

AURORA 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 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 AU-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 AU-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.

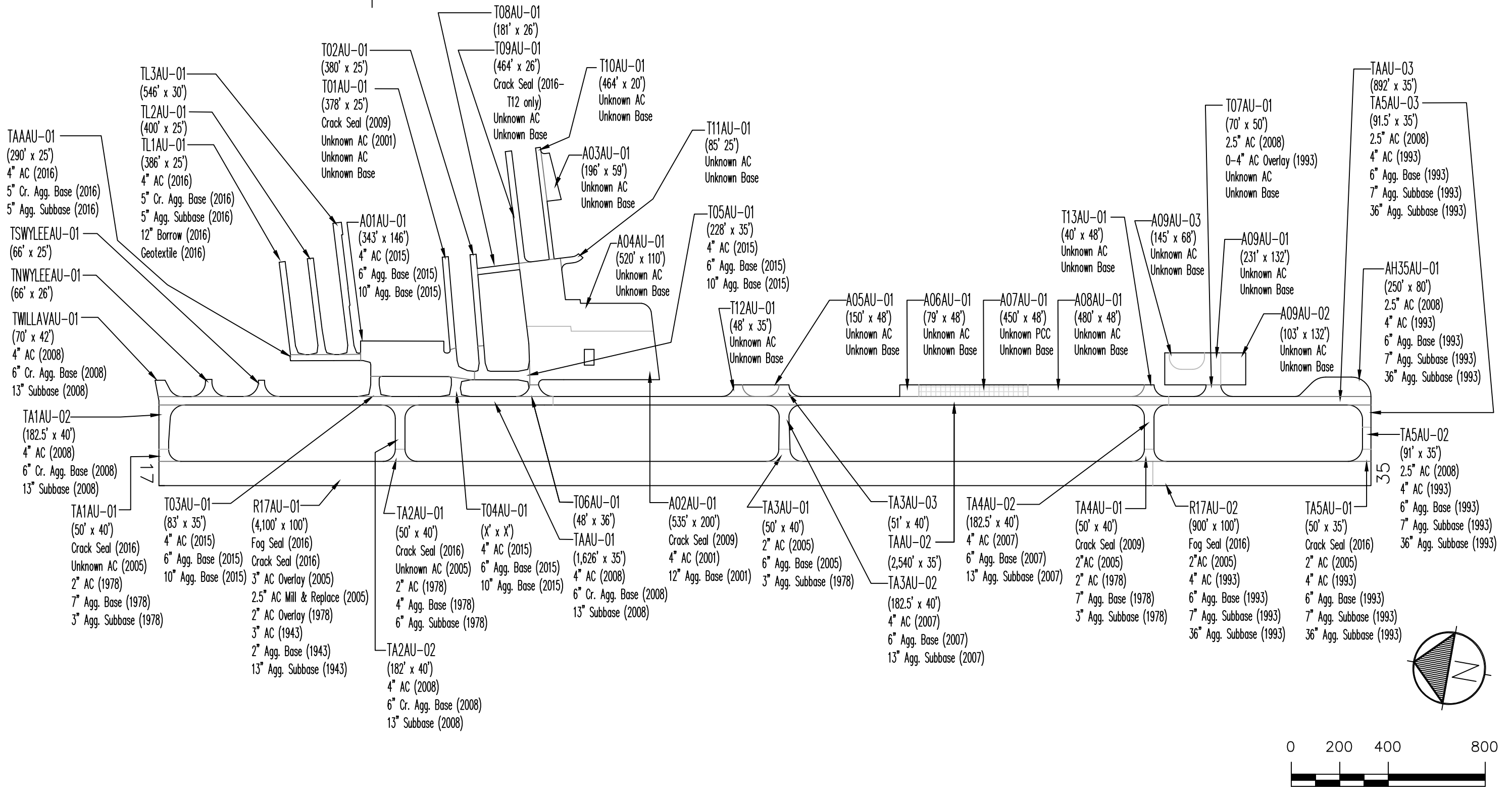
The pavements at your airport were divided into branches, sections and sample units in accordance with the methodology outlined in the current edition of ASTM D5430, *Standard Test Method for Airport Condition Index Surveys*. The branches, sections and sample units established at your airport are shown in Figure AU-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 Aurora State Airport in July 2018. 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.

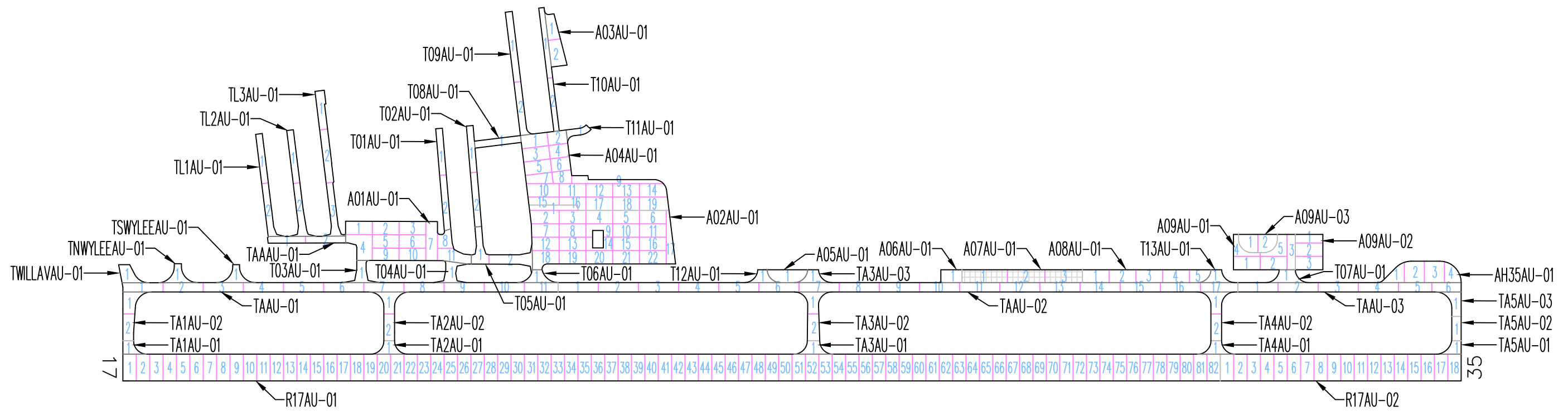
Figure AU-1. Airport Layout, Dimensions and Pavement Cross-Sections.

Aurora State Airport



Drawing Date: September 2018

Figure AU-2. Pavement Branch, Section and Sample Unit Layout.
Aurora State 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 2023 and 2028. 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 AU-3.

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

Branch	Section	Inspections			Forecast	
		2012	2015	2018	2023	2028
A01AU	01	---	100	100	85	78
A02AU	01	82	64	53	48	44
A03AU	01	78	53	49	45	42
A04AU	01	98	62	68	63	57
A05AU	01	69	41	40	35	25
A06AU	01	100	86	82	77	73
A07AU	01	87	95	88	81	77
A08AU	01	78	64	70	66	60
A09AU	01	60	64	49	45	42
A09AU	02	---	100	75	72	68
A09AU	03	---	100	88	80	75
AH35AU	01	100	80	71	67	62
R17AU	01	83	81	83	78	77
R17AU	02	81	75	72	47	24
T01AU	01	95	89	88	81	79
T02AU	01	91	85	74	65	52
T03AU	01	---	100	100	93	84
T04AU	01	---	100	100	93	84
T05AU	01	---	100	100	93	84
T06AU	01	100	89	80	79	79
T07AU	01	100	91	79	75	74
T08AU	01	83	80	64	51	37
T09AU	01	86	73	71	60	46
T10AU	01	78	58	61	48	34

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

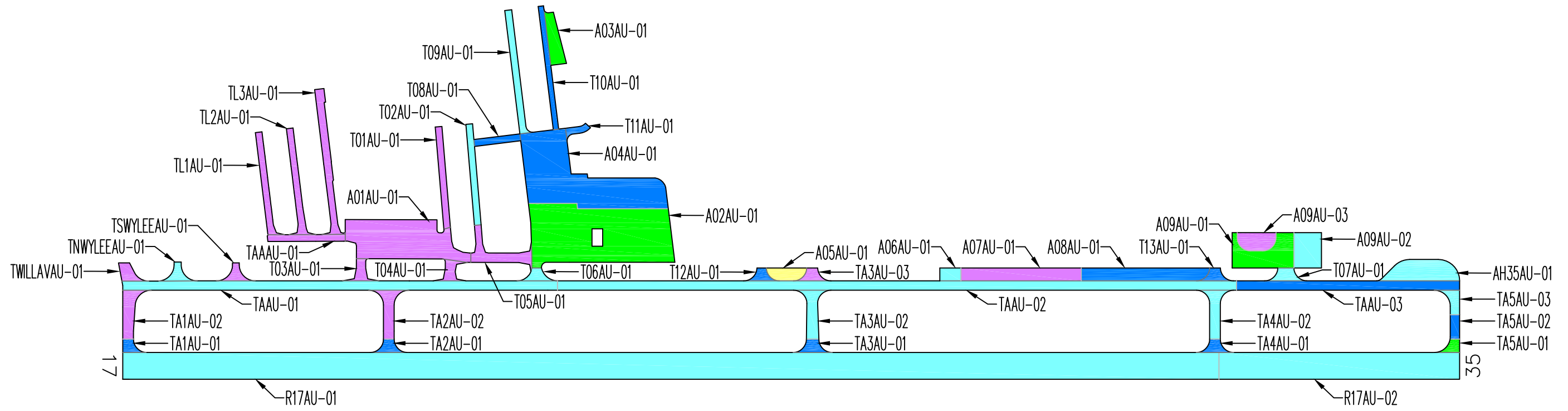
Branch	Section	Inspections			Forecast	
		2012	2015	2018	2023	2028
T11AU	01	64	62	69	58	43
T12AU	01	96	79	66	54	39
T13AU	01	84	80	63	50	36
TA1AU	01	100	70	59	58	56
TA1AU	02	94	89	88	81	79
TA2AU	01	81	74	67	66	64
TA2AU	02	100	92	89	82	79
TA3AU	01	75	65	66	65	63
TA3AU	02	100	92	80	79	79
TA3AU	03	100	90	88	81	79
TA4AU	01	83	59	58	57	55
TA4AU	02	92	80	74	65	52
TA5AU	01	74	81	49	35	24
TA5AU	02	100	90	69	58	43
TA5AU	03	---	89	73	72	70
TAAAU	01	---	---	100	93	84
TAAU	01	100	92	83	79	79
TAAU	02	100	91	73	63	50
TAAU	03	100	89	69	58	43
TL1AU	01	---	---	100	93	84
TL2AU	01	---	---	100	93	84
TL3AU	01	---	---	100	93	84
TNWYLEEAU	01	100	94	75	67	54
TSWYLEEAU	01	100	94	94	85	80
TWILLAVAU	01	100	94	89	82	79

Section PCIs at Aurora State Airport range from a low of 40 (a PCR of “Very Poor”) to a high of 100 (a PCR of “Good”). The area-weighted average PCI for all airport pavements is 77, corresponding to an overall PCR of “Satisfactory”. Figure AU-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 2012 and 2015.

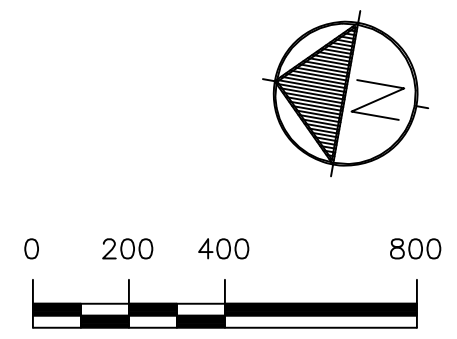
The primary distresses observed during the inspection were: longitudinal and transverse cracking, weathering, patching, block cracking, alligator cracking, raveling and depressions. The primary distress observed in the concrete pavement was joint spalls, with isolated occurrences of linear cracking.

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

Figure AU-3. Pavement Condition in July 2018.
Aurora State Airport

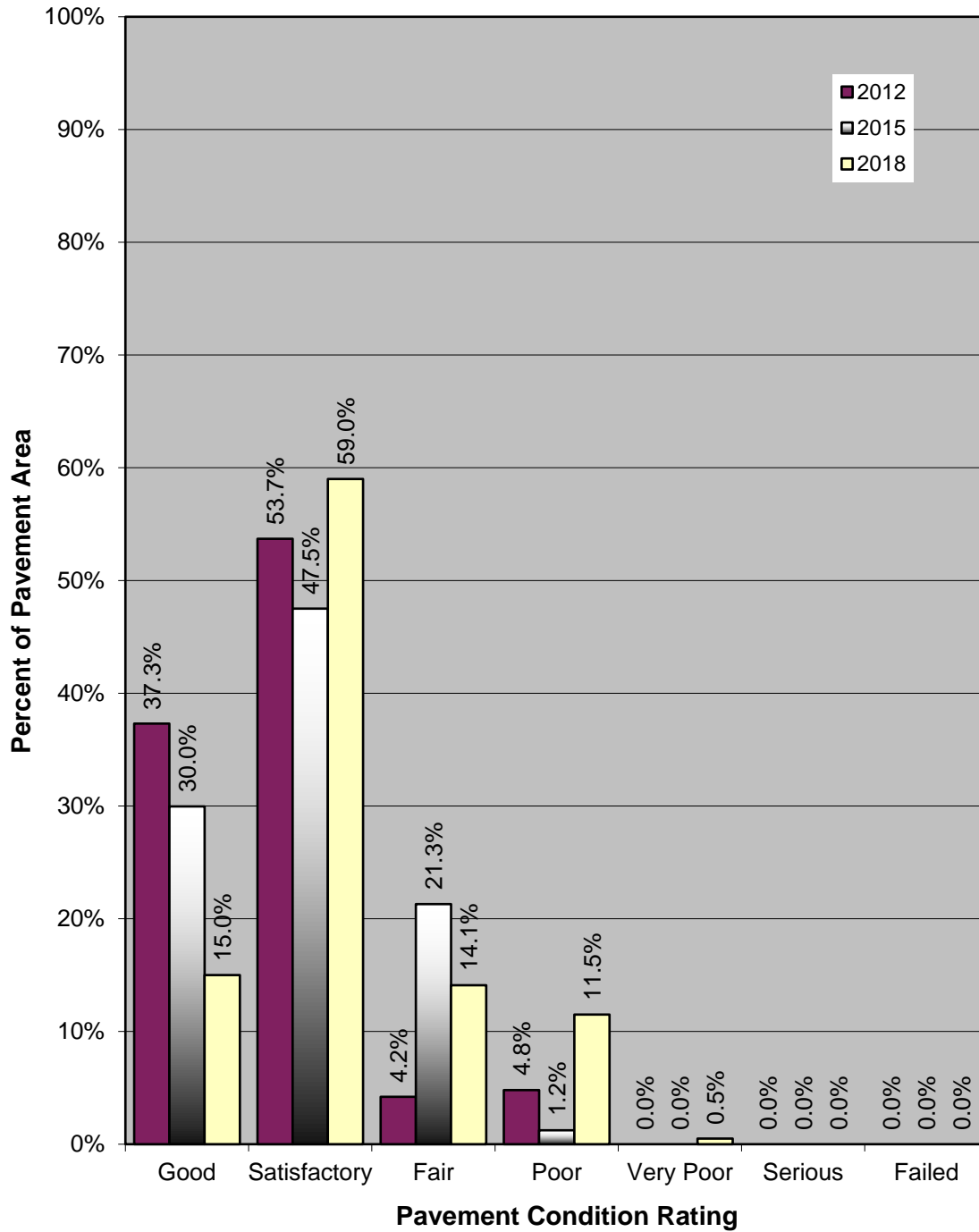


PCI	PCR
100	GOOD
85	SATISFACTORY
70	FAIR
55	POOR
40	VERY POOR
25	SERIOUS
10	FAILED
0	

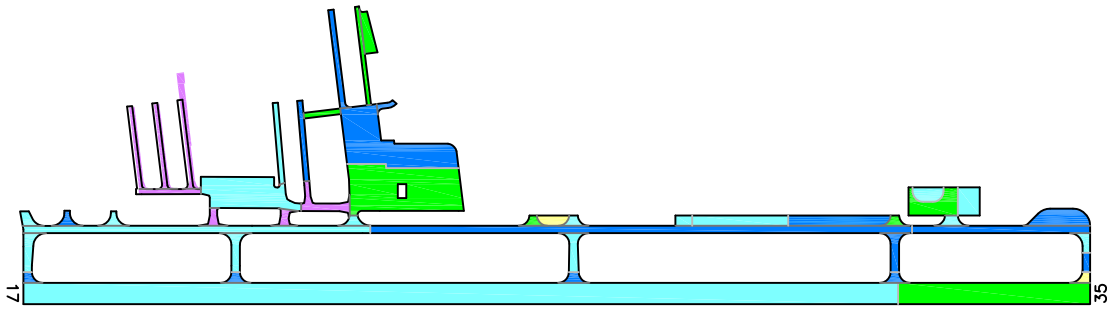


Drawing Date: September 2018

**Figure AU-4. Pavement Condition Distribution
Aurora State Airport**

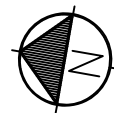
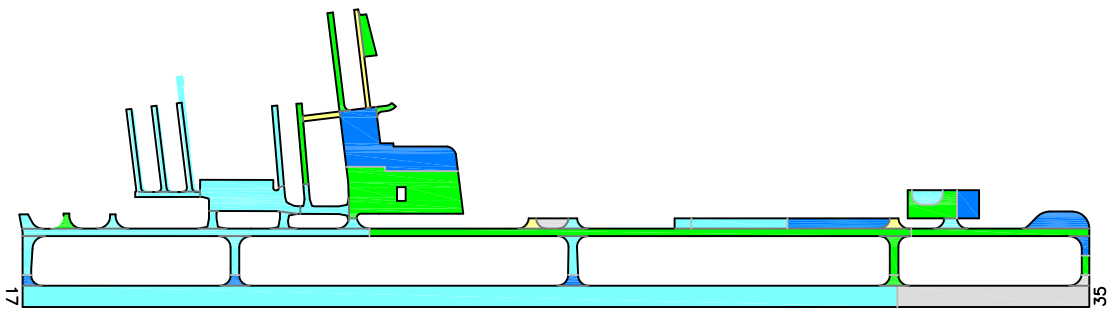


Predicted Condition in 2023.



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

Predicted Condition in 2028.



Drawing Date: September 2018

 PAVEMENT CONSULTANTS INC.

Figure AU-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 quantities of localized maintenance are needed:

- 20,295 linear feet of asphalt concrete crack sealing
- 4 linear feet of asphalt concrete wide crack sealing/repair.

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 2019 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 AU-6.

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2019	A02AU	01	Slurry Seal	109,649	\$0.31	\$33,991
2019	A03AU	01	2" AC Overlay	9,162	\$2.50	\$22,905
2019	A04AU	01	Slurry Seal	87,212	\$0.31	\$27,036
2019	A05AU	01	4" AC over 6" Crushed Aggregate Base over 13" Aggregate Subbase	6,184	\$11.45	\$70,807

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2019	A06AU	01	Slurry Seal	3,790	\$0.31	\$1,175
2019	A08AU	01	Slurry Seal	22,503	\$0.31	\$6,976
2019	A09AU	01	2" AC Overlay	21,705	\$2.50	\$54,263
2019	A09AU	02	Slurry Seal	13,596	\$0.31	\$4,215
2019	A09AU	03	Slurry Seal	8,786	\$0.31	\$2,724
2019	AH35AU	01	Slurry Seal	19,308	\$0.31	\$5,985
2019	T01AU	01	Slurry Seal	9,478	\$0.31	\$2,938
2019	T02AU	01	Slurry Seal	9,468	\$0.31	\$2,935
2019	T06AU	01	Slurry Seal	3,128	\$0.31	\$970
2019	T07AU	01	Slurry Seal	3,953	\$0.31	\$1,225
2019	T08AU	01	Slurry Seal	4,516	\$0.31	\$1,400
2019	T09AU	01	Slurry Seal	12,198	\$0.31	\$3,781
2019	T10AU	01	2" AC Overlay	9,280	\$2.50	\$23,200
2019	T11AU	01	Slurry Seal	2,325	\$0.31	\$721
2019	T12AU	01	Slurry Seal	2,749	\$0.31	\$852
2019	T13AU	01	Slurry Seal	2,992	\$0.31	\$928
2019	TA1AU	01	2" AC Overlay	2,537	\$2.50	\$6,343
2019	TA1AU	02	Slurry Seal	8,740	\$0.31	\$2,709
2019	TA2AU	01	Slurry Seal	3,073	\$0.31	\$953
2019	TA2AU	02	Slurry Seal	8,595	\$0.31	\$2,664
2019	TA3AU	01	Slurry Seal	3,403	\$0.31	\$1,055
2019	TA3AU	02	Slurry Seal	8,813	\$0.31	\$2,732
2019	TA3AU	03	Slurry Seal	3,190	\$0.31	\$989
2019	TA4AU	01	2" AC Overlay	3,324	\$2.50	\$8,310
2019	TA4AU	02	Slurry Seal	9,028	\$0.31	\$2,799
2019	TA5AU	01	2" AC Overlay	2,520	\$2.50	\$6,300
2019	TA5AU	02	Slurry Seal	3,188	\$0.31	\$988
2019	TA5AU	03	Slurry Seal	3,975	\$0.31	\$1,232
2019	TAAU	01	Slurry Seal	56,785	\$0.31	\$17,603
2019	TAAU	02	Slurry Seal	88,885	\$0.31	\$27,554
2019	TAAU	03	Slurry Seal	29,204	\$0.31	\$9,053
2019	TNWYLEEAU	01	Slurry Seal	3,465	\$0.31	\$1,074
2019	TWILLAVAU	01	Slurry Seal	3,777	\$0.31	\$1,171
2019 Total						\$362,556
2021	R17AU	02	Slurry Seal	90,000	\$0.31	\$27,900
2021	TSWYLEEAU	01	Fog Seal	3,237	\$0.19	\$615
2021	A01AU	01	Fog Seal	56,334	\$0.19	\$10,703
2021	R17AU	01	Slurry Seal	410,000	\$0.31	\$127,100

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
					2021 Total	\$166,318
					5-Year Total	\$528,875

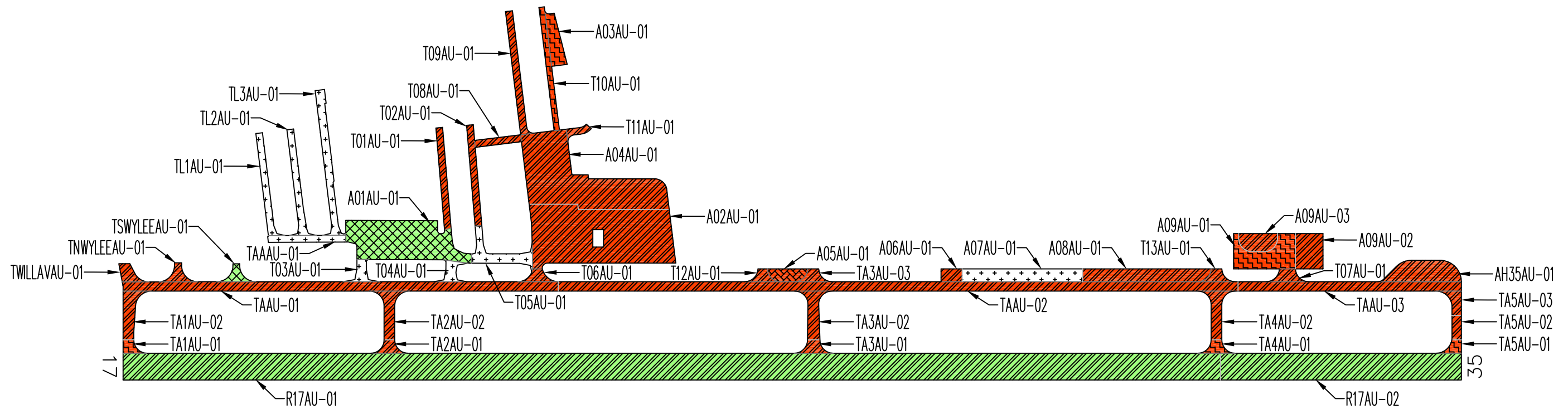
If the global maintenance and/or rehabilitation activities recommended in Table 2 are not completed, the localized maintenance activities identified in the Network Maintenance Report (Appendix 3) for that section should be done. Additionally, for those sections not listed in Table 2 as requiring global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

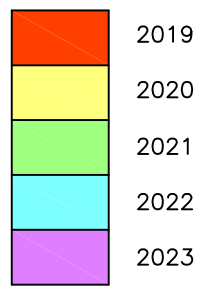
To comply with the inspection schedule requirement of FAA Grant Assurance Number 11, a detailed visual inspection should be conducted every 3 years using the methodology described in ASTM D5430. The next scheduled detailed visual inspection should take place in 2021.

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 AU-6. Five-Year Pavement Management Plan.
Aurora State Airport



ACTION TIMING



ACTION

