

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 comply 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 PAVER database.

Using the branch, section and sample unit divisions established, a visual condition survey was conducted at Brookings Airport in May 2019. 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 PAVER software for analysis. These data are reproduced in the Re-Inspection Report attached as Appendix 4.

The 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: June 2019

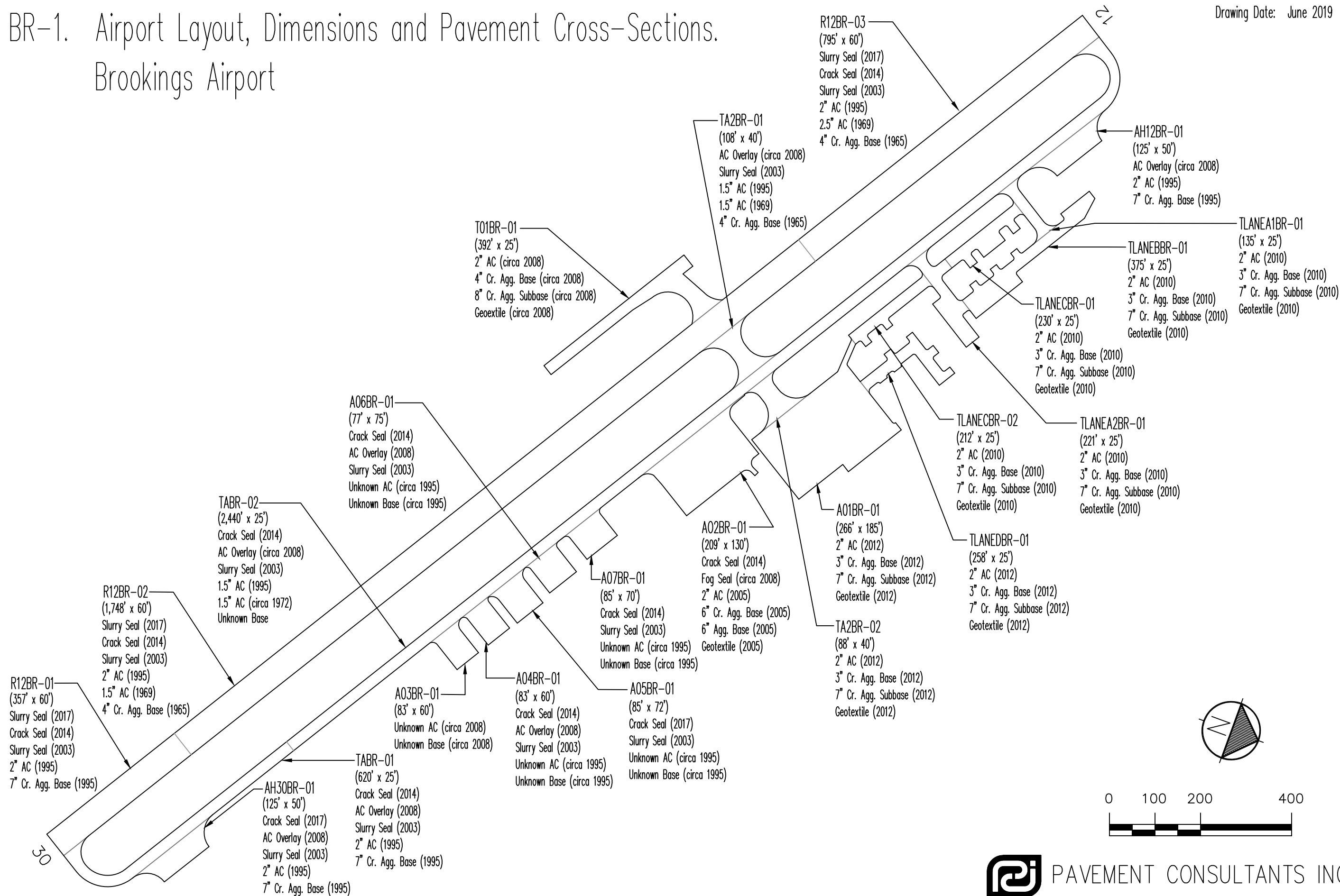
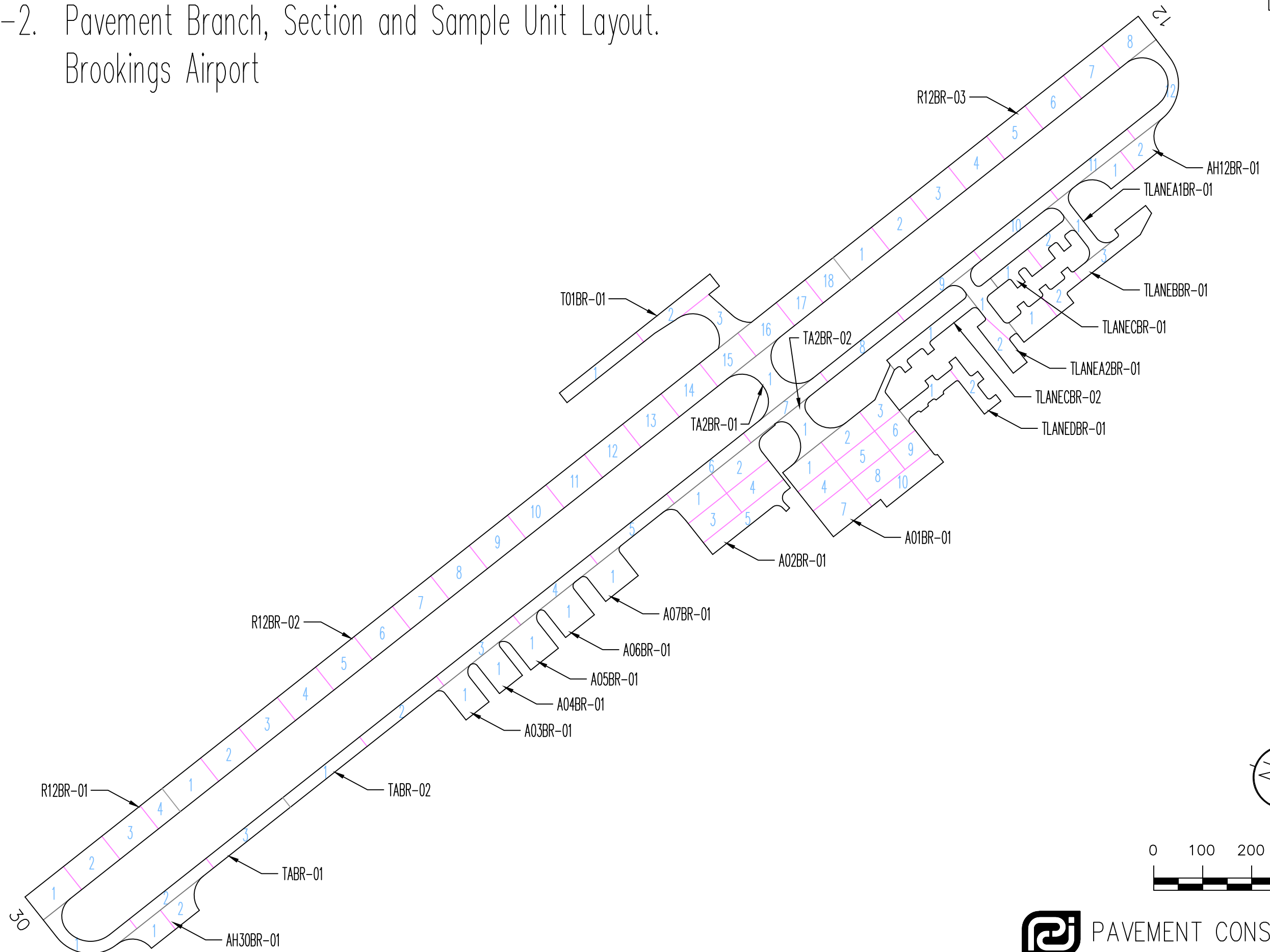


Figure BR-2. Pavement Branch, Section and Sample Unit Layout.
Brookings Airport

Drawing Date: June 2019



RESULTS

Using the data collected during the visual inspection, the 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 2024 and 2029. The projections were based on pavement deterioration models developed by 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.

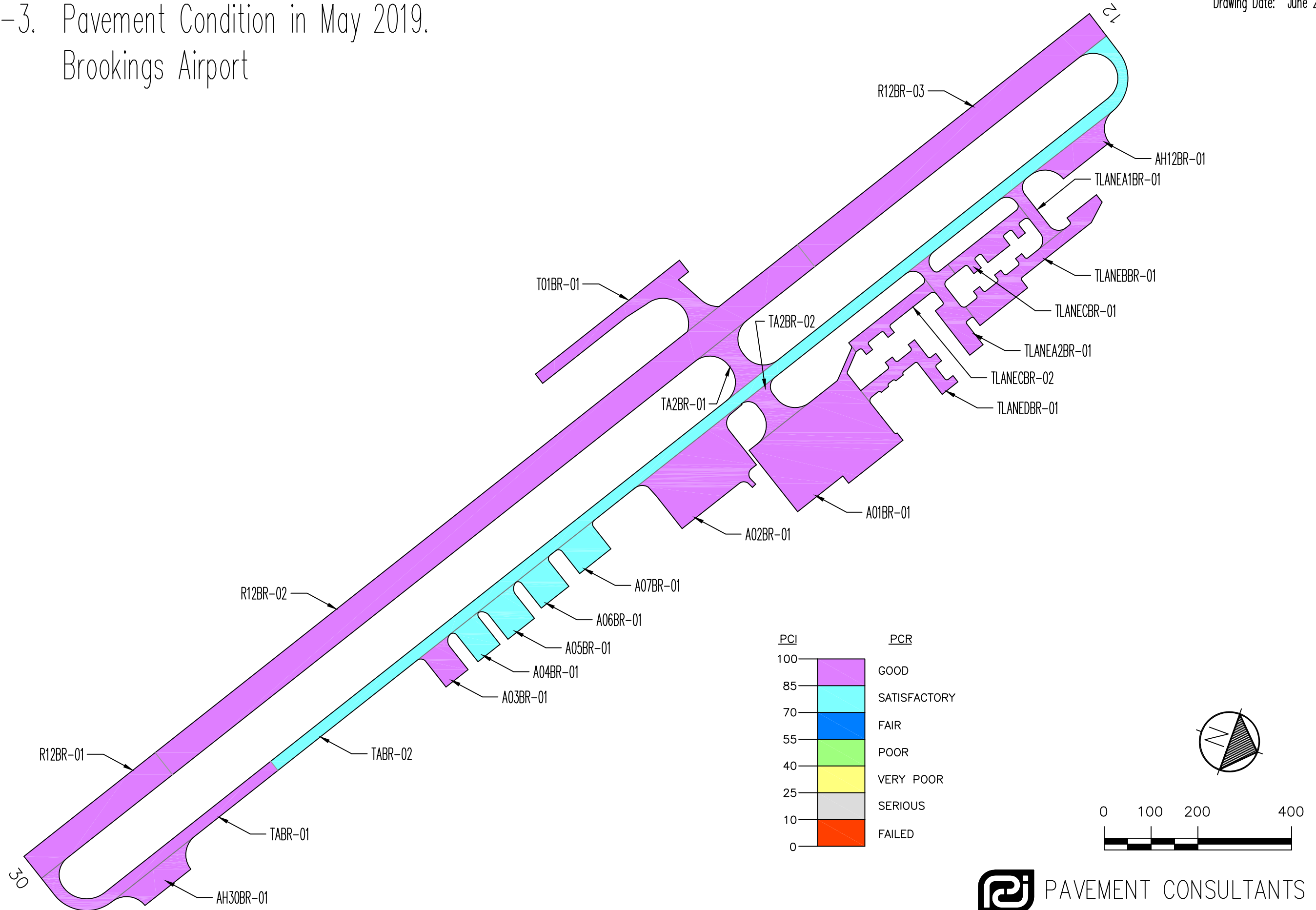
The Branch Condition Report in Appendix 1 summarizes current pavement condition by branch while the Section Condition Report in Appendix 2 lists pavement condition by section. The current Pavement Condition Rating (PCR) is shown graphically in Figure BR-3.

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

| Branch | Section | Inspections | | | Forecast | |
|-----------|---------|-------------|------|------|----------|------|
| | | 2013 | 2016 | 2019 | 2024 | 2029 |
| A01BR | 1 | 100 | 100 | 94 | 87 | 82 |
| A02BR | 1 | 99 | 91 | 86 | 81 | 79 |
| A03BR | 1 | 100 | 91 | 90 | 84 | 80 |
| A04BR | 1 | 93 | 89 | 81 | 79 | 79 |
| A05BR | 1 | 64 | 63 | 74 | 62 | 50 |
| A06BR | 1 | 79 | 83 | 79 | 79 | 78 |
| A07BR | 1 | 94 | 90 | 72 | 59 | 47 |
| AH12BR | 1 | 96 | 95 | 94 | 91 | 87 |
| AH30BR | 1 | 98 | 91 | 90 | 87 | 83 |
| R12BR | 1 | 98 | 98 | 98 | 97 | 96 |
| R12BR | 2 | 96 | 96 | 97 | 96 | 95 |
| R12BR | 3 | 97 | 96 | 96 | 95 | 94 |
| T01BR | 1 | 100 | 100 | 94 | 89 | 84 |
| TA2BR | 1 | 96 | 96 | 89 | 77 | 66 |
| TA2BR | 2 | 100 | 100 | 94 | 89 | 84 |
| TABR | 1 | 98 | 95 | 95 | 90 | 85 |
| TABR | 2 | 91 | 87 | 80 | 69 | 57 |
| TLANEA1BR | 1 | 100 | 100 | 96 | 91 | 86 |
| TLANEA2BR | 1 | 100 | 99 | 92 | 87 | 82 |
| TLANEBBR | 1 | 100 | 98 | 94 | 89 | 84 |
| TLANECBR | 1 | 100 | 96 | 94 | 89 | 84 |
| TLANECBR | 2 | 100 | 100 | 94 | 89 | 84 |
| TLANEDBR | 1 | 100 | 100 | 94 | 89 | 84 |

Figure BR-3. Pavement Condition in May 2019.
Brookings Airport

Drawing Date: June 2019



Section PCIs at Brookings Airport range from a low of 72 (a PCR of “Satisfactory”) to a high of 98 (a PCR of “Good”). The area-weighted average PCI for all airport pavements is 92, 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 2013 and 2016.

The primary distresses observed during the inspection were: longitudinal and transverse cracking, weathering, and depression with an isolated occurrence of alligator cracking and raveling.

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 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.

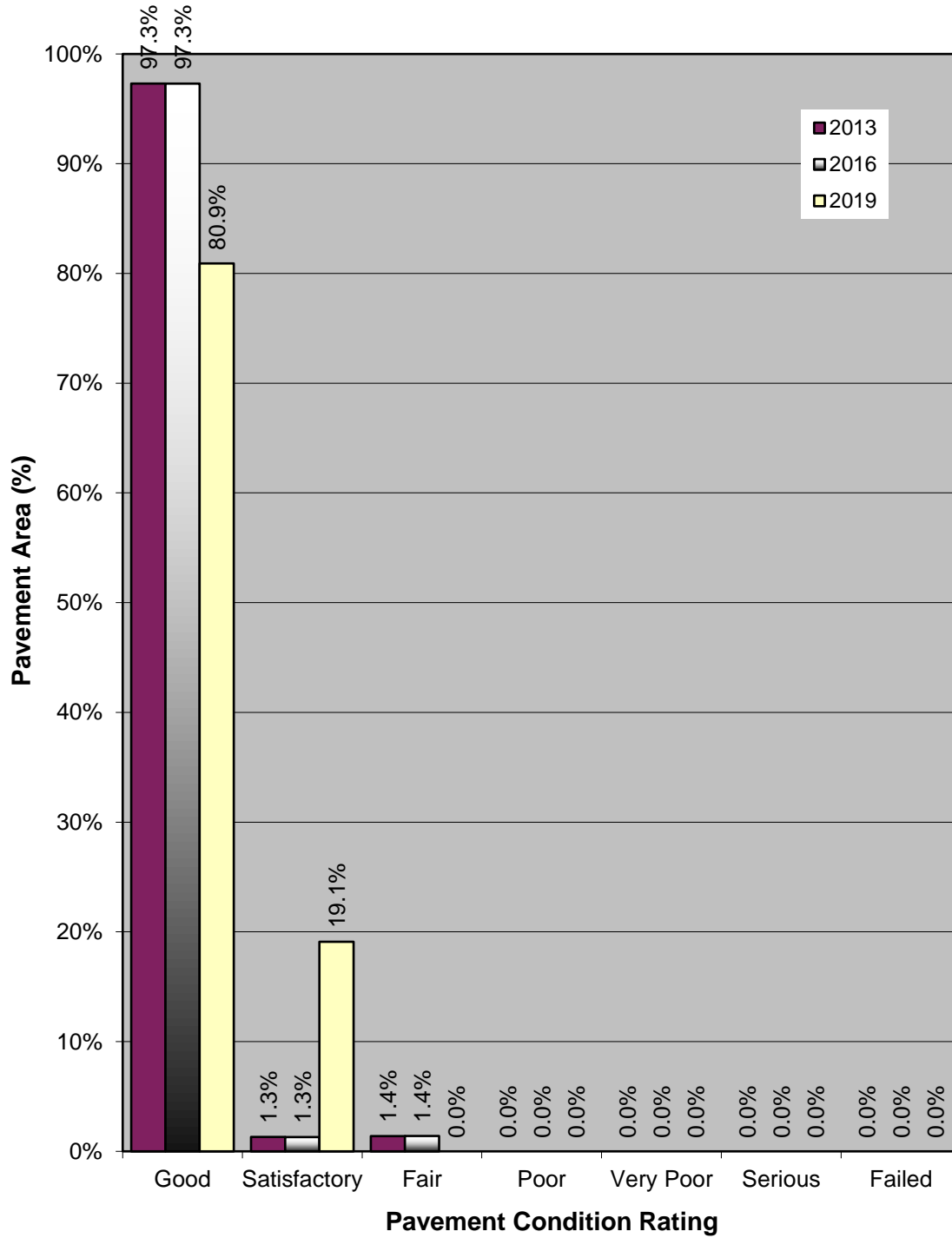
The recommended localized maintenance activities to be applied are selected by the PAVER software based on a Distress Maintenance Policy established for the Oregon airport system. The report results indicate that, over your entire airport, the following quantity of localized maintenance is needed:

- 1,511 linear feet of asphalt concrete crack sealing.

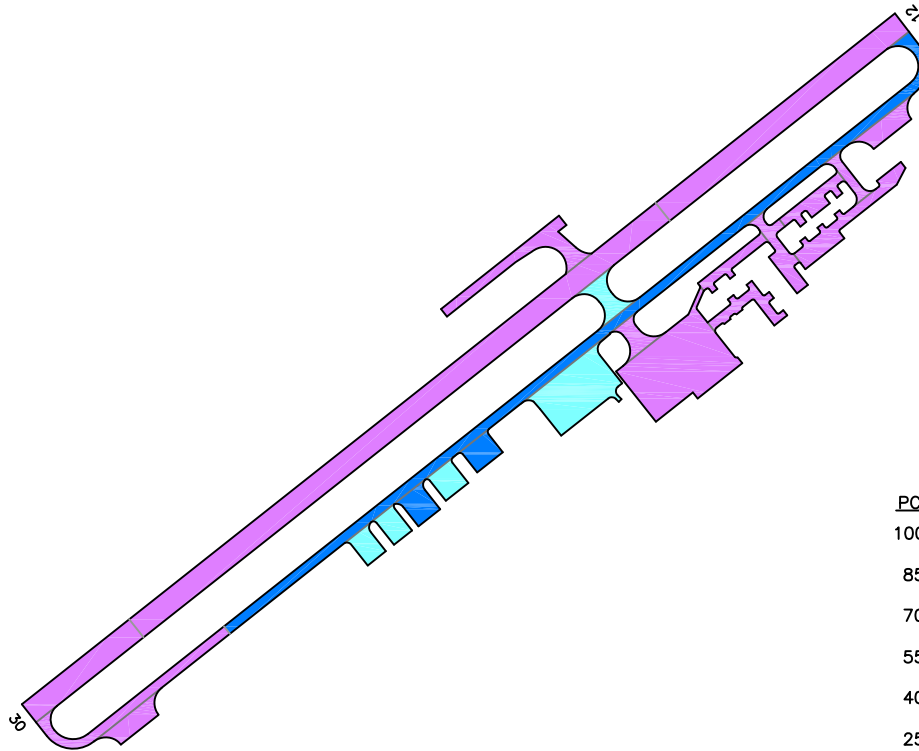
The PAVER software can also identify and schedule recommended global (applied over an entire section) maintenance activities such as fog seals, slurry seals and other surface treatments, as well as major rehabilitation activities such as asphalt concrete overlays and complete reconstruction. PAVER schedules global maintenance on a user-defined interval. To schedule major rehabilitation 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 2020 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**

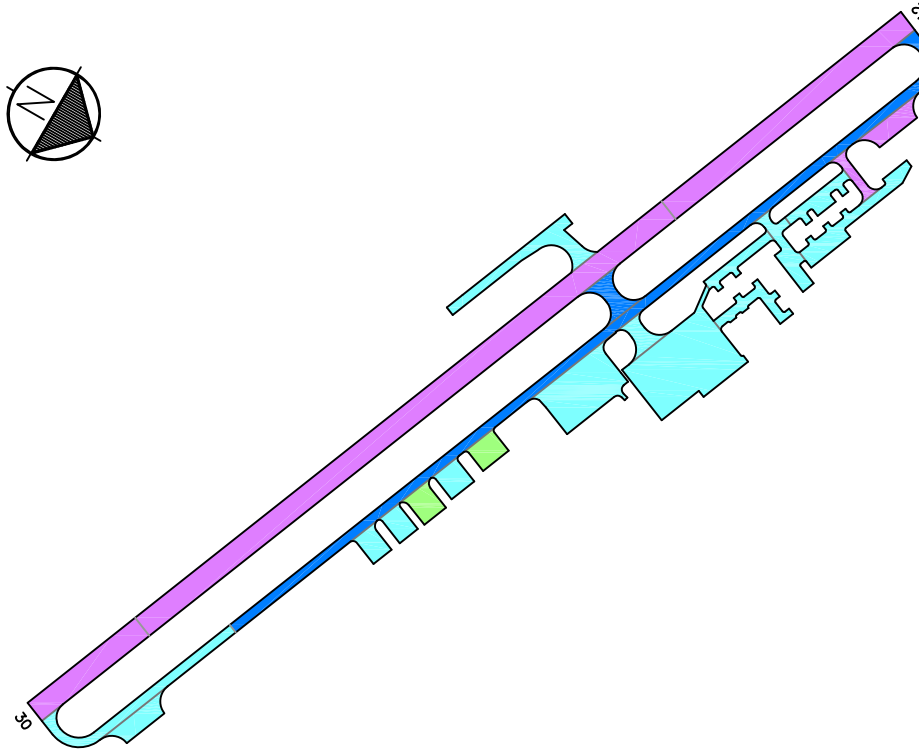


Predicted Condition in 2024.



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

Predicted Condition in 2029.



Drawing Date: June 2019



Figure BR-5. Future Pavement Condition.

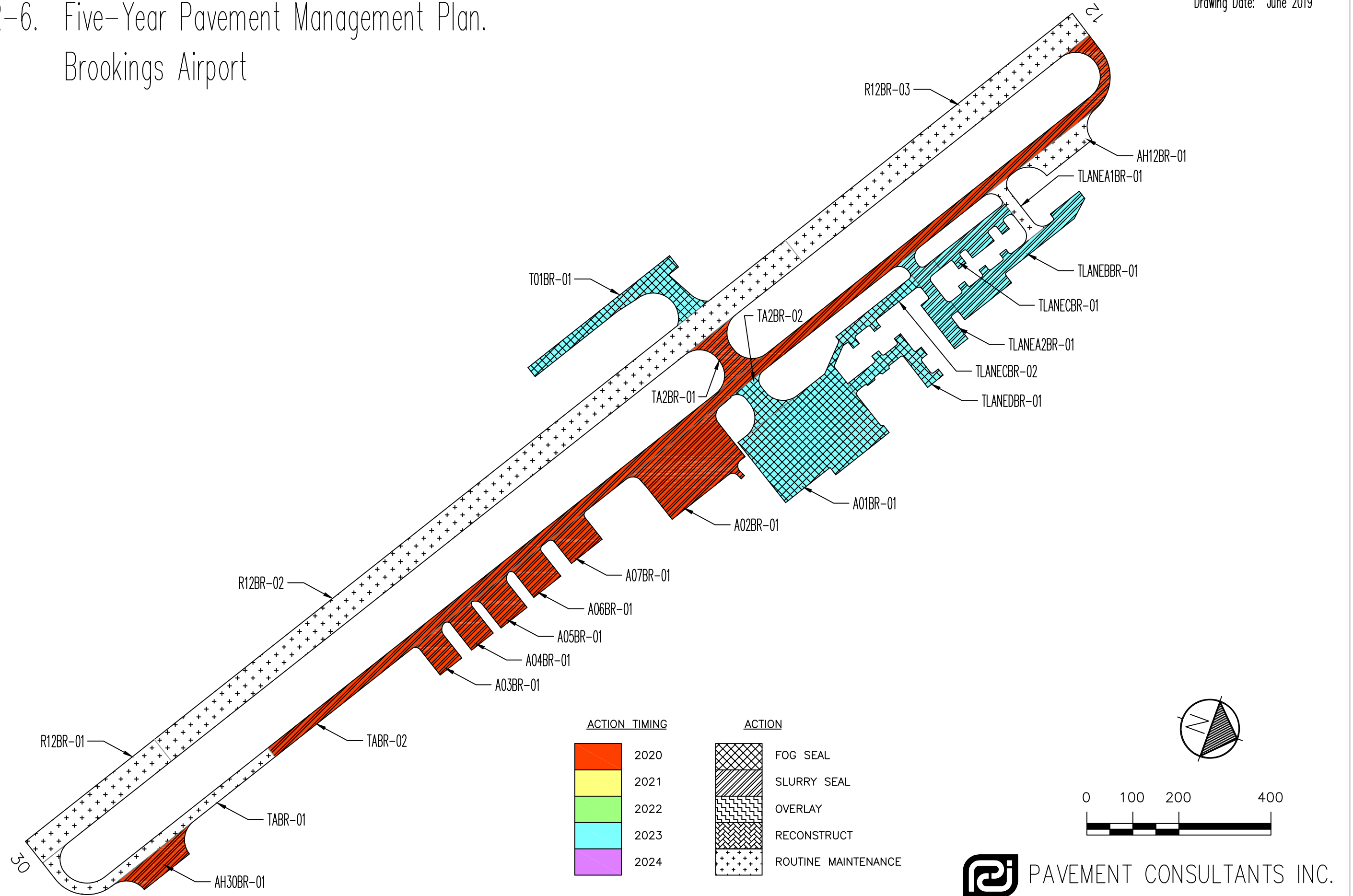
Table 2. Five-Year Global Maintenance and Rehabilitation Plan.

| Year | Branch | Section | Action | Area (sf) | Unit Cost (\$/sf) | Total Cost (\$) |
|---------------------|-----------|---------|-------------|-----------|-------------------|-----------------|
| 2020 | A02BR | 01 | Slurry Seal | 27,794 | \$0.31 | \$8,616 |
| 2020 | A03BR | 01 | Slurry Seal | 5,096 | \$0.31 | \$1,580 |
| 2020 | A04BR | 01 | Slurry Seal | 5,020 | \$0.31 | \$1,556 |
| 2020 | A05BR | 01 | Slurry Seal | 6,292 | \$0.31 | \$1,951 |
| 2020 | A06BR | 01 | Slurry Seal | 5,818 | \$0.31 | \$1,804 |
| 2020 | A07BR | 01 | Slurry Seal | 5,993 | \$0.31 | \$1,858 |
| 2020 | AH30BR | 01 | Slurry Seal | 7,323 | \$0.31 | \$2,270 |
| 2020 | TA2BR | 01 | Slurry Seal | 6,446 | \$0.31 | \$1,998 |
| 2020 | TABR | 02 | Slurry Seal | 61,828 | \$0.31 | \$19,167 |
| 2020 Total | | | | | | \$40,799 |
| 2023 | A01BR | 01 | Fog Seal | 48,125 | \$0.19 | \$9,144 |
| 2023 | T01BR | 01 | Fog Seal | 15,479 | \$0.19 | \$2,941 |
| 2023 | TA2BR | 02 | Fog Seal | 5,041 | \$0.19 | \$958 |
| 2023 | TLANEA2BR | 01 | Slurry Seal | 8,968 | \$0.31 | \$2,780 |
| 2023 | TLANEBBR | 01 | Slurry Seal | 14,014 | \$0.31 | \$4,344 |
| 2023 | TLANECBR | 01 | Slurry Seal | 7,462 | \$0.31 | \$2,313 |
| 2023 | TLANECBR | 02 | Fog Seal | 5,974 | \$0.19 | \$1,135 |
| 2023 | TLANEDBR | 01 | Fog Seal | 7,614 | \$0.19 | \$1,447 |
| 2023 Total | | | | | | \$25,062 |
| 5-Year Total | | | | | | \$65,860 |

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: June 2019



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 2022.

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.