

BROOKINGS AIRPORT

This report describes how your Pavement Maintenance Management Program (PMMP) was developed. Your Program was developed as part of the Oregon Continuous Aviation System Plan sponsored in part by the Oregon Department of Aviation and the Federal Aviation Administration (FAA). The information and data contained in this report ensures you are in compliance with the requirements of FAA Grant Assurance Number 11 which states that any airport requesting federal funds for pavement improvement projects must have implemented a pavement maintenance management program.

DATA COLLECTION

To determine how your pavements were constructed and their age, a records review was conducted. Figure BR-1 shows the records review results. This figure identifies pavement boundaries, dimensions, pavement layer types, thicknesses and dates of construction. The most recent construction date for each pavement can also be found in the Section Condition Report in Appendix 2. Figure BR-1 and the information contained in Appendices 1, 2 and 4 ensure that your airport complies with the “pavement inventory” requirement of FAA’s PMMP guidelines.

The pavements at your airport were divided into branches, sections and sample units in accordance with the methodology outlined in the current edition of ASTM D5430, *Standard Test Method for Airport Condition Index Surveys*. The branches, sections and sample units established at your airport are shown in Figure BR-2. A Branch Condition Report showing all branches, their associated areas, and their area-weighted average condition is provided in Appendix 1. Additionally, the Appendix 2 Section Condition Report provides information used to define each branch and section in the Micro PAVER database.

Using the branch, section and sample unit divisions established, a visual condition survey was conducted at Brookings Airport in July 2016. During the inspection, pavement defects were identified and measured in accordance with the methodology outlined in ASTM D5430. This inspection ensures your airport complies with the “detailed inspection” requirement of FAA’s PMMP guidelines. After collection, the data were entered into the Micro PAVER software for analysis. These data are reproduced in the Re-Inspection Report attached as Appendix 4.

The Micro PAVER database updated during this project ensures your airport complies with the “record keeping and information retrieval” requirements of FAA’s PMMP guidelines.

Figure BR-1. Airport Layout, Dimensions and Pavement Cross-Sections.
Brookings Airport

Drawing Date: August 2016

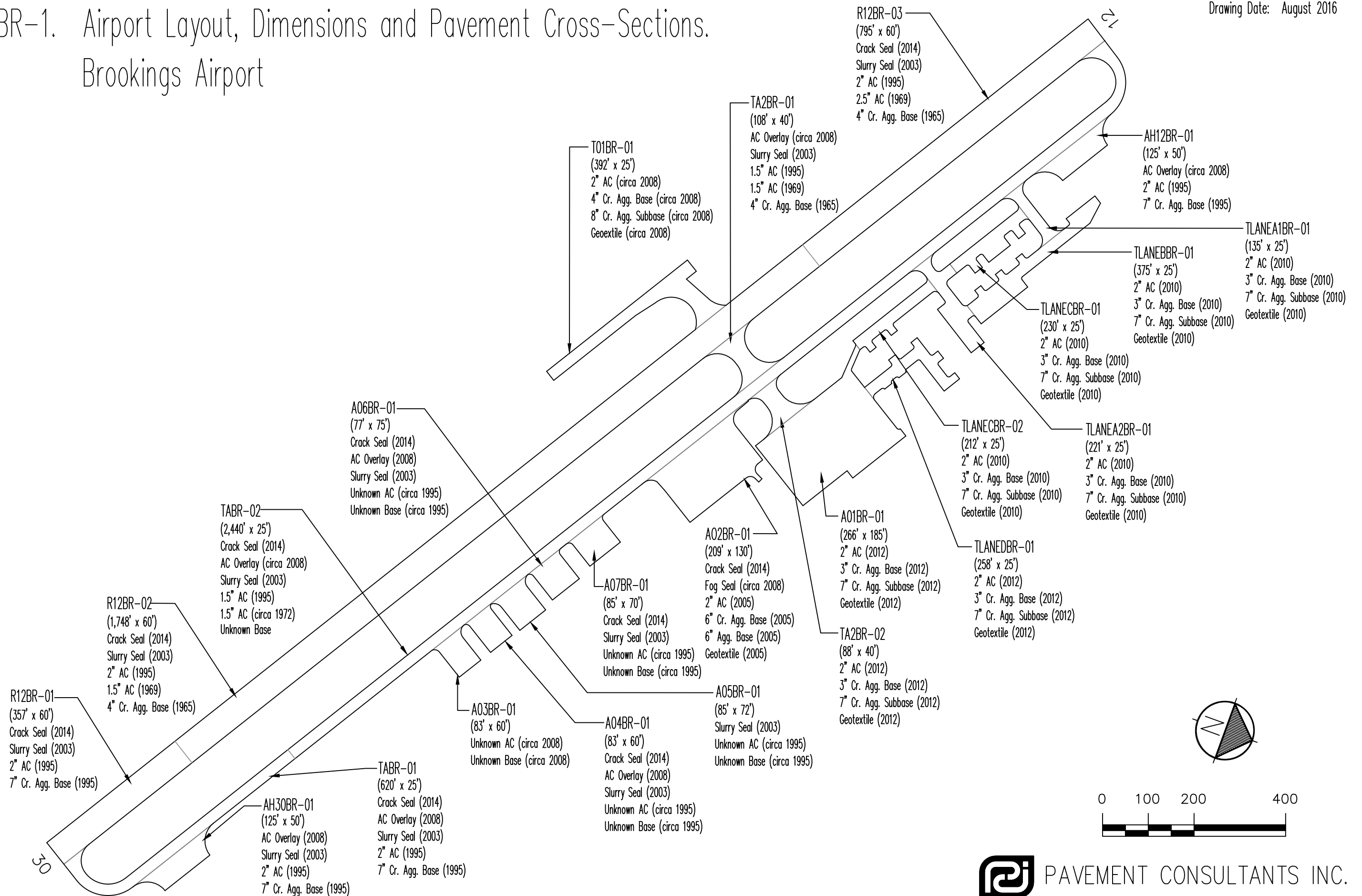
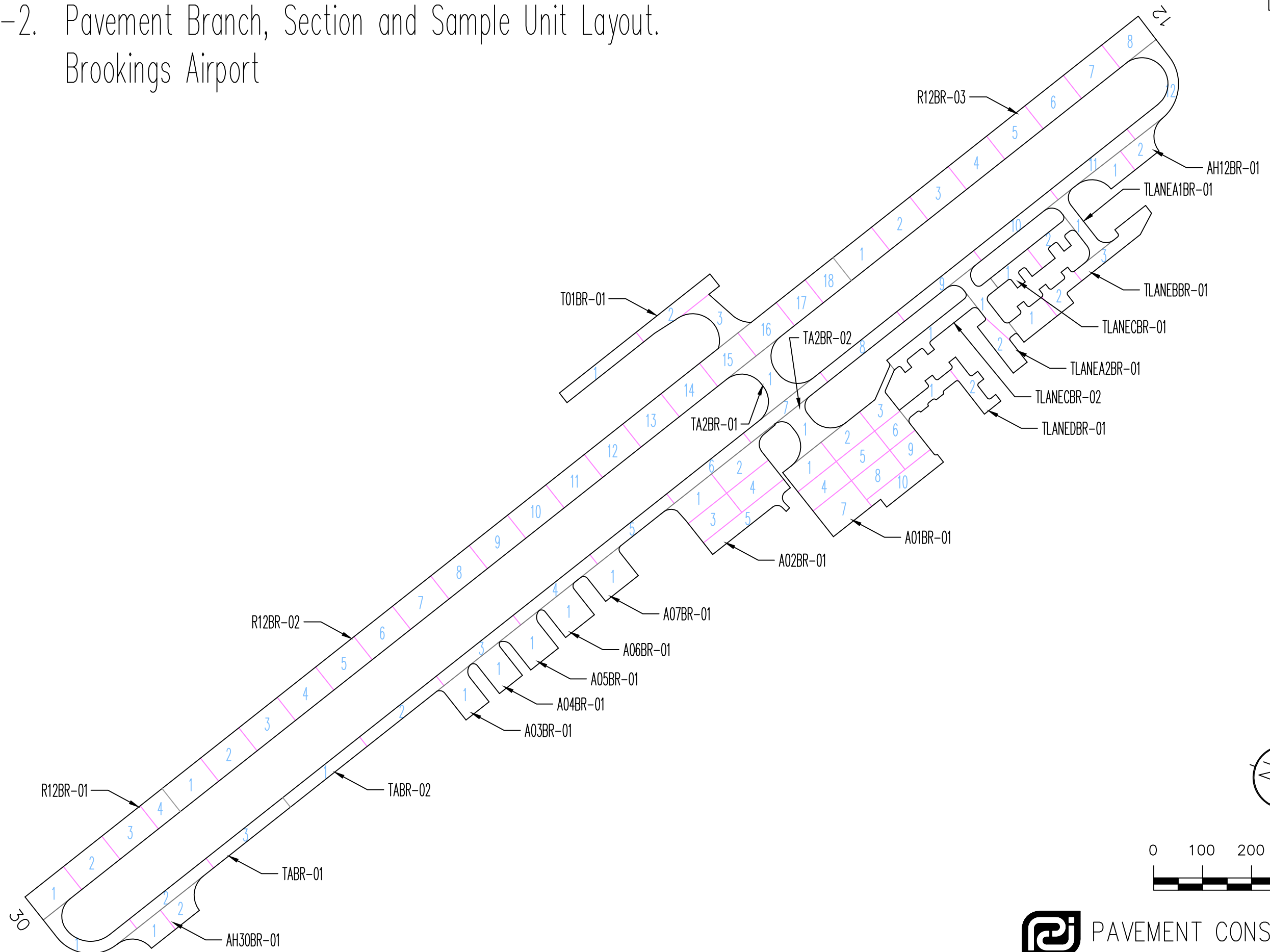


Figure BR-2. Pavement Branch, Section and Sample Unit Layout.
Brookings Airport

Drawing Date: August 2016



RESULTS

Using the data collected during the visual inspection, the Micro PAVER software was used to calculate an area-weighted average Pavement Condition Index (PCI) for each pavement section inspected using the sample units evaluated. Using each section's PCI, a Pavement Condition Rating (PCR) was assigned. The PCIs measured during this inspection are shown in Table 1. The table also contains PCIs from past inspections as well as projected PCIs for 2021 and 2026. The projections were based on pavement deterioration models developed by Micro PAVER using the inspection data from other pavements in the same airport category as your airport, located in the same climatic region, and with the same surface type and use.

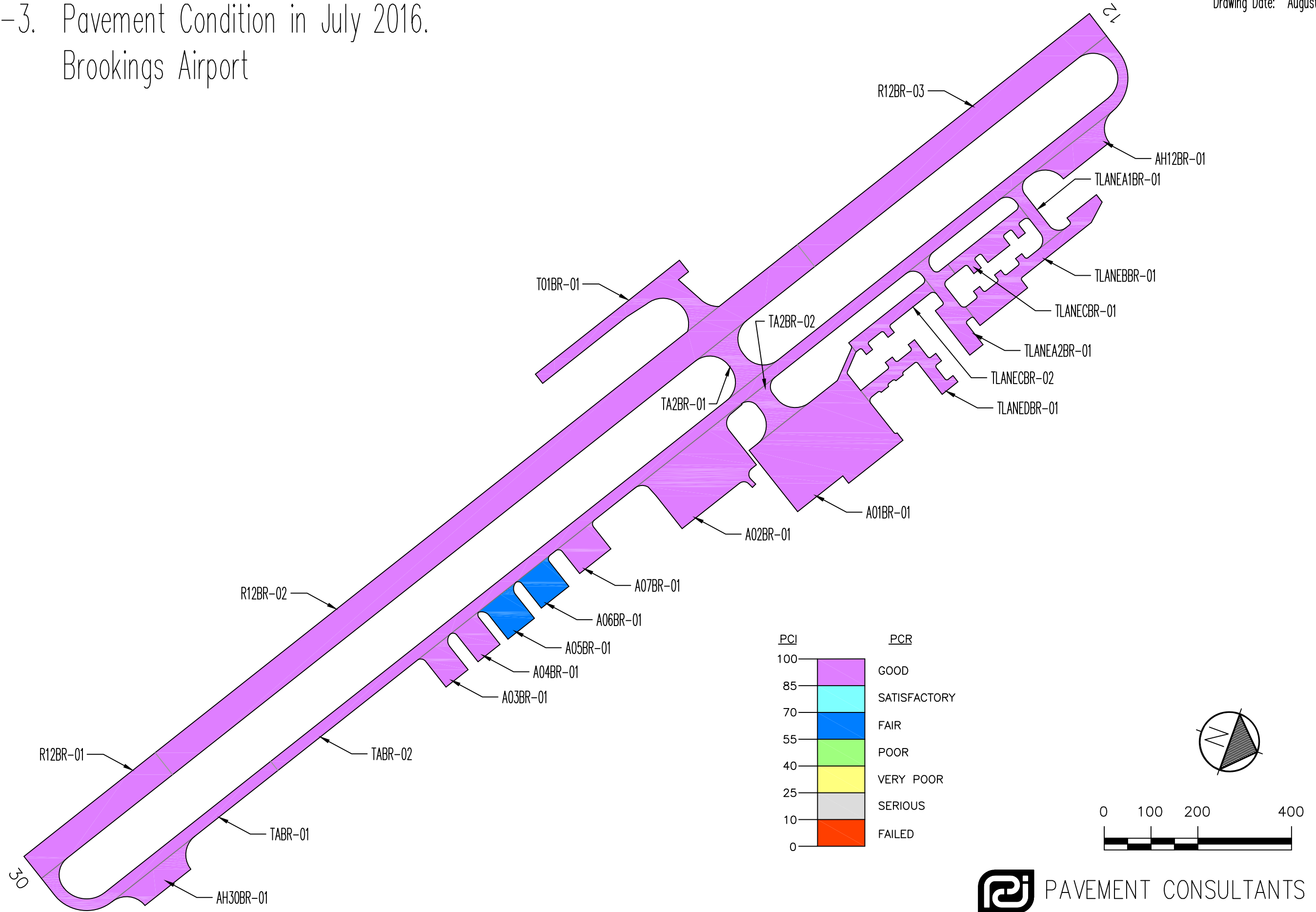
The Branch Condition Report in Appendix 1 summarizes current pavement condition by branch while the Section Condition Report in Appendix 2 lists pavement condition by section. The current Pavement Condition Rating (PCR) is shown graphically in Figure BR-3.

Table 1. Past, Present and Future Pavement Condition Indices.

Branch	Section	Inspections			Forecast	
		2009	2013	2016	2021	2026
A01BR	1	40	100	100	90	82
A02BR	1	100	99	91	82	78
A03BR	1	100	100	91	82	78
A04BR	1	100	93	89	81	77
A05BR	1	72	64	63	49	33
A06BR	1	100	79	83	78	76
A07BR	1	80	94	90	82	77
AH12BR	1	100	96	95	84	61
AH30BR	1	100	98	91	70	54
R12BR	1	100	98	98	92	87
R12BR	2	100	96	96	94	92
R12BR	3	99	97	96	93	91
T01BR	1	100	100	100	89	80
TA2BR	1	100	96	96	89	81
TA2BR	2	100	100	100	89	80
TABR	1	100	98	95	85	78
TABR	2	100	91	87	80	72
TLANEA1BR	1	---	100	100	89	80
TLANEA2BR	1	---	100	99	88	80
TLANEBBR	1	---	100	98	87	79
TLANECBR	1	---	100	96	85	79
TLANECBR	2	---	100	100	89	80
TLANEDBR	1	---	100	100	89	80

Figure BR-3. Pavement Condition in July 2016.
Brookings Airport

Drawing Date: August 2016



Section PCIs at Brookings Airport range from a low of 63 (a PCR of “Fair”) to a high of 100 (a PCR of “Good”). The area-weighted average PCI for all airport pavements is 94, corresponding to an overall PCR of “Good”. Figure BR-4 shows how much pavement area is associated with each Pavement Condition Rating category and also shows pavement condition distribution from the inspections conducted in 2009 and 2013.

The primary distresses observed during the inspection were: longitudinal and transverse cracking, and weathering, with isolated occurrences of block cracking, patching and swell.

A graphical representation of the projected PCIs listed in Table 1 is shown in Figure BR-5.

RECOMMENDATIONS

Data collected during the visual condition survey were used by the Micro PAVER software to generate the Network Maintenance Report contained in Appendix 3. This report identifies, for each pavement section, the recommended localized maintenance activities (i.e.-crack sealing, patching) that should be completed to repair the defects observed during the visual inspection. The repair quantities identified in the report were extrapolated to cover the entire pavement section, based on the distresses measured in the inspected sample units. If the repair activities identified are completed, the pavement deterioration rate will be slowed.

The recommended localized maintenance activities to be applied are selected by the Micro PAVER software based on a Distress Maintenance Policy established for the Oregon airport system. The report results indicate that, over your entire airport, the following quantity of localized maintenance is needed:

- 117 linear feet of asphalt concrete crack sealing.

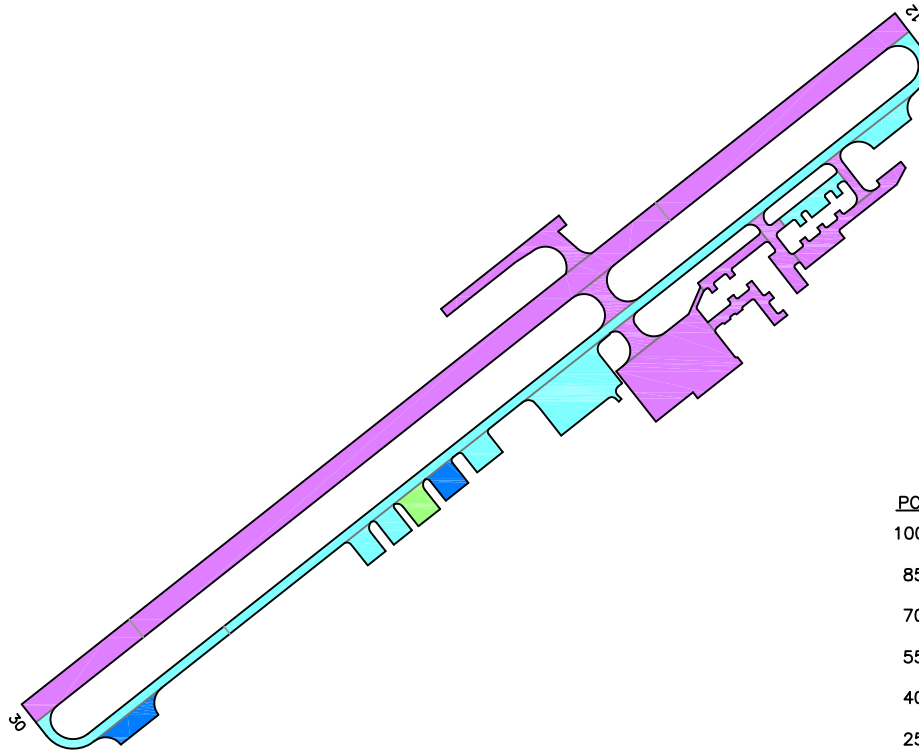
The Micro PAVER software can also identify and schedule recommended global (applied over an entire section) maintenance activities such as fog seals, slurry seals and other surface treatments, as well as major rehabilitation activities such as asphalt concrete overlays and complete reconstruction. Micro PAVER schedules global maintenance on a user-defined interval. To schedule major rehabilitation Micro PAVER uses pavement deterioration models developed during this project. These models are used to estimate future pavement condition and to schedule rehabilitation based on a trigger PCI.

During this project a 5-year program outlining recommended global maintenance and rehabilitation was developed. The program begins in the year 2017 to allow time for project development. These recommendations are presented in Table 2, which identifies the pavement section requiring rehabilitation, the year the action should be completed, the type of action, and an associated cost. This information is also presented graphically in Figure BR-6.

**Figure BR-4. Pavement Condition Distribution
Brookings Airport**

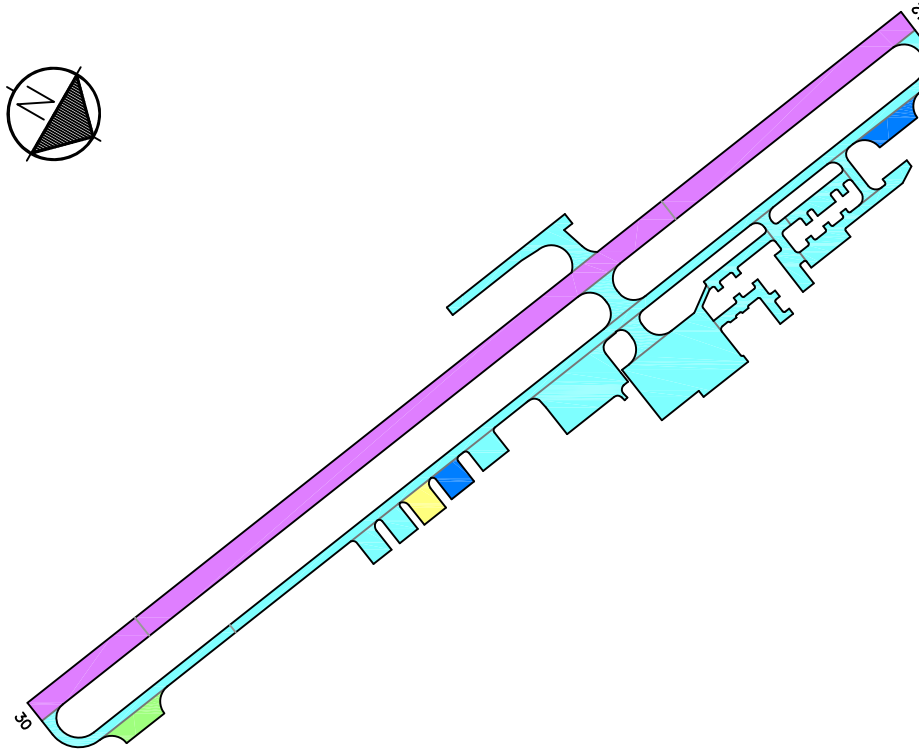


Predicted Condition in 2021.



PCI	PCR
100	GOOD
85	SATISFACTORY
70	FAIR
55	POOR
40	VERY POOR
25	SERIOUS
10	FAILED
0	

Predicted Condition in 2026.



Drawing Date: August 2016



Figure BR-5. Future Pavement Condition.

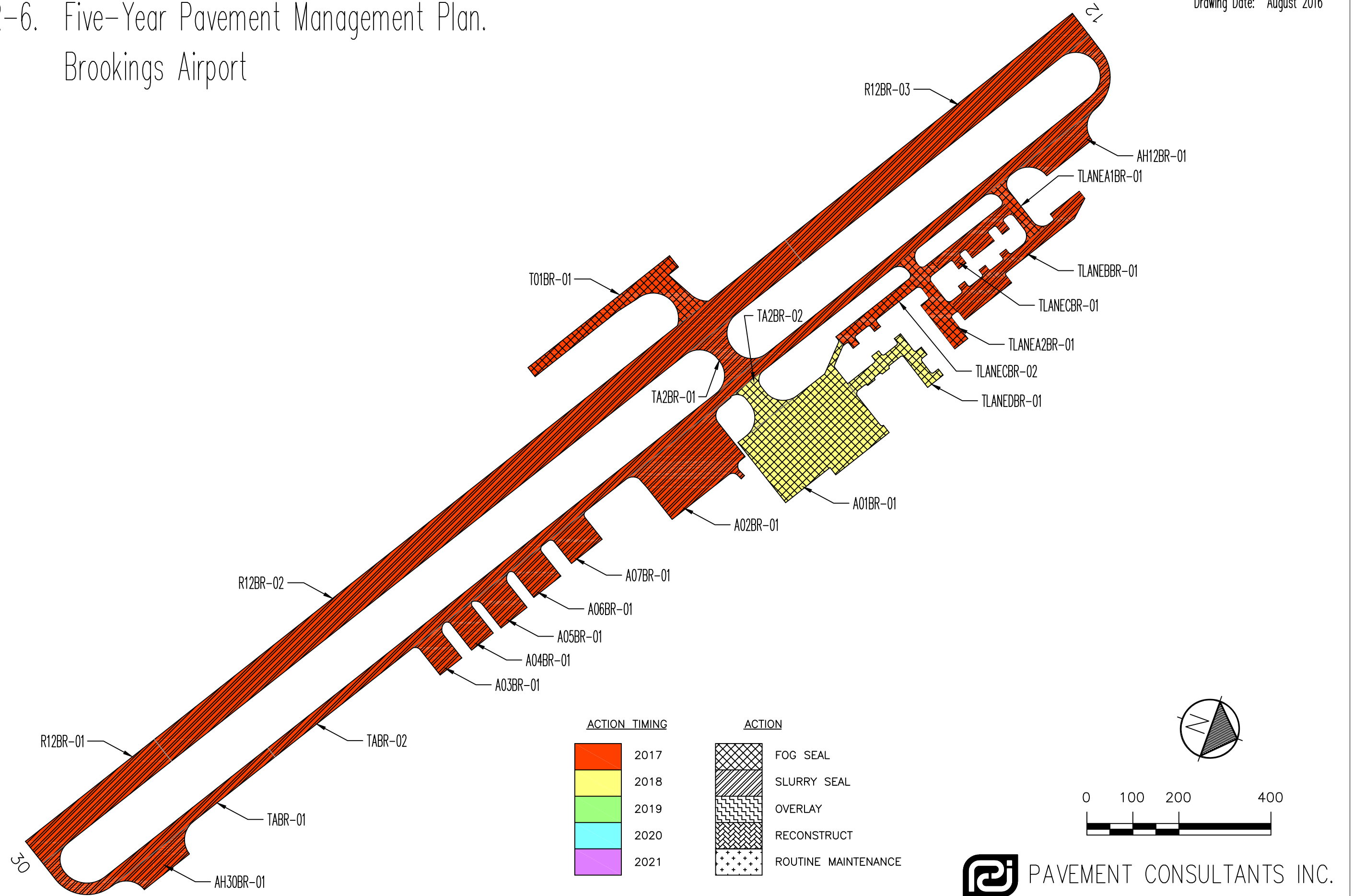
Table 2. Five-Year Global Maintenance and Rehabilitation Plan.

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2017	A02BR	01	Slurry Seal	27,794	\$0.31	\$8,505
2017	A03BR	01	Slurry Seal	5,096	\$0.31	\$1,559
2017	A04BR	01	Slurry Seal	5,020	\$0.31	\$1,536
2017	A05BR	01	Slurry Seal	6,292	\$0.31	\$1,925
2017	A06BR	01	Slurry Seal	5,818	\$0.31	\$1,780
2017	A07BR	01	Slurry Seal	5,993	\$0.31	\$1,834
2017	AH12BR	01	Slurry Seal	7,174	\$0.31	\$2,195
2017	AH30BR	01	Slurry Seal	7,323	\$0.31	\$2,241
2017	R12BR	01	Slurry Seal	21,420	\$0.31	\$6,555
2017	R12BR	02	Slurry Seal	104,880	\$0.31	\$32,093
2017	R12BR	03	Slurry Seal	47,700	\$0.31	\$14,596
2017	T01BR	01	Fog Seal	15,479	\$0.19	\$3,003
2017	TA2BR	01	Slurry Seal	6,446	\$0.31	\$1,972
2017	TABR	01	Slurry Seal	15,792	\$0.31	\$4,832
2017	TABR	02	Slurry Seal	61,828	\$0.31	\$18,919
2017	TLANEA1BR	01	Fog Seal	3,912	\$0.19	\$759
2017	TLANEA2BR	01	Fog Seal	8,968	\$0.19	\$1,740
2017	TLANEBBR	01	Slurry Seal	14,014	\$0.31	\$4,288
2017	TLANECBR	01	Slurry Seal	7,462	\$0.31	\$2,283
2017	TLANECBR	02	Fog Seal	5,974	\$0.19	\$1,159
2017 Total						\$113,777
2018	A01BR	01	Fog Seal	48,125	\$0.19	\$9,336
2018	TA2BR	02	Fog Seal	5,041	\$0.19	\$978
2018	TLANEDBR	01	Fog Seal	7,614	\$0.19	\$1,477
2018 Total						\$11,791
TOTAL						\$125,568

If the global maintenance and/or rehabilitation activities recommended in Table 2 are not completed, the localized maintenance activities identified in the Network Maintenance Report (Appendix 3) for that section should be done. Additionally, for those sections not listed in Table 2 as requiring global maintenance or rehabilitation, the localized maintenance activities outlined in the Network Maintenance Report should be completed. By completing the localized maintenance activities, pavement condition is improved, life is extended, deterioration is slowed and the length of time until major repair or rehabilitation is required is increased.

Figure BR-6. Five-Year Pavement Management Plan.
Brookings Airport

Drawing Date: August 2016



INSPECTION SCHEDULE

To comply with the inspection schedule requirement of FAA Grant Assurance Number 11, a detailed visual inspection should be conducted every 3 years using the methodology described in ASTM D5430. The next scheduled detailed visual inspection should take place in 2019.

In addition, the FAA requires that a drive-by inspection be conducted monthly to detect unforeseen changes in pavement condition. The results of each drive-by inspection should be recorded and kept in a file. At a minimum, the date of the inspection and an indication of any maintenance performed since the last drive-by inspection should be recorded.