

# COTTAGE GROVE STATE 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 CG-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 CG-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 CG-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 Cottage Grove State 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 CG-1. Airport Layout, Dimensions and Pavement Cross-Sections.

Cottage Grove State Airport

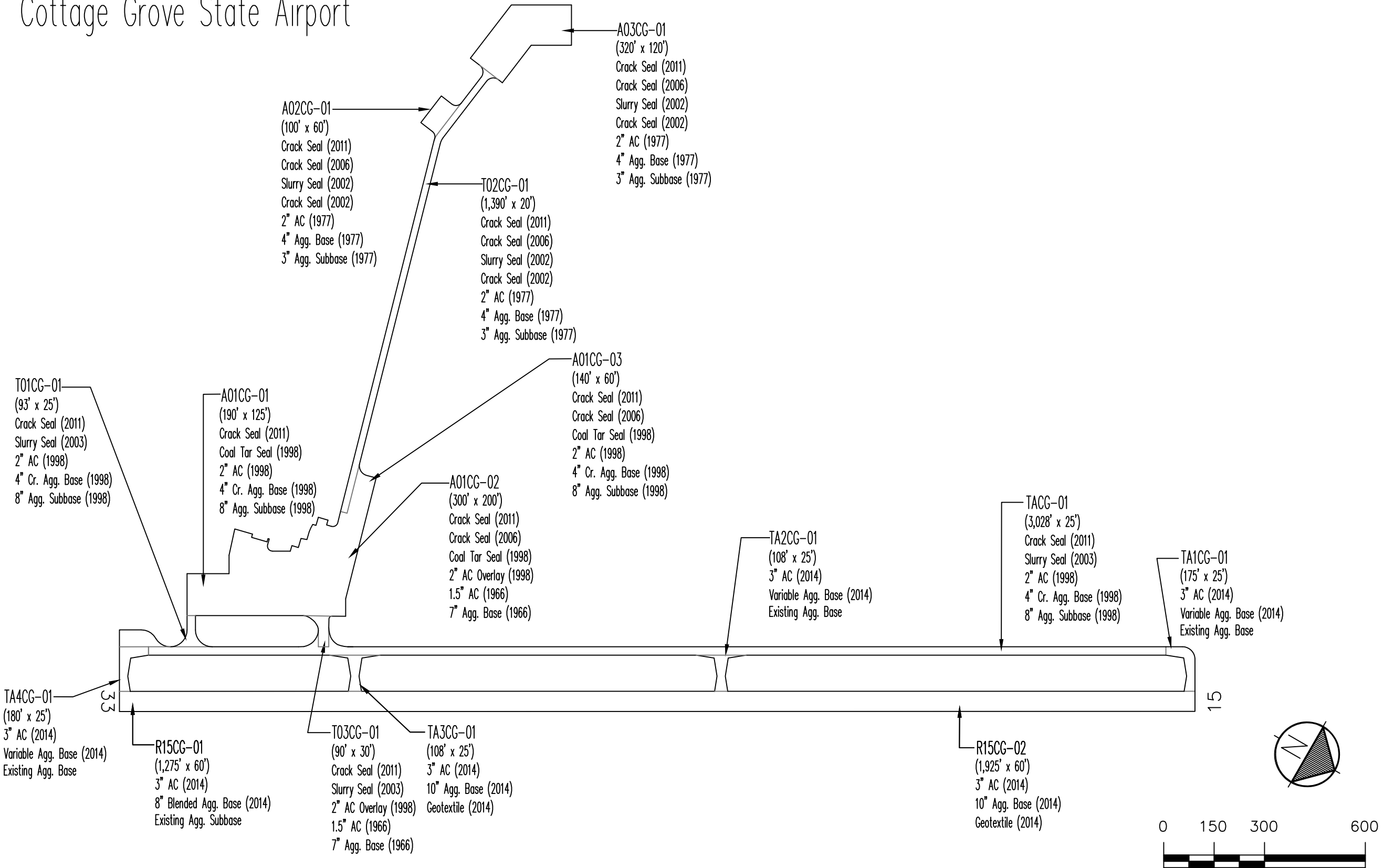
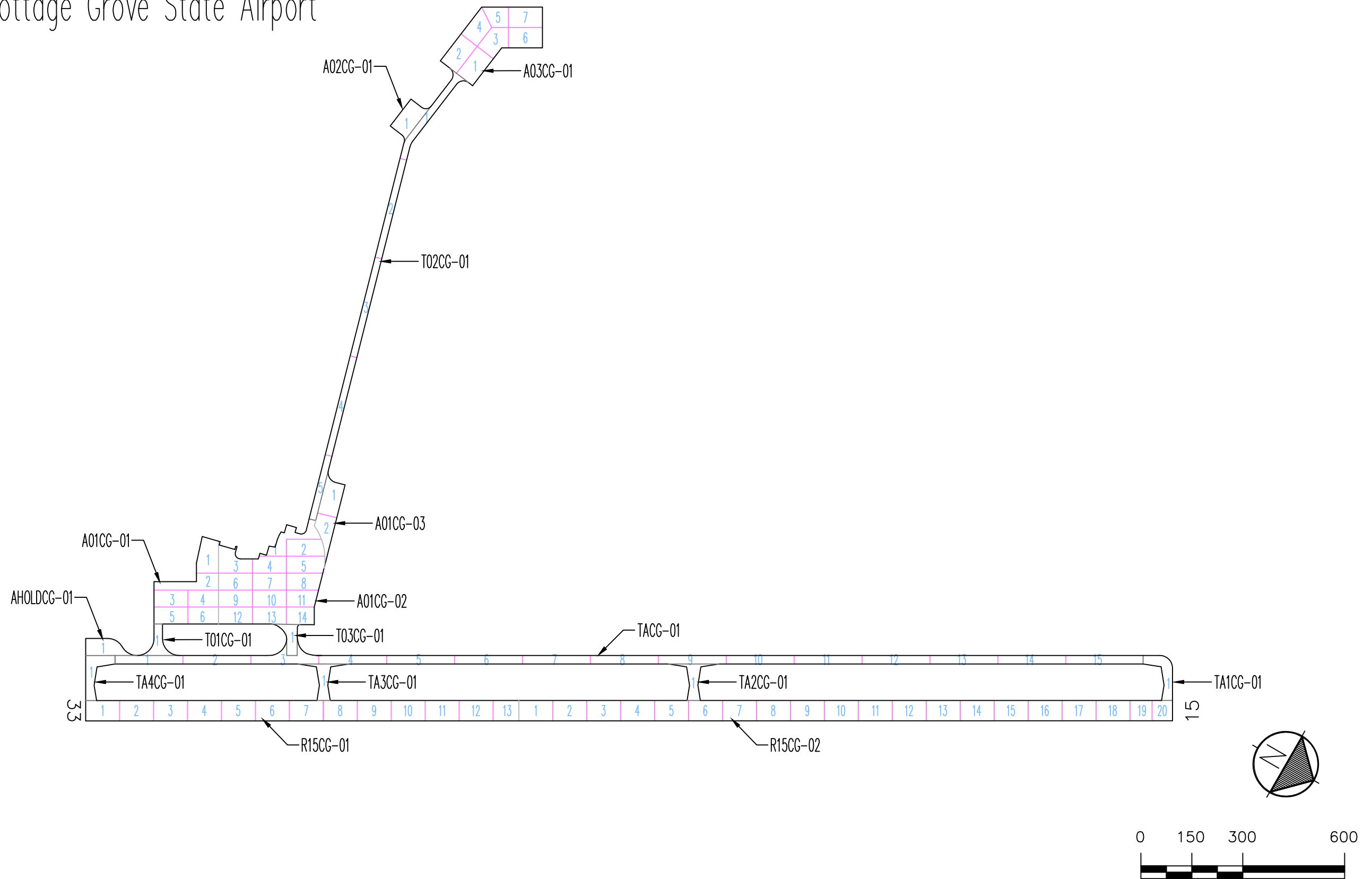


Figure CG-2. Pavement Branch, Section and Sample Unit Layout.  
Cottage Grove State Airport



## 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.

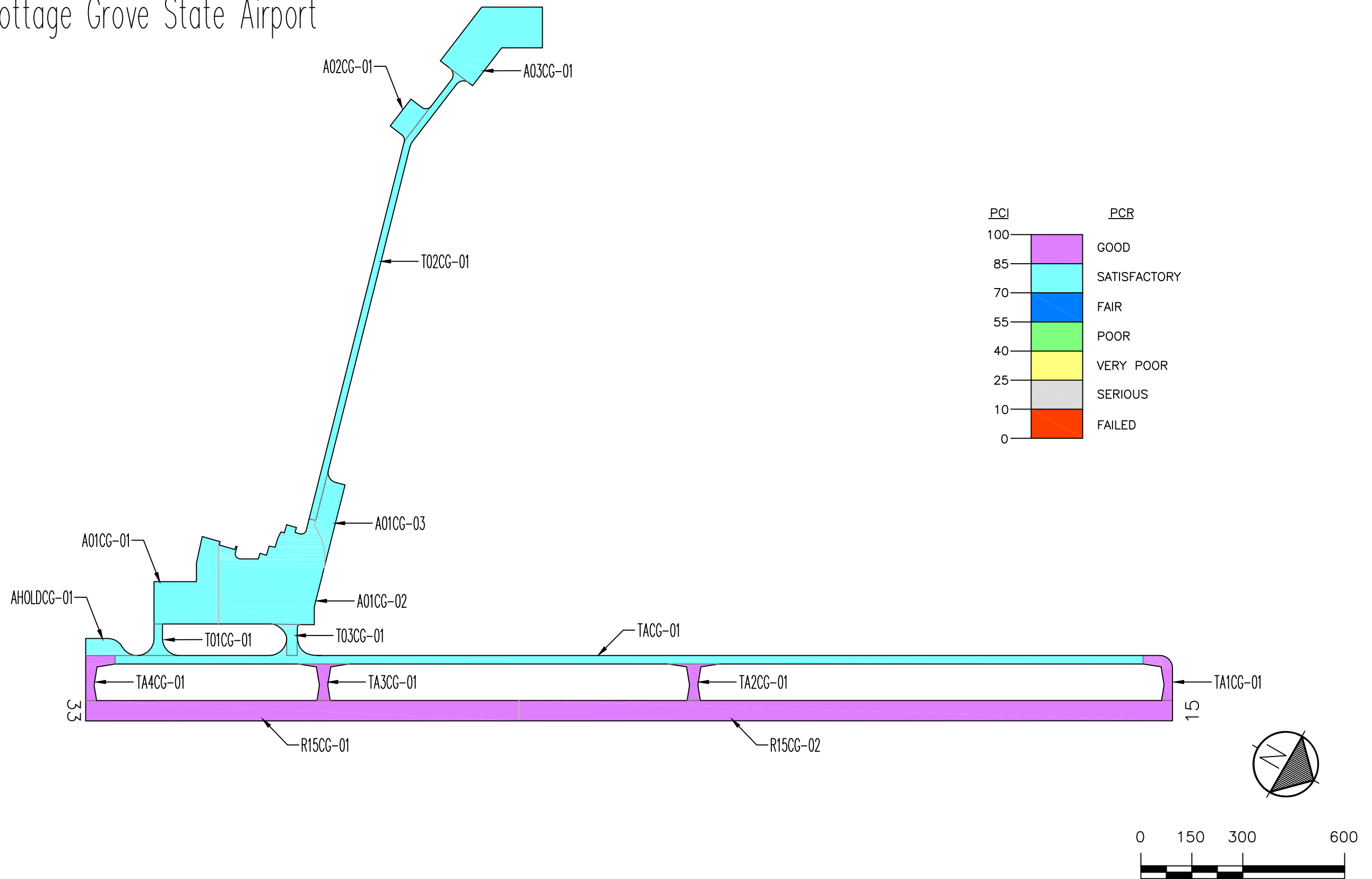
The Branch Condition Report in Appendix 1 summarizes current pavement condition by branch while the Section Condition Report in Appendix 2 lists pavement condition by section. The current Pavement Condition Rating (PCR) is shown graphically in Figure CG-3.

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

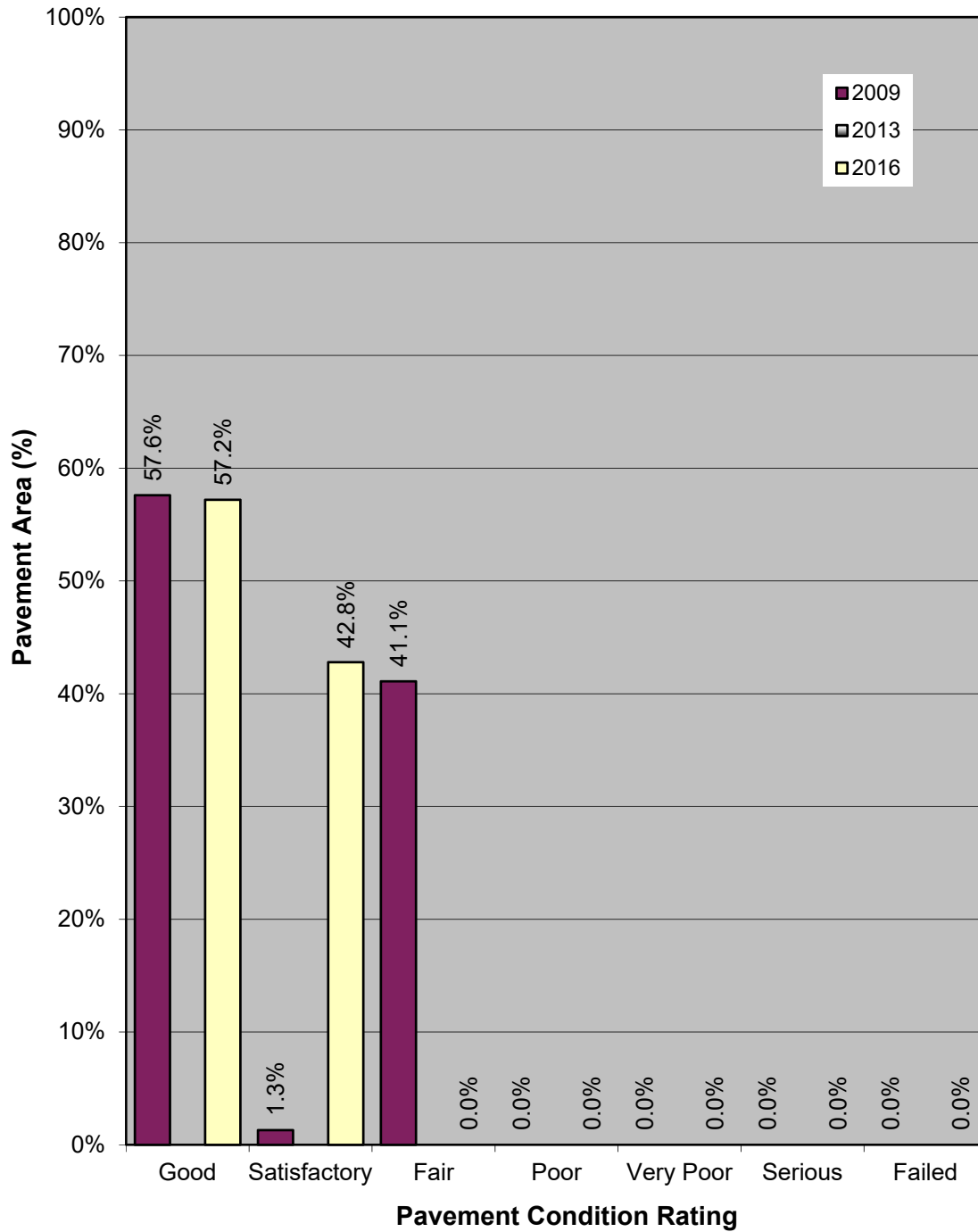
Branch	Section	Inspections			Forecast	
		2009	2013	2016	2021	2026
A01CG	1	97	---	76	72	69
A01CG	2	87	---	84	74	54
A01CG	3	96	---	78	74	71
A02CG	1	72	---	71	67	63
A03CG	1	86	---	80	76	72
AHOLD CG	1	---	---	84	78	74
R15CG	1	64	---	100	95	88
R15CG	2	64	---	100	95	88
T01CG	1	94	---	82	76	72
T02CG	1	96	---	84	78	73
T03CG	1	100	---	80	74	71
TA1CG	1	---	---	100	89	82
TA2CG	1	96	---	100	89	82
TA3CG	1	64	---	100	89	82
TA4CG	1	---	---	100	89	82
TACG	1	95	---	83	77	72

Section PCIs at Cottage Grove State Airport range from a low of 71 (a PCR of “Satisfactory”) 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 CG-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. Cottage Grove State Airport was not inspected in 2013.

Figure CG-3. Pavement Condition in July 2016.  
Cottage Grove State Airport



**Figure CG-4. Pavement Condition Distribution  
Cottage Grove State Airport**



The primary distress observed during the inspection was longitudinal and transverse cracking.

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

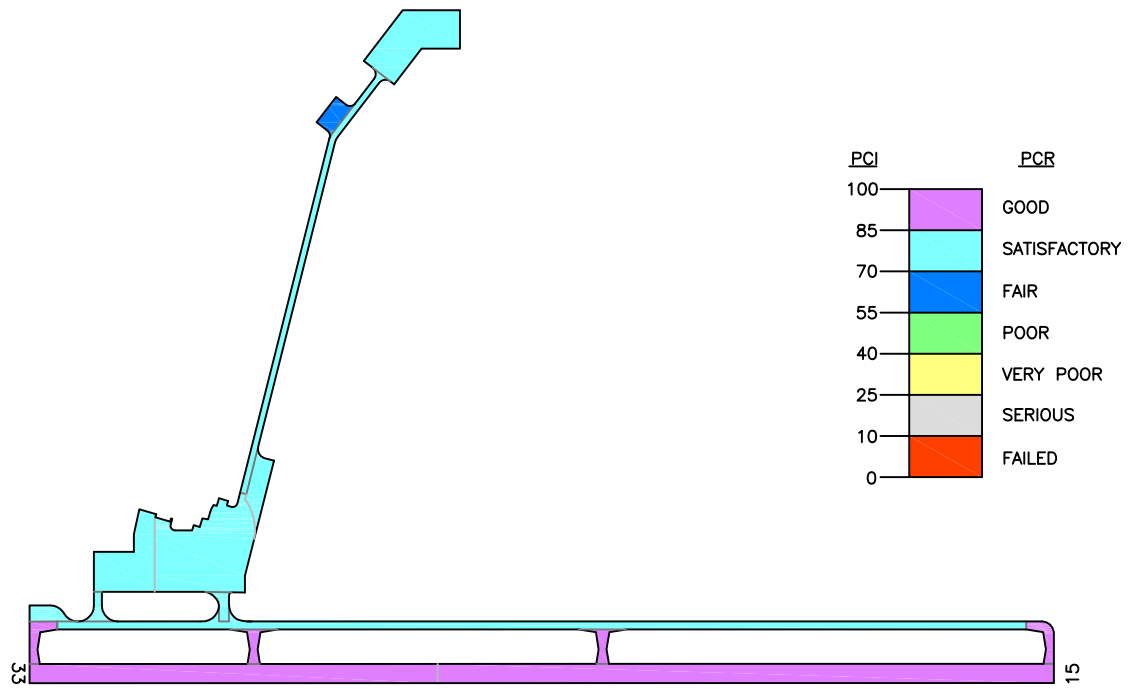
The recommended localized maintenance activities to be applied are selected by the Micro PAVER software based on a Distress Maintenance Policy established for the Oregon airport system. The report results indicate that, over your entire airport, the following quantity of localized maintenance is needed:

- 3,824 linear feet of asphalt concrete crack sealing.

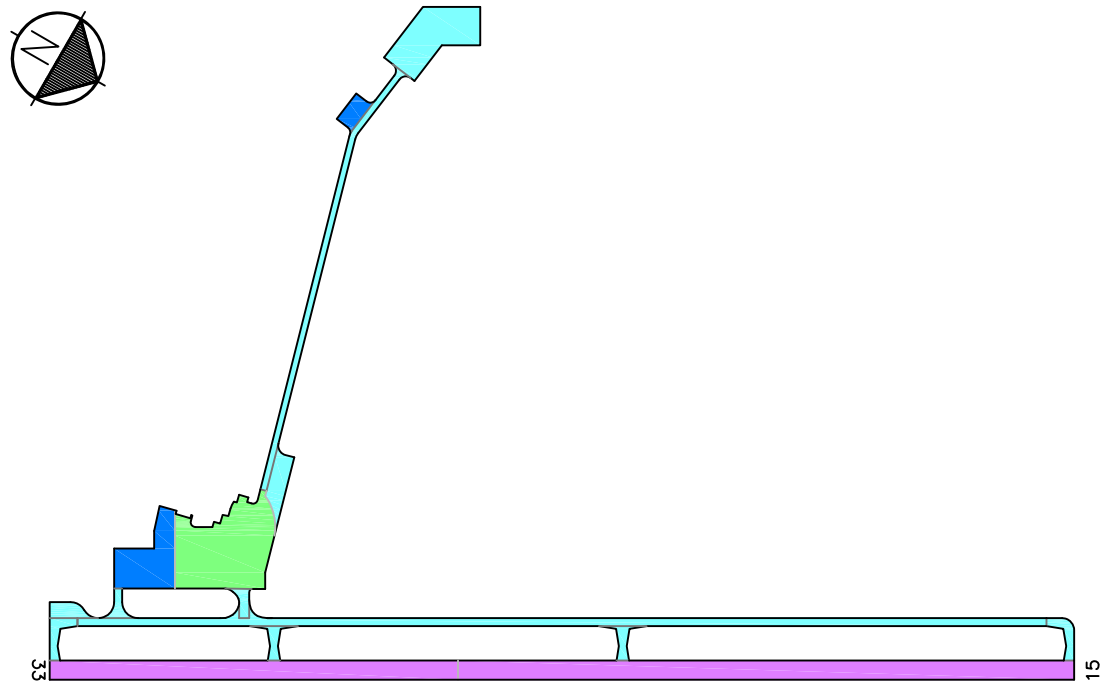
The Micro PAVER software can also identify and schedule recommended global (applied over an entire section) maintenance activities such as fog seals, slurry seals and other surface treatments, as well as major rehabilitation activities such as asphalt concrete overlays and complete reconstruction. Micro 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 CG-6.

**Predicted Condition in 2021.**



**Predicted Condition in 2026.**



Drawing Date: August 2016

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**Figure CG-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	A01CG	01	Slurry Seal	31,396	\$0.31	\$9,607
2017	A01CG	02	Slurry Seal	72,768	\$0.31	\$22,267
2017	A01CG	03	Slurry Seal	10,514	\$0.31	\$3,217
2017	A02CG	01	Slurry Seal	6,136	\$0.31	\$1,878
2017	A03CG	01	Slurry Seal	38,347	\$0.31	\$11,734
2017	AHOLD CG	01	Slurry Seal	5,424	\$0.31	\$1,660
2017	T01CG	01	Slurry Seal	3,385	\$0.31	\$1,036
2017	T02CG	01	Slurry Seal	28,174	\$0.31	\$8,621
2017	T03CG	01	Slurry Seal	3,366	\$0.31	\$1,030
2017	TACG	01	Slurry Seal	82,275	\$0.31	\$25,176
<b>2017 Total</b>						<b>\$86,226</b>
2020	R15CG	01	Fog Seal	76,500	\$0.19	\$14,841
2020	R15CG	02	Fog Seal	115,500	\$0.19	\$22,407
2020	TA1CG	01	Fog Seal	5,232	\$0.19	\$1,015
2020	TA2CG	01	Fog Seal	4,053	\$0.19	\$786
2020	TA3CG	01	Fog Seal	4,063	\$0.19	\$788
2020	TA4CG	01	Fog Seal	5,530	\$0.19	\$1,073
<b>2020 Total</b>						<b>\$40,910</b>
<b>TOTAL</b>						<b>\$127,136</b>

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.

## 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.

Figure CG-6. Five-Year Pavement Management Plan.  
Cottage Grove State Airport

