KEN JERNSTEDT AIRFIELD

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 HR-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 HR-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 HR-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 Ken Jernstedt Airfield in June 2017. 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 HR-1. Airport Layout, Dimensions and Pavement Cross-Sections.
Ken Jernstedt Airfield

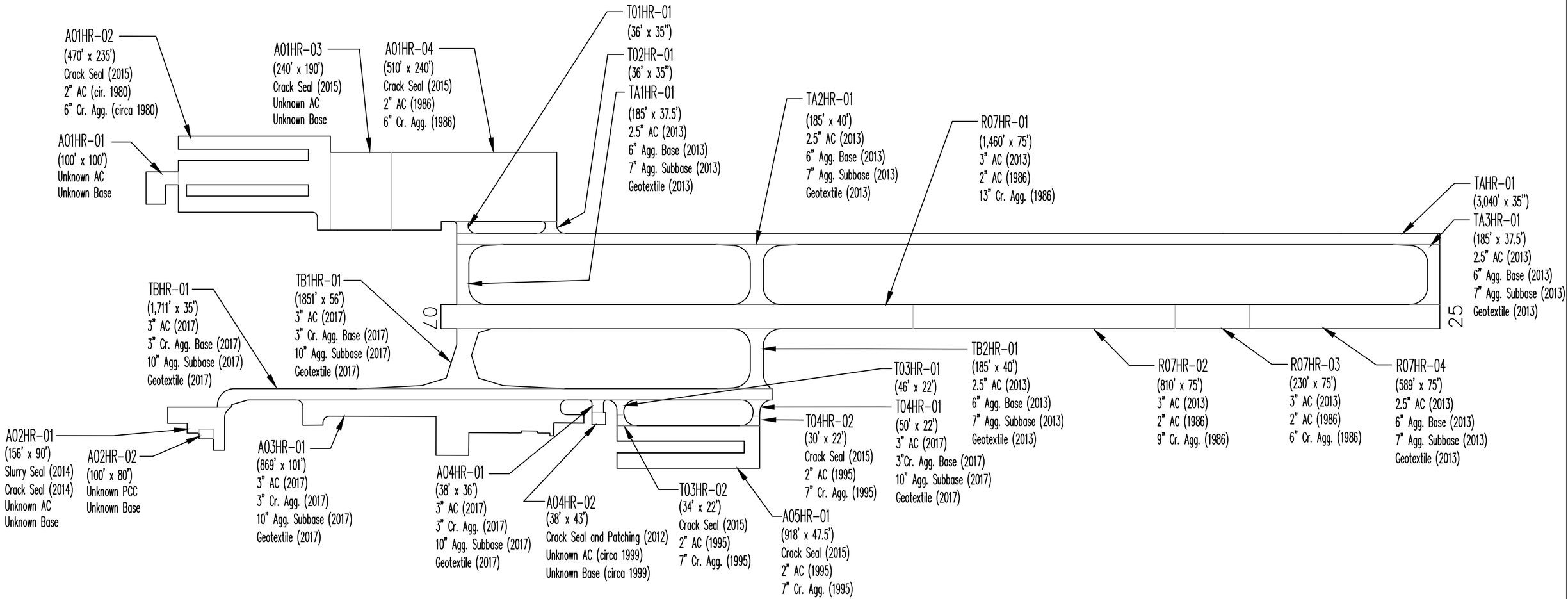

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Figure HR-2. Pavement Branch, Section and Sample Unit Layout.
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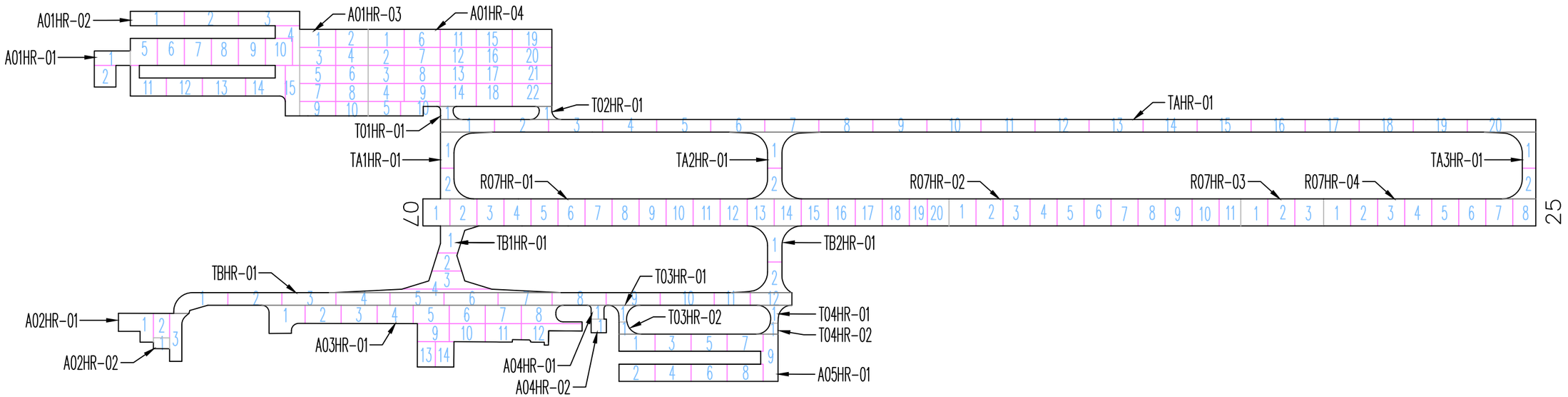

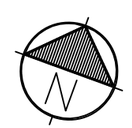

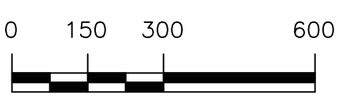

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RESULTS

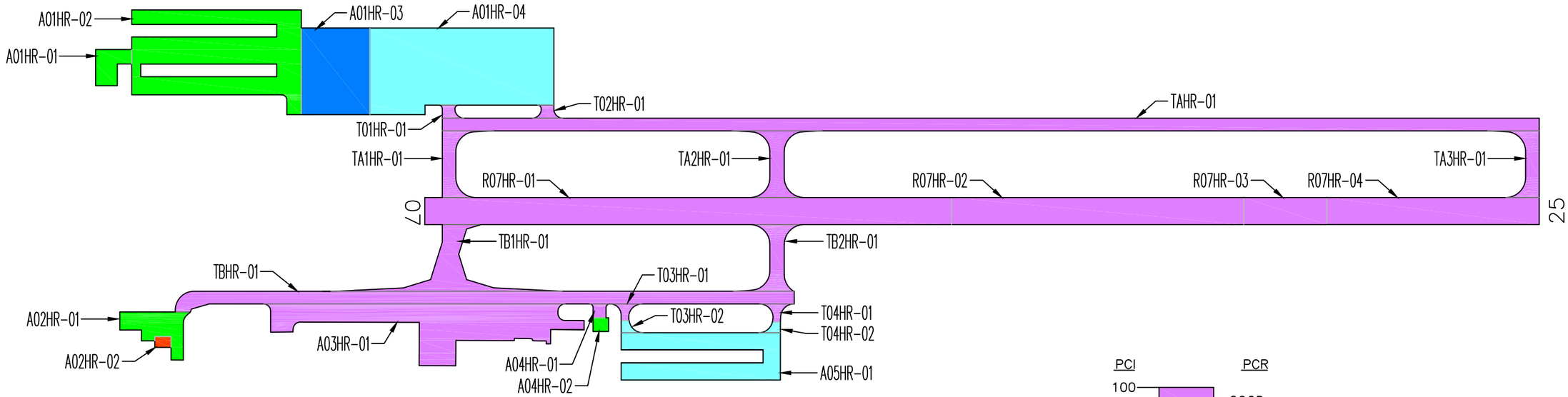
Using the data collected during the visual inspection, the PAVER software was used to calculate an area-weighted average Pavement Condition Index (PCI) for each pavement section inspected using the sample units evaluated. Using each section's PCI, a Pavement Condition Rating (PCR) was assigned. The PCIs measured during this inspection are shown in Table 1. The table also contains PCIs from past inspections as well as projected PCIs for 2022 and 2027. 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 HR-3.

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

Branch	Section	Inspections			Forecast	
		2011	2014	2017	2022	2027
A01HR	01	70	39	43	42	42
A01HR	02	73	44	47	46	46
A01HR	03	66	69	65	58	53
A01HR	04	70	65	74	73	71
A02HR	01	27	87	54	52	51
A02HR	02	100	0	0	0	0
A03HR	01	---	---	100	91	80
A04HR	01	---	---	100	91	80
A04HR	02	57	41	55	52	51
A05HR	01	61	62	79	74	73
R07HR	01	---	100	99	92	82
R07HR	02	---	100	98	90	80
R07HR	03	---	90	90	79	66
R07HR	04	---	100	100	87	82
T01HR	01	---	100	93	82	74
T02HR	01	---	100	93	82	74
T03HR	01	---	---	100	91	80
T03HR	02	81	74	81	73	68
T04HR	01	---	---	100	91	80
T04HR	02	84	70	76	70	67
TA1HR	01	---	97	89	79	71
TA2HR	01	---	100	86	76	70
TA3HR	01	---	100	94	83	74
TAHR	01	---	100	100	90	80

Figure HR-3. Pavement Condition in June 2017.
Ken Jernstedt Airfield



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

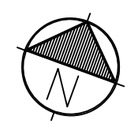


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Table 1. Past, Present and Future Pavement Condition Indices.

Branch	Section	Inspections			Forecast	
		2011	2014	2017	2022	2027
TB1HR	01	---	---	100	91	80
TB2HR	01	---	100	98	88	78
TBHR	01	---	---	100	91	80

Section PCIs at Ken Jernstedt Airfield range from a low of 0 (a PCR of "Failed") to a high of 100 (a PCR of "Good"). The area-weighted average PCI for all airport pavements is 86, corresponding to an overall PCR of "Good". Figure HR-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 2011 and 2014.

The primary distresses observed during the inspection of asphalt concrete pavements were: longitudinal and transverse cracking, patching, weathering, alligator cracking, block cracking, and raveling, with an isolated occurrence of depressions. The primary distress observed during the inspection of portland cement concrete pavements was shattered slabs.

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

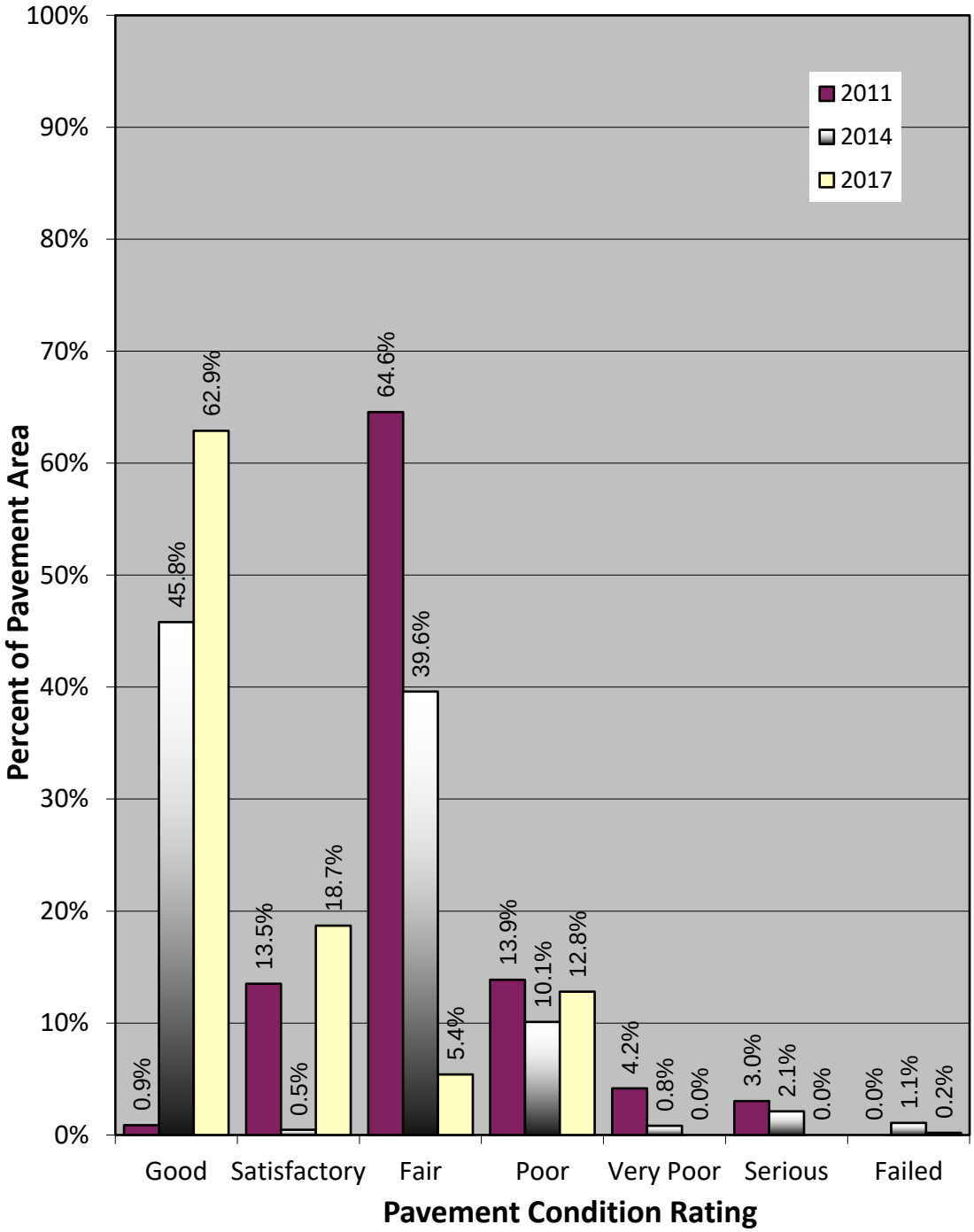
RECOMMENDATIONS

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 quantities of localized maintenance are needed:

- 9,624 linear feet of asphalt concrete crack sealing
- 542 linear feet of asphalt concrete wide crack repair
- 4,795 square feet of deep (full-depth) asphalt concrete patching
- 2,700 square feet of portland cement concrete full depth patching

Figure HR-4. Distribution of Pavement Condition
Ken Jernstedt Airfield



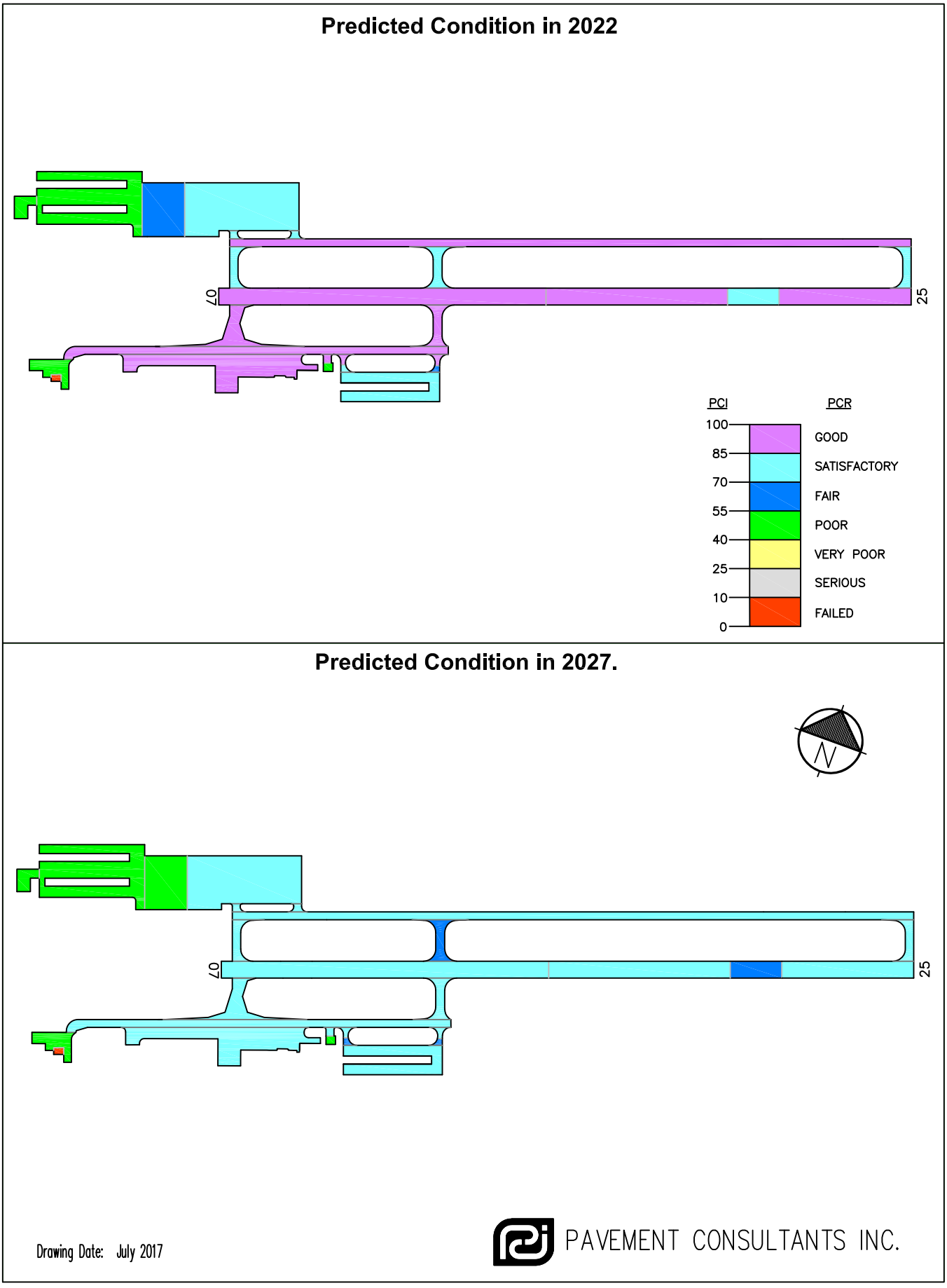


Figure HR-5. Future Pavement Condition.

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 2018 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 HR-6.

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

Year	Branch	Section	Action	Area (sf)	Unit Cost ($/sf)	Total Cost ($)
2018	A01HR	01	2" AC Overlay	7,600	$2.50	$19,000
2018	A01HR	02	2" AC Overlay	85,678	$2.50	$214,195
2018	A01HR	03	Slurry Seal	45,600	$0.31	$14,136
2018	A01HR	04	Slurry Seal	113,029	$0.31	$35,039
2018	A02HR	02	3" AC over 3" Crushed Aggregate Base over 10" Aggregate Subbase over Geotextile	1,350	$8.90	$12,015
2018	A04HR	02	Slurry Seal	1,611	$0.31	$499
2018	A05HR	01	Slurry Seal	43,579	$0.31	$13,509
2018	T03HR	02	Slurry Seal	1,054	$0.31	$327
2018	T04HR	02	Slurry Seal	952	$0.31	$295
					2018 Total	$309,016
2019	T01HR	01	Slurry Seal	1,445	$0.31	$448
2019	T02HR	01	Slurry Seal	1,556	$0.31	$482
2019	TA1HR	01	Slurry Seal	8,435	$0.31	$2,615
2019	TA2HR	01	Slurry Seal	10,396	$0.31	$3,223
2019	TA3HR	01	Slurry Seal	8,435	$0.31	$2,615
					2019 Total	$9,383
2020	A02HR	01	Slurry Seal	13,199	$0.31	$4,092
2020	R07HR	01	Slurry Seal	109,500	$0.31	$33,945
2020	R07HR	02	Slurry Seal	60,750	$0.31	$18,832
2020	R07HR	03	Slurry Seal	17,250	$0.31	$5,347
					2020 Total	$62,216

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

Year	Branch	Section	Action	Area (sf)	Unit Cost ($/sf)	Total Cost ($)
2021	R07HR	04	Slurry Seal	44,147	$0.31	$13,686
2021	TB2HR	01	Slurry Seal	10,004	$0.31	$3,101
					2021 Total	$16,787
					TOTAL	$397,402

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 2020.

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 HR-6. Five-Year Pavement Management Plan.
Ken Jernstedt Airfield

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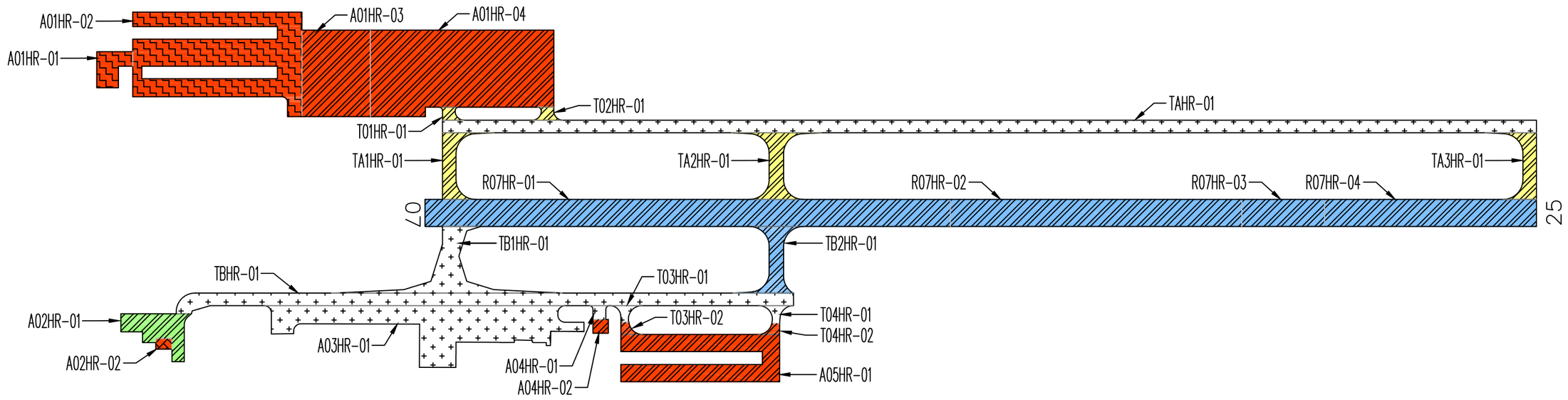

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ACTION TIMING

- 2018
- 2019
- 2020
- 2021
- 2022

ACTION

- FOG SEAL
- SLURRY SEAL
- OVERLAY
- RECONSTRUCT
- ROUTINE MAINTENANCE

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