

# GRANTS PASS 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 GR-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 GR-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 GR-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 Grants Pass 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 GR-1A. Airport Layout, Dimensions and Pavement Cross-Sections – Runway and Taxiways.  
Grants Pass Airport

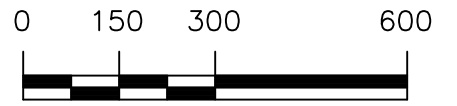
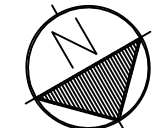
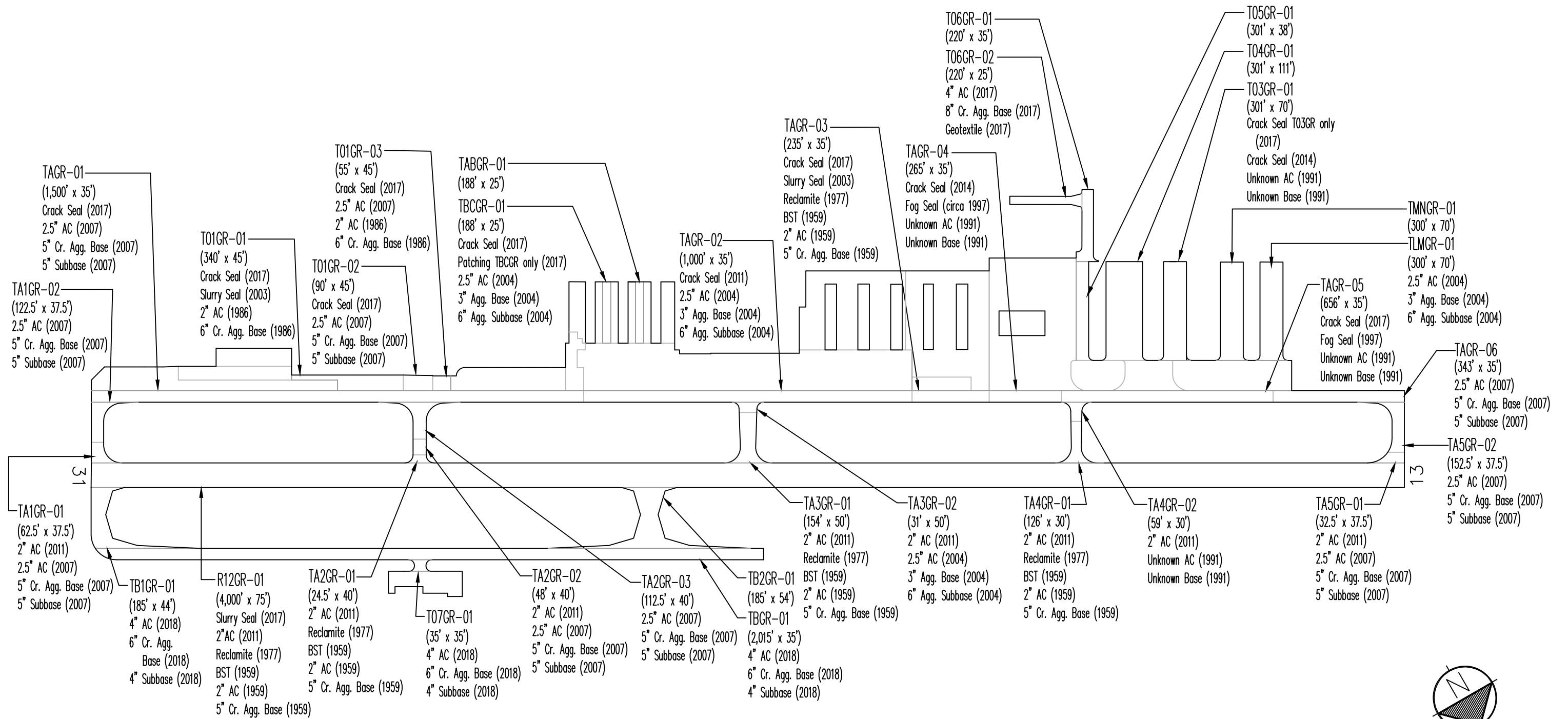
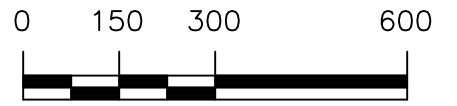
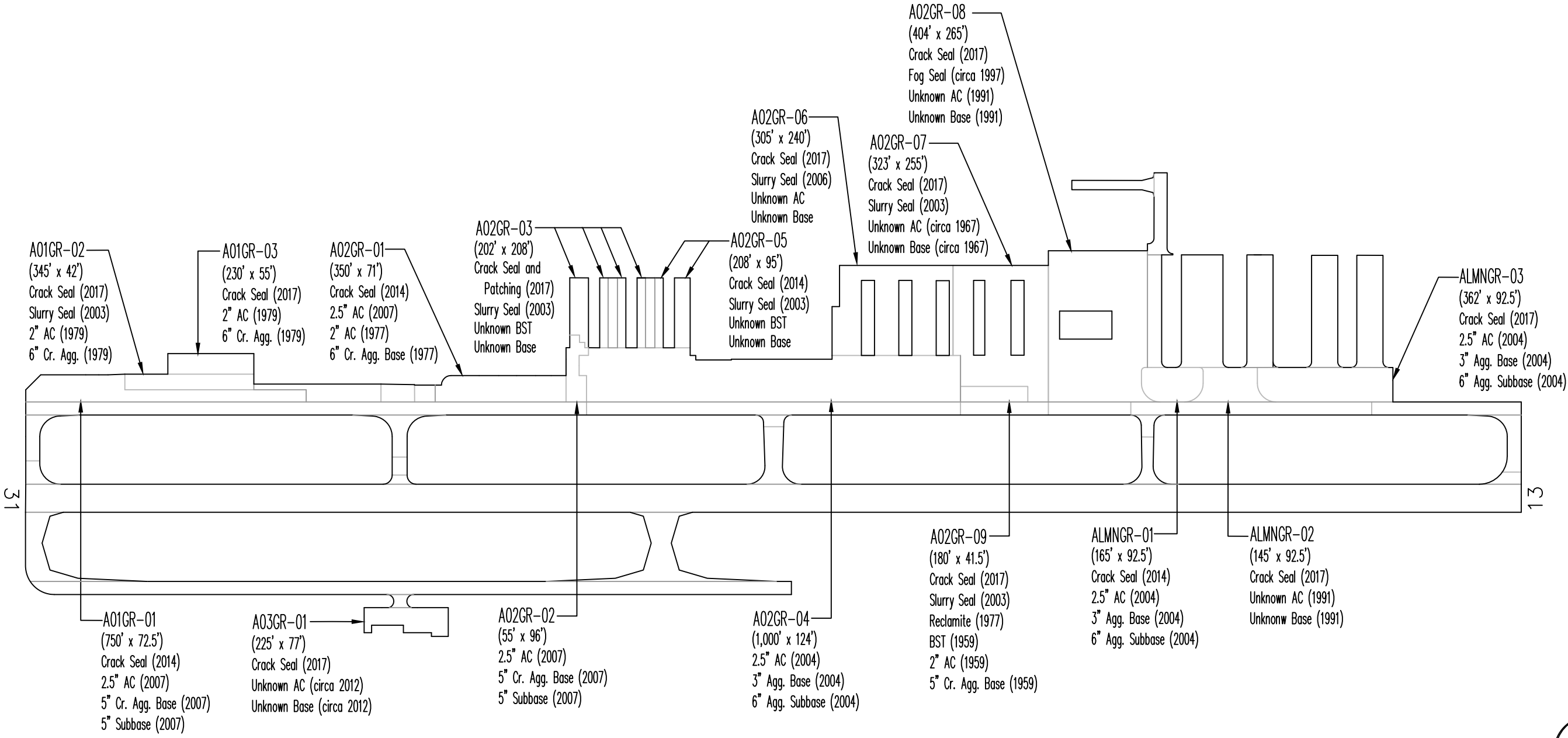
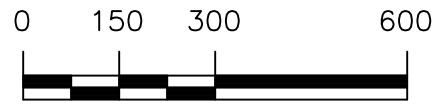
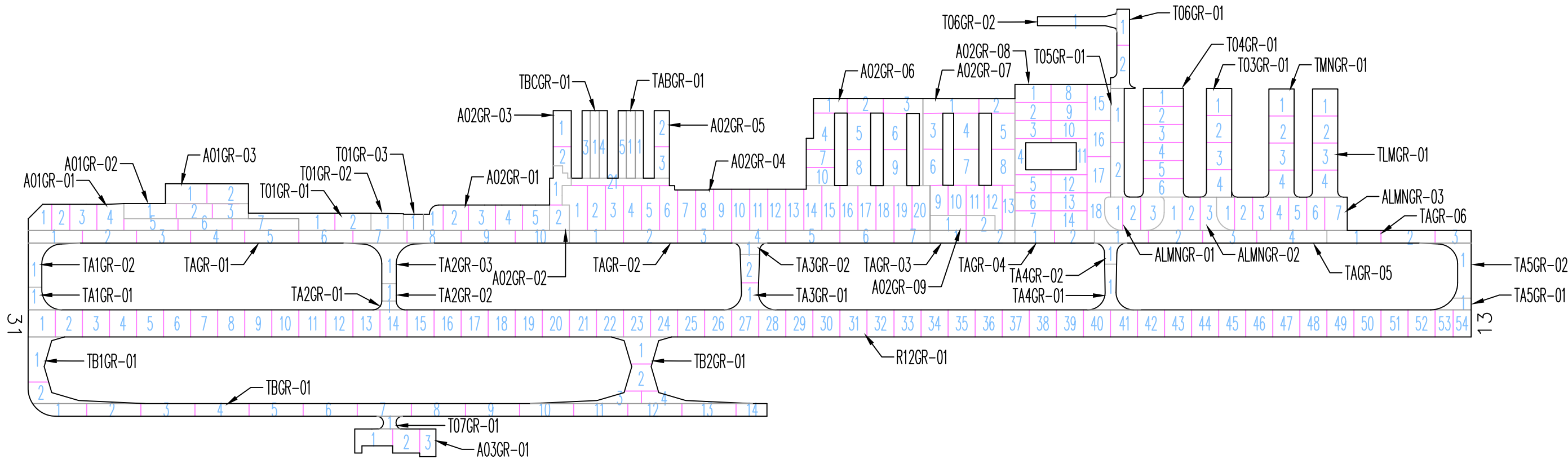


Figure GR-1B. Airport Layout, Dimensions and Pavement Cross-Sections – Aprons.  
Grants Pass Airport



Drawing Date: June 2019

Figure GR-2. Pavement Branch, Section and Sample Unit Layout.  
Grants Pass Airport



# 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 GR-3.

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

Branch	Section	Inspections			Forecast	
		2013	2016	2019	2024	2029
A01GR	1	88	89	78	72	67
A01GR	2	62	73	51	50	49
A01GR	3	64	63	54	53	52
A02GR	1	94	86	71	67	64
A02GR	2	100	92	79	73	68
A02GR	3	64	52	50	42	34
A02GR	4	100	98	88	80	74
A02GR	5	65	58	56	48	40
A02GR	6	64	67	65	64	63
A02GR	7	80	72	71	67	64
A02GR	8	74	73	72	67	65
A02GR	9	78	60	63	62	61
A03GR	1	100	93	84	77	71
ALMNGR	1	100	100	91	84	76
ALMNGR	2	62	66	60	59	58
ALMNGR	3	94	94	87	80	73
R13GR	1	100	94	93	85	80
T01GR	1	75	71	62	38	13
T01GR	2	92	87	67	66	57
T01GR	3	92	83	65	45	21
T03GR	1	74	79	73	67	67
T04GR	1	68	68	51	25	1
T05GR	1	76	74	72	67	67

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

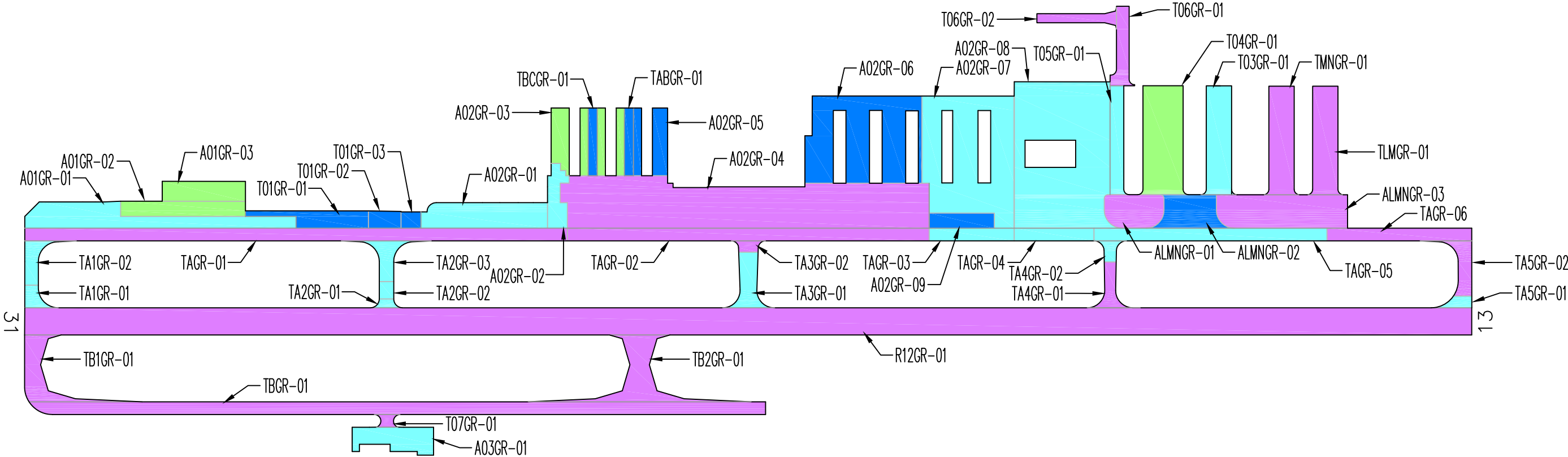
Branch	Section	Inspections			Forecast	
		2013	2016	2019	2024	2029
T06GR	1	---	---	100	98	90
T06GR	2	---	---	100	98	90
T07GR	1	---	---	100	98	90
TA1GR	1	100	92	79	74	73
TA1GR	2	100	97	83	73	67
TA2GR	1	100	89	81	75	74
TA2GR	2	100	96	81	75	74
TA2GR	3	---	87	82	72	67
TA3GR	1	100	96	81	75	74
TA3GR	2	100	100	89	78	74
TA4GR	1	100	100	89	78	74
TA4GR	2	100	93	77	74	73
TA5GR	1	100	96	74	73	72
TA5GR	2	100	100	90	79	70
TABGR	1	91	84	70	67	66
TAGR	1	100	97	87	76	68
TAGR	2	100	98	90	79	70
TAGR	3	82	77	73	67	67
TAGR	4	73	84	77	69	67
TAGR	5	78	78	72	67	67
TAGR	6	95	92	91	80	71
TB1GR	1	---	---	100	98	90
TB2GR	1	---	---	100	98	90
TBCGR	1	89	77	68	67	63
TBGR	1	---	---	100	98	90
TLMGR	1	100	98	88	77	69
TMNGR	1	100	99	89	78	69

Section PCIs at Grants Pass Airport range from a low of 50 (a PCR of “Poor”) to a high of 100 (a PCR of “Good”). The area-weighted average PCI for all airport pavements is 82, corresponding to an overall PCR of “Satisfactory”. Figure GR-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.

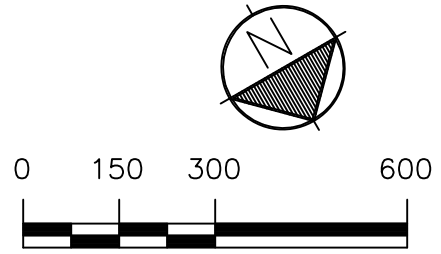
The primary distresses observed during the inspection were: longitudinal and transverse cracking, weathering, patching, block cracking, depressions, with an isolated occurrence of alligator cracking.

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

Figure GR-3. Pavement Condition in May 2019.  
Grants Pass Airport

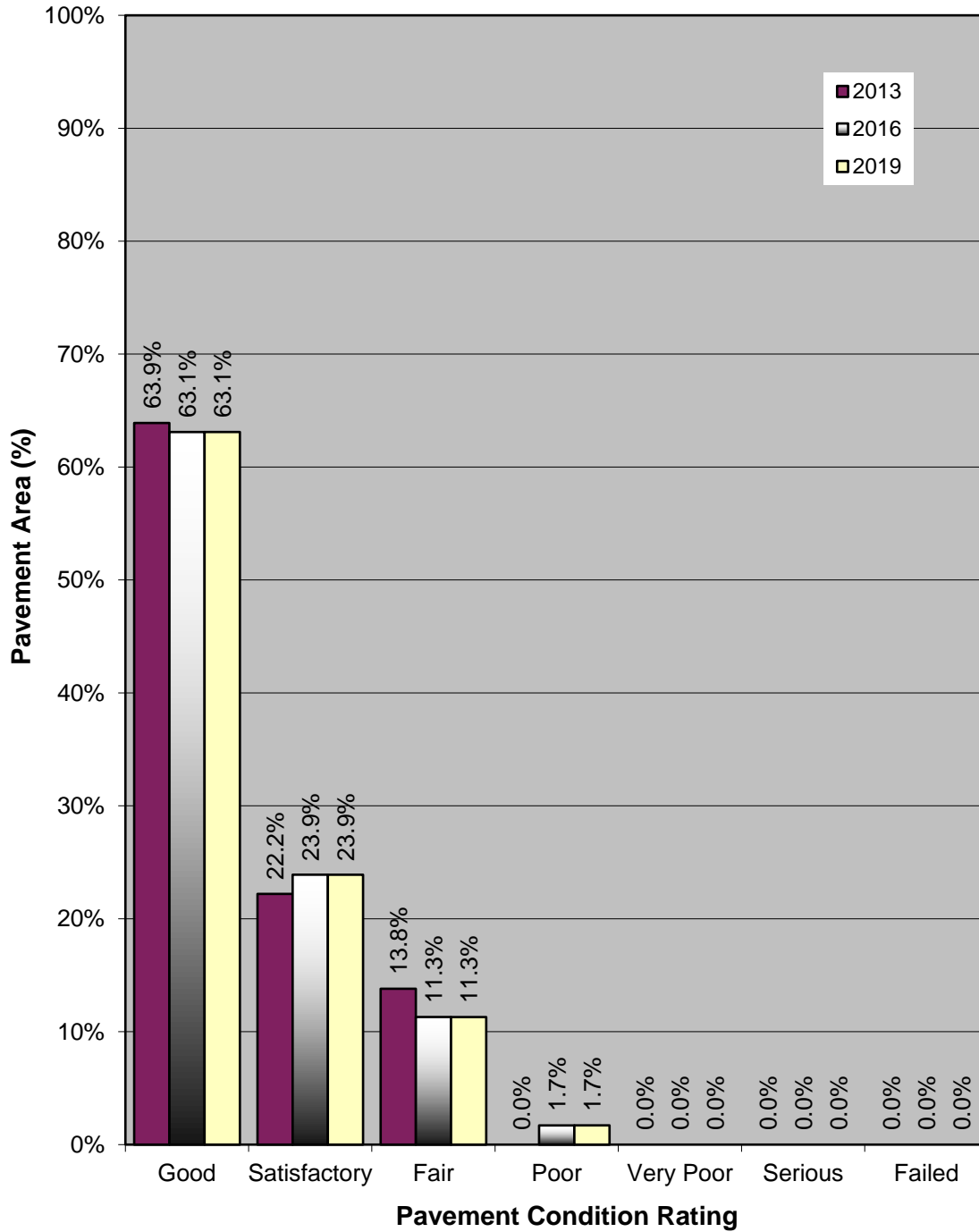


PCI	PCR
100	GOOD
85	SATISFACTORY
70	FAIR
55	POOR
40	VERY POOR
25	SERIOUS
10	FAILED
0	



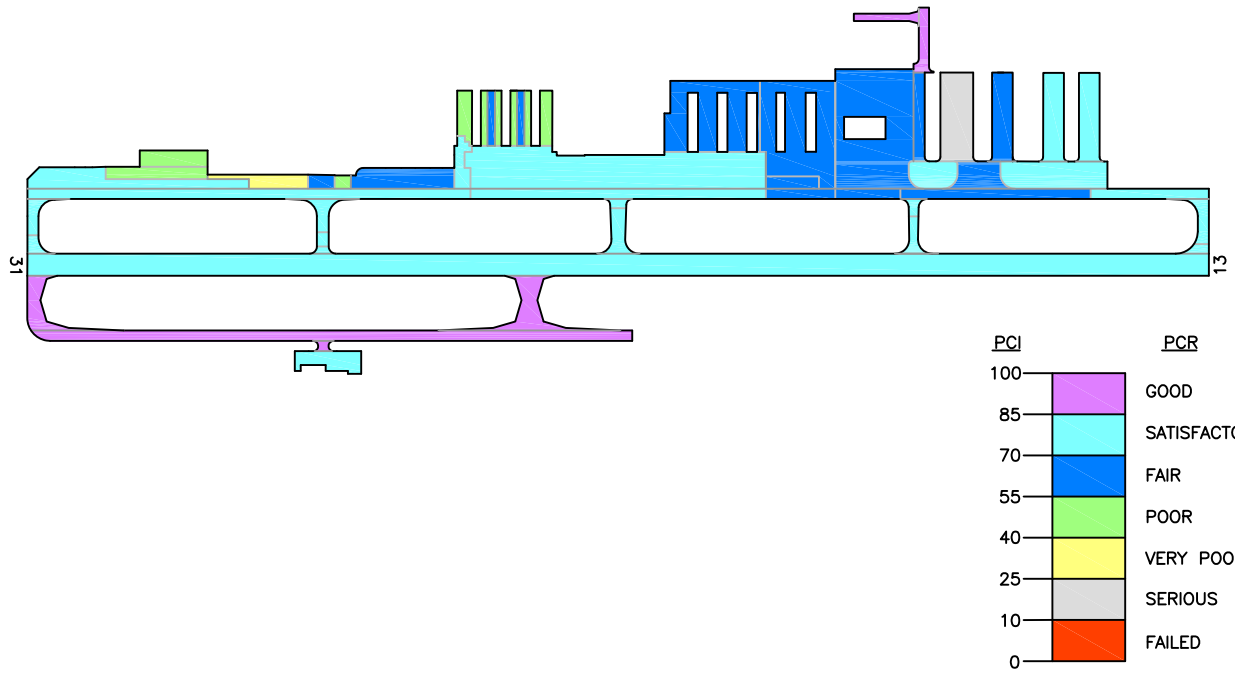
Drawing Date: June 2019

**Figure GR-4. Pavement Condition Distribution  
Grants Pass Airport**

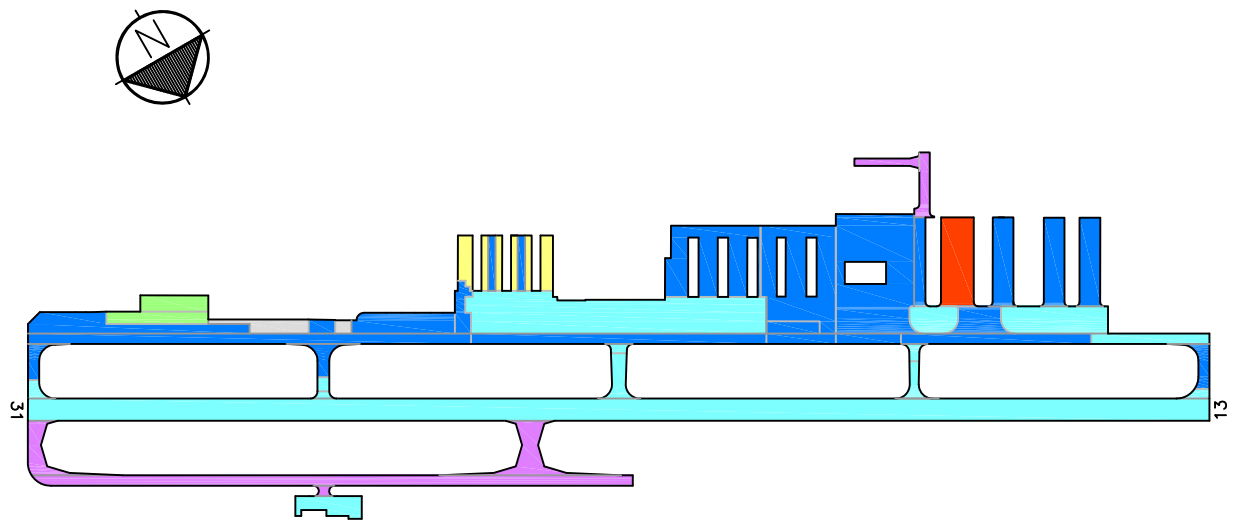




**Predicted Condition in 2024.**



**Predicted Condition in 2029.**



Drawing Date: June 2019

 PAVEMENT CONSULTANTS INC.

**Figure GR-5. Future Pavement Condition.**

# 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:

- 26,008 linear feet of asphalt concrete crack sealing
- 75 square feet of deep asphalt concrete patching.

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 GR-6.

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2020	A01GR	01	Slurry Seal	34,216	\$0.31	\$10,607
2020	A01GR	02	Slurry Seal	14,440	\$0.31	\$4,476
2020	A01GR	03	Slurry Seal	12,650	\$0.31	\$3,921
2020	A02GR	01	Slurry Seal	24,105	\$0.31	\$7,473
2020	A02GR	02	Slurry Seal	8,073	\$0.31	\$2,503
2020	A02GR	03	2" AC Overlay	20,891	\$2.50	\$52,228

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2020	A02GR	04	Slurry Seal	127,147	\$0.31	\$39,415
2020	A02GR	05	Slurry Seal	12,054	\$0.31	\$3,737
2020	A02GR	06	Slurry Seal	54,626	\$0.31	\$16,934
2020	A02GR	07	Slurry Seal	70,118	\$0.31	\$21,737
2020	A02GR	08	Slurry Seal	95,738	\$0.31	\$29,679
2020	A02GR	09	Slurry Seal	7,483	\$0.31	\$2,320
2020	A03GR	01	Slurry Seal	13,825	\$0.31	\$4,286
2020	ALMNGR	01	Slurry Seal	14,129	\$0.31	\$4,380
2020	ALMNGR	02	Slurry Seal	14,479	\$0.31	\$4,488
2020	ALMNGR	03	Slurry Seal	32,900	\$0.31	\$10,199
2020	T01GR	01	Slurry Seal	11,697	\$0.31	\$3,626
2020	T01GR	02	Slurry Seal	4,226	\$0.31	\$1,310
2020	T01GR	03	Slurry Seal	2,480	\$0.31	\$769
2020	T03GR	01	Slurry Seal	21,174	\$0.31	\$6,564
2020	T04GR	01	2" AC Overlay	33,508	\$2.50	\$83,770
2020	T05GR	01	Slurry Seal	11,486	\$0.31	\$3,561
2020	TA1GR	01	Slurry Seal	2,993	\$0.31	\$928
2020	TA1GR	02	Slurry Seal	5,443	\$0.31	\$1,687
2020	TA2GR	01	Slurry Seal	1,237	\$0.31	\$383
2020	TA2GR	02	Slurry Seal	1,920	\$0.31	\$595
2020	TA2GR	03	Slurry Seal	6,205	\$0.31	\$1,924
2020	TA3GR	01	Slurry Seal	8,519	\$0.31	\$2,641
2020	TA3GR	02	Slurry Seal	1,868	\$0.31	\$579
2020	TA4GR	01	Slurry Seal	4,916	\$0.31	\$1,524
2020	TA4GR	02	Slurry Seal	2,316	\$0.31	\$718
2020	TA5GR	01	Slurry Seal	2,246	\$0.31	\$696
2020	TA5GR	02	Slurry Seal	6,752	\$0.31	\$2,093
2020	TABGR	01	Slurry Seal	4,674	\$0.31	\$1,449
2020	TAGR	01	Slurry Seal	52,500	\$0.31	\$16,275
2020	TAGR	02	Slurry Seal	35,000	\$0.31	\$10,850
2020	TAGR	03	Slurry Seal	8,225	\$0.31	\$2,550
2020	TAGR	04	Slurry Seal	7,718	\$0.31	\$2,393
2020	TAGR	05	Slurry Seal	22,553	\$0.31	\$6,991
2020	TAGR	06	Slurry Seal	14,000	\$0.31	\$4,340
2020	TBCGR	01	Slurry Seal	4,675	\$0.31	\$1,449
2020	TLMGR	01	Slurry Seal	21,097	\$0.31	\$6,540
2020	TMNGR	01	Slurry Seal	21,093	\$0.31	\$6,539
<b>2020 Total</b>						<b>\$391,125</b>

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2023	R13GR	01	Slurry Seal	300,000	\$0.31	\$93,000
<b>2023 Total</b>						<b>\$93,000</b>
<b>5-Year Total</b>						<b>\$484,125</b>

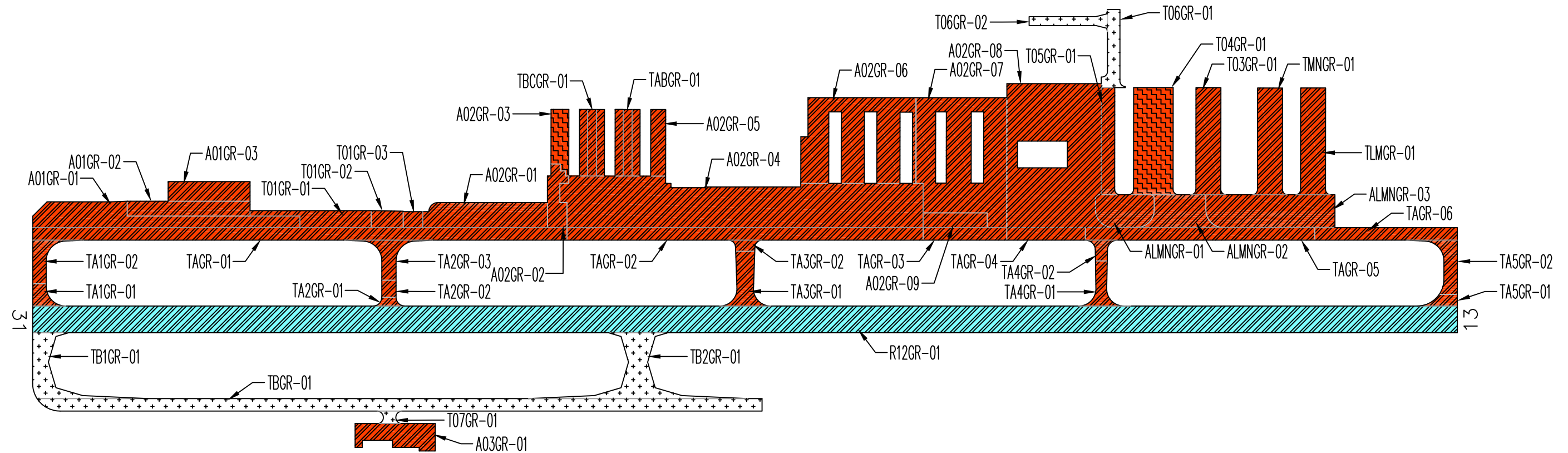
If the global maintenance and/or rehabilitation activities recommended in Table 2 are not completed, the localized maintenance activities identified in the Network Maintenance Report (Appendix 3) for that section should be done. Additionally, for those sections not listed in Table 2 as requiring global 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 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.

Figure GR-6. Five-Year Pavement Management Plan.  
Grants Pass Airport

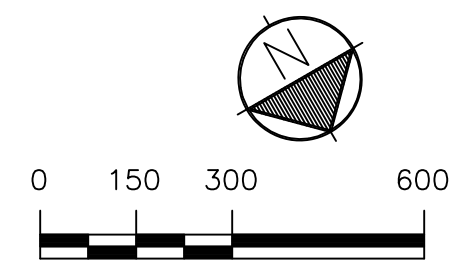


**ACTION TIMING**

	2020
	2021
	2022
	2023
	2024

**ACTION**

	FOG SEAL
	SLURRY SEAL
	OVERLAY
	RECONSTRUCT
	ROUTINE MAINTENANCE



Drawing Date: June 2019