

SCAPPOOSE INDUSTRIAL AIRPARK

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. Figures SC-1A and SC-1B show the records review results. These figures identify 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. Figures SC-1A and SC-1B 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 SC-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 Scappoose Industrial Airpark 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 SC-1A. Airport Layout, Dimensions and Pavement Cross-Sections – Runways and Taxiways.
Scappoose Industrial Airpark

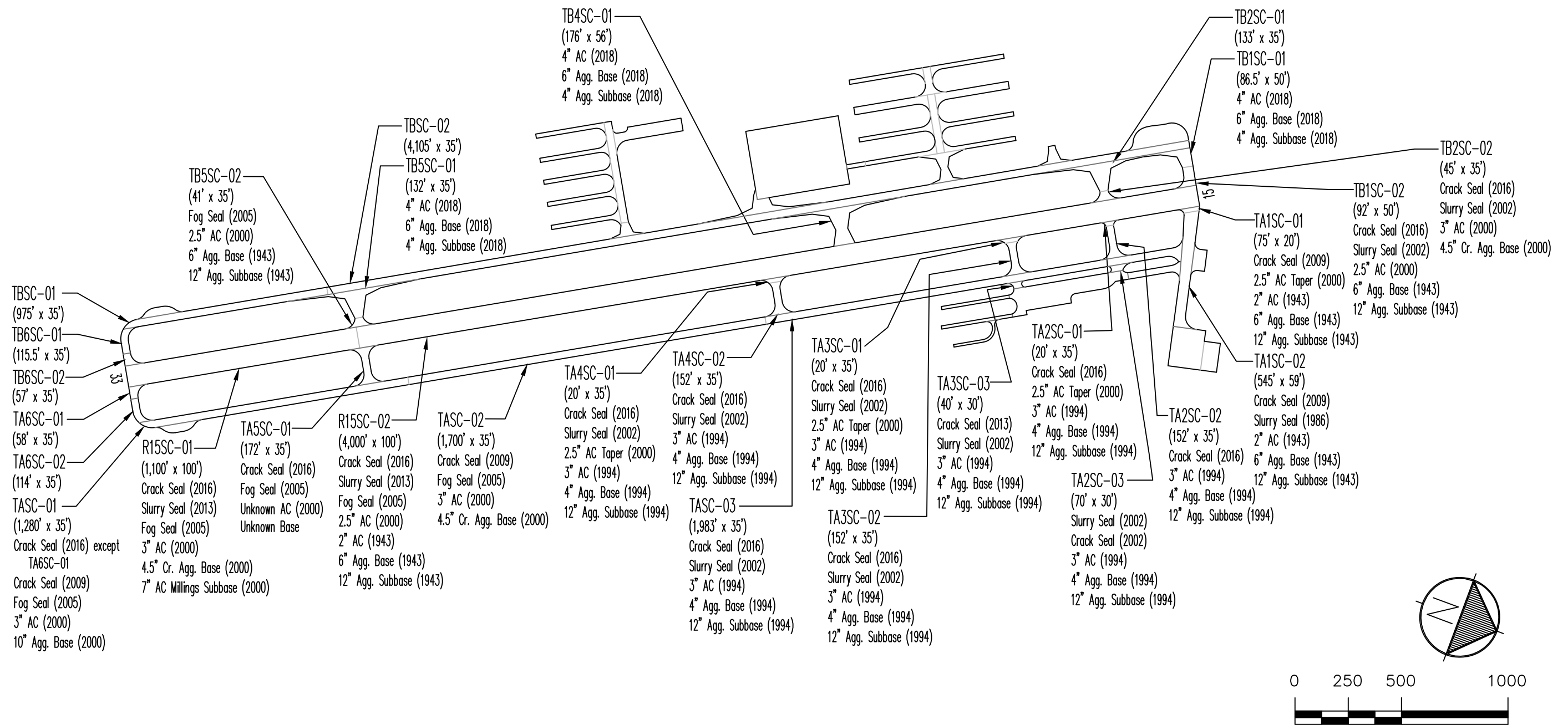
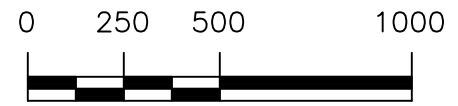
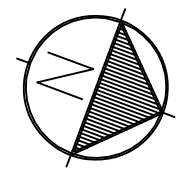
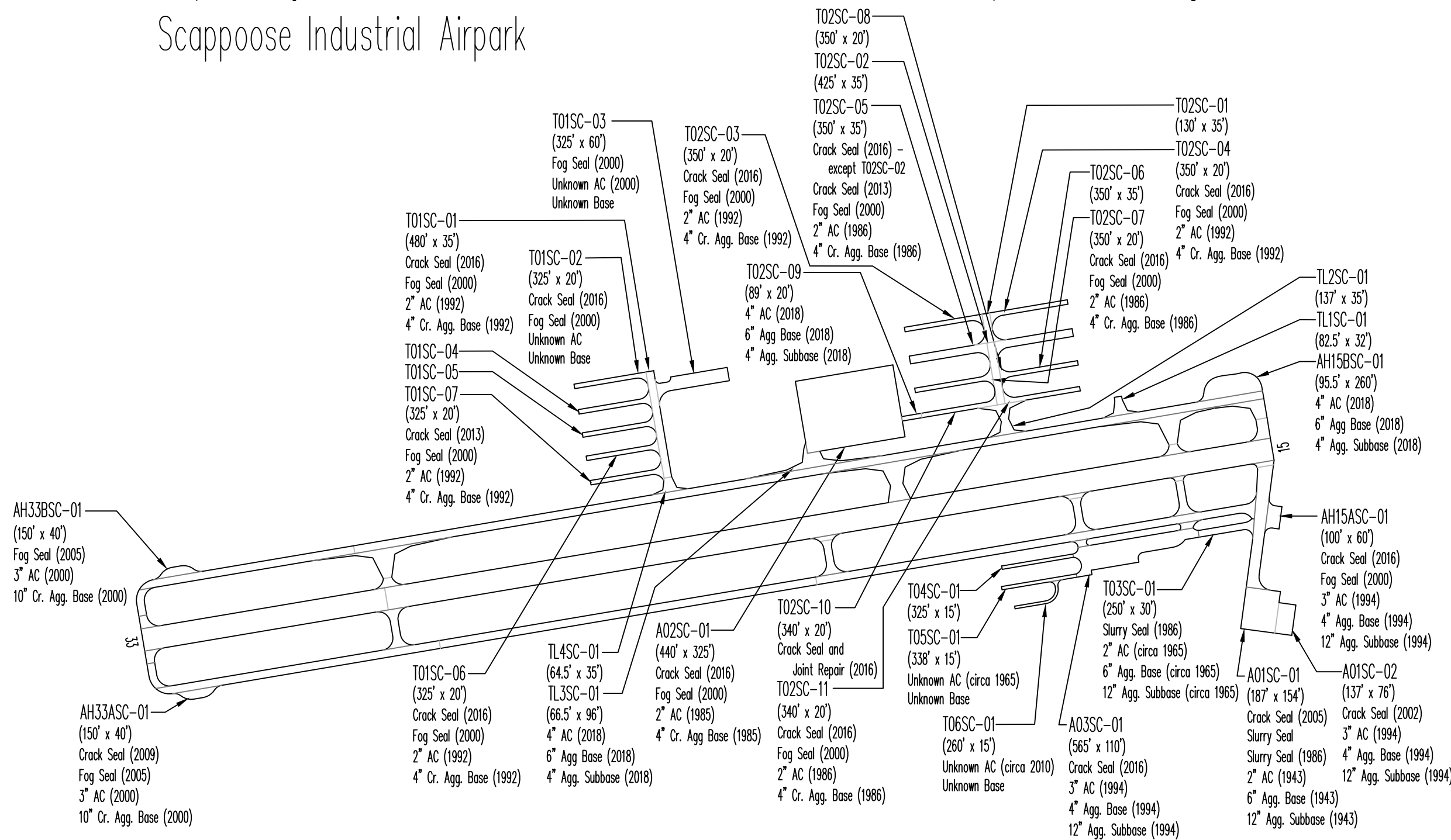
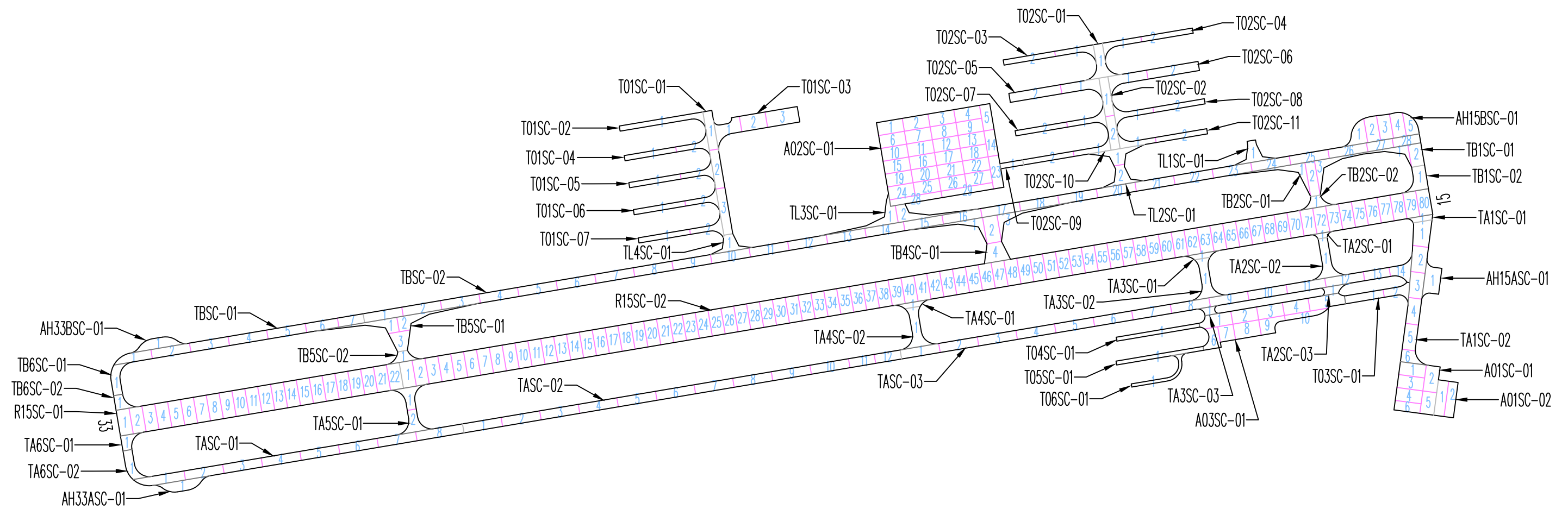


Figure SC-1B. Airport Layout, Dimensions and Pavement Cross-Sections – Aprons and Hangar Areas.
Scappoose Industrial Airpark



Drawing Date: September 2018

Figure SC-2. Pavement Branch, Section and Sample Unit Layout.
 Scappoose Industrial Airpark



Drawing Date: September 2018

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 SC-3.’

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

Branch	Section	Inspections			Forecast	
		2012	2015	2018	2023	2028
A01SC	01	97	96	90	81	76
A01SC	02	64	64	64	58	53
A02SC	01	81	82	68	63	57
A03SC	01	77	73	69	64	59
AH15ASC	01	87	86	78	74	71
AH15BSC	01	---	---	100	85	78
AH33ASC	01	92	88	72	68	63
AH33BSC	01	100	78	79	75	72
R15SC	01	70	81	54	39	25
R15SC	02	75	80	59	36	12
T01SC	01	89	83	67	55	41
T01SC	02	85	86	75	67	54
T01SC	03	100	98	96	87	81
T01SC	04	87	96	80	79	79
T01SC	05	91	95	82	79	79
T01SC	06	89	90	78	73	64
T01SC	07	87	95	82	79	79
T02SC	01	84	78	71	60	46
T02SC	02	86	80	70	59	45
T02SC	03	91	86	73	63	50
T02SC	04	86	92	83	79	79
T02SC	05	84	86	73	63	50
T02SC	06	83	86	81	79	79
T02SC	07	85	82	75	67	54

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

Branch	Section	Inspections			Forecast	
		2012	2015	2018	2023	2028
T02SC	08	87	89	78	73	64
T02SC	09	---	---	100	93	84
T02SC	10	84	88	77	71	60
T02SC	11	84	81	77	71	60
T03SC	01	22	21	21	12	2
T04SC	01	4	11	11	2	
T05SC	01	44	49	42	29	19
T06SC	01	---	100	90	82	79
TA1SC	01	87	64	59	58	56
TA1SC	02	98	97	96	87	81
TA2SC	01	88	64	61	60	58
TA2SC	02	71	84	83	79	79
TA2SC	03	100	82	93	84	80
TA3SC	01	89	73	69	68	66
TA3SC	02	79	77	78	73	64
TA3SC	03	82	77	75	67	54
TA4SC	01	89	70	52	51	49
TA4SC	02	83	81	82	79	79
TA5SC	01	80	71	70	59	45
TA6SC	01	94	86	100	93	84
TA6SC	02	---	---	75	67	54
TASC	01	93	90	72	62	48
TASC	02	93	88	73	63	50
TASC	03	86	85	80	79	79
TB1SC	01	--	---	100	93	84
TB1SC	02	84	68	57	43	30
TB2SC	01	---	---	100	93	84
TB2SC	02	86	83	70	59	45
TB4SC	01	---	---	100	93	84
TB5SC	01	----	---	100	93	84
TB5SC	02	100	97	82	79	79
TB6SC	01	---	---	84	80	79
TB6SC	02	94	86	90	82	79
TBSC	01	93	83	72	62	48
TBSC	02	---	---	100	93	84
TL1SC	01	---	---	100	93	84
TL2SC	01	---	---	100	93	84
TL3SC	01	---	---	100	93	84

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

Branch	Section	Inspections			Forecast	
		2012	2015	2018	2023	2028
TL4SC	01	---	---	100	93	84

Section PCIs at Scappoose Industrial Airpark range from a low of 11 (a PCR of “Serious”) to a high of 100 (a PCR of “Good”). The area-weighted average PCI for all airport pavements is 73, corresponding to an overall PCR of “Satisfactory”. Figure SC-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, block cracking, patching and alligator cracking, with an isolated occurrence of raveling.

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

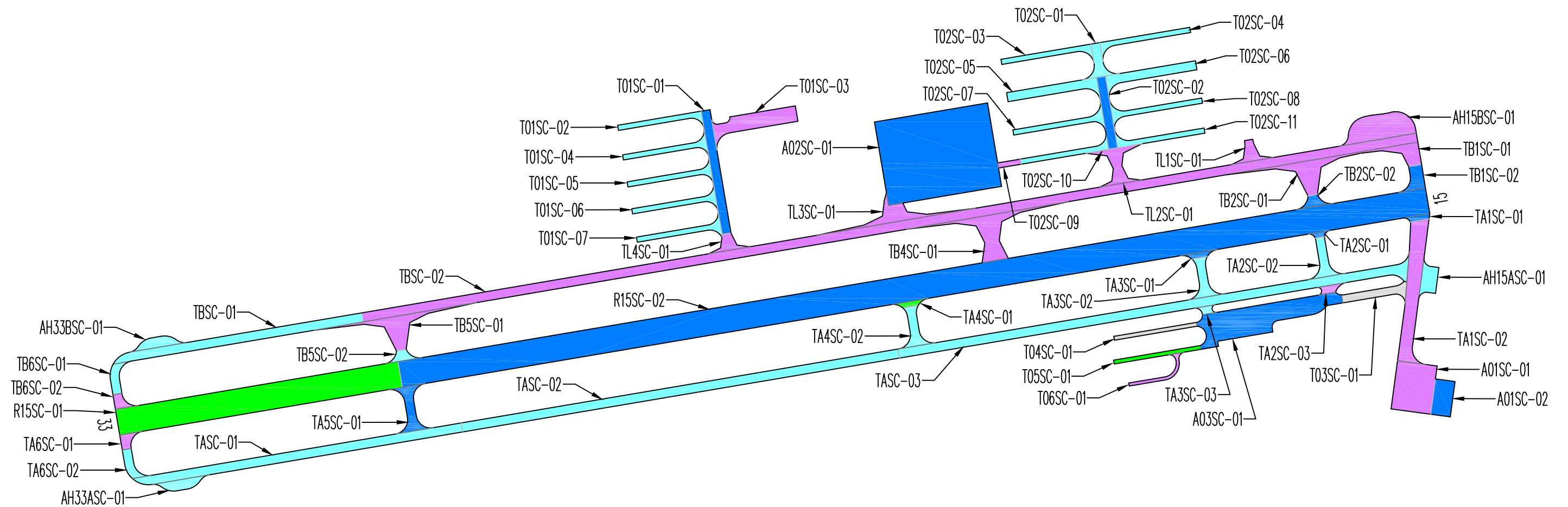
RECOMMENDATIONS

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.

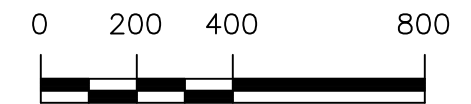
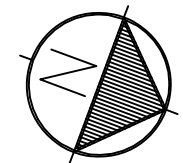
The recommended localized maintenance activities to be applied are selected by the PAVER software based on a Distress Maintenance Policy established for the Oregon airport system. The report results indicate that, over your entire airport, the following quantities of localized maintenance are needed:

- 59,421 linear feet of asphalt concrete crack sealing
- 10 linear feet of asphalt concrete wide crack sealing/repair
- 3,554 square feet of asphalt concrete deep patching.

Figure SC-3. Pavement Condition in July 2018.
Scappoose Industrial Airpark

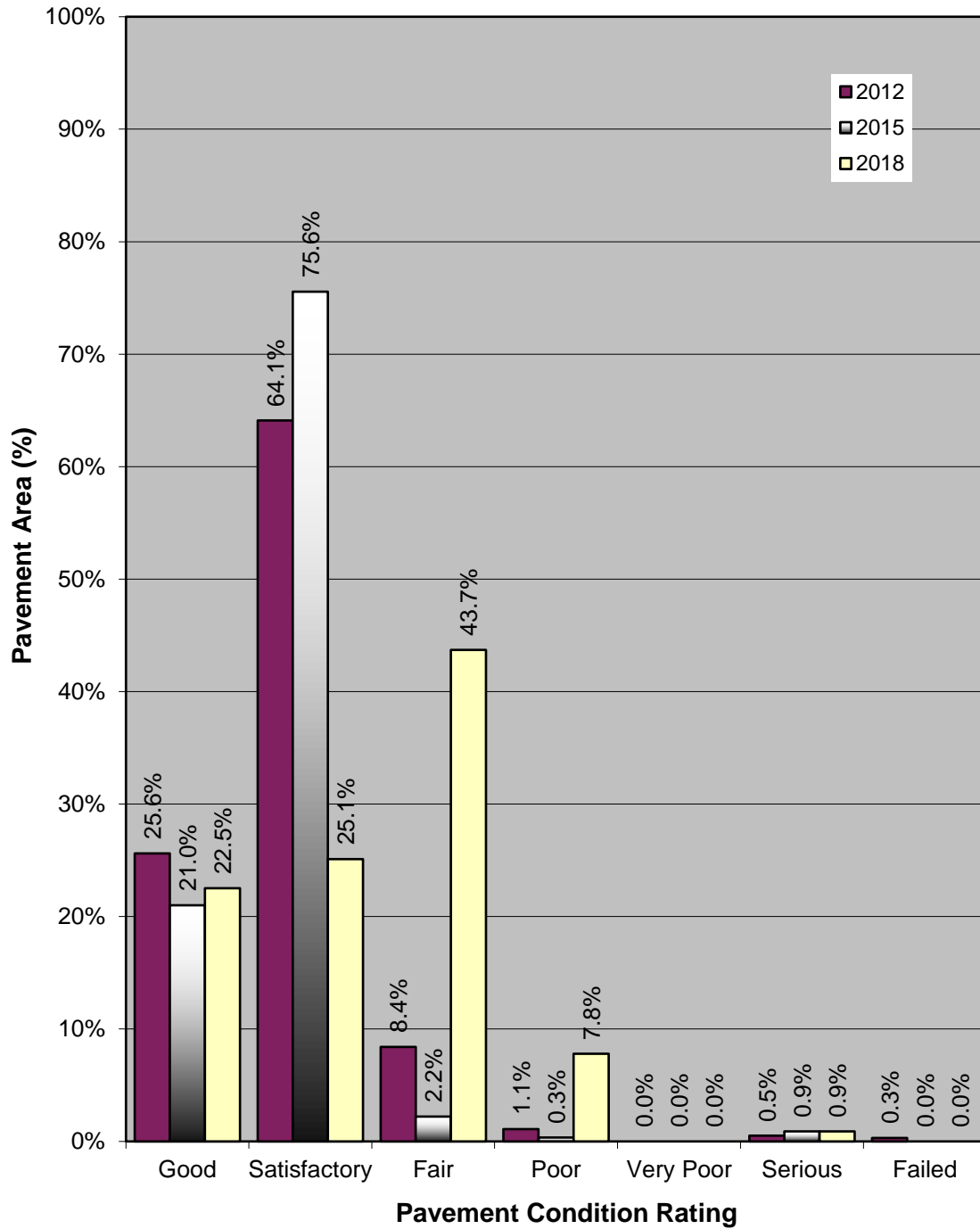


PCI	PCR
100	GOOD
85	SATISFACTORY
70	FAIR
55	POOR
40	VERY POOR
25	SERIOUS
10	FAILED
0	

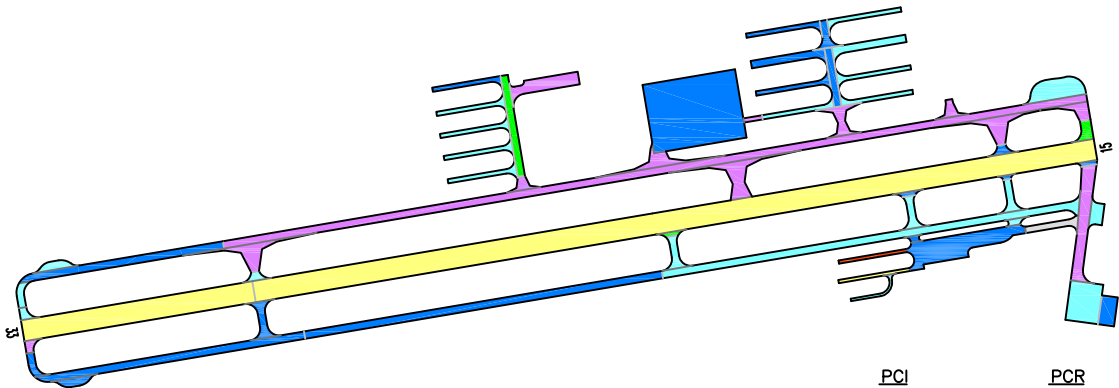


Drawing Date: September 2018

**Figure SC-4. Pavement Condition Distribution
Scappoose Industrial Airpark**

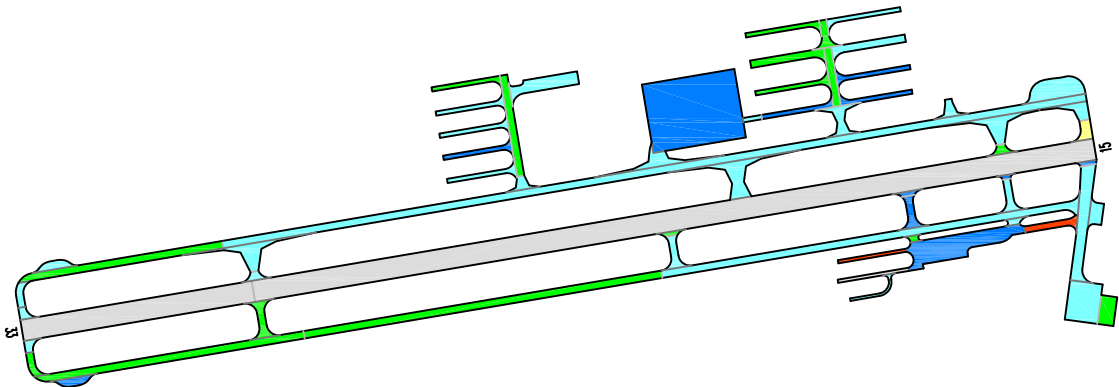
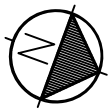


Predicted Condition in 2023.



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

Figure SC-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 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 SC-6.

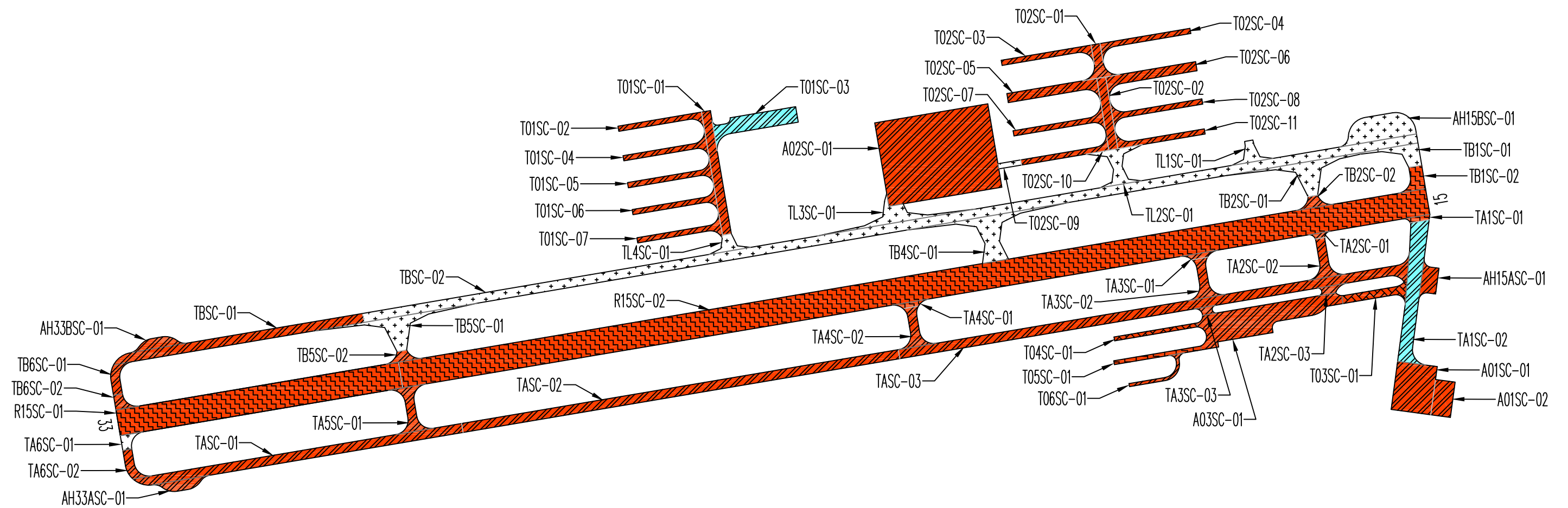
Table 2. Five-Year Global Maintenance and Rehabilitation Plan.

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2019	A01SC	01	Slurry Seal	28,688	\$0.31	\$8,893
2019	A01SC	02	Slurry Seal	10,392	\$0.31	\$3,222
2019	A02SC	01	Slurry Seal	143,000	\$0.31	\$44,330
2019	A03SC	01	Slurry Seal	48,096	\$0.31	\$14,910
2019	AH15ASC	01	Slurry Seal	6,525	\$0.31	\$2,023
2019	AH33ASC	01	Slurry Seal	5,573	\$0.31	\$1,728
2019	AH33BSC	01	Slurry Seal	5,533	\$0.31	\$1,715
2019	R15SC	01	2" AC Overlay	110,000	\$2.50	\$275,000
2019	R15SC	02	2" AC Overlay	400,000	\$2.50	\$1,000,000
2019	T01SC	01	Slurry Seal	16,772	\$0.31	\$5,199
2019	T01SC	02	Slurry Seal	6,984	\$0.31	\$2,165
2019	T01SC	04	Slurry Seal	7,372	\$0.31	\$2,285
2019	T01SC	05	Slurry Seal	7,275	\$0.31	\$2,255
2019	T01SC	06	Slurry Seal	7,322	\$0.31	\$2,270
2019	T01SC	07	Slurry Seal	7,471	\$0.31	\$2,316
2019	T02SC	01	Slurry Seal	5,848	\$0.31	\$1,813
2019	T02SC	02	Slurry Seal	9,806	\$0.31	\$3,040
2019	T02SC	03	Slurry Seal	7,649	\$0.31	\$2,371
2019	T02SC	04	Slurry Seal	7,649	\$0.31	\$2,371
2019	T02SC	05	Slurry Seal	12,899	\$0.31	\$3,999
2019	T02SC	06	Slurry Seal	12,899	\$0.31	\$3,999
2019	T02SC	07	Slurry Seal	8,084	\$0.31	\$2,506
2019	T02SC	08	Slurry Seal	8,084	\$0.31	\$2,506
2019	T02SC	10	Slurry Seal	7,669	\$0.31	\$2,377

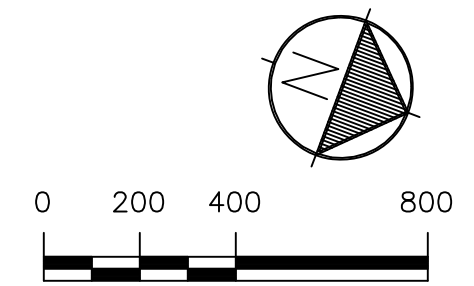
Table 2. Five-Year Global Maintenance and Rehabilitation Plan.

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2019	T02SC	11	Slurry Seal	8,098	\$0.31	\$2,510
2019	T03SC	01	4" AC over 6" Crushed Aggregate Base over 4" Aggregate Subbase	8,189	\$8.30	\$67,969
2019	T04SC	01	4" AC over 6" Crushed Aggregate Base over 4" Aggregate Subbase	4,875	\$8.30	\$40,463
2019	T05SC	01	4" AC over 6" Crushed Aggregate Base over 4" Aggregate Subbase	5,070	\$8.30	\$42,081
2019	T06SC	01	Slurry Seal	3,996	\$0.31	\$1,239
2019	TA1SC	01	2" AC Overlay	1,654	\$2.50	\$4,135
2019	TA2SC	01	Slurry Seal	967	\$0.31	\$300
2019	TA2SC	02	Slurry Seal	6,638	\$0.31	\$2,058
2019	TA2SC	03	Slurry Seal	2,067	\$0.31	\$641
2019	TA3SC	01	Slurry Seal	1,720	\$0.31	\$533
2019	TA3SC	02	Slurry Seal	6,914	\$0.31	\$2,143
2019	TA3SC	03	Slurry Seal	1,459	\$0.31	\$452
2019	TA4SC	01	2" AC Overlay	1,720	\$2.50	\$4,300
2019	TA4SC	02	Slurry Seal	6,914	\$0.31	\$2,143
2019	TA5SC	01	Slurry Seal	8,634	\$0.31	\$2,677
2019	TA6SC	02	Slurry Seal	4,351	\$0.31	\$1,349
2019	TASC	01	Slurry Seal	44,026	\$0.31	\$13,648
2019	TASC	02	Slurry Seal	59,522	\$0.31	\$18,452
2019	TASC	03	Slurry Seal	70,718	\$0.31	\$21,923
2019	TB1SC	02	2" AC Overlay	5,257	\$2.50	\$13,143
2019	TB2SC	02	Slurry Seal	2,856	\$0.31	\$885
2019	TB5SC	02	Slurry Seal	2,684	\$0.31	\$832
2019	TB6SC	01	Slurry Seal	4,386	\$0.31	\$1,360
2019	TB6SC	02	Slurry Seal	2,644	\$0.31	\$820
2019	TBSC	01	Slurry Seal	33,342	\$0.31	\$10,336
2019 Total						\$1,649,683
2022	T01SC	03	Slurry Seal	19,044	\$0.31	\$5,904
2022	TA1SC	02	Slurry Seal	30,550	\$0.31	\$9,471
2022 Total						\$15,374
5-Year Total						\$1,665,057

Figure SC-6. Five-Year Pavement Management Plan.
Scappoose Industrial Airpark



ACTION TIMING		ACTION	
	2019		FOG SEAL
	2020		SLURRY SEAL
	2021		OVERLAY
	2022		RECONSTRUCT
	2023		ROUTINE MAINTENANCE



Drawing Date: September 2018

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.