

ROSEBURG REGIONAL 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

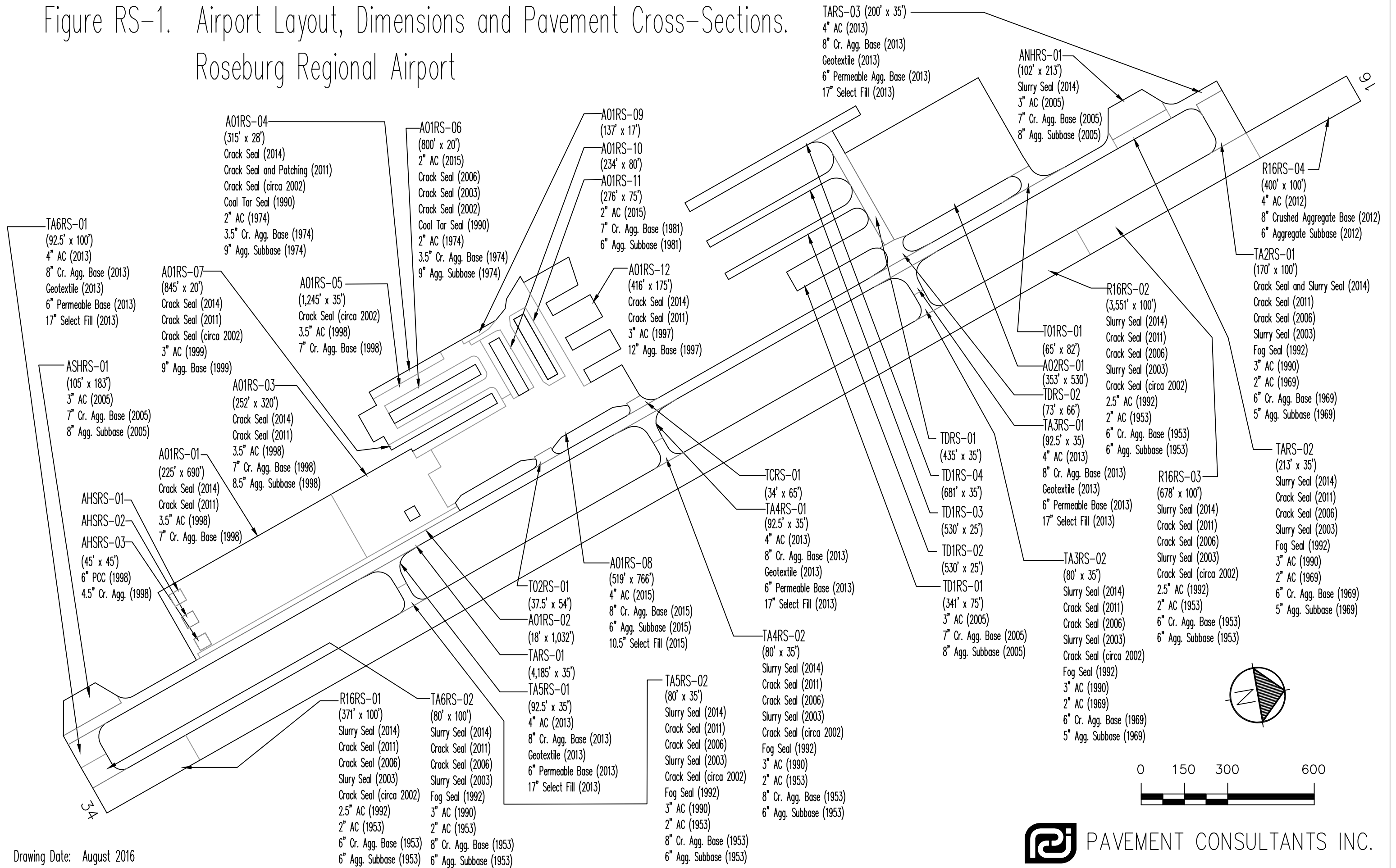
To determine how your pavements were constructed and their age, a records review was conducted. Figure RS-1 shows the records review results. This figure identifies pavement boundaries, dimensions, pavement layer types, thicknesses and dates of construction. The most recent construction date for each pavement can also be found in the Section Condition Report in Appendix 2. Figure RS-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 RS-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 Roseburg Regional 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.

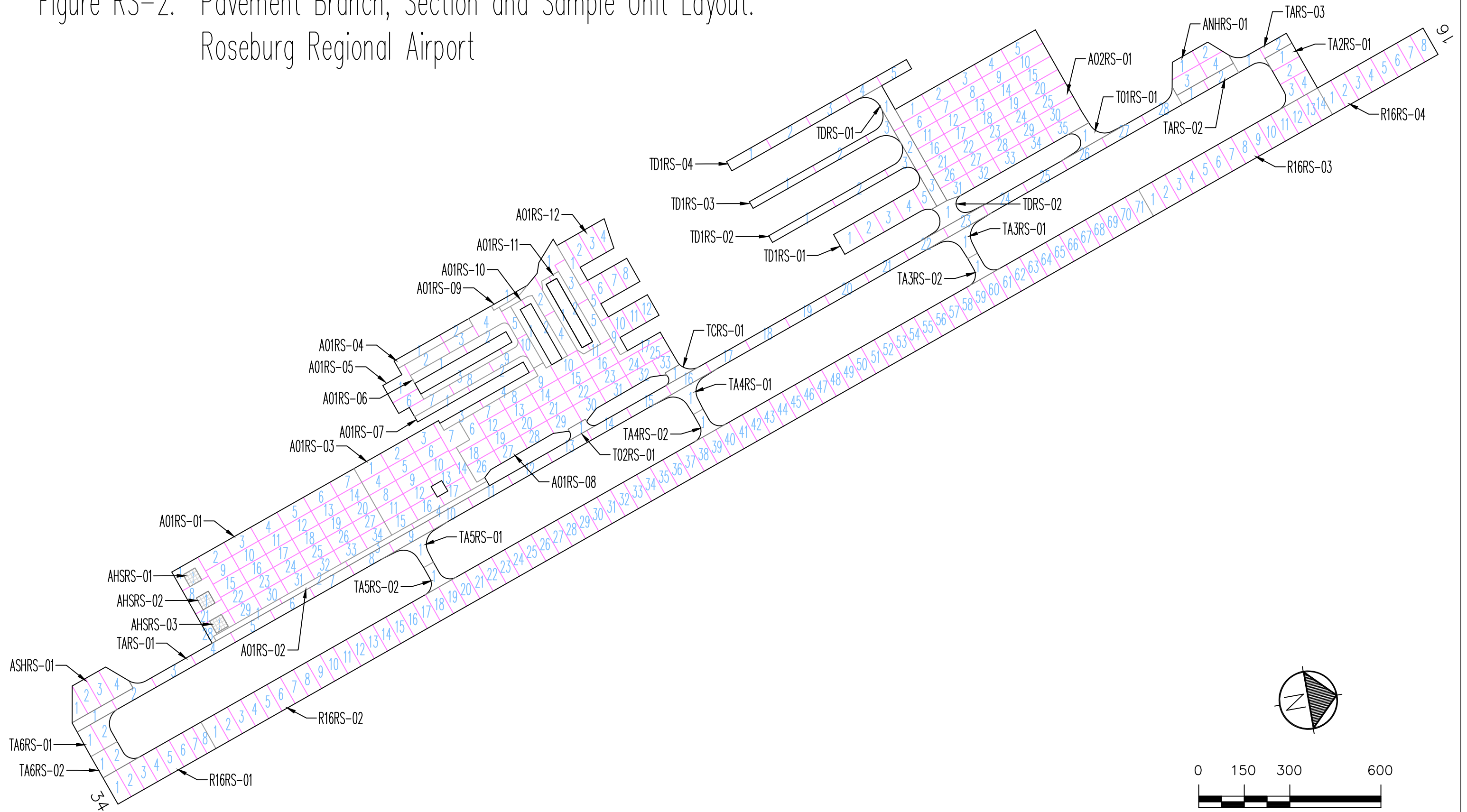
The Micro PAVER database updated during this project ensures your airport complies with the “record keeping and information retrieval” requirements of FAA’s PMMP guidelines.

Figure RS-1. Airport Layout, Dimensions and Pavement Cross-Sections.
Roseburg Regional Airport



Drawing Date: August 2016

Figure RS-2. Pavement Branch, Section and Sample Unit Layout.
Roseburg Regional 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 RS-3.

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

Branch	Section	Inspections			Forecast	
		2009	2013	2016	2021	2026
A01RS	1	94	85	81	74	68
A01RS	2	---	100	100	85	74
A01RS	3	92	88	86	77	71
A01RS	4	65	67	85	77	70
A01RS	5	100	97	77	71	66
A01RS	6	40	47	100	88	79
A01RS	7	90	88	93	83	75
A01RS	8	40	54	100	88	79
A01RS	9	---	---	44	21	0
A01RS	10	---	---	100	85	74
A01RS	11	4-	22	100	85	74
A01RS	12	94	93	86	77	71
A02RS	1	---	100	99	87	78
AHSRS	1	86	98	98	90	87
AHSRS	2	88	98	98	90	87
AHSRS	3	89	89	89	87	85
ANHRS	1	100	74	99	87	78
ASHRS	1	100	---	100	88	79
R16RS	1	80	75	82	78	76
R16RS	2	81	79	81	77	76
R16RS	3	88	79	80	77	75
R16RS	4	---	100	100	98	92
T01RS	1	---	100	100	93	82

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

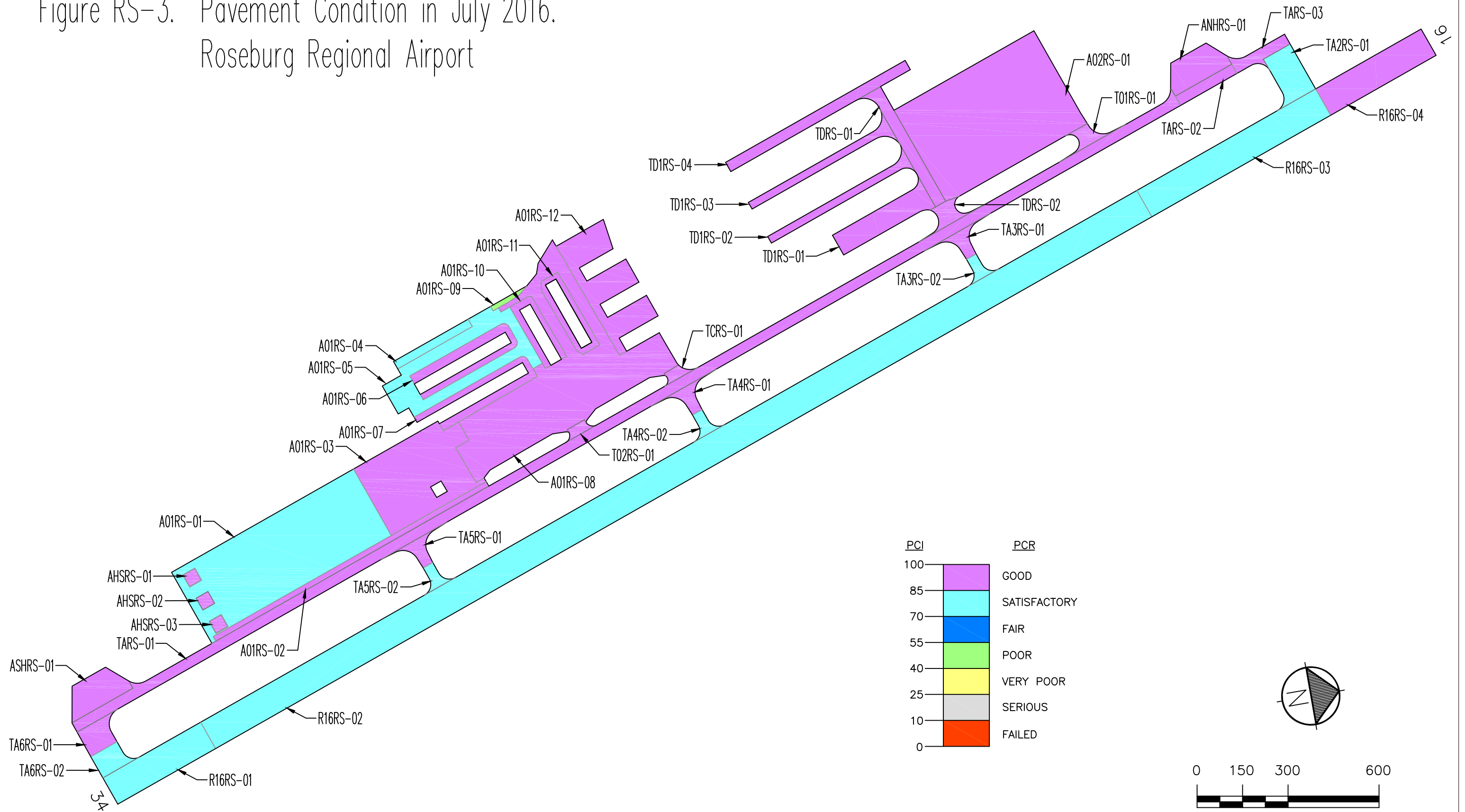
Branch	Section	Inspections			Forecast	
		2009	2013	2016	2021	2026
T02RS	1	---	100	100	93	82
TA2RS	1	---	74	79	78	77
TA3RS	1	---	100	100	93	82
TA3RS	2	---	100	82	78	77
TA4RS	1	---	100	100	93	82
TA4RS	2	59	77	72	71	69
TA5RS	1	---	100	100	93	82
TA5RS	2	68	74	73	72	70
TA6RS	1	---	100	100	93	82
TA6RS	2	---	69	79	78	77
TARS	1	67	100	100	93	82
TARS	2	74	74	100	87	78
TARS	3	---	100	100	93	82
TCRS	1	---	100	100	93	82
TD1RS	1	100	100	98	89	79
TD1RS	2	100	94	94	84	75
TD1RS	3	100	94	92	82	74
TD1RS	4	100	94	92	82	74
TDRS	1	100	94	94	84	75
TDRS	2	---	100	100	93	82

Section PCIs at Roseburg Regional Airport range from a low of 44 (a PCR of “Serious”) to a high of 100 (a PCR of “Good”). The area-weighted average PCI for all airport pavements is 90, corresponding to an overall PCR of “Good”. Figure RS-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, weathering, block cracking, patching, raveling, and joint and corner spalls.

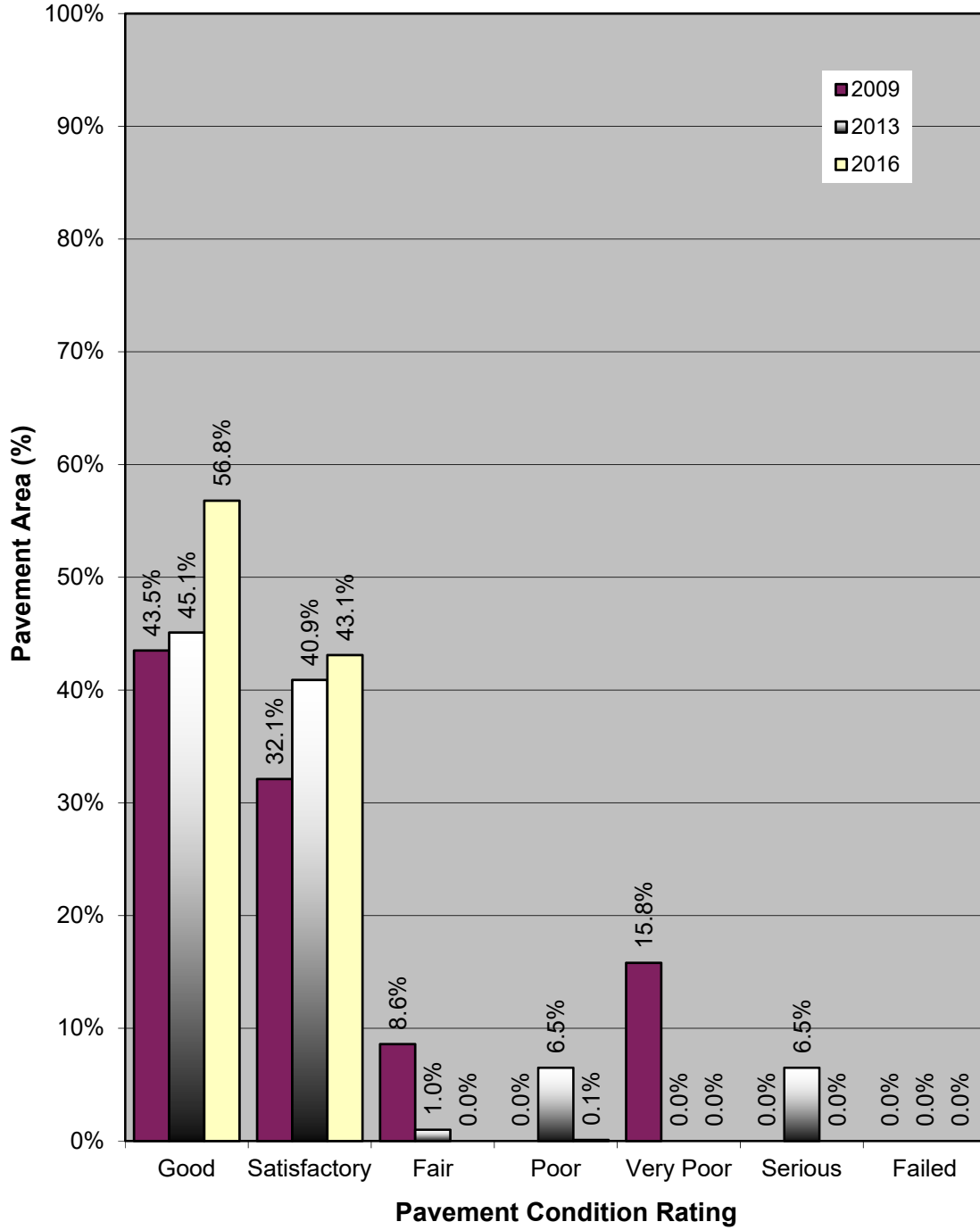
A graphical representation of the projected PCIs listed in Table 1 is shown in Figure RS-5.

Figure RS-3. Pavement Condition in July 2016.
Roseburg Regional Airport

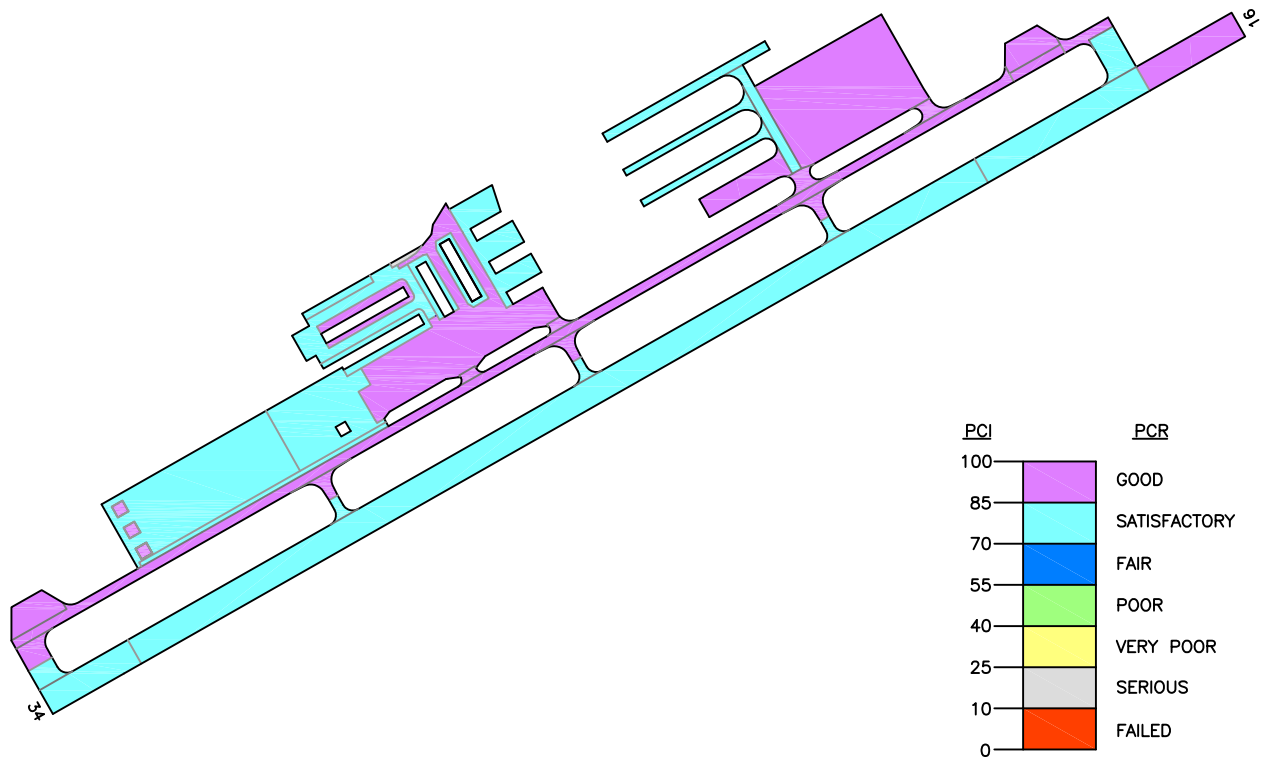


PCI	Color	PCR
100	Purple	GOOD
85	Cyan	SATISFACTORY
70	Blue	FAIR
55	Green	POOR
40	Yellow	VERY POOR
25	Grey	SERIOUS
10	Orange	FAILED
0	Red	FAILED

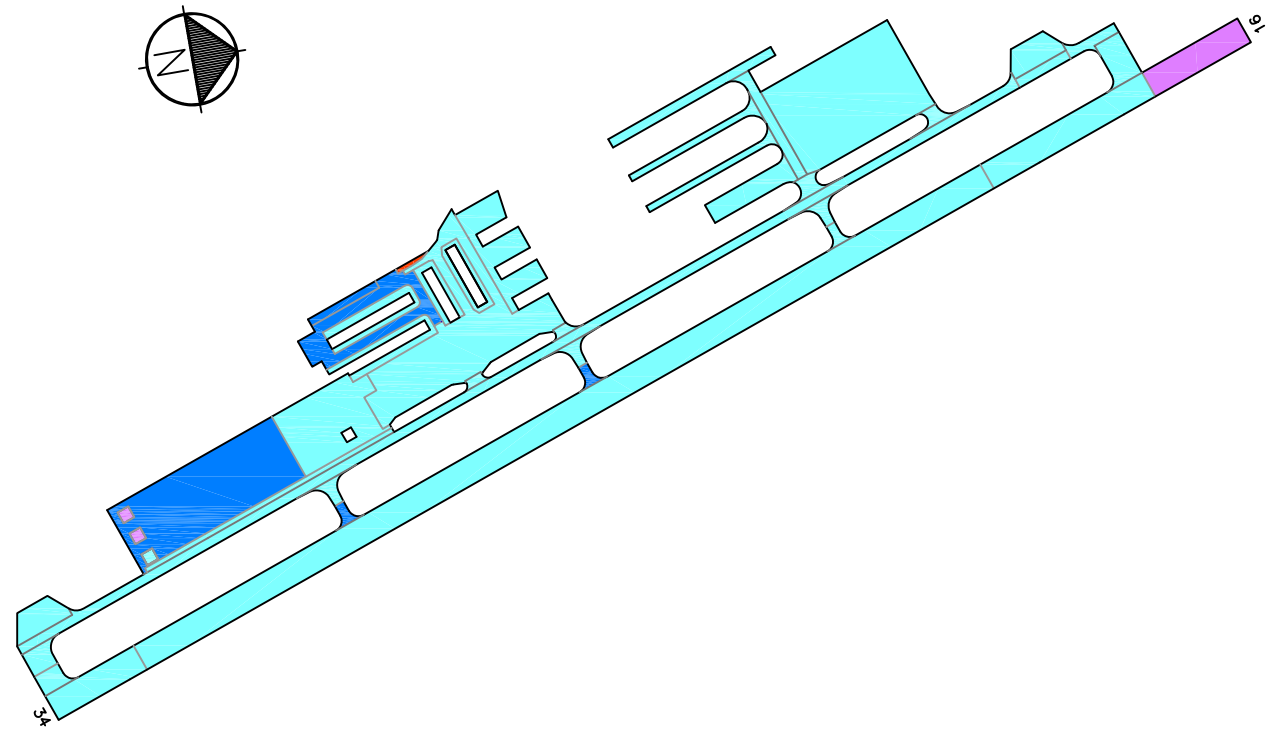
**Figure RS-4. Pavement Condition Distribution
Roseburg Regional Airport**



Predicted Condition in 2021.



Predicted Condition in 2026.



Drawing Date: August 2016



Figure RS-5. Future Pavement Condition.

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 quantities of localized maintenance are needed:

- 1,525 linear feet of asphalt concrete crack sealing
- 18 square feet of deep asphalt concrete patching.

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 RS-6.

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2017	A01RS	09	4" AC over 8" Crushed Aggregate Base over 6" Aggregate Subbase over 10.5" Select Fill	1,898	\$13.58	\$25,775
2017	A01RS	01	Slurry Seal	168,115	\$0.31	\$51,443
2017	A01RS	03	Slurry Seal	86,367	\$0.31	\$26,428

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

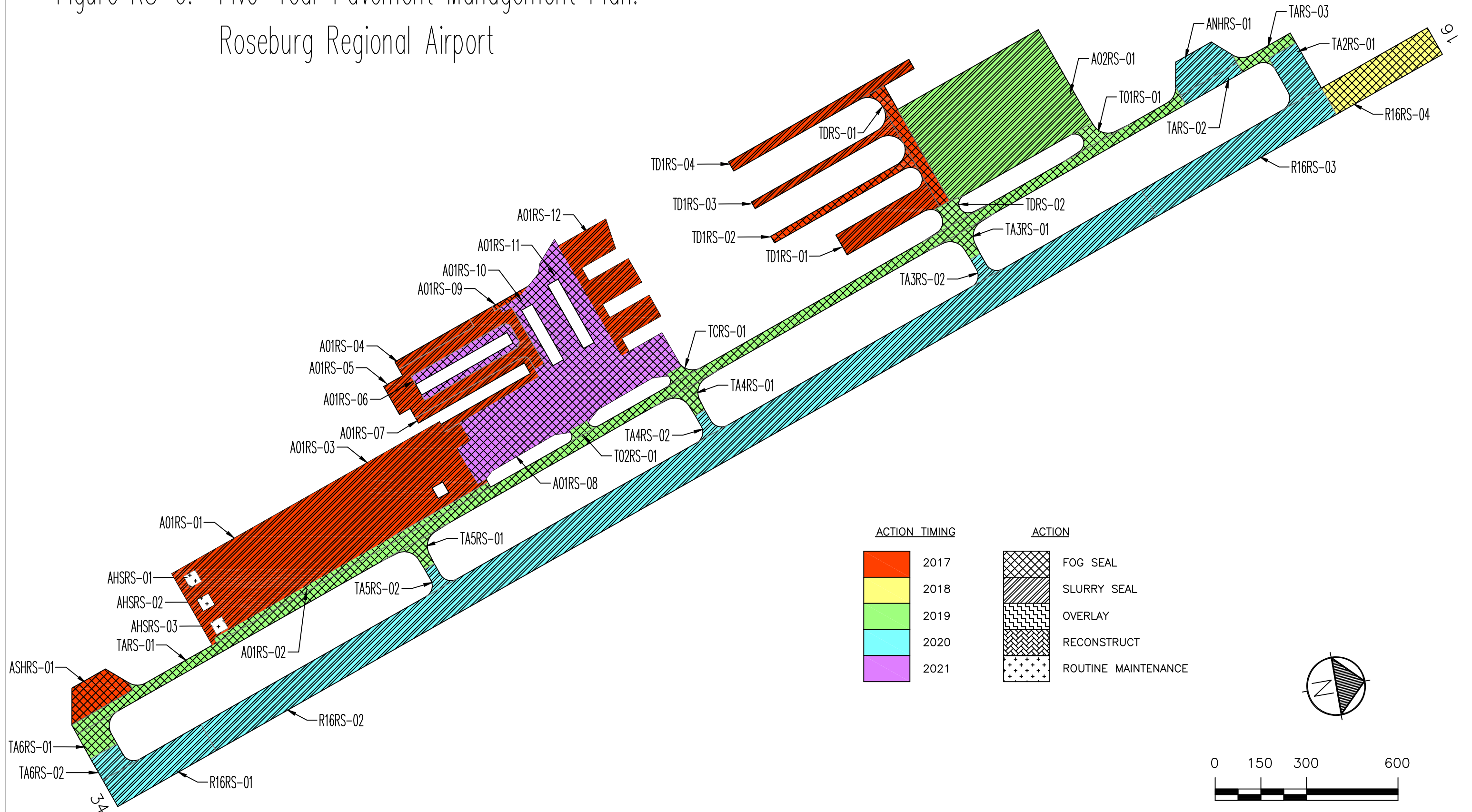
Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2017	A01RS	04	Slurry Seal	7,924	\$0.31	\$2,425
2017	A01RS	05	Slurry Seal	50,306	\$0.31	\$15,394
2017	A01RS	07	Slurry Seal	18,239	\$0.31	\$5,581
2017	A01RS	12	Slurry Seal	50,590	\$0.31	\$15,481
2017	ASHRS	01	Fog Seal	19,408	\$0.19	\$3,765
2017	TD1RS	01	Slurry Seal	26,334	\$0.31	\$8,058
2017	TD1RS	02	Fog Seal	14,160	\$0.19	\$2,747
2017	TD1RS	03	Slurry Seal	14,659	\$0.31	\$4,486
2017	TD1RS	04	Slurry Seal	23,835	\$0.31	\$7,294
2017	TDRS	01	Fog Seal	17,267	\$0.19	\$3,350
2017 Total						\$172,226
2018	R16RS	04	Fog Seal	40,000	\$0.19	\$7,760
2018 Total						\$7,760
2019	A01RS	02	Fog Seal	18,120	\$0.19	\$3,515
2019	A02RS	01	Slurry Seal	187,273	\$0.31	\$57,306
2019	T01RS	01	Fog Seal	4,911	\$0.19	\$953
2019	T02RS	01	Fog Seal	2,658	\$0.19	\$516
2019	TA3RS	01	Fog Seal	5,330	\$0.19	\$1,034
2019	TA4RS	01	Fog Seal	5,330	\$0.19	\$1,034
2019	TA5RS	01	Fog Seal	5,330	\$0.19	\$1,034
2019	TA6RS	01	Fog Seal	9,844	\$0.19	\$1,910
2019	TARS	01	Fog Seal	147,320	\$0.19	\$28,580
2019	TARS	03	Fog Seal	8,163	\$0.19	\$1,584
2019	TCRS	01	Fog Seal	2,658	\$0.19	\$516
2019	TDRS	02	Fog Seal	6,139	\$0.19	\$1,191
2019 Total						\$99,171
2020	ANHRS	01	Slurry Seal	19,105	\$0.31	\$5,846
2020	R16RS	01	Slurry Seal	37,100	\$0.31	\$11,353
2020	R16RS	02	Slurry Seal	355,100	\$0.31	\$108,661
2020	R16RS	03	Slurry Seal	67,800	\$0.31	\$20,747
2020	TA2RS	01	Slurry Seal	17,693	\$0.31	\$5,414
2020	TA3RS	02	Slurry Seal	3,605	\$0.31	\$1,103
2020	TA4RS	02	Slurry Seal	3,606	\$0.31	\$1,103
2020	TA5RS	02	Slurry Seal	3,608	\$0.31	\$1,104
2020	TA6RS	02	Slurry Seal	8,383	\$0.31	\$2,565
2020	TARS	02	Slurry Seal	7,483	\$0.31	\$2,290
2020 Total						\$160,186
2021	A01RS	06	Fog Seal	18,878	\$0.19	\$3,662

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2021	A01RS	08	Fog Seal	165,966	\$0.19	\$32,197
2021	A01RS	10	Fog Seal	10,451	\$0.19	\$2,027
2021	A01RS	11	Fog Seal	11,228	\$0.19	\$2,178
2021 Total						\$40,065
TOTAL						\$479,408

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 RS-6. Five-Year Pavement Management Plan.
Roseburg Regional 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.