Boone Municipal Airport

Pavement Management Report

PREPARED BY

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BOONE MUNICIPAL AIRPORT
PAVEMENT MANAGEMENT REPORT

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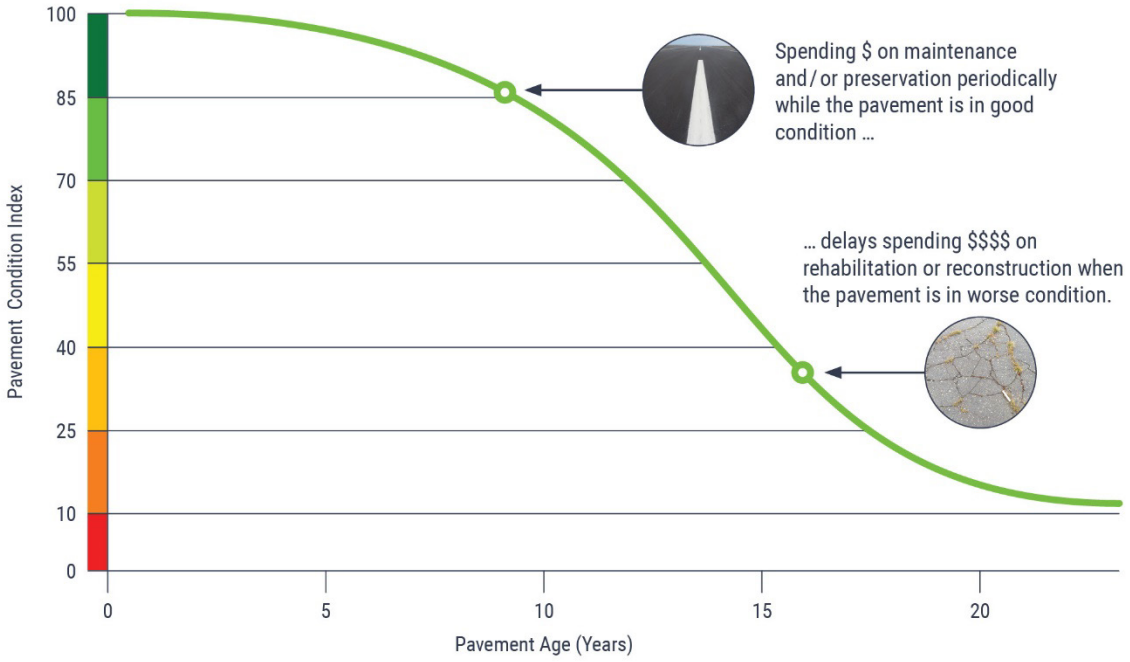
INTRODUCTION

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 – Aviation (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 Boone Municipal Airport were visually assessed in November 2023 using the Pavement Condition Index (PCI) procedure. During a PCI inspection, the types, severities, and amounts of distress present on the pavement surface 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 Boone Municipal Airport are presented within this report and can be used by Boone 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 Boone 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 2020.

The pavement network at Boone 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 834,600 square feet of pavement were evaluated at Boone 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 Boone Municipal Airport.

Figure 2. Pavement area by branch use at Boone Municipal Airport.

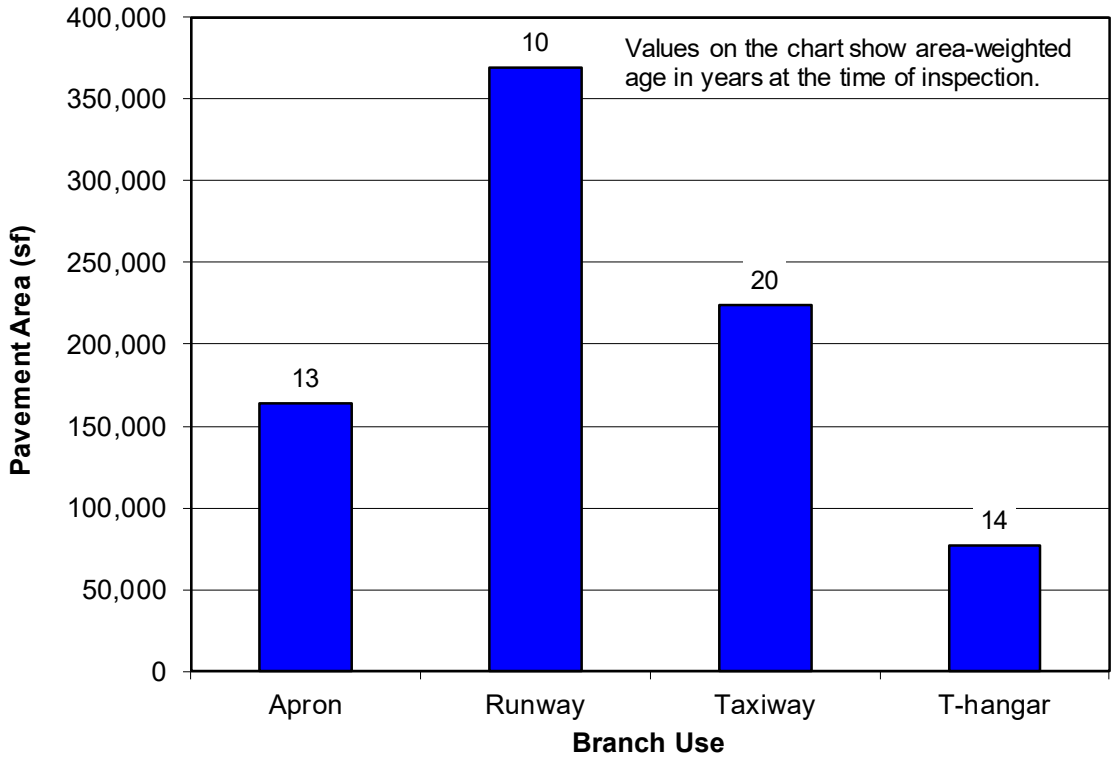
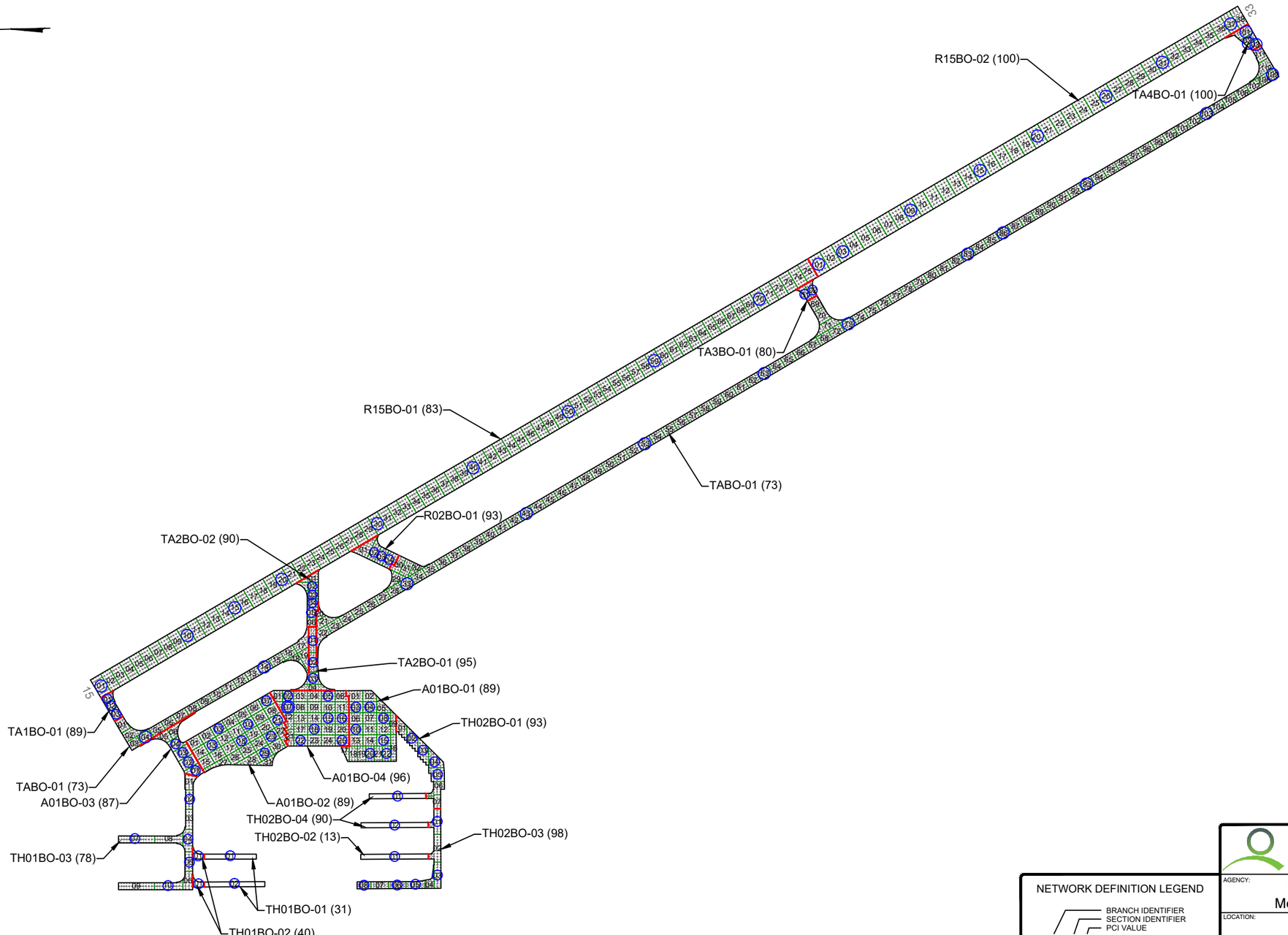


FIGURE 3. NETWORK DEFINITION MAP.



NETWORK DEFINITION LEGEND

- BRANCH IDENTIFIER
- SECTION IDENTIFIER
- PCI VALUE

R15BO-01 (95)

- 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 Modal Transportation Bureau - Aviation			
LOCATION: Boone Municipal Airport Boone, Iowa			
PAGE TITLE: Network Definition Map			
PROJECT DATE: OCT. 2023	CREATION DATE: OCT. 2023	PROJECT MANAGER: LJR	JOB NUMBER: 2021-125-AM02
DRAWING SCALE: 1"=400'	LAST MODIFIED DATE: FEB. 2024	REVISED BY: DMS	DRAWN BY: DSP
FILENAME: Boone.dwg		LAYOUT NAME/NUMBER: NET. DEF.	PAGE NUMBER: 5

PAVEMENT EVALUATION

Pavement Evaluation Procedure

APTech visually inspected the pavements at Boone 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*.

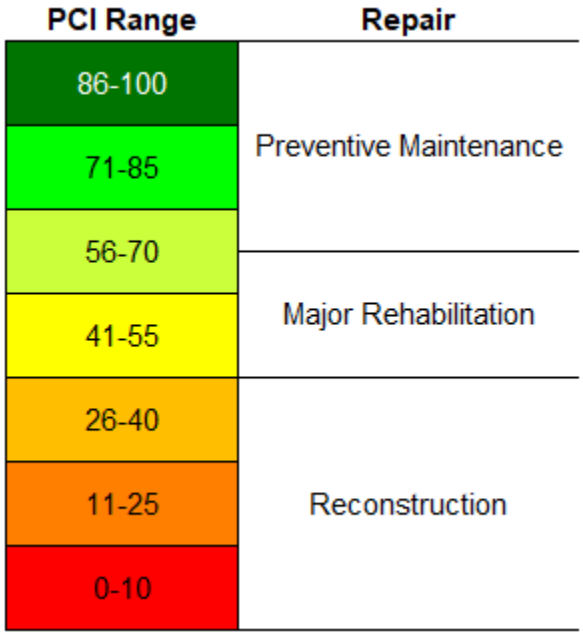
During the PCI inspection, a cursory inspection of the entirety of a pavement section was performed. Sample units identified for more detailed inspection were verified, and adjustments to the selected sample units for inspection were made as needed to ensure an accurate assessment of the pavement's condition. Data pertaining to the types, severities, and quantities of observed pavement distresses were then collected within each sample unit. These data were then used to calculate the composite PCI of each pavement section. The PCI provides a numerical indication of overall pavement condition, as illustrated in Figure 4. 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 with no visible signs of deterioration. 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 Boone 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 Boone Municipal Airport were inspected in November 2023. The 2023 area-weighted condition of Boone Municipal Airport is 85, with conditions ranging from 13 to 100 (on a scale of 0 [failed] to 100 [excellent]). During the previous pavement inspection in 2020, the area-weighted PCI of the airport was 83.

Figure 6 summarizes the overall condition of the pavements at Boone 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 Boone Municipal Airport.

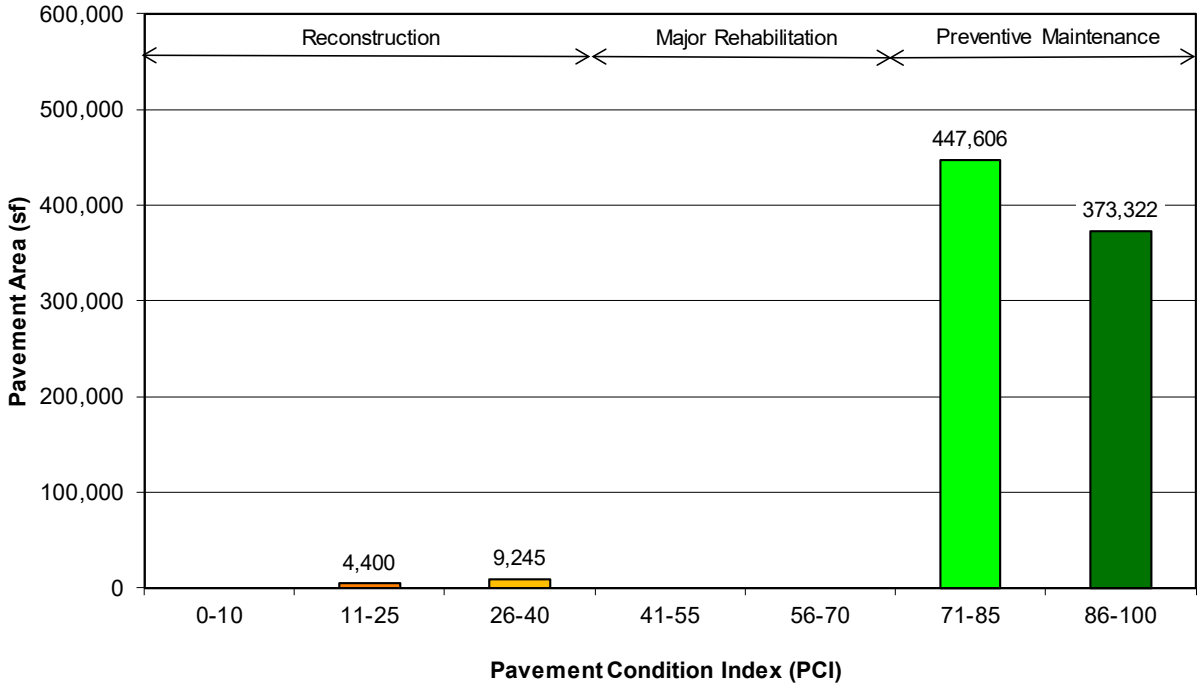


Figure 7. Area-weighted PCI by branch use at Boone Municipal Airport.
(Values on chart are area-weighted)

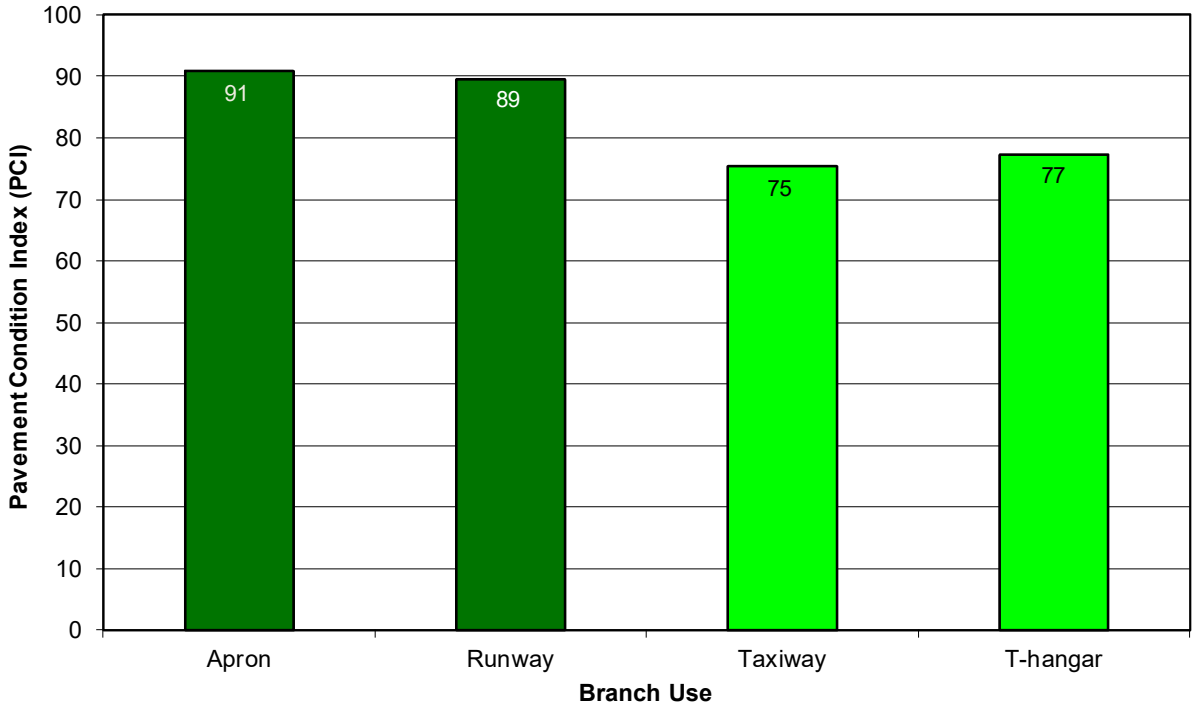
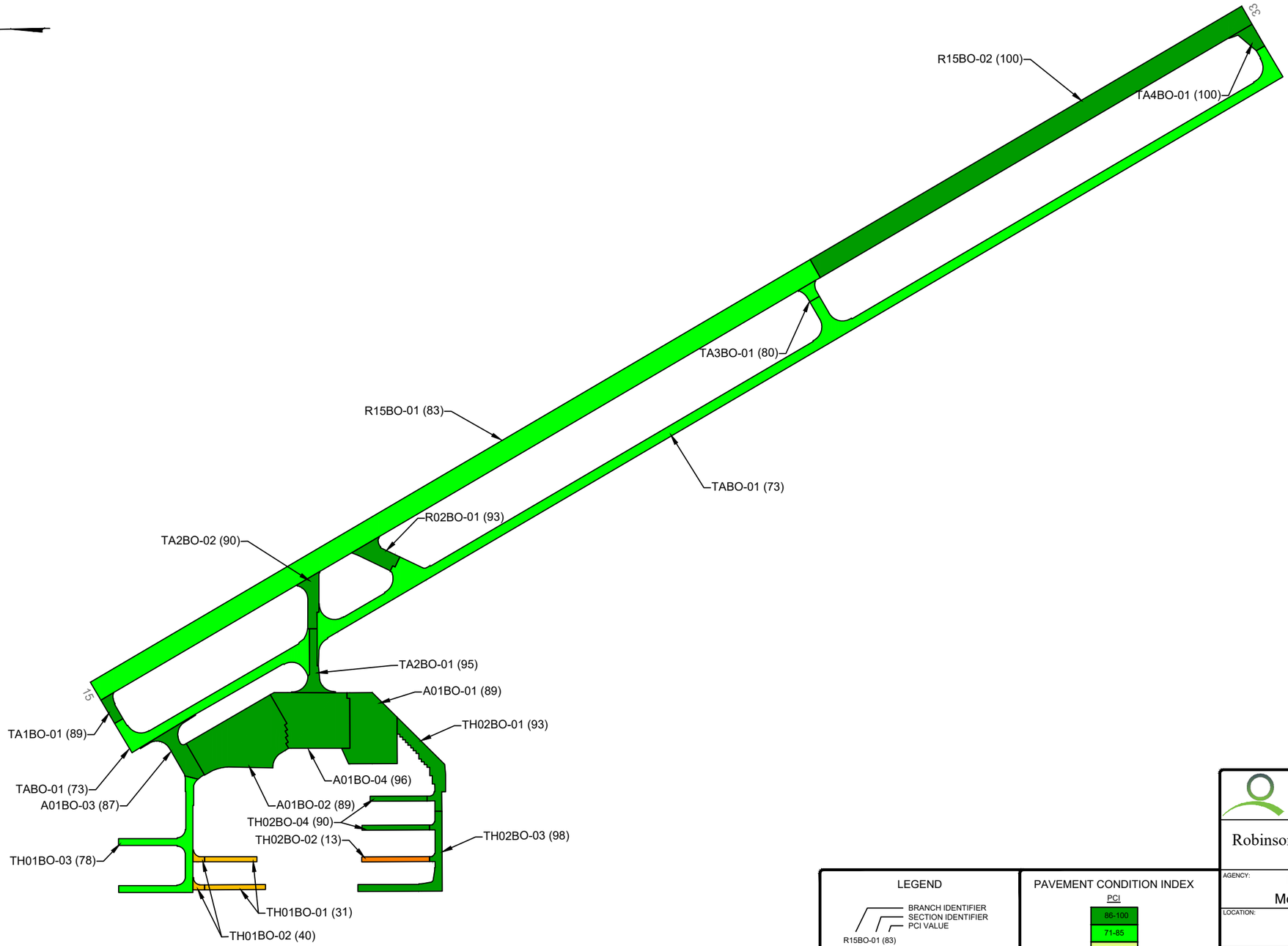


FIGURE 8. PCI MAP.



LEGEND

BRANCH IDENTIFIER
SECTION IDENTIFIER
PCI VALUE
R15BO-01 (83)

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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LOCATION: Boone Municipal Airport
Boone, Iowa

PAGE TITLE: 2023 Pavement Condition Index Map

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1"=400'	MAR. 2024	DMS	DSP
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Boone.dwg		PCI	10

Table 1. 2023 pavement evaluation results.

Branch	Section	Surface Type	Section Area (sf)	LCD	2023 PCI	% Distress Due to Load	% Distress Due to Climate/ Durability	% Distress Due to Other	Type of Distress
A01BO	01	PCC	40,783	6/3/2012	89	0	100	0	Joint Seal Damage
A01BO	02	PCC	61,854	9/30/2010	89	0	100	0	Joint Seal Damage
A01BO	03	PCC	12,553	6/3/2008	87	0	90	10	Joint Spalling, Joint Seal Damage
A01BO	04	PCC	48,766	9/30/2010	96	33	67	0	Corner Break, Joint Seal Damage, LTD Cracking
R02BO	01	PCC	8,946	6/3/2007	93	0	100	0	Joint Seal Damage
R15BO	01	PCC	225,152	6/1/2007	83	12	58	30	Corner Spalling, Faulting, Joint Spalling, Joint Seal Damage, LTD Cracking
R15BO	02	PCC	135,150	8/3/2023	100	0	0	100	Small Patch
TA1BO	01	PCC	3,699	6/3/2007	89	0	91	9	Corner Spalling, Joint Seal Damage
TA2BO	01	PCC	9,105	9/30/2010	95	0	39	61	Faulting, Joint Spalling, Joint Seal Damage
TA2BO	02	PCC	8,338	6/3/2007	90	15	17	68	Corner Spalling, Joint Spalling, Joint Seal Damage, LTD Cracking
TA3BO	01	PCC	2,658	6/3/2007	80	23	60	17	Corner Spalling, Faulting, Joint Seal Damage, LTD Cracking
TA4BO	01	PCC	4,756	5/3/2022	100	0	0	0	No Distress
TABO	01	PCC	195,489	6/3/2002	73	23	28	49	ASR, Corner Break, Corner Spalling, Faulting, Joint Spalling, Joint Seal Damage, Large Patch, LTD Cracking, Shattered Slab
TH01BO	01	AC	7,335	1/1/1989	31	44	56	0	Alligator Cracking, Block Cracking, L&T Cracking, Rutting, Weathering
TH01BO	02	AC	1,910	10/1/2008	40	39	26	35	Alligator Cracking, Depression, L&T Cracking, Rutting, Swelling, Weathering
TH01BO	03	PCC	24,307	1/12/2008	78	46	42	12	Corner Spalling, Joint Spalling, Joint Seal Damage, LTD Cracking
TH02BO	01	PCC	15,730	5/3/2015	93	0	100	0	Joint Seal Damage
TH02BO	02	AC	4,400	1/1/1977	13	57	27	16	Alligator Cracking, Block Cracking, Raveling, Rutting, Swelling

Table 1. 2023 pavement evaluation results (continued).

Branch	Section	Surface Type	Section Area (sf)	LCD	2023 PCI	% Distress Due to Load	% Distress Due to Climate/ Durability	% Distress Due to Other	Type of Distress
TH02BO	03	PCC	15,574	4/3/2018	98	0	100	0	Joint Seal Damage
TH02BO	04	AAC	8,068	6/1/2021	90	0	100	0	L&T Cracking, Weathering

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.
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

Boone Municipal Airport was inspected on November 7, 2023. There were twenty pavement sections defined during the inspection.

Runways

Runway 15/33 was defined by two sections. Section 01 had areas of low-severity faulting and joint spalling; medium-severity corner spalling and longitudinal, transverse, and diagonal (LTD) cracking; and high-severity joint seal damage identified during the inspection. Section 02 was in excellent condition with only low-severity small patching observed.

Runway 02/20 contained one section. Medium-severity joint seal damage was recorded throughout Section 01.

Taxiways

Taxiway A consisted of one section. Low-severity corner break, faulting, and joint spalling; low- and medium-severity alkali-silica reaction (ASR) and corner spalling; low- and high-severity joint seal damage; medium-severity LTD cracking and shattered slab; and high-severity large patching were observed in Section 01. The suspected ASR was recorded in accordance with ASTM D5340. 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.

Taxiway A1 was defined by one section. Areas of medium-severity corner spalling and medium- and high-severity joint seal damage were recorded in Section 01.

Taxiway A2 consisted of two sections. Section 01 was in excellent condition with low-severity faulting, joint seal damage, and joint spalling identified. Areas of low-severity joint seal damage and LTD cracking and medium-severity corner spalling and joint spalling were observed in Section 02.

Taxiway A3 contained one section. Areas of low-severity faulting, medium-severity corner spalling and LTD cracking, and medium- and high-severity joint seal damage were identified in Section 01.

Taxiway A4 was defined by one section that was in excellent condition. No distress was recorded at the time of the inspection.

Apron

The apron area contained four sections. Section 01 and 02 were in similar condition and both had areas of medium- and high-severity joint seal damage. Areas of low- and medium-severity joint spalling and high-severity joint seal damage were observed in Section 03. Section 04 was in excellent condition. Low- and medium-severity joint seal damage were identified throughout. An atypical area of low-severity corner break and low- and medium-severity LTD cracking was noted and recorded as an additional sample unit in accordance with ASTM D5340.

T-Hangar

T-hangar 01 consisted of three sections. Section 01 was in poor condition with low-severity rutting, medium-severity block cracking and weathering, medium- and high-severity alligator cracking, and all severities of longitudinal and transverse (L&T) cracking. The low-severity L&T cracking was unsealed, while the medium-severity L&T cracking was identified where either unsealed crack widths exceeded 1/4 inch or secondary cracking had developed. The high-

severity L&T cracking was observed where areas of parallel secondary cracking wider than 1 ft had developed. Areas of low-severity alligator cracking, rutting, swelling, and weathering; low- and medium-severity depression; and medium-severity L&T cracking were identified in Section 02. The medium-severity L&T cracking was identified where either unsealed crack widths exceeded 1/4 inch or secondary cracking had developed. Areas of low-severity corner spalling, medium-severity joint spalling and LTD cracking, and high-severity joint seal damage were recorded in Section 03 at the time of the inspection.

T-hangar 02 was defined by four sections. Section 01 had medium-severity joint seal damage observed throughout. Section 02 was in poor condition and areas of low-severity rutting, medium-severity block cracking, medium- and high-severity alligator cracking, and high-severity swelling were identified during the inspection. An atypical area of high-severity raveling was observed and recorded as an additional sample unit in accordance with ASTM D5340. Section 03 was in excellent condition with only low- and medium-severity joint seal damage noted during the inspection. Section 04 had areas of low-severity, unsealed L&T cracking and low-severity weathering identified.

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 Boone 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 Boone 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, 2024, and an inflation rate of 2.0 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 (2024) 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 2025 or 2026, then localized preventive maintenance was not recommended for 2024. While localized preventive maintenance should be an annual undertaking at Boone 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 2024 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 Boone Municipal Airport is presented in Table 2. Detailed information on the recommended localized preventive maintenance plan for 2024 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
2024	A01BO	01	PCC	Preventive Maintenance	$24,826
2024	A01BO	02	PCC	Preventive Maintenance	$37,784
2024	A01BO	03	PCC	Preventive Maintenance	$7,549
2024	A01BO	04	PCC	Preventive Maintenance	$7,534
2024	R02BO	01	PCC	Preventive Maintenance	$5,014
2024	R15BO	01	PCC	Preventive Maintenance	$122,229
2024	TA1BO	01	PCC	Preventive Maintenance	$2,296
2024	TA2BO	02	PCC	Preventive Maintenance	$1,512
2024	TA3BO	01	PCC	Preventive Maintenance	$1,639
2024	TABO	01	PCC	Preventive Maintenance	$209,592
2024	TH01BO	01	AC	Major Rehabilitation	$80,956
2024	TH01BO	02	AC	Major Rehabilitation	$21,080
2024	TH01BO	03	PCC	Preventive Maintenance	$13,083
2024	TH02BO	01	PCC	Preventive Maintenance	$7,818
2024	TH02BO	02	AC	Major Rehabilitation	$48,562
2024	TH02BO	03	PCC	Preventive Maintenance	$2,037

Total Estimated Cost: $594,000

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 Boone Municipal Airport.

The recommendations made in this report are based on a broad network-level analysis and meant to provide Boone 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 Boone 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, Boone 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 because of these inspections. This documentation needs 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 all edges of pavement maintain the required 1.5-inch lip. This enables the water to drain away from the pavement system.
6. Closely monitor the movement of heavy equipment (particularly farming, construction, mowing, 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 Boone 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, Boone 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 text is a direct quotation 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 Boone 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 Boone 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 Boone 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
A01BO	01					
A01BO	02					
A01BO	03					
A01BO	04					
R02BO	01					
R15BO	01					

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
R15BO	02					
TA1BO	01					
TA2BO	01					
TA2BO	02					
TA3BO	01					
TA4BO	01					

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
TABO	01					
TH01BO	01					
TH01BO	02					
TH01BO	03					
TH02BO	01					
TH02BO	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
TH02BO	03					
TH02BO	04					

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 Boone Municipal Airport. A visual inspection of the pavements in 2023 found that the overall condition of the pavement network is a PCI of 85. A 5-year pavement repair program, shown in Table 2, was generated for Boone Municipal Airport, which revealed that approximately $594,000 needs to be expended on M&R. Boone 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

A01BO-01. Overview.

A01BO-01. Joint Seal Damage (Sample Unit No. 08).

A01BO-02. Overview.

A01BO-02. Joint Seal Damage (Sample Unit No. 29).

A01BO-03. Overview.

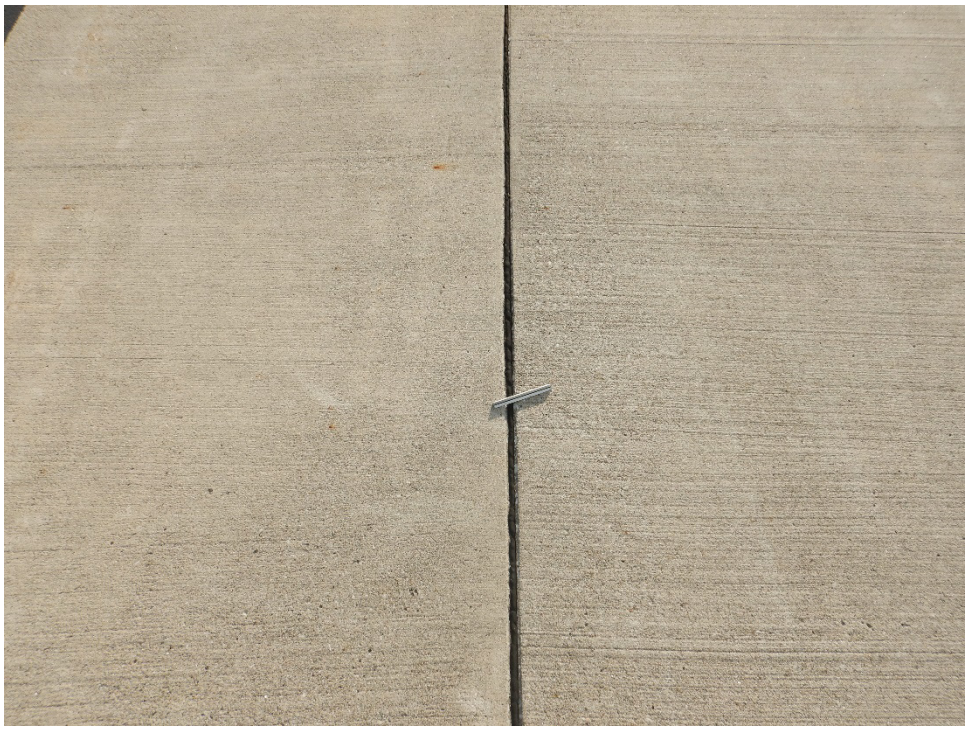
A01BO-03. Joint Seal Damage (Sample Unit No. 03).

A01BO-04. Overview.

A01BO-04. LTD Cracking (Additional Sample Unit No. 07).

R02BO-01. Overview.

R02BO-01. Joint Seal Damage (Sample Unit No. 02).



R15BO-01. Overview.

R15BO-01. LTD Cracking (Sample Unit No. 59).

R15BO-02. Overview.

R15BO-02. Small Patching (Sample Unit No. 37).

TA1BO-01. Overview.

TA1BO-01. Corner Spalling (Sample Unit No. 01).

TA2BO-01. Overview.

TA2BO-01. Joint Seal Damage (Sample Unit No. 02).

TA2BO-02. Overview.

TA2BO-02. Joint Spalling (Sample Unit No. 04).

TA3BO-01. Overview.

TA3BO-01. Corner Spalling (Sample Unit No. 02).

TA4BO-01. Overview.

TABO-01. Overview.

TABO-01. LTD Cracking (Sample Unit No. 33).

TH01BO-01. Overview.

TH01BO-01. L&T Cracking (Sample Unit No. 02).

TH01BO-02. Overview.

TH01BO-02. Depression (Sample Unit No. 01).

TH01BO-03. Overview.

TH01BO-03. LTD Cracking (Sample Unit No. 10).

TH02BO-01. Overview.

TH02BO-01. Joint Seal Damage (Sample Unit No. 03).

TH02BO-02. Overview.

TH02BO-02. Alligator Cracking (Sample Unit No. 01).

TH02BO-03. Overview.

TH02BO-03. Joint Seal Damage (Sample Unit No. 05).

TH02BO-04. Overview.

TH02BO-04. L&T Cracking (Sample Unit No. 02).

APPENDIX C

INSPECTION REPORT

RE-INSPECTION REPORT
BOONE MUNICIPAL AIRPORT

Pavement Database: IA 2023 | Generate Date: 4/16/2024

Network ID: BNW |

Branch - Section ID: A01BO - 001

Branch Name: APRON | Use: APRON

LCD: 6/3/2012
Surface Type: PCC
Rank: P
Section Area (sf): 40,783.00
Length (ft): 257.00
Width (ft): 170.00
From: SEE MAP
To: SEE MAP

PCI Family: IowaPCCAP_NC_General

Slabs: 408
Slab Length (ft): 10.00
Slab Width (ft): 10.00
Joint Length (ft): 7,758.01

Section Comments:

Last Insp Date: 11/7/2023
PCI: 89
Total Samples: 22
Surveyed: 7

Inspection Comments:

Sample Number: 03

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

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs

Sample Number: 04

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

Sample Comments:

65 JT SEAL DMG	M	20.00	Slabs

Sample Number: 08

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

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs

Sample Number: 10

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

Sample Comments:

65 JT SEAL DMG	M	20.00	Slabs

Sample Number: 15

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

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs

Sample Number: 20

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 18.00

Sample Comments:

65 JT SEAL DMG	H	18.00	Slabs

RE-INSPECTION REPORT
BOONE MUNICIPAL AIRPORT

Sample Number: 22

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 18.00

Sample Comments:

65	JT SEAL DMG	H	18.00 Slabs

Branch - Section ID: A01BO - 002

Branch Name: APRON Use: APRON

LCD: 9/30/2010
Surface Type: PCC
Rank: P
Section Area (sf): 61,854.00
Length (ft): 350.00
Width (ft): 160.00
From: SEE MAP
To: SEE MAP

PCI Family: IowaPCCAP_NC_General

Slabs: 619
Slab Length (ft): 10.00
Slab Width (ft): 10.00
Joint Length (ft): 11,807.49

Section Comments:

Last Insp Date: 11/7/2023
PCI: 89
Total Samples: 31
Surveyed: 8

Inspection Comments:

Sample Number: 03

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

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs

Sample Number: 07

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

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs

Sample Number: 10

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

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs

Sample Number: 13

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

Sample Comments:

65 JT SEAL DMG	M	20.00	Slabs

Sample Number: 18

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

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs

Sample Number: 21

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

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs

Sample Number: 23

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

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs

Sample Number: 29

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

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs

Branch - Section ID: A01BO - 003

Branch Name: APRON Use: APRON

LCD: 6/3/2008
Surface Type: PCC
Rank: P
Section Area (sf): 12,553.00
Length (ft): 200.00
Width (ft): 60.00
From: SEE MAP
To: SEE MAP

PCI Family: IowaPCCAP_NC_General

Slabs: 126
Slab Length (ft): 10.00
Slab Width (ft): 10.00
Joint Length (ft): 2,238.62

Section Comments:

Last Insp Date: 11/7/2023
PCI: 87
Total Samples: 6
Surveyed: 4

Inspection Comments:

Sample Number: 01

Sample Type: R
Sample PCI: 86
Sample Area (Slabs): 15.00

Sample Comments:

65 JT SEAL DMG	H	15.00	Slabs
74 JOINT SPALL	L	1.00	Slabs

Sample Number: 02

Sample Type: R
Sample PCI: 85
Sample Area (Slabs): 24.00

Sample Comments:

65 JT SEAL DMG	H	24.00	Slabs
74 JOINT SPALL	M	1.00	Slabs

Sample Number: 03

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 24.00

Sample Comments:

65 JT SEAL DMG	H	24.00	Slabs

Sample Number: 04

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 21.00

Sample Comments:

65 JT SEAL DMG	H	21.00	Slabs

Branch - Section ID: A01BO - 004

Branch Name: APRON Use: APRON

LCD: 9/30/2010
Surface Type: PCC
Rank: P
Section Area (sf): 48,766.00
Length (ft): 215.00
Width (ft): 200.00
From: SEE MAP
To: SEE MAP

PCI Family: IowaPCCAP_NC_General

Slabs: 488
Slab Length (ft): 10.00
Slab Width (ft): 10.00
Joint Length (ft): 9,282.55

Section Comments:

Last Insp Date: 11/7/2023
PCI: 96
Total Samples: 25
Surveyed: 8

Inspection Comments:

Sample Number: 02

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 16.00

Sample Comments:

65 JT SEAL DMG	M	16.00	Slabs

Sample Number: 05

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

Sample Comments:

65 JT SEAL DMG	M	20.00	Slabs

Sample Number: 07

Sample Type: A
Sample PCI: 81
Sample Area (Slabs): 24.00

Sample Comments:

62 CORNER BREAK	L	1.00	Slabs
63 LINEAR CR	L	1.00	Slabs
63 LINEAR CR	M	1.00	Slabs
65 JT SEAL DMG	L	24.00	Slabs

Sample Number: 15

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

Sample Comments:

65 JT SEAL DMG	L	20.00	Slabs

Sample Number: 16

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

Sample Comments:

65 JT SEAL DMG	L	20.00	Slabs

Sample Number: 18

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

65 JT SEAL DMG	L	20.00	Slabs

Sample Number: 22

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

65 JT SEAL DMG	L	20.00	Slabs

Sample Number: 25

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

65 JT SEAL DMG	L	20.00	Slabs

Branch - Section ID: R02BO - 001

Branch Name: RUNWAY 02/20 Use: RUNWAY

LCD: 6/3/2007
Surface Type: PCC
Rank: P
Section Area (sf): 8,946.00
Length (ft): 122.00
Width (ft): 60.00
From: SEE MAP
To: SEE MAP

PCI Family: IowaPCCRW_NC_General

Slabs: 89
Slab Length (ft): 10.00
Slab Width (ft): 10.00
Joint Length (ft): 1,566.77

Section Comments:

Last Insp Date: 11/7/2023
PCI: 93
Total Samples: 4
Surveyed: 3

Inspection Comments:

Sample Number: 02

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

Sample Comments:

65 JT SEAL DMG	M	24.00	Slabs

Sample Number: 03

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 18.00

Sample Comments:

65 JT SEAL DMG	M	18.00	Slabs

Sample Number: 04

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 22.00

Sample Comments:

65 JT SEAL DMG	M	22.00	Slabs

RE-INSPECTION REPORT
BOONE MUNICIPAL AIRPORT

Branch - Section ID: R15BO - 001

Branch Name: RUNWAY 15/33 Use: RUNWAY

LCD: 6/1/2007
Surface Type: PCC
Rank: P
Section Area (sf): 225,152.00
Length (ft): 3,006.00
Width (ft): 75.00
From: RUNWAY 15 APPROACH
To: R15BO-02

PCI Family: IowaPCCRW_NC_General

Slabs: 1,801
Slab Length (ft): 10.00
Slab Width (ft): 12.50
Joint Length (ft): 37,450.43

Section Comments:

Last Insp Date: 11/7/2023
PCI: 83
Total Samples: 75
Surveyed: 9

Inspection Comments:

Sample Number: 01

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 24.00

Sample Comments:

65 JT SEAL DMG	H	24.00	Slabs

Sample Number: 10

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 24.00

Sample Comments:

65 JT SEAL DMG	H	24.00	Slabs

Sample Number: 15

Sample Type: R
Sample PCI: 83
Sample Area (Slabs): 24.00

Sample Comments:

65 JT SEAL DMG	H	24.00	Slabs
71 FAULTING	L	2.00	Slabs

Sample Number: 20

Sample Type: R
Sample PCI: 82
Sample Area (Slabs): 24.00

Sample Comments:

65 JT SEAL DMG	H	24.00	Slabs
71 FAULTING	L	3.00	Slabs

Sample Number: 30

Sample Type: R
Sample PCI: 80
Sample Area (Slabs): 24.00

Sample Comments:

65 JT SEAL DMG	H	24.00	Slabs
71 FAULTING	L	4.00	Slabs

Sample Number: 40

Sample Type: R
Sample PCI: 84
Sample Area (Slabs): 24.00
Sample Comments:

65 JT SEAL DMG	H	24.00	Slabs
71 FAULTING	L	1.00	Slabs

Sample Number: 50

Sample Type: R
Sample PCI: 85
Sample Area (Slabs): 24.00
Sample Comments:

65 JT SEAL DMG	H	24.00	Slabs
75 CORNER SPALL	M	1.00	Slabs

Sample Number: 59

Sample Type: R
Sample PCI: 69
Sample Area (Slabs): 24.00
Sample Comments:

63 LINEAR CR	M	2.00	Slabs
65 JT SEAL DMG	H	24.00	Slabs
71 FAULTING	L	2.00	Slabs
74 JOINT SPALL	L	1.00	Slabs
75 CORNER SPALL	M	1.00	Slabs

Sample Number: 70

Sample Type: R
Sample PCI: 88
Sample Area (Slabs): 24.00
Sample Comments:

65 JT SEAL DMG	H	24.00	Slabs

Branch - Section ID: R15BO - 002

Branch Name: RUNWAY 15/33 Use: RUNWAY

LCD: 8/3/2023
Surface Type: PCC
Rank: P
Section Area (sf): 135,150.00
Length (ft): 1,800.00
Width (ft): 75.00
From: RUNWAY 33 APPROACH
To: R15BO-01

PCI Family: IowaPCCRW_NC_General

Slabs: 901
Slab Length (ft): 12.00
Slab Width (ft): 12.50
Joint Length (ft): 20,197.42

Section Comments:

Last Insp Date: 11/7/2023
PCI: 100
Total Samples: 32
Surveyed: 8

Inspection Comments:

Sample Number: 01

Sample Type: R
Sample PCI: 100
Sample Area (Slabs): 24.00

Sample Comments:

NO DISTRESS

Sample Number: 03

Sample Type: R
Sample PCI: 100
Sample Area (Slabs): 24.00

Sample Comments:

NO DISTRESS

Sample Number: 09

Sample Type: R
Sample PCI: 100
Sample Area (Slabs): 24.00

Sample Comments:

NO DISTRESS

Sample Number: 15

Sample Type: R
Sample PCI: 100
Sample Area (Slabs): 24.00

Sample Comments:

NO DISTRESS

Sample Number: 20

Sample Type: R
Sample PCI: 100
Sample Area (Slabs): 24.00

Sample Comments:

NO DISTRESS

Sample Number: 26

Sample Type: R
Sample PCI: 100
Sample Area (Slabs): 24.00

Sample Comments:

NO DISTRESS

Sample Number: 31

Sample Type: R
Sample PCI: 100
Sample Area (Slabs): 24.00

Sample Comments:

NO DISTRESS

Sample Number: 37

Sample Type: R
Sample PCI: 99
Sample Area (Slabs): 24.00

Sample Comments:

66 SMALL PATCH	L	1.00	Slabs

RE-INSPECTION REPORT
BOONE MUNICIPAL AIRPORT

Branch - Section ID: TA1BO - 001

Branch Name: TAXIWAY A1 Use: TAXIWAY

LCD: 6/3/2007
Surface Type: PCC
Rank: P
Section Area (sf): 3,699.00
Length (ft): 97.50
Width (ft): 37.50
From: SEE MAP
To: SEE MAP

PCI Family: IowaPCCTW_NC_General

Slabs: 45
Slab Length (ft): 9.30
Slab Width (ft): 8.75
Joint Length (ft): 683.91

Section Comments:

Last Insp Date: 11/7/2023
PCI: 89
Total Samples: 3
Surveyed: 3

Inspection Comments:

Sample Number: 01

Sample Type: R
Sample PCI: 83
Sample Area (Slabs): 16.00

Sample Comments:

65 JT SEAL DMG	H	16.00	Slabs
75 CORNER SPALL	M	1.00	Slabs

Sample Number: 02

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 13.00

Sample Comments:

65 JT SEAL DMG	M	13.00	Slabs

Sample Number: 03

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 16.00

Sample Comments:

65 JT SEAL DMG	M	16.00	Slabs

Branch - Section ID: TA2BO - 001

Branch Name: TAXIWAY A2 Use: TAXIWAY

LCD: 9/30/2010
Surface Type: PCC
Rank: P
Section Area (sf): 9,105.00
Length (ft): 228.00
Width (ft): 30.00
From: APRON 01
To: RUNWAY 14/32

PCI Family: IowaPCCTW_NC_General

Slabs: 91
Slab Length (ft): 10.00
Slab Width (ft): 10.00
Joint Length (ft): 1,477.57

Section Comments:

Last Insp Date: 11/7/2023
PCI: 95
Total Samples: 4
Surveyed: 3

Inspection Comments:

Sample Number: 01

Sample Type: R
Sample PCI: 97
Sample Area (Slabs): 27.00

Sample Comments:

65 JT SEAL DMG	L	27.00	Slabs
74 JOINT SPALL	L	1.00	Slabs

Sample Number: 02

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

Sample Comments:

65 JT SEAL DMG	L	24.00	Slabs

Sample Number: 03

Sample Type: R
Sample PCI: 90
Sample Area (Slabs): 20.00

Sample Comments:

65 JT SEAL DMG	L	20.00	Slabs
71 FAULTING	L	2.00	Slabs

Branch - Section ID: TA2BO - 002

Branch Name: TAXIWAY A2 Use: TAXIWAY

LCD: 6/3/2007
Surface Type: PCC
Rank: P
Section Area (sf): 8,338.00
Length (ft): 180.00
Width (ft): 40.00
From: SEE MAP
To: SEE MAP

PCI Family: IowaPCCTW_NC_General

Slabs: 83
Slab Length (ft): 10.00
Slab Width (ft): 10.00
Joint Length (ft): 1,412.83

Section Comments:

Last Insp Date: 11/7/2023
PCI: 90
Total Samples: 6
Surveyed: 4

Inspection Comments:

Sample Number: 02

Sample Type: R
Sample PCI: 94
Sample Area (Slabs): 21.00

Sample Comments:

65 JT SEAL DMG	L	21.00	Slabs
75 CORNER SPALL	M	1.00	Slabs

Sample Number: 03

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 15.00

Sample Comments:

65 JT SEAL DMG	L	15.00	Slabs

Sample Number: 04

Sample Type: R
Sample PCI: 76
Sample Area (Slabs): 12.00

Sample Comments:

63 LINEAR CR	L	1.00	Slabs
65 JT SEAL DMG	L	12.00	Slabs
74 JOINT SPALL	M	2.00	Slabs
75 CORNER SPALL	M	1.00	Slabs

Sample Number: 05

Sample Type: R
Sample PCI: 87
Sample Area (Slabs): 12.00

Sample Comments:

65 JT SEAL DMG	L	12.00	Slabs
74 JOINT SPALL	M	1.00	Slabs
75 CORNER SPALL	M	1.00	Slabs

Branch - Section ID: TA3BO - 001

Branch Name: TAXIWAY A3 Use: TAXIWAY

LCD: 6/3/2007
Surface Type: PCC
Rank: P
Section Area (sf): 2,658.00
Length (ft): 56.00
Width (ft): 40.00
From: SEE MAP
To: SEE MAP

PCI Family: IowaPCCTW_NC_General

Slabs: 32
Slab Length (ft): 9.50
Slab Width (ft): 8.75
Joint Length (ft): 469.65

Section Comments:

Last Insp Date: 11/7/2023
PCI: 80
Total Samples: 2
Surveyed: 2

Inspection Comments:

Sample Number: 01

Sample Type: R
Sample PCI: 82
Sample Area (Slabs): 16.00

Sample Comments:

63 LINEAR CR	M	1.00	Slabs
65 JT SEAL DMG	M	16.00	Slabs

Sample Number: 02

Sample Type: R
Sample PCI: 78
Sample Area (Slabs): 16.00

Sample Comments:

65 JT SEAL DMG	H	16.00	Slabs
71 FAULTING	L	1.00	Slabs
75 CORNER SPALL	M	1.00	Slabs

Branch - Section ID: TA4BO - 001

Branch Name: TAXIWAY A4 Use: TAXIWAY

LCD: 5/3/2022
Surface Type: PCC
Rank: P
Section Area (sf): 4,756.00
Length (ft): 90.00
Width (ft): 50.00
From: SEE MAP
To: SEE MAP

PCI Family: IowaPCCTW_NC_General

Slabs: 63
Slab Length (ft): 8.70
Slab Width (ft): 8.70
Joint Length (ft): 945.37

Section Comments:

Last Insp Date: 11/7/2023
PCI: 100
Total Samples: 3
Surveyed: 3

Inspection Comments:

Sample Number: 01

Sample Type: R
Sample PCI: 100
Sample Area (Slabs): 31.00

NO DISTRESS

Sample Comments:

Sample Number: 02

Sample Type: R
Sample PCI: 100
Sample Area (Slabs): 18.00

NO DISTRESS

Sample Comments:

Sample Number: 03

Sample Type: R
Sample PCI: 100
Sample Area (Slabs): 14.00

NO DISTRESS

Sample Comments:

Branch - Section ID: TABO - 001

Branch Name: TAXIWAY A Use: TAXIWAY

LCD: 6/3/2002
Surface Type: PCC
Rank: P
Section Area (sf): 195,489.00
Length (ft): 5,585.00
Width (ft): 35.00
From: RW 15
To: RW 33

PCI Family: IowaPCCTW_NC_General

Slabs: 2,234
Slab Length (ft): 10.00
Slab Width (ft): 8.75
Joint Length (ft): 36,270.10

Section Comments:

Last Insp Date: 11/7/2023
PCI: 73
Total Samples: 111
Surveyed: 12

Inspection Comments:

Sample Number: 04

Sample Type: R
Sample PCI: 80
Sample Area (Slabs): 20.00

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs
76 ASR	L	4.00	Slabs
76 ASR	L	1.00	Slabs

Sample Number: 103

Sample Type: R
Sample PCI: 73
Sample Area (Slabs): 20.00

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs
76 ASR	L	3.00	Slabs
76 ASR	M	1.00	Slabs

Sample Number: 109

Sample Type: R
Sample PCI: 79
Sample Area (Slabs): 16.00

Sample Comments:

65 JT SEAL DMG	H	16.00	Slabs
76 ASR	L	5.00	Slabs

Sample Number: 14

Sample Type: R
Sample PCI: 69
Sample Area (Slabs): 20.00

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs
67 LARGE PATCH	H	1.00	Slabs
75 CORNER SPALL	M	1.00	Slabs
76 ASR	L	1.00	Slabs

Sample Number: 33

Sample Type: R
Sample PCI: 39
Sample Area (Slabs): 20.00
Sample Comments:

62 CORNER BREAK	L	1.00	Slabs
63 LINEAR CR	M	2.00	Slabs
65 JT SEAL DMG	H	20.00	Slabs
71 FAULTING	L	2.00	Slabs
72 SHAT. SLAB	M	1.00	Slabs
75 CORNER SPALL	M	1.00	Slabs
75 CORNER SPALL	M	1.00	Slabs
76 ASR	M	2.00	Slabs

Sample Number: 43

Sample Type: R
Sample PCI: 66
Sample Area (Slabs): 20.00
Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs
76 ASR	L	3.00	Slabs
76 ASR	M	2.00	Slabs

Sample Number: 53

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

65 JT SEAL DMG	H	20.00	Slabs
76 ASR	L	7.00	Slabs

Sample Number: 63

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

65 JT SEAL DMG	H	20.00	Slabs
71 FAULTING	L	1.00	Slabs
71 FAULTING	L	1.00	Slabs
74 JOINT SPALL	L	1.00	Slabs
75 CORNER SPALL	L	1.00	Slabs
76 ASR	L	2.00	Slabs

Sample Number: 73

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

65 JT SEAL DMG	H	20.00	Slabs
75 CORNER SPALL	M	1.00	Slabs
76 ASR	L	2.00	Slabs

Sample Number: 83

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

65 JT SEAL DMG	L	20.00	Slabs

Sample Number: 86

Sample Type: R
Sample PCI: 63
Sample Area (Slabs): 20.00

Sample Comments:

63 LINEAR CR	M	3.00	Slabs
65 JT SEAL DMG	H	20.00	Slabs
75 CORNER SPALL	L	2.00	Slabs
75 CORNER SPALL	M	1.00	Slabs

Sample Number: 93

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

Sample Comments:

65 JT SEAL DMG	H	20.00	Slabs
71 FAULTING	L	1.00	Slabs
75 CORNER SPALL	M	1.00	Slabs

RE-INSPECTION REPORT
BOONE MUNICIPAL AIRPORT

Branch - Section ID: TH01BO - 001

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

LCD: 1/1/1989
Surface Type: AC
Rank: P
Section Area (sf): 7,335.00
Length (ft): 407.00
Width (ft): 18.00
From: SEE MAP
To: SEE MAP

PCI Family: IowaAsphaltTH_Northern

Slabs:
Slab Length (ft):
Slab Width (ft):
Joint Length (ft):

Section Comments:

Last Insp Date: 11/7/2023
PCI: 31
Total Samples: 2
Surveyed: 2

Inspection Comments:

Sample Number: 01

Sample Type: R
Sample PCI: 42
Sample Area (SF): 3,392.00

Sample Comments:

41 ALLIGATOR CR	H	25.00	SF	
48 L & T CR	L	60.00	Ft	LU
48 L & T CR	M	510.00	Ft	W, 2NDY
57 WEATHERING	M	500.00	SF	

Sample Number: 02

Sample Type: R
Sample PCI: 22
Sample Area (SF): 3,943.00

Sample Comments:

41 ALLIGATOR CR	H	35.00	SF	PAVEMENT MISSING
41 ALLIGATOR CR	M	55.00	SF	
43 BLOCK CR	M	450.00	SF	W
48 L & T CR	H	18.00	Ft	1 FT TRANS
48 L & T CR	L	205.00	Ft	LU
48 L & T CR	M	520.00	Ft	W, 2NDY
53 RUTTING	L	40.00	SF	
57 WEATHERING	M	500.00	SF	ST

RE-INSPECTION REPORT
BOONE MUNICIPAL AIRPORT

Branch - Section ID: TH01BO - 002

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

LCD: 10/1/2008
Surface Type: AC
Rank: P
Section Area (sf): 1,910.00
Length (ft): 84.00
Width (ft): 18.00
From: SEE MAP
To: SEE MAP

PCI Family: IowaAsphaltTH_Northern

Slabs:
Slab Length (ft):
Slab Width (ft):
Joint Length (ft):

Section Comments:

Last Insp Date: 11/7/2023
PCI: 40
Total Samples: 1
Surveyed: 1

Inspection Comments:

Sample Number: 01

Sample Type: R
Sample PCI: 40
Sample Area (SF): 1,910.00

Sample Comments:

41 ALLIGATOR CR	L	45.00	SF	EDGE
45 DEPRESSION	L	55.00	SF	
45 DEPRESSION	M	35.00	SF	
48 L & T CR	M	80.00	Ft	W @PCC
48 L & T CR	M	36.00	Ft	W, 2NDY
53 RUTTING	L	25.00	SF	
56 SWELLING	L	35.00	SF	
57 WEATHERING	L	160.00	SF	ST

Branch - Section ID: TH01BO - 003

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

LCD: 1/12/2008
Surface Type: PCC
Rank: P
Section Area (sf): 24,307.00
Length (ft): 900.00
Width (ft): 25.00
From: APRON
To: SEE MAP

PCI Family: IowaPCCTH_NC

Slabs: 194
Slab Length (ft): 12.50
Slab Width (ft): 10.00
Joint Length (ft): 3,375.97

Section Comments:

Last Insp Date: 11/7/2023
PCI: 78
Total Samples: 10
Surveyed: 5

Inspection Comments:

Sample Number: 02

Sample Type: R
Sample PCI: 84
Sample Area (Slabs): 19.00

Sample Comments:

65 JT SEAL DMG	H	19.00	Slabs
74 JOINT SPALL	M	1.00	Slabs

Sample Number: 04

Sample Type: R
Sample PCI: 79
Sample Area (Slabs): 21.00

Sample Comments:

63 LINEAR CR	M	1.00	Slabs
65 JT SEAL DMG	H	21.00	Slabs
74 JOINT SPALL	M	1.00	Slabs

Sample Number: 05

Sample Type: R
Sample PCI: 86
Sample Area (Slabs): 21.00

Sample Comments:

65 JT SEAL DMG	H	21.00	Slabs
75 CORNER SPALL	L	1.00	Slabs

Sample Number: 07

Sample Type: R
Sample PCI: 85
Sample Area (Slabs): 26.00

Sample Comments:

65 JT SEAL DMG	H	26.00	Slabs
74 JOINT SPALL	M	1.00	Slabs

Sample Number: 10

Sample Type: R
Sample PCI: 58
Sample Area (Slabs): 22.00

Sample Comments:

63 LINEAR CR	M	6.00	Slabs
65 JT SEAL DMG	H	22.00	Slabs
74 JOINT SPALL	M	1.00	Slabs

RE-INSPECTION REPORT
BOONE MUNICIPAL AIRPORT

Branch - Section ID: TH02BO - 001

Branch Name: T-HANGAR 02 Use: T-HANGAR

LCD: 5/3/2015
Surface Type: PCC
Rank: P
Section Area (sf): 15,730.00
Length (ft): 405.00
Width (ft): 45.00
From: APRON
To: SEE MAP

PCI Family: IowaPCCTH_NC

Slabs: 126
Slab Length (ft): 12.50
Slab Width (ft): 10.00
Joint Length (ft): 2,443.00

Section Comments:

Last Insp Date: 11/7/2023
PCI: 93
Total Samples: 7
Surveyed: 4

Inspection Comments:

Sample Number: 02

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

Sample Comments:

65 JT SEAL DMG	M	24.00	Slabs

Sample Number: 03

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 28.00

Sample Comments:

65 JT SEAL DMG	M	28.00	Slabs

Sample Number: 04

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

Sample Comments:

65 JT SEAL DMG	M	25.00	Slabs

Sample Number: 05

Sample Type: R
Sample PCI: 93
Sample Area (Slabs): 22.00

Sample Comments:

65 JT SEAL DMG	M	22.00	Slabs

RE-INSPECTION REPORT
BOONE MUNICIPAL AIRPORT

Branch - Section ID: TH02BO - 002

Branch Name: T-HANGAR 02 Use: T-HANGAR

LCD: 1/1/1977
Surface Type: AC
Rank: P
Section Area (sf): 4,400.00
Length (ft): 244.00
Width (ft): 18.00
From: SEE MAP
To: SEE MAP

PCI Family: IowaAsphaltTH_Northern

Slabs:
Slab Length (ft):
Slab Width (ft):
Joint Length (ft):

Section Comments:

Last Insp Date: 11/7/2023
PCI: 13
Total Samples: 1
Surveyed: 1

Inspection Comments:

Sample Number: 01

Sample Type: R
Sample PCI: 13
Sample Area (SF): 4,400.00

Sample Comments:

41 ALLIGATOR CR	H	20.00	SF	
41 ALLIGATOR CR	M	1,280.00	SF	
43 BLOCK CR	M	2,700.00	SF	W
52 RAVELING	H	10.00	SF	
53 RUTTING	L	30.00	SF	
56 SWELLING	H	20.00	SF	

Branch - Section ID: TH02BO - 003

Branch Name: T-HANGAR 02 Use: T-HANGAR

LCD: 4/3/2018
Surface Type: PCC
Rank: P
Section Area (sf): 15,574.00
Length (ft): 600.00
Width (ft): 25.00
From: TH02BO-01
To: SEE MAP

PCI Family: IowaPCCTH_NC

Slabs: 188
Slab Length (ft): 10.00
Slab Width (ft): 8.30
Joint Length (ft): 2,784.87

Section Comments:

Last Insp Date: 11/7/2023
PCI: 98
Total Samples: 8
Surveyed: 5

Inspection Comments:

Sample Number: 01

Sample Type: R
Sample PCI: 98
Sample Area (Slabs): 25.00

Sample Comments:

65 JT SEAL DMG	L	25.00	Slabs

Sample Number: 03

Sample Type: R
Sample PCI: 100
Sample Area (Slabs): 20.00

Sample Comments:

NO DISTRESS

Sample Number: 05

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

Sample Comments:

65 JT SEAL DMG	M	24.00	Slabs

Sample Number: 06

Sample Type: R
Sample PCI: 100
Sample Area (Slabs): 21.00

Sample Comments:

NO DISTRESS

Sample Number: 08

Sample Type: R
Sample PCI: 100
Sample Area (Slabs): 15.00

Sample Comments:

NO DISTRESS

Branch - Section ID: TH02BO - 004

Branch Name: T-HANGAR 02 Use: T-HANGAR

LCD: 6/1/2021
Surface Type: AAC
Rank: P
Section Area (sf): 8,068.00
Length (ft): 448.00
Width (ft): 18.00
From: SEE MAP
To: SEE MAP

PCI Family: IowaAsphaltTH_Northern

Slabs:
Slab Length (ft):
Slab Width (ft):
Joint Length (ft):

Section Comments:

Last Insp Date: 11/7/2023
PCI: 90
Total Samples: 2
Surveyed: 2

Inspection Comments:

Sample Number: 01

Sample Type: R
Sample PCI: 89
Sample Area (SF): 3,691.00

Sample Comments:

48 L & T CR	L	58.00	Ft	LU
57 WEATHERING	L	3,691.00	SF	

Sample Number: 02

Sample Type: R
Sample PCI: 91
Sample Area (SF): 4,377.00

Sample Comments:

48 L & T CR	L	12.00	Ft	LU
57 WEATHERING	L	4,377.00	SF	

APPENDIX D

WORK HISTORY REPORT

WORK HISTORY

Pavement Database: IA 2023
Network ID: BNW

Generate Date: 4/30/2024

Network: BOONE MUNICIPAL AIRPORT

Branch - Section ID: A01BO - 001

LCD: 6/3/2012
Use: APRON
Rank: P
Surface: PCC

Length (ft): 257.00
Width (ft): 170.00
True Area (sf): 40,783.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
06-03-2012	NC-PC	New Construction - PCC	$0.00	6.00	True	P-505
06-02-2012	BA-AG	Base Course - Aggregate	$0.00	6.00	False	CRUSHED AGGREGATE BASE P-209
06-01-2012	SG-CO	Subgrade - Compacted	$0.00	12.00	False	P-152
06-30-1993	OL-AS	Overlay - AC Structural	$0.00	3.00	True	3" P-401
06-02-1960	NC-AC	New Construction - AC	$0.00	4.50	True	4.5" P-401
06-01-1960	SB-AG	Subbase - Aggregate	$0.00	4.00	False	4" P-154

Branch - Section ID: A01BO - 002

LCD: 9/30/2010
Use: APRON
Rank: P
Surface: PCC

Length (ft): 350.00
Width (ft): 160.00
True Area (sf): 61,854.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
09-30-2010	CR-PC	Complete Reconstruction - PCC	$0.00	6.00	True	P-505 PCC
09-29-2010	SB-AG	Subbase - Aggregate	$0.00	6.00	False	P-154 GRANULAR SUBBASE
09-28-2010	SG-CO	Subgrade - Compacted	$0.00	12.00	False	P-152 COMPACTED SUBGRADE
08-01-1989	OL-AC	Overlay - AC	$0.00	0.00	True	-
06-01-1977	OL-AC	Overlay - AC	$0.00	0.00	True	-
06-01-1960	NC-AC	New Construction - AC	$0.00	0.00	True	-

Branch - Section ID: A01BO - 003

LCD: 6/3/2008
Use: APRON
Rank: P
Surface: PCC

Length (ft): 200.00
Width (ft): 60.00
True Area (sf): 12,553.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
06-03-2008	NC-PC	New Construction - PCC	$0.00	6.00	True	P-505 PCC
06-02-2008	SB-AG	Subbase - Aggregate	$0.00	6.00	False	P-154 Granular Subbase
06-01-2008	SG-CO	Subgrade - Compacted	$0.00	12.00	False	P-152 Compacted Subgrade

Branch - Section ID: A01BO - 004

LCD: 9/30/2010
Use: APRON
Rank: P
Surface: PCC

Length (ft): 215.00
Width (ft): 200.00
True Area (sf): 48,766.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
09-30-2010	NC-PC	New Construction - PCC	$0.00	6.00	True	P-505
09-29-2010	BA-AG	Base Course - Aggregate	$0.00	6.00	False	P-209 CRUSHED AGGREGATE BASE
09-28-2010	SG-CO	Subgrade - Compacted	$0.00	12.00	False	P-152 COMPACTED

WORK HISTORY

Pavement Database: IA 2023
Network ID: BNW

Generate Date: 4/30/2024

Branch - Section ID: R02BO - 001

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

Length (ft): 122.00
Width (ft): 60.00
True Area (sf): 8,946.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
06-03-2007	NC-IN	New Construction - Initial	$0.00	6.00	True	6" P-505
06-02-2007	SB-AG	Subbase - Aggregate	$0.00	6.00	False	6" P-154
06-01-2007	SG-CO	Subgrade - Compacted	$0.00	12.00	False	12" P-152

Branch - Section ID: R15BO - 001

LCD: 6/1/2007
Use: RUNWAY
Rank: P
Surface: PCC

Length (ft): 3,006.00
Width (ft): 75.00
True Area (sf): 225,152.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
06-01-2007	OL-PU	Overlay - PCC Unbonded	$0.00	6.00	True	6" PCC
09-01-1989	OL-AC	Overlay - AC	$0.00	0.00	True	-
06-02-1960	NC-AC	New Construction - AC	$0.00	2.00	True	2" AC
06-01-1960	BA-AG	Base Course - Aggregate	$0.00	8.00	False	8" P-209

Branch - Section ID: R15BO - 002

LCD: 8/3/2023
Use: RUNWAY
Rank: P
Surface: PCC

Length (ft): 1,800.00
Width (ft): 75.00
True Area (sf): 135,150.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
08-03-2023	CR-PC	Complete Reconstruction - PCC	$0.00	6.00	True	6" P-501 PCC PAVEMENT
08-02-2023	BA-AG	Base Course - Aggregate	$0.00	4.00	False	4" P-219 RECYCLED CONCRETE AGG BASE (ON EXISTING SUBBASE AND SUBGRADE)
11-01-2014	PA-PP	Patching - PCC Partial Depth	$0.00	0.00	False	SS-25
11-01-2014	SL-PC	Slab Replacement - PCC	$0.00	0.00	False	-
11-01-2014	JS-LC	Joint Seal (Localized)	$0.00	0.00	False	SS-26
11-01-2014	PA-PF	Patching - PCC Full Depth	$0.00	0.00	False	SS-25
11-01-2014	CS-PC	Crack Sealing - PCC	$0.00	0.00	False	SS-26
07-01-1991	NC-PC	New Construction - PCC	$0.00	0.00	True	-

Branch - Section ID: TA1BO - 001

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

Length (ft): 97.50
Width (ft): 37.50
True Area (sf): 3,699.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
06-03-2007	NC-IN	New Construction - Initial	$0.00	6.00	True	6" P-505
06-02-2007	SB-AG	Subbase - Aggregate	$0.00	6.00	False	6" P-154
06-01-2007	SG-CO	Subgrade - Compacted	$0.00	12.00	False	12" P-152

WORK HISTORY

Pavement Database: IA 2023
Network ID: BNW

Generate Date: 4/30/2024

Branch - Section ID: TA2BO - 001

LCD: 9/30/2010
Use: TAXIWAY
Rank: P
Surface: PCC

Length (ft): 228.00
Width (ft): 30.00
True Area (sf): 9,105.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
09-30-2010	CR-PC	Complete Reconstruction - PCC	$0.00	6.00	True	P-505
09-29-2010	BA-AG	Base Course - Aggregate	$0.00	6.00	False	P-209 CRUSHED AGGREGATE BASE
09-28-2010	SG-CO	Subgrade - Compacted	$0.00	12.00	False	P-152 COMPACTED
06-01-1993	OL-AS	Overlay - AC Structural	$0.00	0.00	True	-
06-01-1977	NC-AC	New Construction - AC	$0.00	0.00	True	-

Branch - Section ID: TA2BO - 002

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

Length (ft): 180.00
Width (ft): 40.00
True Area (sf): 8,338.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
06-03-2007	NC-IN	New Construction - Initial	$0.00	6.00	True	6" P-505
06-02-2007	SB-AG	Subbase - Aggregate	$0.00	6.00	False	6" P-154
06-01-2007	SG-CO	Subgrade - Compacted	$0.00	12.00	False	12" P-152

Branch - Section ID: TA3BO - 001

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

Length (ft): 56.00
Width (ft): 40.00
True Area (sf): 2,658.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
06-03-2007	NC-IN	New Construction - Initial	$0.00	6.00	True	6" P-505
06-02-2007	SB-AG	Subbase - Aggregate	$0.00	6.00	False	6" P-154
06-01-2007	SG-CO	Subgrade - Compacted	$0.00	12.00	False	12" P-152

Branch - Section ID: TA4BO - 001

LCD: 5/3/2022
Use: TAXIWAY
Rank: P
Surface: PCC

Length (ft): 90.00
Width (ft): 50.00
True Area (sf): 4,756.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
05-03-2022	CR-PC	Complete Reconstruction - PCC	$0.00	6.00	True	6" P-501 PCC PAVEMENT
05-02-2022	BA-AG	Base Course - Aggregate	$0.00	4.00	False	4" P-219 RECYCLED CONCRETE BASE (ON EXISTING SUBBASE AND EXISTING SUBGRADE)
06-03-2002	NC-PC	New Construction - PCC	$0.00	6.00	True	6" PCC
06-02-2002	SB-AG	Subbase - Aggregate	$0.00	6.00	False	6" P-154
06-01-2002	SG-CO	Subgrade - Compacted	$0.00	6.00	False	6" P-152

WORK HISTORY

Branch - Section ID: TABO - 001

LCD: 6/3/2002
Use: TAXIWAY
Rank: P
Surface: PCC

Length (ft): 5,585.00
Width (ft): 35.00
True Area (sf): 195,489.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
06-03-2002	NC-PC	New Construction - PCC	$0.00	6.00	True	6" PCC
06-02-2002	SB-AG	Subbase - Aggregate	$0.00	6.00	False	6" P-154
06-01-2002	SG-CO	Subgrade - Compacted	$0.00	6.00	False	6" P-152

Branch - Section ID: TH01BO - 001

LCD: 1/1/1989
Use: T-HANGAR
Rank: P
Surface: AC

Length (ft): 407.00
Width (ft): 18.00
True Area (sf): 7,335.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
06-07-2022	ST-SC	Surface Treatment - Seal Coat	$0.00	0.00	False	EST
01-01-1989	NC-AC	New Construction - AC	$0.00	0.00	True	UNKNOWN; CONSTRUCTED PRIOR TO 1994 VIA GOOGLE EARTH

Branch - Section ID: TH01BO - 002

LCD: 10/1/2008
Use: T-HANGAR
Rank: P
Surface: AC

Length (ft): 84.00
Width (ft): 18.00
True Area (sf): 1,910.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
10-01-2008	NC-AC	New Construction - AC	$0.00	0.00	True	VIA GOOGLE EARTH

Branch - Section ID: TH01BO - 003

LCD: 1/12/2008
Use: T-HANGAR
Rank: P
Surface: PCC

Length (ft): 900.00
Width (ft): 25.00
True Area (sf): 24,307.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
01-12-2008	CR-PC	Complete Reconstruction - PCC	$0.00	6.00	True	6" P-505 PCC COMPLETE RECONSTRUCTION
01-11-2008	SB-AG	Subbase - Aggregate	$0.00	6.00	False	6" P154 SUBBASE
01-10-2008	SG-CO	Subgrade - Compacted	$0.00	12.00	False	12" P152 COMPACTED SUBGRADE

Branch - Section ID: TH02BO - 001

LCD: 5/3/2015
Use: T-HANGAR
Rank: P
Surface: PCC

Length (ft): 405.00
Width (ft): 45.00
True Area (sf): 15,730.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
05-03-2015	NC-PC	New Construction - PCC	$0.00	6.00	True	6" P-501
05-02-2015	BA-AG	Base Course - Aggregate	$0.00	6.00	False	6" P-209
05-01-2015	SG-CO	Subgrade - Compacted	$0.00	12.00	False	12" P-152

WORK HISTORY

Branch - Section ID: TH02BO - 002

LCD: 1/1/1977
Use: T-HANGAR
Rank: P
Surface: AC

Length (ft): 244.00
Width (ft): 18.00
True Area (sf): 4,400.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
06-01-2021	ST-SC	Surface Treatment - Seal Coat	$0.00	0.00	False	GOOGLE EARTH EST
01-01-1977	NC-AC	New Construction - AC	$0.00	0.00	True	UNKNOWN; CONSTRUCTED PRIOR TO 1994 PER GOOGLE EARTH

Branch - Section ID: TH02BO - 003

LCD: 4/3/2018
Use: T-HANGAR
Rank: P
Surface: PCC

Length (ft): 600.00
Width (ft): 25.00
True Area (sf): 15,574.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
04-03-2018	CR-PC	Complete Reconstruction - PCC	$0.00	6.00	True	6" P-501 PCC
04-02-2018	BA-AG	Base Course - Aggregate	$0.00	6.00	False	6" P-209 GRANULAR BASE
04-01-2018	SG-CO	Subgrade - Compacted	$0.00	12.00	False	12" SUBGRADE PREPARATION
01-01-1977	NC-AC	New Construction - AC	$0.00	0.00	True	UNKNOWN; CONSTRUCTED PRIOR TO 1994 PER GOOGLE EARTH

Branch - Section ID: TH02BO - 004

LCD: 6/1/2021
Use: T-HANGAR
Rank: P
Surface: AAC

Length (ft): 448.00
Width (ft): 18.00
True Area (sf): 8,068.00

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major MR	Comments
06-01-2021	OL-AC	Overlay - AC	$0.00	0.00	True	GOOGLE EARTH EST
01-01-1977	NC-AC	New Construction - AC	$0.00	0.00	True	UNKNOWN; CONSTRUCTED PRIOR TO 1994 PER GOOGLE EARTH

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. 2024 unit costs for localized preventive maintenance actions.

Maintenance Action	Unit Cost
Asphalt Patch—Asphalt-Surfaced Pavement	$15.54/sf
Crack Sealing—Asphalt-Surfaced Pavement	$2.66/lf
Partial Depth PCC Patch—PCC Pavement	$39.82/sf
Full Depth PCC Patch—PCC Pavement	$17.78/sf
Crack Sealing—PCC Pavement	$3.20/lf
Joint Sealing—PCC Pavement	$3.20/lf
Grinding—PCC Pavement	$0.38/sf
Slab Replacement—PCC Pavement	$17.78/sf

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

Table E-4. 2024 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	$11.04	$5.22	$5.22	$5.22	$0.00	$0.00	$0.00
PCC	$18.44	$8.72	$8.72	$8.72	$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 2024 LOCALIZED PREVENTIVE MAINTENANCE DETAILS

Table F-1. Year 2024 localized preventive maintenance details.

Branch	Section	Distress Type	Severity	Distress Quantity	Distress Unit	Maintenance Action	Unit Cost	2024 Estimated Cost
A01BO	01	Joint Seal Damage	Medium	120	Slabs	Joint Seal (Localized)	$3.20	$7,302
A01BO	01	Joint Seal Damage	High	288	Slabs	Joint Seal (Localized)	$3.20	$17,524
A01BO	02	Joint Seal Damage	High	542	Slabs	Joint Seal (Localized)	$3.20	$33,061
A01BO	02	Joint Seal Damage	Medium	77	Slabs	Joint Seal (Localized)	$3.20	$4,723
A01BO	03	Joint Spalling	Medium	2	Slabs	Patching - PCC Partial Depth	$39.82	$386
A01BO	03	Joint Seal Damage	High	126	Slabs	Joint Seal (Localized)	$3.20	$7,164
A01BO	04	LTD Cracking	Medium	1	Slabs	Crack Sealing - PCC	$3.20	$32
A01BO	04	Corner Break	Low	1	Slabs	Crack Sealing - PCC	$3.20	$26
A01BO	04	Joint Seal Damage	Medium	123	Slabs	Joint Seal (Localized)	$3.20	$7,476
R02BO	01	Joint Seal Damage	Medium	89	Slabs	Joint Seal (Localized)	$3.20	$5,014
R15BO	01	Joint Seal Damage	High	1,801	Slabs	Joint Seal (Localized)	$3.20	$119,842
R15BO	01	LTD Cracking	Medium	17	Slabs	Crack Sealing - PCC	$3.20	$600
R15BO	01	Corner Spalling	Medium	17	Slabs	Patching - PCC Partial Depth	$39.82	$1,787
TA1BO	01	Corner Spalling	Medium	1	Slabs	Patching - PCC Partial Depth	$39.82	$107
TA1BO	01	Joint Seal Damage	Medium	29	Slabs	Joint Seal (Localized)	$3.20	$1,410
TA1BO	01	Joint Seal Damage	High	16	Slabs	Joint Seal (Localized)	$3.20	$778
TA2BO	02	Joint Spalling	Medium	4	Slabs	Patching - PCC Partial Depth	$39.82	$1,067
TA2BO	02	Corner Spalling	Medium	4	Slabs	Patching - PCC Partial Depth	$39.82	$445
TA3BO	01	LTD Cracking	Medium	1	Slabs	Crack Sealing - PCC	$3.20	$29
TA3BO	01	Corner Spalling	Medium	1	Slabs	Patching - PCC Partial Depth	$39.82	$107
TA3BO	01	Joint Seal Damage	Medium	16	Slabs	Joint Seal (Localized)	$3.20	$751
TA3BO	01	Joint Seal Damage	High	16	Slabs	Joint Seal (Localized)	$3.20	$751

Table F-1. Year 2024 localized preventive maintenance details (continued).

Branch	Section	Distress Type	Severity	Distress Quantity	Distress Unit	Maintenance Action	Unit Cost	2024 Estimated Cost
TABO	01	Large Patch	High	9	Slabs	Patching - PCC Full Depth	$17.78	$7,247
TABO	01	Corner Break	Low	9	Slabs	Crack Sealing - PCC	$3.20	$248
TABO	01	Corner Spalling	Medium	57	Slabs	Patching - PCC Partial Depth	$39.82	$6,086
TABO	01	Shattered Slab	Medium	9	Slabs	Slab Replacement - PCC	$17.78	$14,727
TABO	01	ASR	Medium	47	Slabs	Slab Replacement - PCC	$17.78	$73,634
TABO	01	Joint Seal Damage	High	2,045	Slabs	Joint Seal (Localized)	$3.20	$106,228
TABO	01	LTD Cracking	Medium	47	Slabs	Crack Sealing - PCC	$3.20	$1,420
TH01BO	03	Joint Seal Damage	High	194	Slabs	Joint Seal (Localized)	$3.20	$10,803
TH01BO	03	LTD Cracking	Medium	12	Slabs	Crack Sealing - PCC	$3.20	$449
TH01BO	03	Joint Spalling	Medium	7	Slabs	Patching - PCC Partial Depth	$39.82	$1,831
TH02BO	01	Joint Seal Damage	Medium	126	Slabs	Joint Seal (Localized)	$3.20	$7,818
TH02BO	03	Joint Seal Damage	Medium	43	Slabs	Joint Seal (Localized)	$3.20	$2,037

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 Boone Municipal Airport.

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