Surface Type: PCC
Rank: P
Section Area (sf): 32,471.00
Length (ft): 725.00
Width (ft): 35.00
From: RUNWAY 14-32
To: TAXIWAY 01

PCI Family: IowaPCCTWSW ENHANCED

Slabs: 371
Slab Length (ft): 10.00
Slab Width (ft): 8.75
Joint Length (ft): 5,985.54

Section Comments:

Last Insp Date: 11/17/2022
PCI: 93
Total Samples: 19
Surveyed: 7

Inspection Comments:

### Sample Number: 04

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 08

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |
| 68 POPOUTS | N | 3.00 | Slabs |

### Sample Number: 10

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 12

Sample Type: R
Sample PCI: 89
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |
| 68 POPOUTS | N | 2.00 | Slabs |
| 74 JOINT SPALL | L | 1.00 | Slabs |

### Sample Number: 14

Sample Type: R
Sample PCI: 91
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |
| 68 POPOUTS | N | 2.00 | Slabs |

**Sample Number: 16**

Sample Type: R
Sample PCI: 91
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |
| 68 POPOUTS | N | 2.00 | Slabs |

**Sample Number: 17**

Sample Type: R
Sample PCI: 94
Sample Area (Slabs): 24.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 24.00 | Slabs |
| 68 POPOUTS | N | 1.00 | Slabs |

## Branch - Section ID: T04CB - 001

Branch Name: TAXIWAY 04 Use: TAXIWAY

LCD: 6/3/2009
Surface Type: PCC
Rank: P
Section Area (sf): 21,182.00
Length (ft): 323.00
Width (ft): 35.00
From: RUNWAY 14-32
To: TAXIWAY 02

PCI Family: IowaPCCTWSW ENHANCED

Slabs: 242
Slab Length (ft): 10.00
Slab Width (ft): 8.75
Joint Length (ft): 3,868.22

Section Comments:

Last Insp Date: 11/17/2022
PCI: 98
Total Samples: 13
Surveyed: 6

Inspection Comments:

### Sample Number: 04

Sample Type: R
Sample PCI: 96
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |
| 74 JOINT SPALL | L | 1.00 | Slabs |

### Sample Number: 05

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 07

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 23.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 23.00 | Slabs |

### Sample Number: 08

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 09

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 11

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

## Branch - Section ID: T04CB - 002

Branch Name: TAXIWAY 04 Use: TAXIWAY

LCD: 6/3/2009
Surface Type: PCC
Rank: P
Section Area (sf): 16,800.00
Length (ft): 500.00
Width (ft): 35.00
From: TAXIWAY 02
To: T04CB-03

PCI Family: IowaPCCTWSW ENHANCED

Slabs: 192
Slab Length (ft): 10.00
Slab Width (ft): 8.75
Joint Length (ft): 3,086.40

Section Comments:

Last Insp Date: 11/17/2022
PCI: 84
Total Samples: 10
Surveyed: 5

Inspection Comments:

### Sample Number: 02

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 16.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 16.00 | Slabs |
| 71 FAULTING | L | 1.00 | Slabs |

### Sample Number: 04

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 71 FAULTING | L | 1.00 | Slabs |

### Sample Number: 06

Sample Type: R
Sample PCI: 74
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 71 FAULTING | L | 5.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |

### Sample Number: 08

Sample Type: R
Sample PCI: 79
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 71 FAULTING | L | 3.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |

### Sample Number: 09

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

## Branch - Section ID: T04CB - 003

Branch Name: TAXIWAY 04 Use: TAXIWAY

LCD: 6/3/2006
Surface Type: PCC
Rank: P
Section Area (sf): 41,805.00
Length (ft): 1,060.00
Width (ft): 35.00
From: T04CB-02
To: 36 APPROACH END

PCI Family: IowaPCCTWSW ENHANCED

Slabs: 478
Slab Length (ft): 10.00
Slab Width (ft): 8.75
Joint Length (ft): 7,724.35

Section Comments:

Last Insp Date: 11/17/2022
PCI: 86
Total Samples: 24
Surveyed: 7

Inspection Comments:

### Sample Number: 03

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 62 CORNER BREAK | L | 1.00 | Slabs |
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 66 SMALL PATCH | L | 1.00 | Slabs |

### Sample Number: 05

Sample Type: R
Sample PCI: 87
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 63 LINEAR CRACKING | L | 1.00 | Slabs |
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 1.00 | Slabs |

### Sample Number: 08

Sample Type: R
Sample PCI: 92
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 1.00 | Slabs |

### Sample Number: 11

Sample Type: R
Sample PCI: 91
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 66 SMALL PATCH | L | 2.00 | Slabs |

### Sample Number: 14

Sample Type: R
Sample PCI: 89
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 66 SMALL PATCH | L | 3.00 | Slabs |
| 74 JOINT SPALL | L | 1.00 | Slabs |

**Sample Number: 19**

Sample Type: R
Sample PCI: 65
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 63 LINEAR CRACKING | M | 2.00 | Slabs |
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 71 FAULTING | L | 4.00 | Slabs |
| 74 JOINT SPALL | M | 1.00 | Slabs |

**Sample Number: 21**

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

## Branch - Section ID: T05CB - 001

Branch Name: TAXIWAY 05 Use: TAXIWAY

LCD: 9/3/2009
Surface Type: PCC
Rank: P
Section Area (sf): 40,675.00
Length (ft): 900.00
Width (ft): 35.00
From: 32 APPROACH END
To: 36 APPROACH END

PCI Family: IowaPCCTWSW ENHANCED

Slabs: 465
Slab Length (ft): 10.00
Slab Width (ft): 8.75
Joint Length (ft): 7,508.73

Section Comments:

Last Insp Date: 11/17/2022
PCI: 93
Total Samples: 23
Surveyed: 7

Inspection Comments:

### Sample Number: 04

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 07

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | L | 20.00 | Slabs |

### Sample Number: 12

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 22.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 22.00 | Slabs |

### Sample Number: 14

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 25.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 25.00 | Slabs |

### Sample Number: 16

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs |

### Sample Number: 19

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 23.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 23.00 | Slabs |

**Sample Number: 21**

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

## Branch - Section ID: TH01CB - 001

Branch Name: T-HANGAR 01 Use: T-HANGAR

LCD: 6/1/2004
Surface Type: PCC
Rank: P
Section Area (sf): 56,846.00
Length (ft): 1,512.00
Width (ft): 35.00
From: .
To: .

PCI Family: IowaPCCTH_SC&SW

Slabs: 395
Slab Length (ft): 12.50
Slab Width (ft): 11.50
Joint Length (ft): 7,829.04

Section Comments:

Last Insp Date: 11/17/2022
PCI: 69
Total Samples: 21
Surveyed: 7

Inspection Comments:

### Sample Number: 03

Sample Type: R
Sample PCI: 52
Sample Area (Slabs): 21.00

Sample Comments:

| | | | |
|---|---|---|---|
| 63 LINEAR CRACKING | M | 3.00 | Slabs |
| 65 JOINT SEAL DAMAGE | H | 21.00 | Slabs |
| 72 SHATTERED SLAB | M | 1.00 | Slabs |
| 74 JOINT SPALL | M | 1.00 | Slabs |
| 75 CORNER SPALL | L | 1.00 | Slabs |
| 76 ASR | L | 2.00 | Slabs |

### Sample Number: 05

Sample Type: R
Sample PCI: 41
Sample Area (Slabs): 21.00

Sample Comments:

| | | | |
|---|---|---|---|
| 63 LINEAR CRACKING | L | 3.00 | Slabs |
| 63 LINEAR CRACKING | M | 14.00 | Slabs |
| 65 JOINT SEAL DAMAGE | H | 21.00 | Slabs |

### Sample Number: 07

Sample Type: R
Sample PCI: 80
Sample Area (Slabs): 21.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 21.00 | Slabs |
| 74 JOINT SPALL | M | 1.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |

### Sample Number: 11

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 21.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 21.00 | Slabs |

**Sample Number: 15**

Sample Type: R
Sample PCI: 73
Sample Area (Slabs): 21.00

Sample Comments:

| | | | |
|---|---|---|---|
| 63 LINEAR CRACKING | M | 1.00 | Slabs |
| 65 JOINT SEAL DAMAGE | H | 21.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 1.00 | Slabs |
| 74 JOINT SPALL | M | 2.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |

**Sample Number: 17**

Sample Type: R
Sample PCI: 73
Sample Area (Slabs): 21.00

Sample Comments:

| | | | |
|---|---|---|---|
| 63 LINEAR CRACKING | L | 1.00 | Slabs |
| 63 LINEAR CRACKING | M | 1.00 | Slabs |
| 65 JOINT SEAL DAMAGE | H | 21.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 2.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |

**Sample Number: 19**

Sample Type: R
Sample PCI: 73
Sample Area (Slabs): 21.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 21.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 3.00 | Slabs |
| 74 JOINT SPALL | M | 1.00 | Slabs |
| 75 CORNER SPALL | L | 5.00 | Slabs |
| 75 CORNER SPALL | M | 1.00 | Slabs |

## Branch - Section ID: TH01CB - 002

Branch Name: T-HANGAR 01 Use: T-HANGAR

LCD: 11/3/2008
Surface Type: PCC
Rank: P
Section Area (sf): 33,456.00
Length (ft): 1,120.00
Width (ft): 30.00
From: .
To: .

PCI Family: IowaPCCTH_SC&SW

Slabs: 335
Slab Length (ft): 10.00
Slab Width (ft): 10.00
Joint Length (ft): 5,546.13

Section Comments:

Last Insp Date: 11/17/2022
PCI: 86
Total Samples: 16
Surveyed: 6

Inspection Comments:

### Sample Number: 03

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 21.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 21.00 | Slabs |

### Sample Number: 05

Sample Type: R
Sample PCI: 81
Sample Area (Slabs): 21.00

Sample Comments:

| | | | |
|---|---|---|---|
| 62 CORNER BREAK | L | 1.00 | Slabs |
| 63 LINEAR CRACKING | M | 1.00 | Slabs |
| 65 JOINT SEAL DAMAGE | M | 21.00 | Slabs |

### Sample Number: 07

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 21.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 21.00 | Slabs |

### Sample Number: 10

Sample Type: R
Sample PCI: 71
Sample Area (Slabs): 21.00

Sample Comments:

| | | | |
|---|---|---|---|
| 62 CORNER BREAK | L | 1.00 | Slabs |
| 65 JOINT SEAL DAMAGE | M | 21.00 | Slabs |
| 71 FAULTING | L | 4.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 1.00 | Slabs |
| 74 JOINT SPALL | L | 4.00 | Slabs |

### Sample Number: 13

Sample Type: R
Sample PCI: 92
Sample Area (Slabs): 21.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 21.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 1.00 | Slabs |

**Sample Number: 15**

Sample Type: R
Sample PCI: 87
Sample Area (Slabs): 21.00

Sample Comments:

| | | | |
|---|---|---|---|
| 65 JOINT SEAL DAMAGE | M | 21.00 | Slabs |
| 74 JOINT SPALL | M | 1.00 | Slabs |
| 75 CORNER SPALL | L | 1.00 | Slabs |

# RE-INSPECTION REPORT
# COUNCIL BLUFFS MUNICIPAL AIRPORT



## Branch - Section ID: TH01CB - 003

Branch Name: T-HANGAR 01 Use: T-HANGAR

LCD: 1/1/1995
Surface Type: PCC
Rank: P
Section Area (sf): 10,500.00
Length (ft): 525.00
Width (ft): 20.00
From: .
To: .

PCI Family: IowaPCCTH_SC&SW

Slabs: 84
Slab Length (ft): 12.50
Slab Width (ft): 10.00
Joint Length (ft): 1,345.00

Section Comments:

Last Insp Date: 11/17/2022
PCI: 66
Total Samples: 4
Surveyed: 3

Inspection Comments:

### Sample Number: 01

Sample Type: R
Sample PCI: 79
Sample Area (Slabs): 20.00

Sample Comments:

| | | | | |
|---|---|---|---|---|
| 65 JOINT SEAL DAMAGE | H | 20.00 | Slabs | |
| 71 FAULTING | M | 2.00 | Slabs | AT BREAK |

### Sample Number: 03

Sample Type: R
Sample PCI: 75
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 62 CORNER BREAK | M | 2.00 | Slabs |
| 63 LINEAR CRACKING | L | 2.00 | Slabs |
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |

### Sample Number: 04

Sample Type: R
Sample PCI: 45
Sample Area (Slabs): 20.00

Sample Comments:

| | | | |
|---|---|---|---|
| 62 CORNER BREAK | M | 1.00 | Slabs |
| 63 LINEAR CRACKING | L | 1.00 | Slabs |
| 63 LINEAR CRACKING | M | 5.00 | Slabs |
| 65 JOINT SEAL DAMAGE | M | 20.00 | Slabs |
| 72 SHATTERED SLAB | M | 1.00 | Slabs |
| 73 SHRINKAGE CRACKING | N | 1.00 | Slabs |

# APPENDIX D

# WORK HISTORY REPORT

# WORK HISTORY

Pavement Database: IA 2022
Network ID: CBF

Generate Date: 6/25/2023


## Network: COUNCIL BLUFFS MUNICIPAL AIRPORT

### Branch - Section ID: A01CB - 001

LCD: 6/3/2010
Use: APRON
Rank: P
Surface: PCC

Length (ft): 530.00
Width (ft): 255.00
True Area (sf): 164,387.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-03-2010 | CR-PC | Complete Reconstruction - PCC | $0.00 | 8.00 | True | 8" P-501 PCC |
| 06-02-2010 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | 6" P-208 base |
| 06-01-2010 | SG-CO | Subgrade - Compacted | $0.00 | 12.00 | False | 12" P-152 Compacted SG |
| 06-01-1965 | NC-PC | New Construction - PCC | $0.00 | 0.00 | True | - |

### Branch - Section ID: A02CB - 001

LCD: 9/1/1995
Use: APRON
Rank: P
Surface: PCC

Length (ft): 300.00
Width (ft): 220.00
True Area (sf): 66,015.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 09-01-1995 | CR-PC | Complete Reconstruction - PCC | $0.00 | 0.00 | True | 6" PCC, 4" P209 |
| 06-01-1975 | NC-AC | New Construction - AC | $0.00 | 0.00 | True | 1.5" P401/6.5" P201/subgrade |

### Branch - Section ID: R14CB - 001

LCD: 6/3/2007
Use: RUNWAY
Rank: S
Surface: PCC

Length (ft): 2,957.00
Width (ft): 60.00
True Area (sf): 167,703.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-03-2007 | CR-PC | Complete Reconstruction - PCC | $0.00 | 6.00 | True | 6" P-501 |
| 06-02-2007 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | 6" P-208 |
| 06-01-2007 | SG-CO | Subgrade - Compacted | $0.00 | 12.00 | False | 12" P-152 Compacted SG |
| 06-01-1983 | CR-PC | Complete Reconstruction - PCC | $0.00 | 0.00 | True | ESTIMATED CONSTRUCTION DATE |
| 06-02-1967 | NC-PC | New Construction - PCC | $0.00 | 6.00 | True | 6" P-501 |
| 06-01-1967 | SB-AG | Subbase - Aggregate | $0.00 | 6.00 | False | 6" P-154 |

### Branch - Section ID: R14CB - 002

LCD: 6/3/2007
Use: RUNWAY
Rank: S
Surface: PCC

Length (ft): 711.00
Width (ft): 60.00
True Area (sf): 44,038.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-03-2007 | CR-PC | Complete Reconstruction - PCC | $0.00 | 6.00 | True | 6" P-501 |
| 06-02-2007 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | 6" P-208 |
| 06-01-2007 | SG-CO | Subgrade - Compacted | $0.00 | 12.00 | False | 6" P-152 Compacted SG |
| 07-01-1983 | NC-PC | New Construction - PCC | $0.00 | 0.00 | True | - |

# WORK HISTORY

Pavement Database: IA 2022
Network ID: CBF

Generate Date: 6/25/2023


## Branch - Section ID: R18CB - 001

LCD: 6/3/2006
Use: RUNWAY
Rank: P
Surface: PCC

Length (ft): 4,000.00
Width (ft): 100.00
True Area (sf): 400,000.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-03-2006 | CR-PC | Complete Reconstruction - PCC | $0.00 | 8.00 | True | - |
| 06-02-2006 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | - |
| 06-01-2006 | SB-AG | Subbase - Aggregate | $0.00 | 12.00 | False | - |
| 01-01-1997 | NC-PC | New Construction - PCC | $0.00 | 0.00 | True | - |

## Branch - Section ID: R18CB - 002

LCD: 6/3/2007
Use: RUNWAY
Rank: P
Surface: PCC

Length (ft): 1,500.00
Width (ft): 100.00
True Area (sf): 150,000.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-01-2011 | JS-LC | Joint Seal (Localized) | $0.00 | 0.00 | False | - |
| 06-03-2007 | CR-PC | Complete Reconstruction - PCC | $0.00 | 8.00 | True | - |
| 06-02-2007 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | - |
| 06-01-2007 | SB-AG | Subbase - Aggregate | $0.00 | 12.00 | False | - |
| 01-01-1997 | NC-PC | New Construction - PCC | $0.00 | 0.00 | True | - |

## Branch - Section ID: T01CB - 001

LCD: 6/3/2006
Use: TAXIWAY
Rank: P
Surface: PCC

Length (ft): 3,364.00
Width (ft): 35.00
True Area (sf): 125,508.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-03-2006 | CR-PC | Complete Reconstruction - PCC | $0.00 | 8.00 | True | - |
| 06-02-2006 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | - |
| 06-01-2006 | SB-AG | Subbase - Aggregate | $0.00 | 12.00 | False | - |
| 06-01-1965 | NC-PC | New Construction - PCC | $0.00 | 0.00 | True | - |

## Branch - Section ID: T02CB - 001

LCD: 6/3/2007
Use: TAXIWAY
Rank: P
Surface: PCC

Length (ft): 1,720.00
Width (ft): 35.00
True Area (sf): 62,015.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-03-2007 | CR-PC | Complete Reconstruction - PCC | $0.00 | 6.00 | True | - |
| 06-02-2007 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | - |
| 06-01-2007 | SB-AG | Subbase - Aggregate | $0.00 | 12.00 | False | - |
| 01-01-1997 | CR-PC | Complete Reconstruction - PCC | $0.00 | 0.00 | True | - |
| 06-01-1983 | NC-AC | New Construction - AC | $0.00 | 0.00 | True | - |

# WORK HISTORY



## Branch - Section ID: T02CB - 002

LCD: 11/3/2009
Use: TAXIWAY
Rank: P
Surface: PCC

Length (ft): 790.00
Width (ft): 35.00
True Area (sf): 27,570.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 11-03-2009 | CR-PC | Complete Reconstruction - PCC | $0.00 | 8.00 | True | - |
| 11-02-2009 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | - |
| 11-01-2009 | SG-CO | Subgrade - Compacted | $0.00 | 12.00 | False | - |
| 06-01-2007 | CR-AC | Complete Reconstruction - AC | $0.00 | 0.00 | True | - |
| 10-01-1995 | CR-PC | Complete Reconstruction - PCC | $0.00 | 0.00 | True | - |
| 06-01-1983 | NC-AC | New Construction - AC | $0.00 | 0.00 | True | - |

## Branch - Section ID: T02CB - 003

LCD: 6/3/2007
Use: TAXIWAY
Rank: P
Surface: PCC

Length (ft): 330.00
Width (ft): 35.00
True Area (sf): 14,392.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-03-2007 | CR-PC | Complete Reconstruction - PCC | $0.00 | 8.00 | True | - |
| 06-02-2007 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | - |
| 06-01-2007 | SB-AG | Subbase - Aggregate | $0.00 | 12.00 | False | - |
| 06-01-1995 | NC-PC | New Construction - PCC | $0.00 | 0.00 | True | - |

## Branch - Section ID: T03CB - 001

LCD: 6/3/2007
Use: TAXIWAY
Rank: P
Surface: PCC

Length (ft): 270.00
Width (ft): 35.00
True Area (sf): 13,340.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-03-2007 | CR-PC | Complete Reconstruction - PCC | $0.00 | 8.00 | True | - |
| 06-02-2007 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | - |
| 06-01-2007 | SB-AG | Subbase - Aggregate | $0.00 | 12.00 | False | - |
| 06-01-2005 | CR-AC | Complete Reconstruction - AC | $0.00 | 0.00 | True | - |
| 06-01-1983 | NC-AC | New Construction - AC | $0.00 | 0.00 | True | - |

## Branch - Section ID: T03CB - 002

LCD: 6/3/2007
Use: TAXIWAY
Rank: P
Surface: PCC

Length (ft): 725.00
Width (ft): 35.00
True Area (sf): 32,471.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-03-2007 | CR-PC | Complete Reconstruction - PCC | $0.00 | 8.00 | True | - |
| 06-02-2007 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | - |
| 06-01-2007 | SB-AG | Subbase - Aggregate | $0.00 | 12.00 | False | - |
| 06-01-2005 | NC-AC | New Construction - AC | $0.00 | 0.00 | True | - |

# WORK HISTORY

Pavement Database: IA 2022
Network ID: CBF

Generate Date: 6/25/2023


## Branch - Section ID: T04CB - 001

LCD: 6/3/2009
Use: TAXIWAY
Rank: P
Surface: PCC

Length (ft): 323.00
Width (ft): 35.00
True Area (sf): 21,182.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-03-2009 | CR-PC | Complete Reconstruction - PCC | $0.00 | 8.00 | True | - |
| 06-02-2009 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | - |
| 06-01-2009 | SB-AG | Subbase - Aggregate | $0.00 | 12.00 | False | - |
| 10-01-1995 | CR-PC | Complete Reconstruction - PCC | $0.00 | 0.00 | True | - |
| 06-01-1983 | NC-AC | New Construction - AC | $0.00 | 0.00 | True | - |

## Branch - Section ID: T04CB - 002

LCD: 6/3/2009
Use: TAXIWAY
Rank: P
Surface: PCC

Length (ft): 500.00
Width (ft): 35.00
True Area (sf): 16,800.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-03-2009 | NC-PC | New Construction - PCC | $0.00 | 6.00 | True | - |
| 06-02-2009 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | - |
| 06-01-2009 | SB-AG | Subbase - Aggregate | $0.00 | 12.00 | False | - |

## Branch - Section ID: T04CB - 003

LCD: 6/3/2006
Use: TAXIWAY
Rank: P
Surface: PCC

Length (ft): 1,060.00
Width (ft): 35.00
True Area (sf): 41,805.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-03-2006 | NC-PC | New Construction - PCC | $0.00 | 8.00 | True | - |
| 06-02-2006 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | - |
| 06-01-2006 | SB-AG | Subbase - Aggregate | $0.00 | 12.00 | False | - |

## Branch - Section ID: T05CB - 001

LCD: 9/3/2009
Use: TAXIWAY
Rank: P
Surface: PCC

Length (ft): 900.00
Width (ft): 35.00
True Area (sf): 40,675.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 09-03-2009 | NC-PC | New Construction - PCC | $0.00 | 6.00 | True | - |
| 09-02-2009 | BA-AG | Base Course - Aggregate | $0.00 | 6.00 | False | - |
| 09-01-2009 | SB-AG | Subbase - Aggregate | $0.00 | 12.00 | False | - |

# WORK HISTORY



## Branch - Section ID: TH01CB - 001

LCD: 6/1/2004
Use: T-HANGAR
Rank: P
Surface: PCC

Length (ft): 1,512.00
Width (ft): 35.00
True Area (sf): 56,846.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 06-01-2004 | NU-IN | New Construction - Initial | $0.00 | 0.00 | True | EST |

## Branch - Section ID: TH01CB - 002

LCD: 11/3/2008
Use: T-HANGAR
Rank: P
Surface: PCC

Length (ft): 1,120.00
Width (ft): 30.00
True Area (sf): 33,456.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 11-03-2008 | NU-IN | New Construction - Initial | $0.00 | 6.00 | True | 6" P-505 PCC |
| 11-02-2008 | SB-AG | Subbase - Aggregate | $0.00 | 6.00 | False | 6" P-154 Subbase |
| 11-01-2008 | SG-CO | Subgrade - Compacted | $0.00 | 12.00 | False | 12" P-152 Compacted SG |

## Branch - Section ID: TH01CB - 003

LCD: 1/1/1995
Use: T-HANGAR
Rank: P
Surface: PCC

Length (ft): 525.00
Width (ft): 20.00
True Area (sf): 10,500.00

| Work Date | Work Code | Work Description | Cost | Thickness (in) | Major MR | Comments |
|---|---|---|---|---|---|---|
| 01-01-1995 | NU-IN | New Construction - Initial | $0.00 | 0.00 | True | EST, BETWEEN 1990 AND 2002 |

# APPENDIX E

# LOCALIZED PREVENTIVE MAINTENANCE POLICIES AND UNIT COST TABLES

Table E-1. Localized preventive maintenance policy, asphalt-surfaced pavements.

| Distress Type | Severity Level | Maintenance Action |
|---|---|---|
| Alligator Cracking | Low | Monitor |
| Alligator Cracking | Medium | Asphalt Patch |
| Alligator Cracking | High | Asphalt Patch |
| Bleeding | N/A | Monitor |
| Block Cracking | Low | Monitor |
| Block Cracking | Medium | Crack Seal—Asphalt |
| Block Cracking | High | Crack Seal—Asphalt |
| Corrugation | Low | Monitor |
| Corrugation | Medium | Asphalt Patch |
| Corrugation | High | Asphalt Patch |
| Depression | Low | Monitor |
| Depression | Medium | Monitor |
| Depression | High | Asphalt Patch |
| Jet-Blast Erosion | N/A | Asphalt Patch |
| Joint Reflection Cracking | Low | Monitor |
| Joint Reflection Cracking | Medium | Crack Seal—Asphalt |
| Joint Reflection Cracking | High | Crack Seal—Asphalt |
| L&T Cracking | Low | Monitor |
| L&T Cracking | Medium | Crack Seal—Asphalt |
| L&T Cracking | High | Crack Seal—Asphalt |
| Oil Spillage | N/A | Asphalt Patch |
| Patching | Low | Monitor |
| Patching | Medium | Asphalt Patch |
| Patching | High | Asphalt Patch |
| Polished Aggregate | N/A | Monitor |
| Raveling | Low | Monitor |
| Raveling | Medium | Asphalt Patch |
| Raveling | High | Asphalt Patch |
| Rutting | Low | Monitor |
| Rutting | Medium | Monitor |
| Rutting | High | Asphalt Patch |
| Shoving | Low | Monitor |
| Shoving | Medium | Asphalt Patch |
| Shoving | High | Asphalt Patch |
| Slippage Cracking | N/A | Asphalt Patch |
| Swelling | Low | Monitor |
| Swelling | Medium | Monitor |
| Swelling | High | Asphalt Patch |
| Weathering | Low | Monitor |
| Weathering | Medium | Monitor |
| Weathering | High | Asphalt Patch |

Table E-2. Localized preventive maintenance policy, PCC pavements.

| Distress Type | Severity Level | Maintenance Action |
|---|---|---|
| ASR | Low | Monitor |
| ASR | Medium | Slab Replacement |
| ASR | High | Slab Replacement |
| Blowup | Low | Slab Replacement |
| Blowup | Medium | Slab Replacement |
| Blowup | High | Slab Replacement |
| Corner Break | Low | Crack Seal—PCC |
| Corner Break | Medium | Full Depth PCC Patch |
| Corner Break | High | Full Depth PCC Patch |
| Durability Cracking | Low | Monitor |
| Durability Cracking | Medium | Full Depth Patch |
| Durability Cracking | High | Slab Replacement |
| Faulting | Low | Monitor |
| Faulting | Medium | Grinding |
| Faulting | High | Slab Replacement |
| Joint Seal Damage | Low | Monitor |
| Joint Seal Damage | Medium | Joint Seal |
| Joint Seal Damage | High | Joint Seal |
| LTD Cracking | Low | Monitor |
| LTD Cracking | Medium | Crack Seal—PCC |
| LTD Cracking | High | Slab Replacement |
| Patching (Small and Large) | Low | Monitor |
| Patching (Small and Large) | Medium | Full Depth PCC Patch |
| Patching (Small and Large) | High | Full Depth PCC Patch |
| Popouts | N/A | Monitor |
| Pumping | N/A | Monitor |
| Scaling | Low | Monitor |
| Scaling | Medium | Partial Depth PCC Patch |
| Scaling | High | Slab Replacement |
| Shattered Slab | Low | Crack Seal—PCC |
| Shattered Slab | Medium | Slab Replacement |
| Shattered Slab | High | Slab Replacement |
| Shrinkage Cracking | N/A | Monitor |
| Spalling (Joint and Corner) | Low | Monitor |
| Spalling (Joint and Corner) | Medium | Partial Depth PCC Patch |
| Spalling (Joint and Corner) | High | Partial Depth PCC Patch |

Table E-3. 2023 unit costs for localized preventive maintenance actions.

| Maintenance Action | Unit Cost |
|---|---|
| Asphalt Patch—Asphalt-Surfaced Pavement | $15.24/sf |
| Crack Sealing—Asphalt-Surfaced Pavement | $2.61/lf |
| Partial Depth PCC Patch—PCC Pavement | $39.04/sf |
| Full Depth PCC Patch—PCC Pavement | $17.43/sf |
| Crack Sealing—PCC Pavement | $3.14/lf |
| Joint Sealing—PCC Pavement | $3.14/lf |
| Grinding—PCC Pavement | $0.37/sf |
| Slab Replacement—PCC Pavement | $17.43/sf |

Table Note: The unit cost estimates are based on broad statewide numbers and should be adjusted to reflect local costs.

Table E-4. 2023 unit costs (per square foot) based on pavement type and PCI ranges.

| Pavement Type | PCI Range 0–40 | PCI Range 40–50 | PCI Range 50–60 | PCI Range 60–70 | PCI Range 70–80 | PCI Range 80–90 | PCI Range 90–100 |
|---|---|---|---|---|---|---|---|
| AC | $10.82 | $5.12 | $5.12 | $5.12 | $0.00 | $0.00 | $0.00 |
| PCC | $18.08 | $8.55 | $8.55 | $8.55 | $0.00 | $0.00 | $0.00 |

Table Note: The unit cost estimates are based on broad statewide numbers and should be adjusted to reflect local costs.

# APPENDIX F

# YEAR 2023 LOCALIZED PREVENTIVE MAINTENANCE DETAILS

Table F-1. Year 2023 localized preventive maintenance details.

| Branch | Section | Distress Type | Severity | Distress Quantity | Distress Unit | Maintenance Action | Unit Cost | 2023 Estimated Cost |
|---|---|---|---|---|---|---|---|---|
| A01CB | 01 | Joint Seal Damage | High | 178 | Slabs | Joint Seal (Localized) | $3.14 | $12,150 |
| A01CB | 01 | LTD Cracking | Medium | 14 | Slabs | Crack Sealing - PCC | $3.14 | $502 |
| A02CB | 01 | ASR | Medium | 4 | Slabs | Slab Replacement - PCC | $17.43 | $8,213 |
| A02CB | 01 | Corner Break | Medium | 19 | Slabs | Patching - PCC Full Depth | $17.43 | $10,694 |
| A02CB | 01 | Corner Spalling | Medium | 15 | Slabs | Patching - PCC Partial Depth | $39.04 | $1,597 |
| A02CB | 01 | Corner Spalling | High | 4 | Slabs | Patching - PCC Partial Depth | $39.04 | $399 |
| A02CB | 01 | Joint Seal Damage | High | 532 | Slabs | Joint Seal (Localized) | $3.14 | $35,812 |
| A02CB | 01 | Joint Spalling | Medium | 11 | Slabs | Patching - PCC Partial Depth | $39.04 | $2,874 |
| A02CB | 01 | LTD Cracking | Medium | 27 | Slabs | Crack Sealing - PCC | $3.14 | $935 |
| A02CB | 01 | Shattered Slab | Medium | 4 | Slabs | Slab Replacement - PCC | $17.43 | $8,213 |
| R14CB | 01 | Corner Break | Medium | 2 | Slabs | Patching - PCC Full Depth | $17.43 | $1,126 |
| R14CB | 01 | Joint Seal Damage | Medium | 575 | Slabs | Joint Seal (Localized) | $3.14 | $33,040 |
| R14CB | 01 | LTD Cracking | Medium | 38 | Slabs | Crack Sealing - PCC | $3.14 | $1,201 |
| R14CB | 01 | Shattered Slab | Medium | 1 | Slabs | Slab Replacement - PCC | $17.43 | $1,743 |
| R14CB | 02 | Joint Seal Damage | Medium | 126 | Slabs | Joint Seal (Localized) | $3.14 | $7,188 |
| R14CB | 02 | LTD Cracking | Medium | 5 | Slabs | Crack Sealing - PCC | $3.14 | $164 |
| R18CB | 01 | Corner Spalling | Medium | 10 | Slabs | Patching - PCC Partial Depth | $39.04 | $1,034 |
| R18CB | 01 | Joint Seal Damage | Medium | 788 | Slabs | Joint Seal (Localized) | $3.14 | $57,872 |
| R18CB | 01 | Joint Seal Damage | High | 1,772 | Slabs | Joint Seal (Localized) | $3.14 | $130,213 |
| R18CB | 01 | LTD Cracking | Medium | 10 | Slabs | Crack Sealing - PCC | $3.14 | $386 |
| R18CB | 01 | Scaling | Medium | 30 | Slabs | Patching - PCC Partial Depth | $39.04 | $59,116 |

Table F-1. Year 2023 localized preventive maintenance details (continued).

| Branch | Section | Distress Type | Severity | Distress Quantity | Distress Unit | Maintenance Action | Unit Cost | 2023 Estimated Cost |
|---|---|---|---|---|---|---|---|---|
| R18CB | 02 | Corner Spalling | Medium | 6 | Slabs | Patching - PCC Partial Depth | $39.04 | $630 |
| R18CB | 02 | Faulting | Medium | 24 | Slabs | Grinding (Localized) | $0.37 | $111 |
| R18CB | 02 | Faulting | High | 12 | Slabs | Slab Replacement - PCC | $17.43 | $32,681 |
| R18CB | 02 | Joint Seal Damage | Medium | 840 | Slabs | Joint Seal (Localized) | $3.14 | $61,544 |
| R18CB | 02 | Joint Seal Damage | High | 120 | Slabs | Joint Seal (Localized) | $3.14 | $8,792 |
| R18CB | 02 | Joint Spalling | Medium | 6 | Slabs | Patching - PCC Partial Depth | $39.04 | $1,513 |
| T01CB | 01 | Corner Break | Medium | 8 | Slabs | Patching - PCC Full Depth | $17.43 | $4,440 |
| T01CB | 01 | Corner Spalling | Medium | 8 | Slabs | Patching - PCC Partial Depth | $39.04 | $829 |
| T01CB | 01 | Joint Seal Damage | Medium | 1,420 | Slabs | Joint Seal (Localized) | $3.14 | $72,681 |
| T01CB | 01 | Joint Spalling | Medium | 8 | Slabs | Patching - PCC Partial Depth | $39.04 | $1,989 |
| T01CB | 01 | LTD Cracking | Medium | 24 | Slabs | Crack Sealing - PCC | $3.14 | $700 |
| T02CB | 02 | Corner Spalling | Medium | 3 | Slabs | Patching - PCC Partial Depth | $39.04 | $276 |
| T02CB | 03 | Corner Spalling | Medium | 3 | Slabs | Patching - PCC Partial Depth | $39.04 | $345 |
| T02CB | 03 | Faulting | Medium | 3 | Slabs | Grinding (Localized) | $0.37 | $11 |
| T02CB | 03 | Joint Seal Damage | Medium | 98 | Slabs | Joint Seal (Localized) | $3.14 | $4,953 |
| T02CB | 03 | Joint Seal Damage | High | 66 | Slabs | Joint Seal (Localized) | $3.14 | $3,302 |
| T02CB | 03 | Joint Spalling | Medium | 3 | Slabs | Patching - PCC Partial Depth | $39.04 | $827 |
| T03CB | 01 | Joint Seal Damage | Medium | 152 | Slabs | Joint Seal (Localized) | $3.14 | $7,624 |
| T04CB | 02 | Corner Spalling | Medium | 4 | Slabs | Patching - PCC Partial Depth | $39.04 | $420 |
| T04CB | 02 | Joint Seal Damage | Medium | 192 | Slabs | Joint Seal (Localized) | $3.14 | $9,691 |
| T04CB | 03 | Corner Break | Low | 3 | Slabs | Crack Sealing - PCC | $3.14 | $88 |

Table F-1. Year 2023 localized preventive maintenance details (continued).

| Branch | Section | Distress Type | Severity | Distress Quantity | Distress Unit | Maintenance Action | Unit Cost | 2023 Estimated Cost |
|---|---|---|---|---|---|---|---|---|
| T04CB | 03 | Joint Seal Damage | Medium | 478 | Slabs | Joint Seal (Localized) | $3.14 | $24,254 |
| T04CB | 03 | Joint Spalling | Medium | 3 | Slabs | Patching - PCC Partial Depth | $39.04 | $861 |
| T04CB | 03 | LTD Cracking | Medium | 7 | Slabs | Crack Sealing - PCC | $3.14 | $201 |
| T05CB | 01 | Joint Seal Damage | Medium | 211 | Slabs | Joint Seal (Localized) | $3.14 | $10,688 |
| T05CB | 01 | Joint Seal Damage | High | 130 | Slabs | Joint Seal (Localized) | $3.14 | $6,602 |
| TH01CB | 01 | Corner Spalling | Medium | 11 | Slabs | Patching - PCC Partial Depth | $39.04 | $1,129 |
| TH01CB | 01 | Joint Seal Damage | Medium | 56 | Slabs | Joint Seal (Localized) | $3.14 | $3,512 |
| TH01CB | 01 | Joint Seal Damage | High | 339 | Slabs | Joint Seal (Localized) | $3.14 | $21,071 |
| TH01CB | 01 | Joint Spalling | Medium | 13 | Slabs | Patching - PCC Partial Depth | $39.04 | $3,388 |
| TH01CB | 01 | LTD Cracking | Medium | 51 | Slabs | Crack Sealing - PCC | $3.14 | $1,924 |
| TH01CB | 01 | Shattered Slab | Medium | 3 | Slabs | Slab Replacement - PCC | $17.43 | $6,733 |
| TH01CB | 02 | Corner Break | Low | 5 | Slabs | Crack Sealing - PCC | $3.14 | $137 |
| TH01CB | 02 | Joint Seal Damage | Medium | 335 | Slabs | Joint Seal (Localized) | $3.14 | $17,415 |
| TH01CB | 02 | Joint Spalling | Medium | 3 | Slabs | Patching - PCC Partial Depth | $39.04 | $670 |
| TH01CB | 02 | LTD Cracking | Medium | 3 | Slabs | Crack Sealing - PCC | $3.14 | $83 |
| TH01CB | 03 | Corner Break | Medium | 4 | Slabs | Patching - PCC Full Depth | $17.43 | $2,364 |
| TH01CB | 03 | Faulting | Medium | 3 | Slabs | Grinding (Localized) | $0.37 | $10 |
| TH01CB | 03 | Joint Seal Damage | Medium | 56 | Slabs | Joint Seal (Localized) | $3.14 | $2,816 |
| TH01CB | 03 | Joint Seal Damage | High | 28 | Slabs | Joint Seal (Localized) | $3.14 | $1,408 |
| TH01CB | 03 | LTD Cracking | Medium | 7 | Slabs | Crack Sealing - PCC | $3.14 | $247 |
| TH01CB | 03 | Shattered Slab | Medium | 1 | Slabs | Slab Replacement - PCC | $17.43 | $3,050 |

Table F-1. Year 2023 localized preventive maintenance details (continued).

Table Notes:

1. See Figure 3 for the location of the branch and section.
2. Distress types are defined by ASTM D5340-20. L&T Cracking = Longitudinal and Transverse Cracking; LTD Cracking = Longitudinal, Transverse, and Diagonal Cracking; ASR = Alkali-Silica Reaction.
3. The costs provided are of a general nature for the entire state and may require adjustment to reflect specific conditions at Council Bluffs Municipal Airport.

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