

ENTERPRISE MUNICIPAL 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

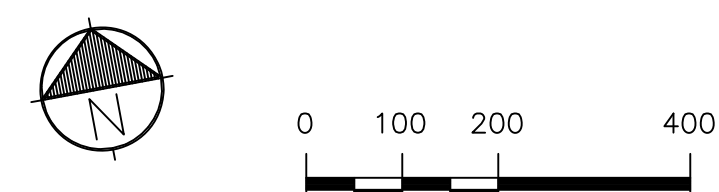
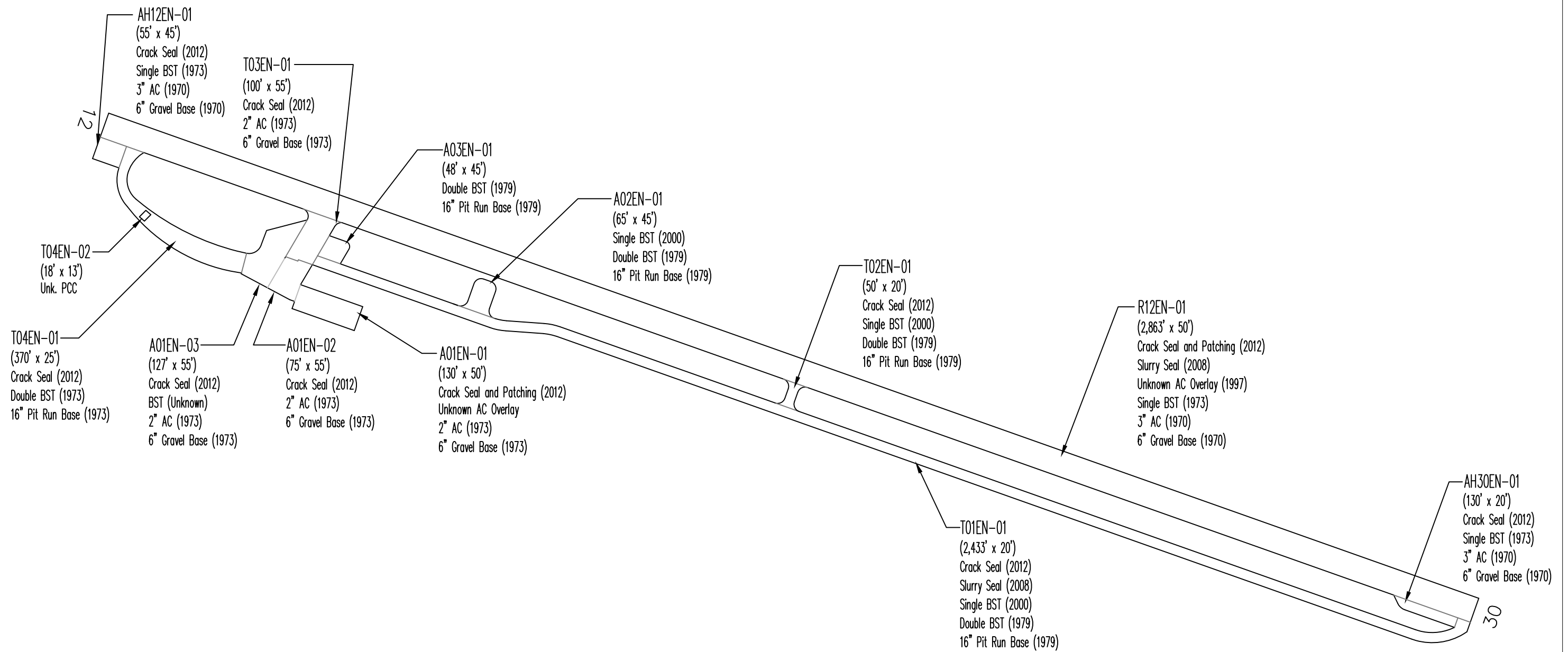
To determine how your pavements were constructed and their age, a records review was conducted. Figure EN-1 shows the records review results. This figure identifies pavement boundaries, dimensions, pavement layer types, thicknesses and dates of construction. The most recent construction date for each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

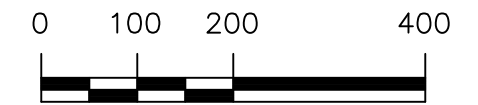
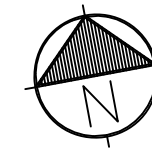
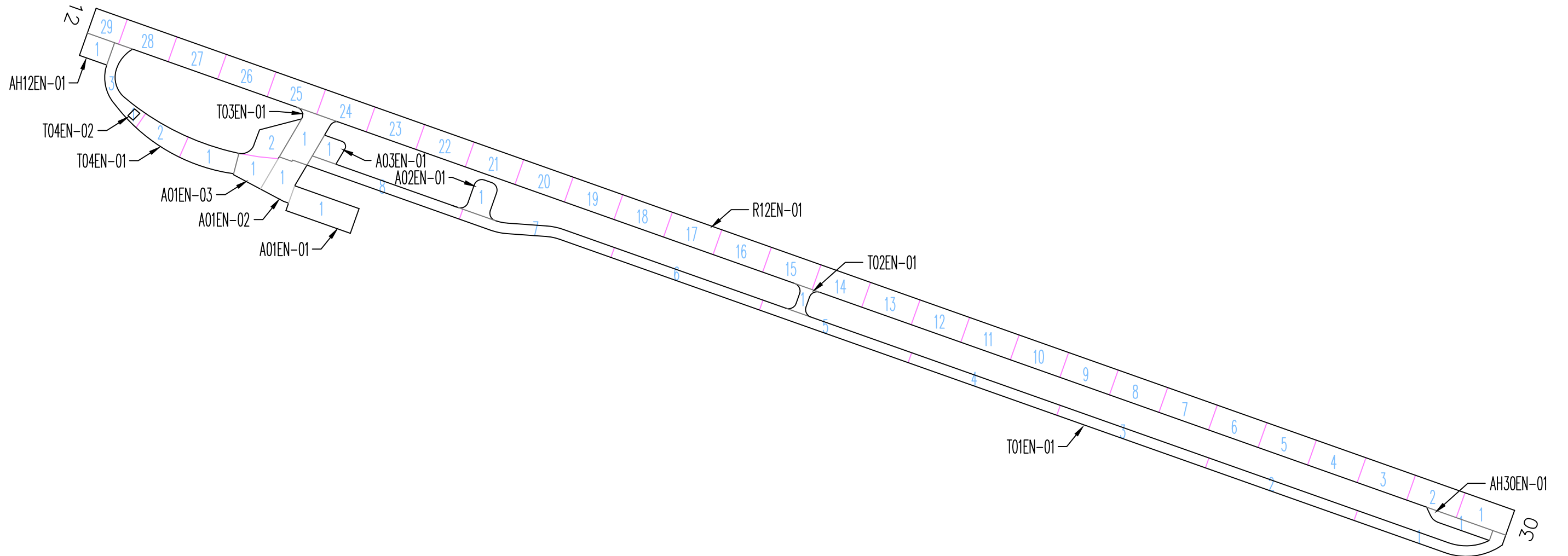
The PAVER database updated during this project ensures your airport complies with the “record keeping and information retrieval” requirements of FAA’s PMMP guidelines.

Figure EN-1. Airport Layout, Dimensions and Pavement Cross-Sections.
Enterprise Municipal Airport



Drawing Date: July 2017

Figure EN-2. Pavement Branch, Section and Sample Unit Layout.
Enterprise Municipal Airport



Drawing Date: July 2017



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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.

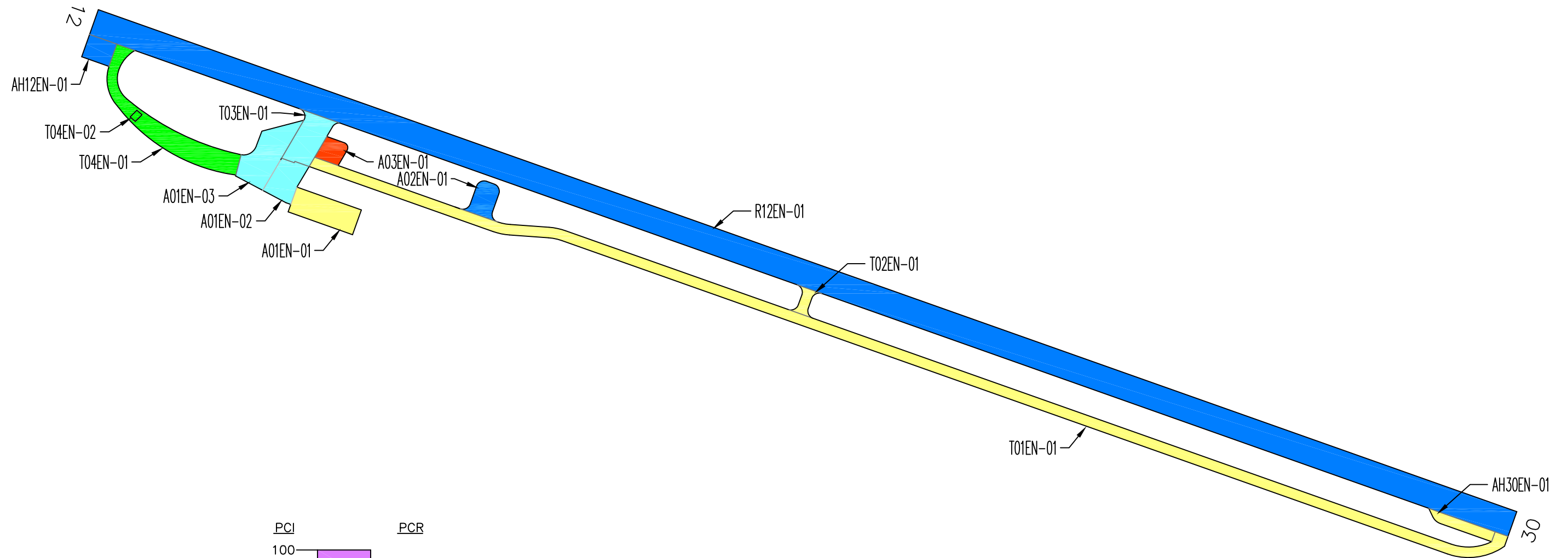
The Branch Condition Report in Appendix 1 summarizes current pavement condition by branch while the Section Condition Report in Appendix 2 lists pavement condition by section. The current Pavement Condition Rating (PCR) is shown graphically in Figure EN-3.

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

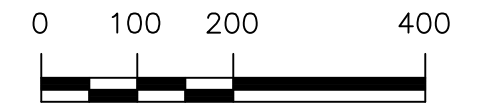
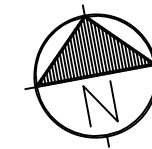
Branch	Section	Inspections			Forecast	
		2011	2014	2017	2022	2027
A01EN	01	81	58	27	26	25
A01EN	02	85	67	71	66	63
A01EN	03	90	79	78	68	59
A02EN	01	91	78	68	59	53
A03EN	01	15	5	1	1	0
AH12EN	01	70	66	59	52	47
AH30EN	01	51	39	31	31	30
R12EN	01	64	55	57	45	33
T01EN	01	77	65	36	18	0
T02EN	01	52	46	33	15	0
T03EN	01	59	66	71	67	66
T04EN	01	69	46	43	25	7
T04EN	02	43	43	43	43	42

Section PCIs at Enterprise Municipal Airport range from a low of 1 (a PCR of “Failed”) to a high of 78 (a PCR of “Satisfactory”). The area-weighted average PCI for all airport pavements is 52, corresponding to an overall PCR of “Poor”. Figure EN-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.

Figure EN-3. Pavement Condition in June 2017.
Enterprise Municipal Airport

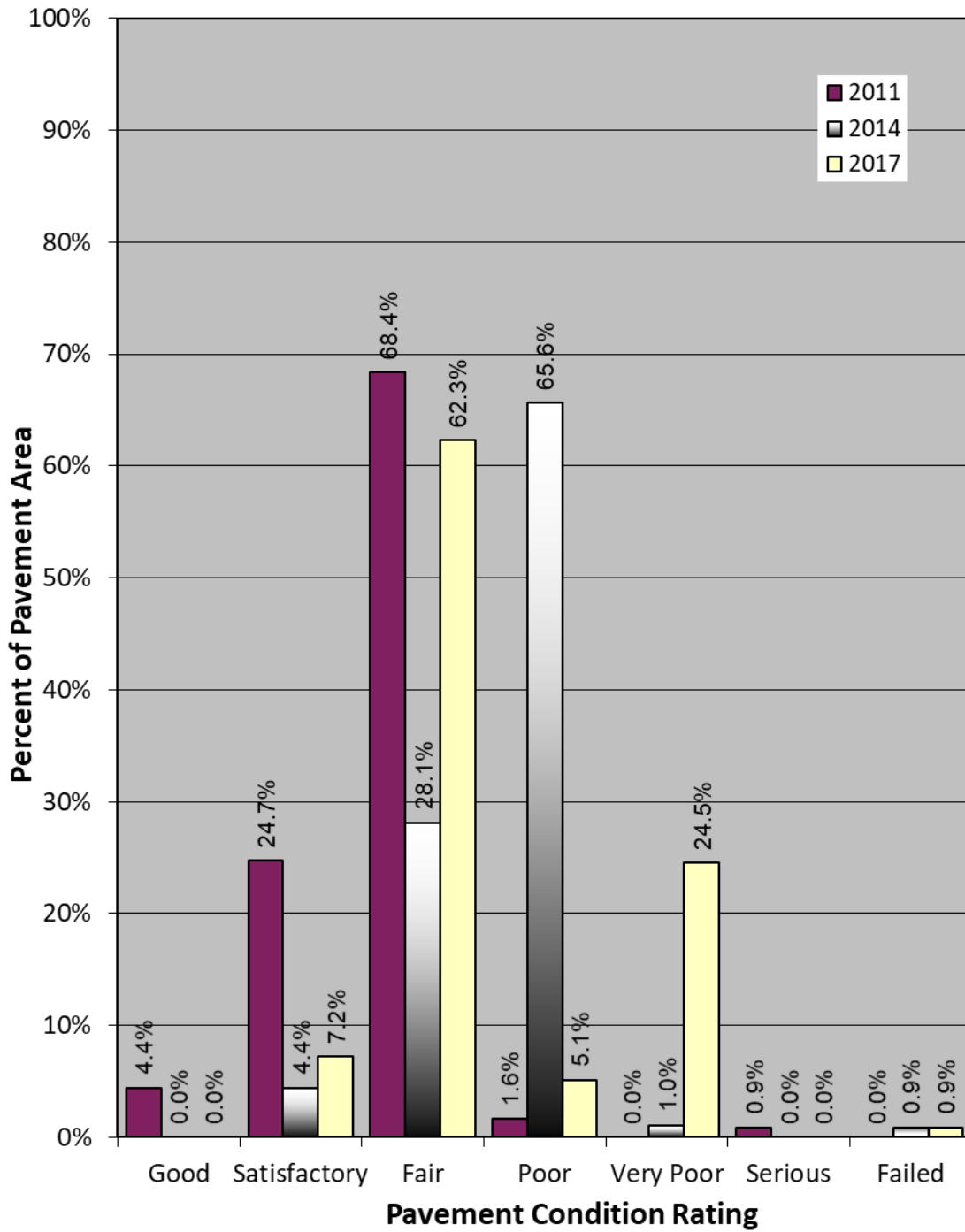


PCI	PCR
100	GOOD
85	SATISFACTORY
70	FAIR
55	POOR
40	VERY POOR
25	SERIOUS
10	FAILED
0	



Drawing Date: July 2017

**Figure EN-4. Distribution of Pavement Condition
Enterprise Municipal Airport**



The primary distresses observed during the inspection of asphalt concrete pavements were: longitudinal and transverse cracking, alligator cracking, depressions, weathering, patching, raveling, block cracking and bleeding. The primary distress observed during the inspection of the portland cement concrete pavement was shattered slab.

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

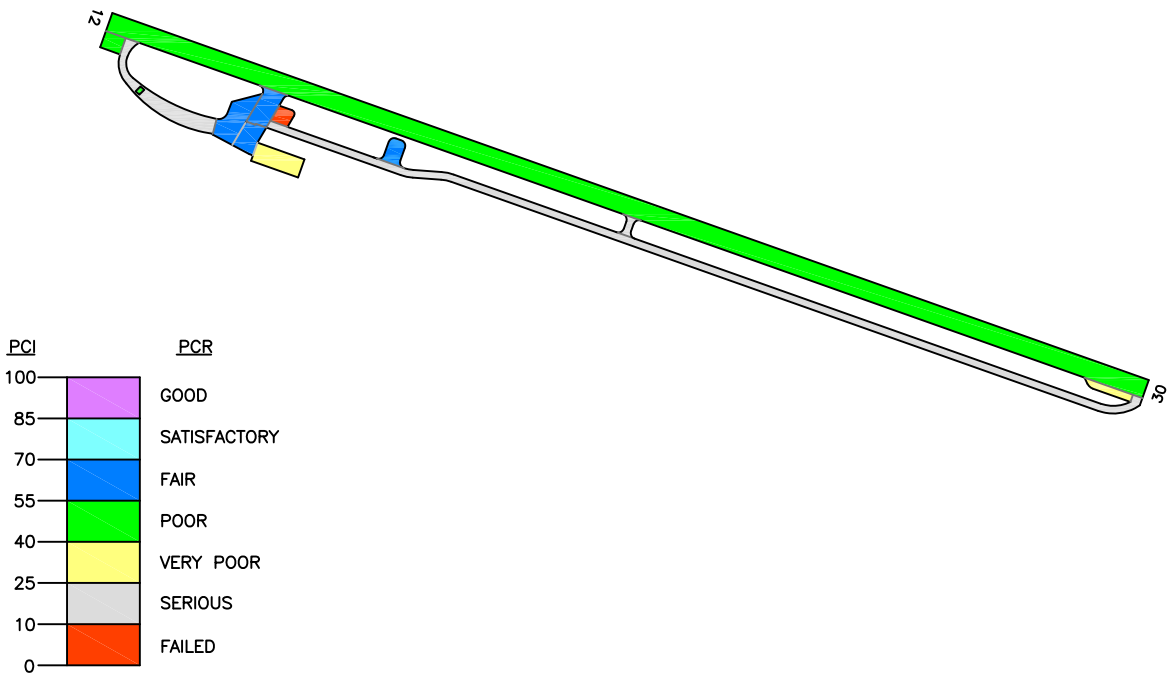
The recommended localized maintenance activities to be applied are selected by the PAVER software based on a Distress Maintenance Policy established for the Oregon airport system. The report results indicate that, over your entire airport, the following quantities of localized maintenance are needed:

- 6,240 linear feet of asphalt concrete crack sealing
- 842 square feet of deep (full-depth) asphalt concrete patching
- 2,064 square feet of shallow asphalt concrete patching

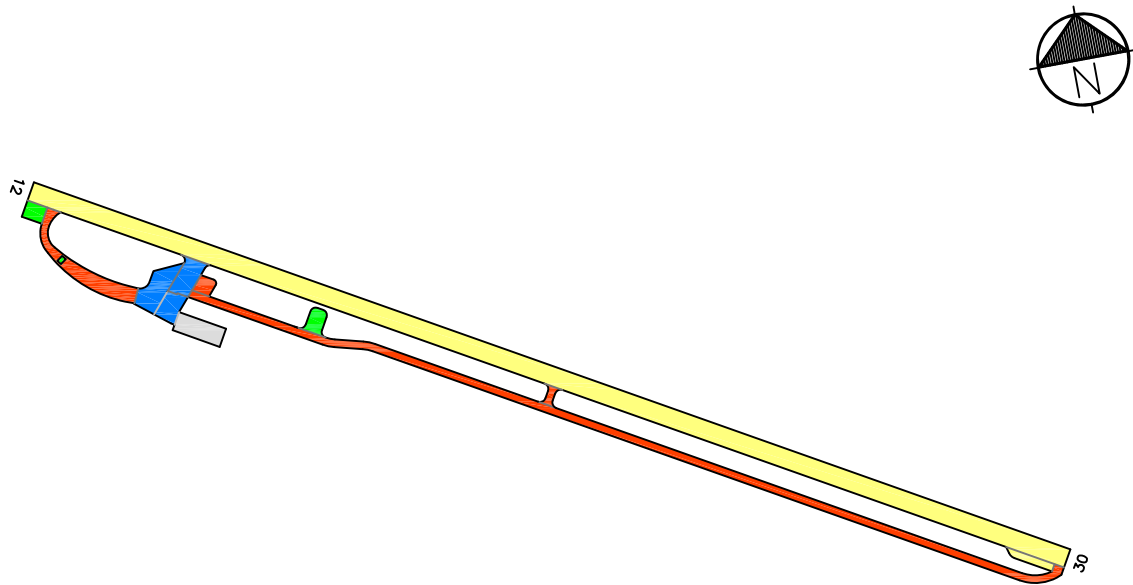
The PAVER software can also identify and schedule recommended global (applied over an entire section) maintenance activities such as fog seals, slurry seals and other surface treatments, as well as major rehabilitation activities such as asphalt concrete overlays and complete reconstruction. PAVER schedules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

Predicted Condition in 2022.



Predicted Condition in 2027.



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Figure EN-5. Future Pavement Condition.

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2018	A01EN	01	3" AC over 6" Aggregate Base	6,500	\$5.85	\$38,025
2018	A01EN	02	Slurry Seal	4,182	\$0.31	\$1,296
2018	A01EN	03	Slurry Seal	7,507	\$0.31	\$2,327
2018	A02EN	01	Fog Seal	2,970	\$0.19	\$564
2018	A03EN	01	3" AC over 6" Aggregate Base	2,105	\$5.85	\$12,314
2018	AH12EN	01	Slurry Seal	2,475	\$0.31	\$767
2018	AH30EN	01	3" AC over 6" Aggregate Base	2,465	\$5.85	\$14,420
2018	R12EN	01	2" AC Overlay	143,150	\$2.50	\$357,875
2018	T01EN	01	3" AC over 6" Aggregate Base	48,242	\$5.85	\$282,216
2018	T02EN	01	3" AC over 6" Aggregate Base	1,193	\$5.85	\$6,979
2018	T03EN	01	Slurry Seal	5,464	\$0.31	\$1,694
2018	T04EN	01	3" AC over 6" Aggregate Base	11,918	\$5.85	\$69,720
2018 Total						\$788,198
TOTAL						\$788,198

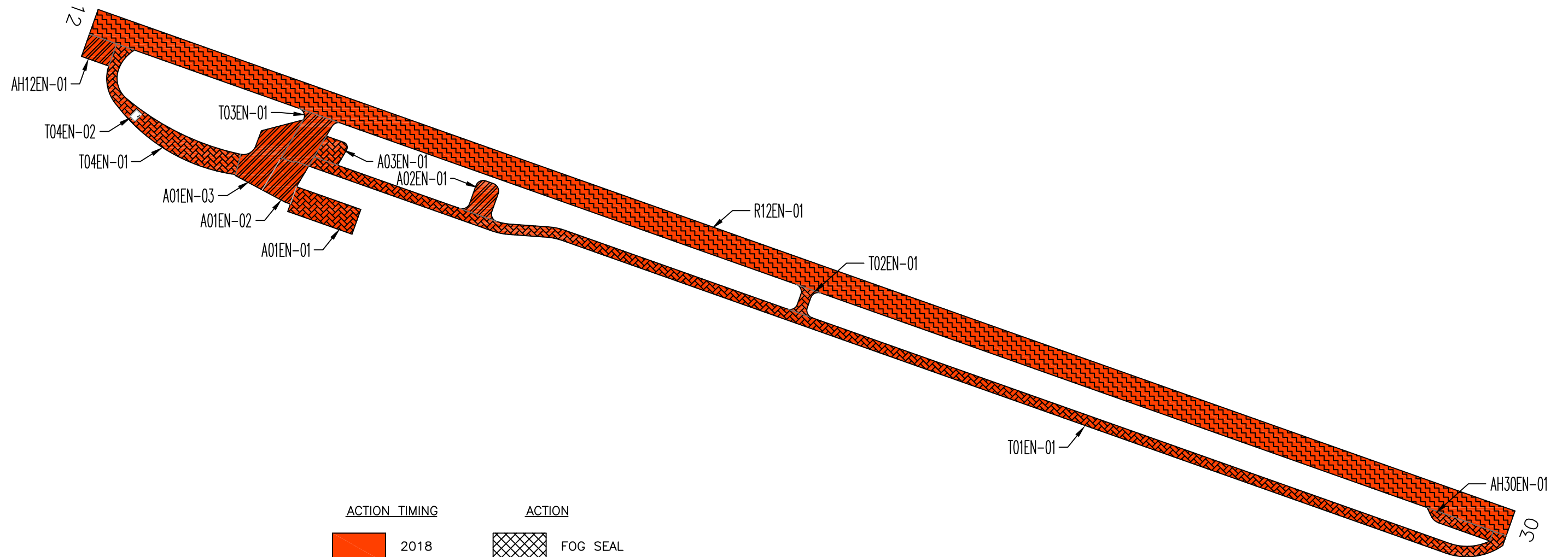
If the global maintenance and/or rehabilitation activities recommended in Table 2 are not completed, the localized maintenance activities identified in the Network Maintenance Report (Appendix 3) for that section should be done. Additionally, for those sections not listed in Table 2 as requiring global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

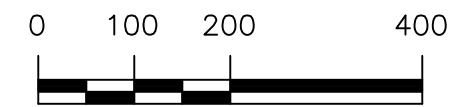
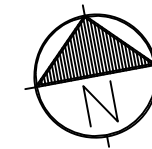
To comply with the inspection schedule requirement of FAA Grant Assurance Number 11, a detailed visual inspection should be conducted every 3 years using the methodology described in ASTM D5430. The next scheduled detailed visual inspection should take place in 2020.

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 EN-6. Five-Year Pavement Management Plan.
Enterprise Municipal Airport



ACTION TIMING		ACTION	
	2018		FOG SEAL
	2019		SLURRY SEAL
	2020		OVERLAY
	2021		RECONSTRUCT
	2022		ROUTINE MAINTENANCE



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