

# SALEM McNARY FIELD

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

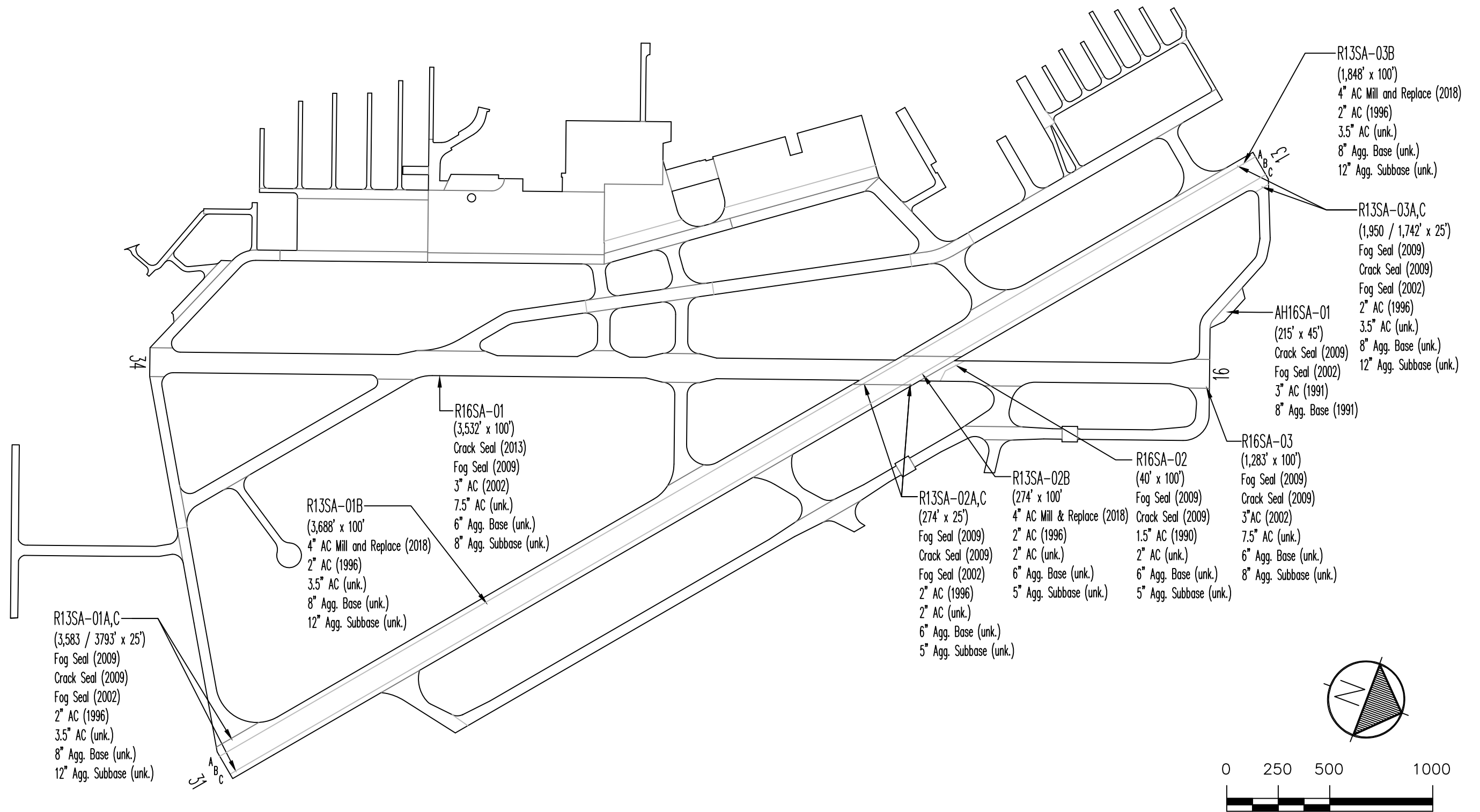
To determine how your pavements were constructed and their age, a records review was conducted. Figures SA-1A, SA-1B and SA-1C show the records review results. These figures identify pavement boundaries, dimensions, pavement layer types, thicknesses and dates of construction. The most recent construction date for each pavement can also be found in the Section Condition Report in Appendix 2. Figures SA-1A, SA-1B and SA-1C 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 SA-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 Salem McNary Field in May 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.

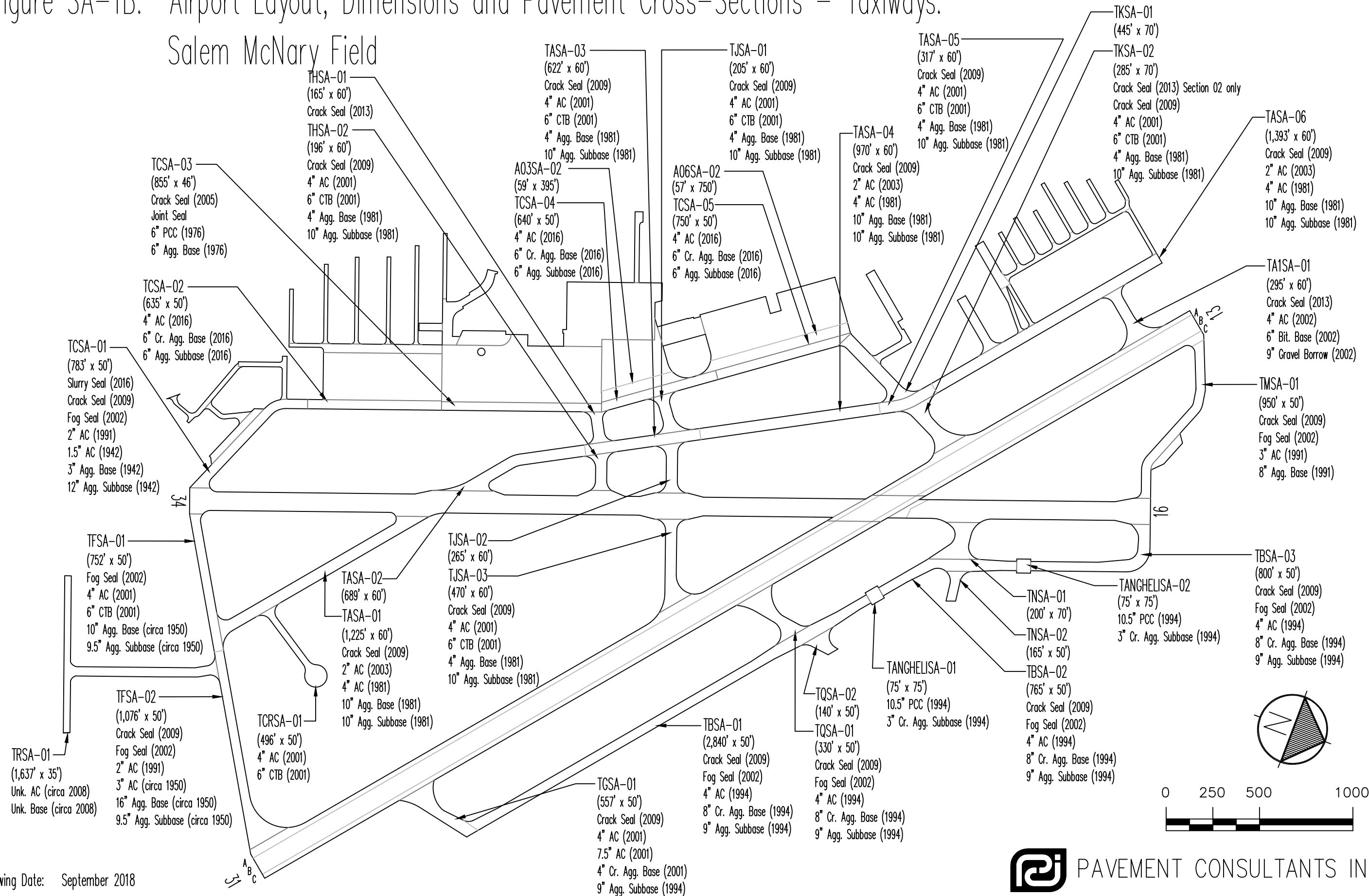
Figure SA-1A. Airport Layout, Dimensions and Pavement Cross-Sections – Runways.  
Salem McNary Field



Drawing Date: September 2018

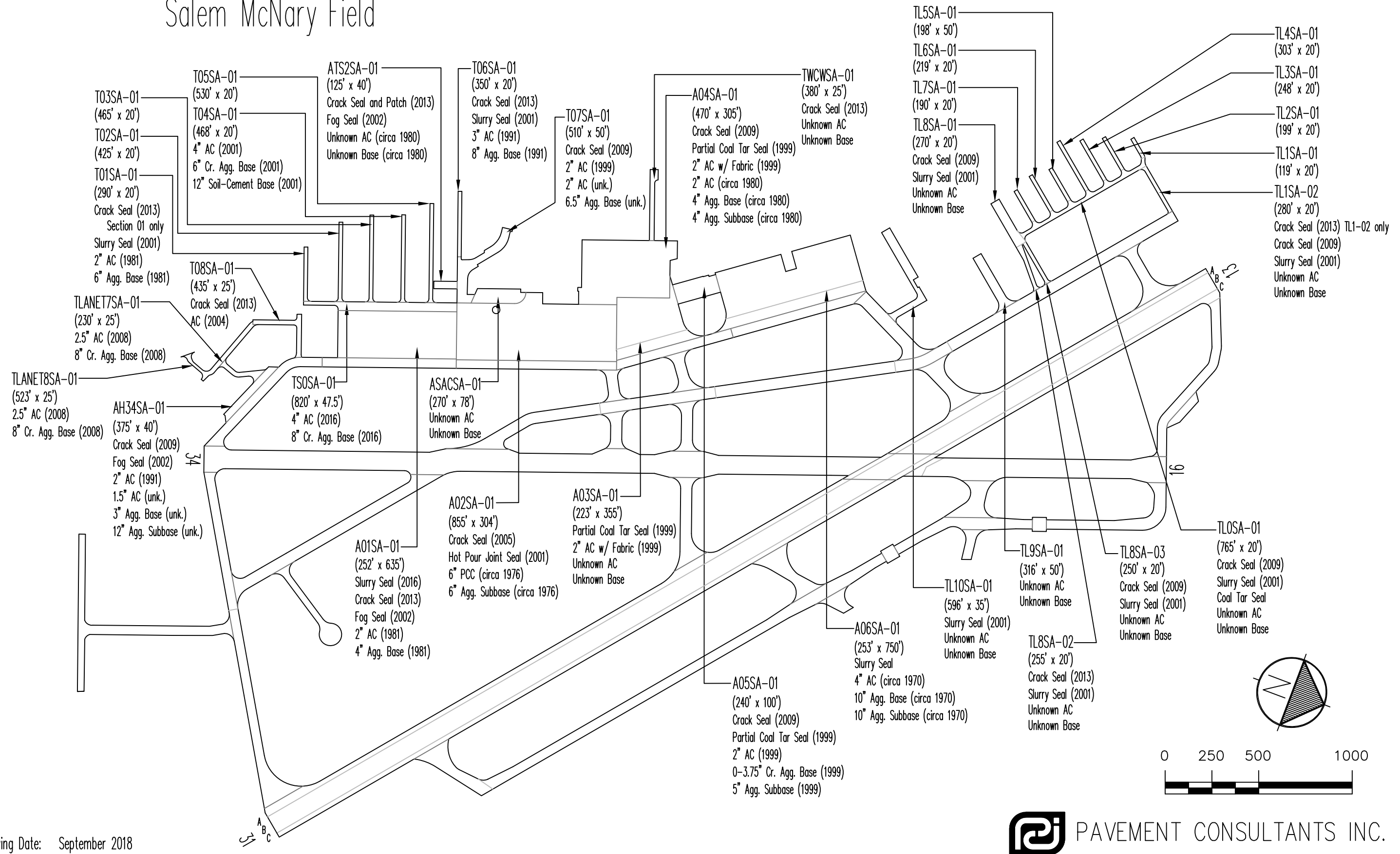
Figure SA-1B. Airport Layout, Dimensions and Pavement Cross-Sections – Taxiways.

Salem McNary Field



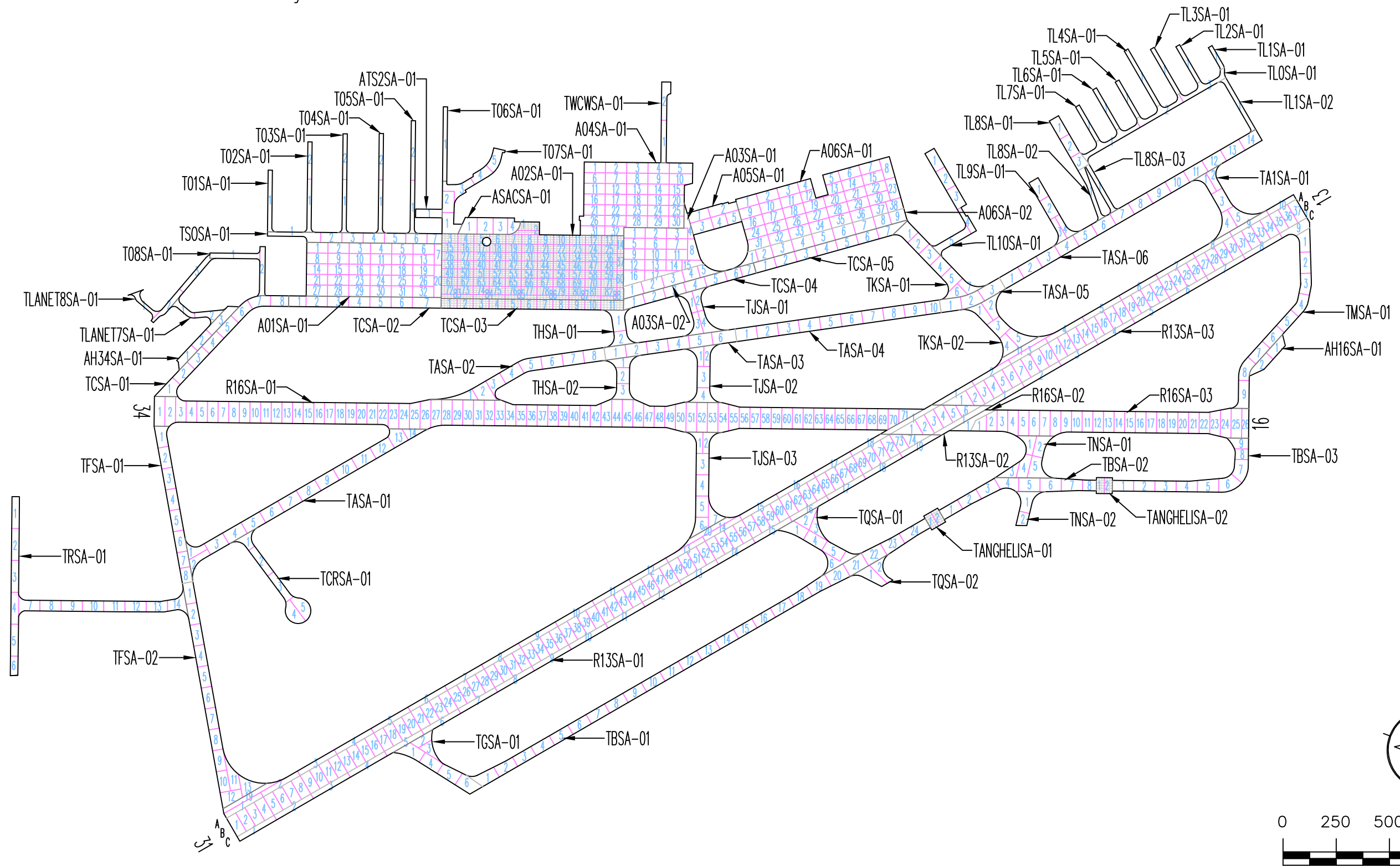
Drawing Date: September 2018

Figure SA-1C. Airport Layout, Dimensions and Pavement Cross-Sections – Aprons and Hangar Areas.  
Salem McNary Field



Drawing Date: September 2018

Figure SA-2. Pavement Branch, Section and Sample Unit Layout.  
Salem McNary Field



# 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 SA-3.

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

Branch	Section	Inspections			Forecast	
		2012	2015	2018	2023	2028
A01SA	01	54	49	75	68	61
A02SA	01	90	90	90	88	88
A03SA	01	97	89	75	71	67
A03SA	02	---	---	100	90	80
A04SA	01	98	92	71	67	63
A05SA	01	95	89	67	61	56
A06SA	01	55	53	53	50	47
A06SA	02	---	---	100	90	80
AH16SA	01	75	75	70	63	58
AH34SA	01	93	78	83	79	75
ASACSA	01	27	20	16	15	14
ATS2SA	01	52	67	45	44	43
R13SA	01A	84	74	58	42	26
R13SA	01B	---	---	100	95	88
R13SA	01C	85	74	59	43	27
R13SA	02A	82	66	42	25	9
R13SA	02B	---	--	100	95	88
R13SA	02C	82	75	59	43	27
R13SA	03A	84	74	63	48	31
R13SA	03B	---	---	100	95	88
R13SA	03C	82	68	59	43	27
R16SA	01	88	85	67	52	36
R16SA	02	62	54	44	27	11
R16SA	03	85	73	63	48	31

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

Branch	Section	Inspections			Forecast	
		2012	2015	2018	2023	2028
T01SA	01	61	85	69	56	30
T02SA	01	51	59	59	34	7
T03SA	01	59	53	53	25	0
T04SA	01	100	95	85	78	74
T05SA	01	97	95	84	77	73
T06SA	01	77	78	59	34	7
T07SA	01	85	60	66	66	65
T08SA	01	95	94	75	73	72
TA1SA	01	79	69	63	41	14
TANGHELISA	01	88	88	86	86	85
TANGHELISA	02	86	85	86	86	85
TASA	01	89	80	64	43	16
TASA	02	87	76	58	32	5
TASA	03	85	75	58	32	5
TASA	04	81	71	52	24	0
TASA	05	87	76	60	35	8
TASA	06	87	75	63	41	14
TBSA	01	85	74	67	51	23
TBSA	02	92	78	64	43	16
TBSA	03	92	80	71	63	41
TCRSA	01	100	92	91	82	76
TCSA	01	89	79	86	81	79
TCSA	02	---	---	100	96	88
TCSA	03	64	66	66	63	60
TCSA	04	---	---	100	96	88
TCSA	05	---	---	100	96	88
TFSA	01	98	83	58	32	5
TFSA	02	89	77	74	74	73
TGSA	01	89	72	62	39	12
THSA	01	87	72	68	54	26
THSA	02	90	69	58	32	5
TJSA	01	92	73	57	31	4
TJSA	02	92	74	59	34	7
TJSA	03	89	72	57	31	4
TKSA	01	88	76	55	28	1
TKSA	02	92	72	62	39	12
TLOSA	01	64	70	64	43	16
TL10SA	01	54	45	44	16	0

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

Branch	Section	Inspections			Forecast	
		2012	2015	2018	2023	2028
TL1SA	01	84	80	77	73	73
TL1SA	02	72	84	71	63	41
TL2SA	01	74	87	73	73	72
TL3SA	01	76	83	65	46	18
TL4SA	01	65	90	82	76	73
TL5SA	01	89	91	81	75	73
TL6SA	01	90	85	83	76	73
TL7SA	01	88	92	84	77	73
TL8SA	01	68	77	53	25	0
TL8SA	02	81	80	74	73	72
TL8SA	03	64	72	66	48	21
TL9SA	01	100	75	88	80	75
TLANET7SA	01	100	100	94	85	78
TLANET8SA	01	100	100	94	85	78
TMSA	01	82	72	58	32	5
TNSA	01	78	84	63	41	14
TNSA	02	78	33	75	73	72
TQSA	01	94	74	65	46	18
TQSA	02	80	63	57	31	4
TRSA	01	---	---	93	84	77
TSOSA	01	---	---	100	96	88
TWCWSA	01	64	78	76	73	73

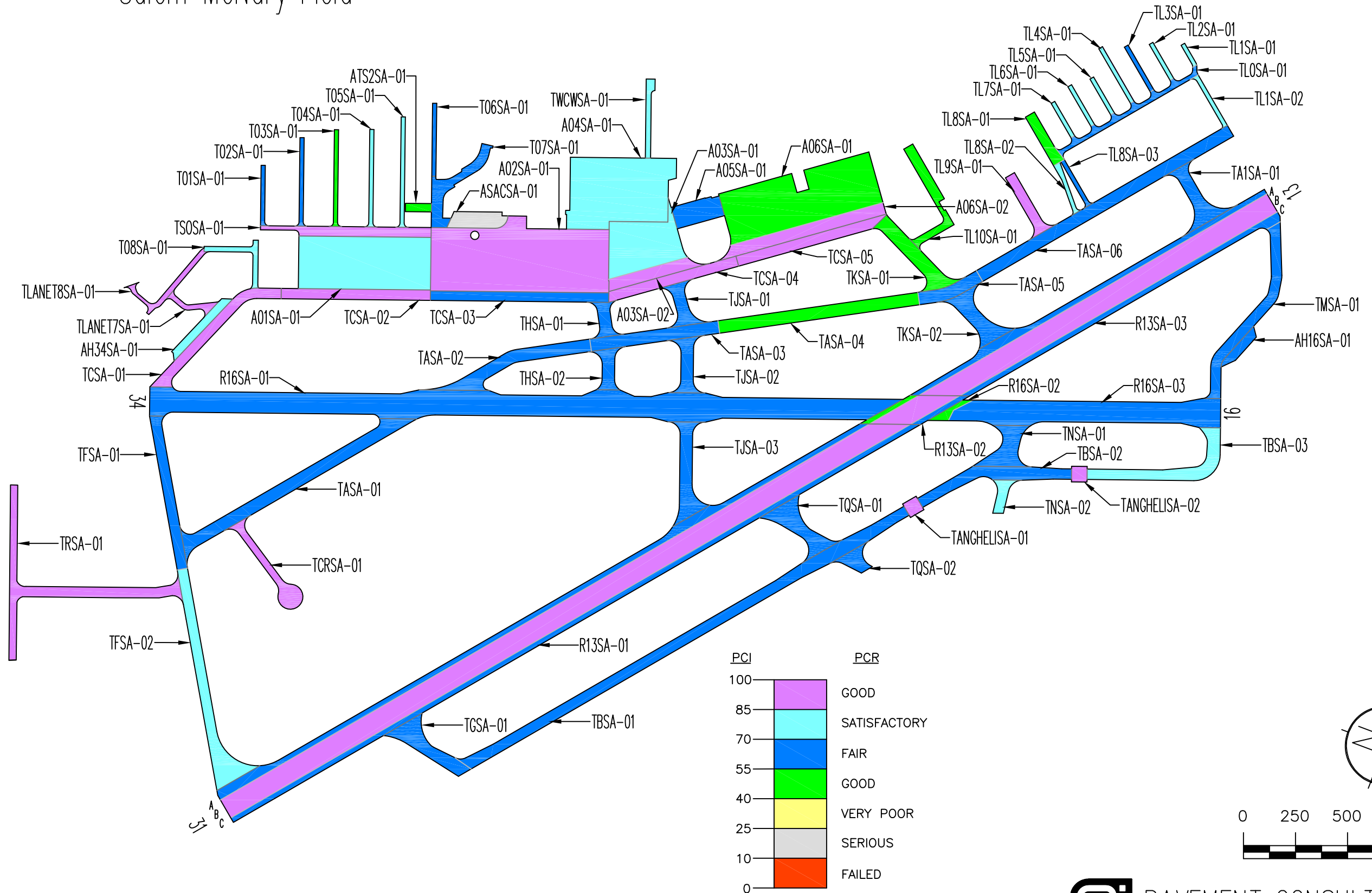
Section PCIs at Salem McNary Field range from a low of 16 (a PCR of “Serious”) to a high of 100 (a PCR of “Good”). The area-weighted average PCI for all airport pavements is 74, corresponding to an overall PCR of “Satisfactory”. Figure SA-4 shows how much pavement area is associated with each Pavement Condition Rating category and also shows pavement condition distribution from the inspections conducted in 2012 and 2015.

The primary distresses observed in the asphalt pavements during the inspection were: longitudinal and transverse cracking, weathering, block cracking, patching, alligator cracking, and depressions, with an isolated occurrence of raveling. The primary distresses observed in the concrete pavements were: linear cracking, small patches, corner spalls, and joint seal damage, and with isolated occurrences of joint spalls, shattered slabs, corner breaks, large patches and shrinkage cracks.

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

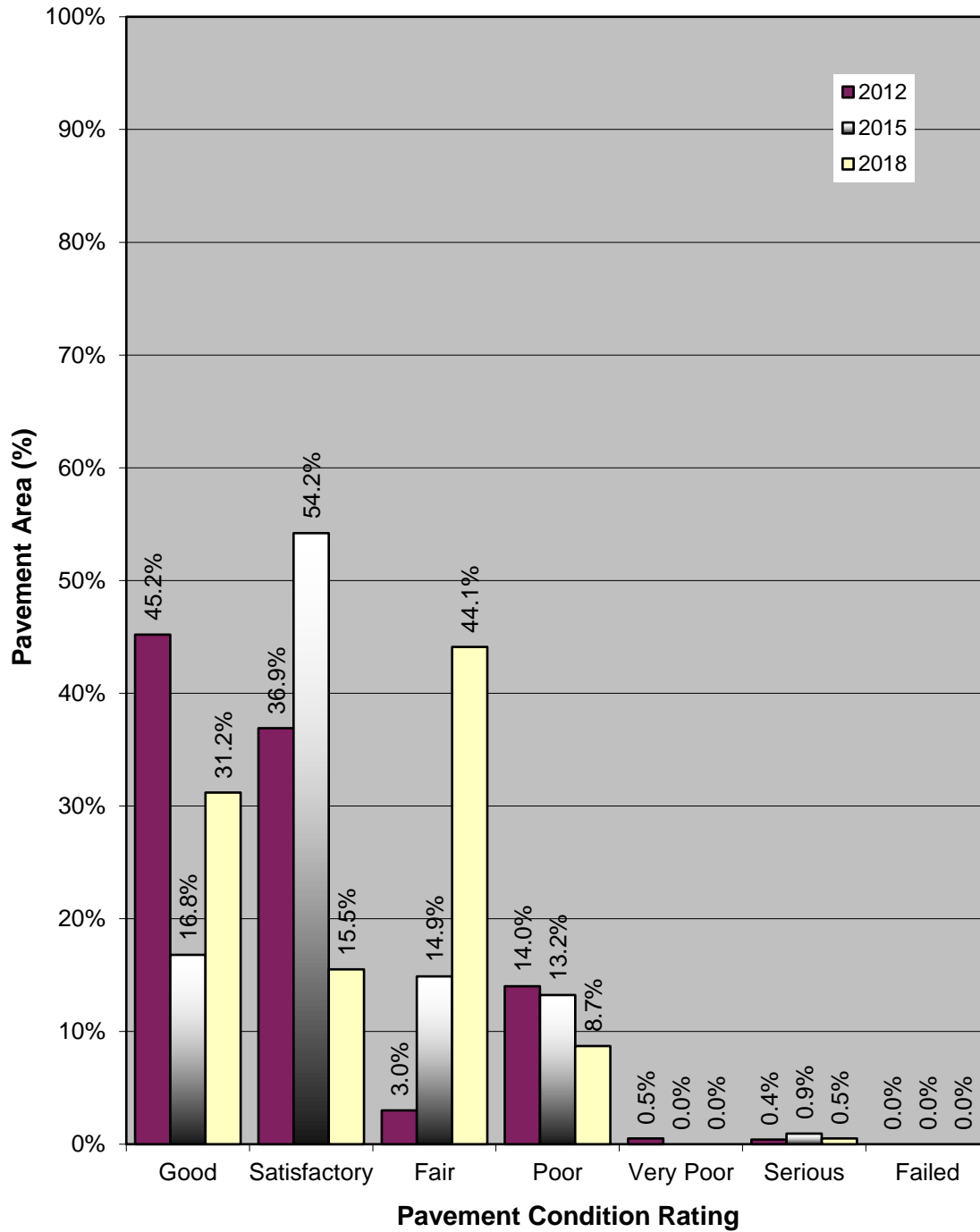


Figure SA-3. Pavement Condition in May 2018.  
Salem McNary Field

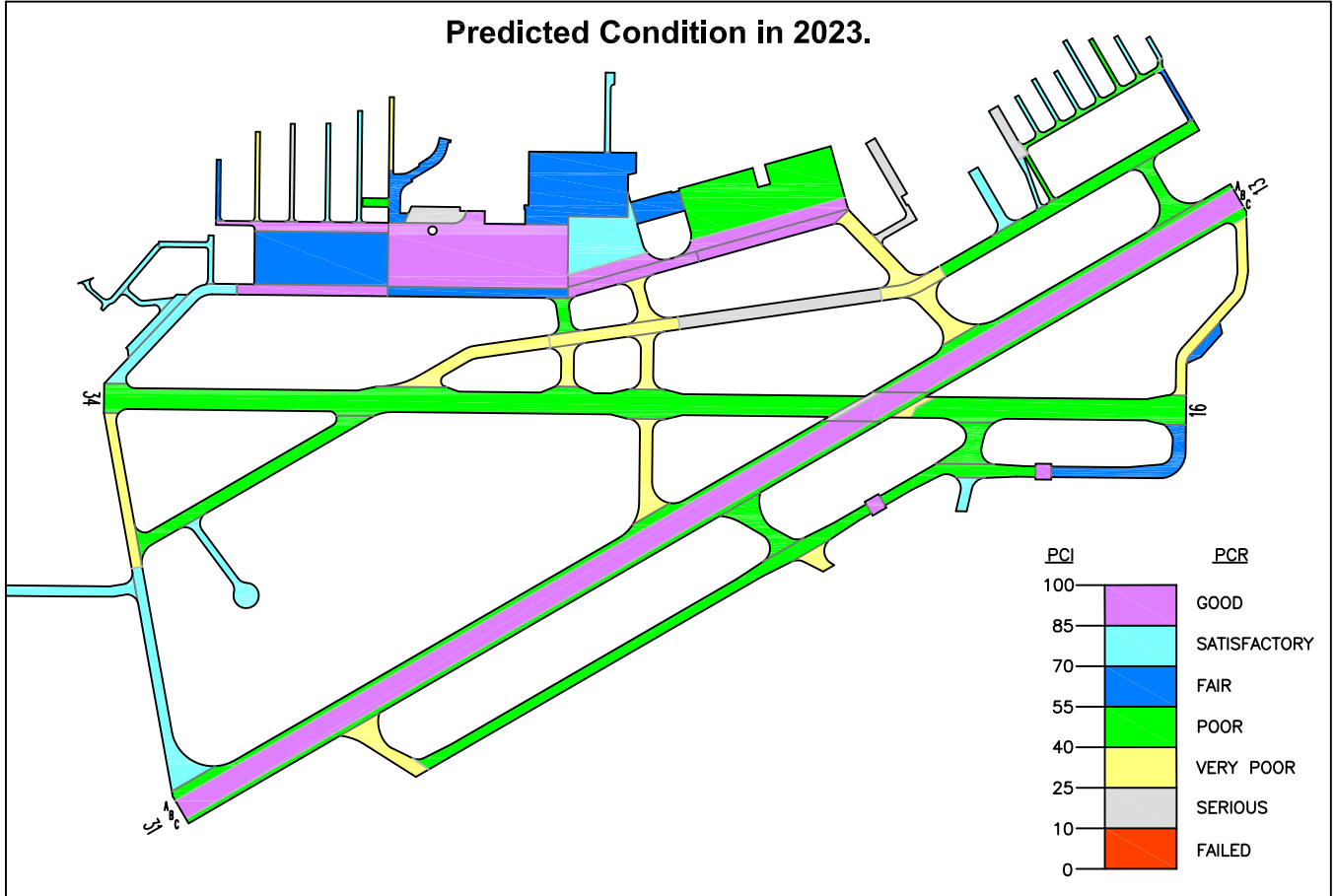


Drawing Date: September 2018

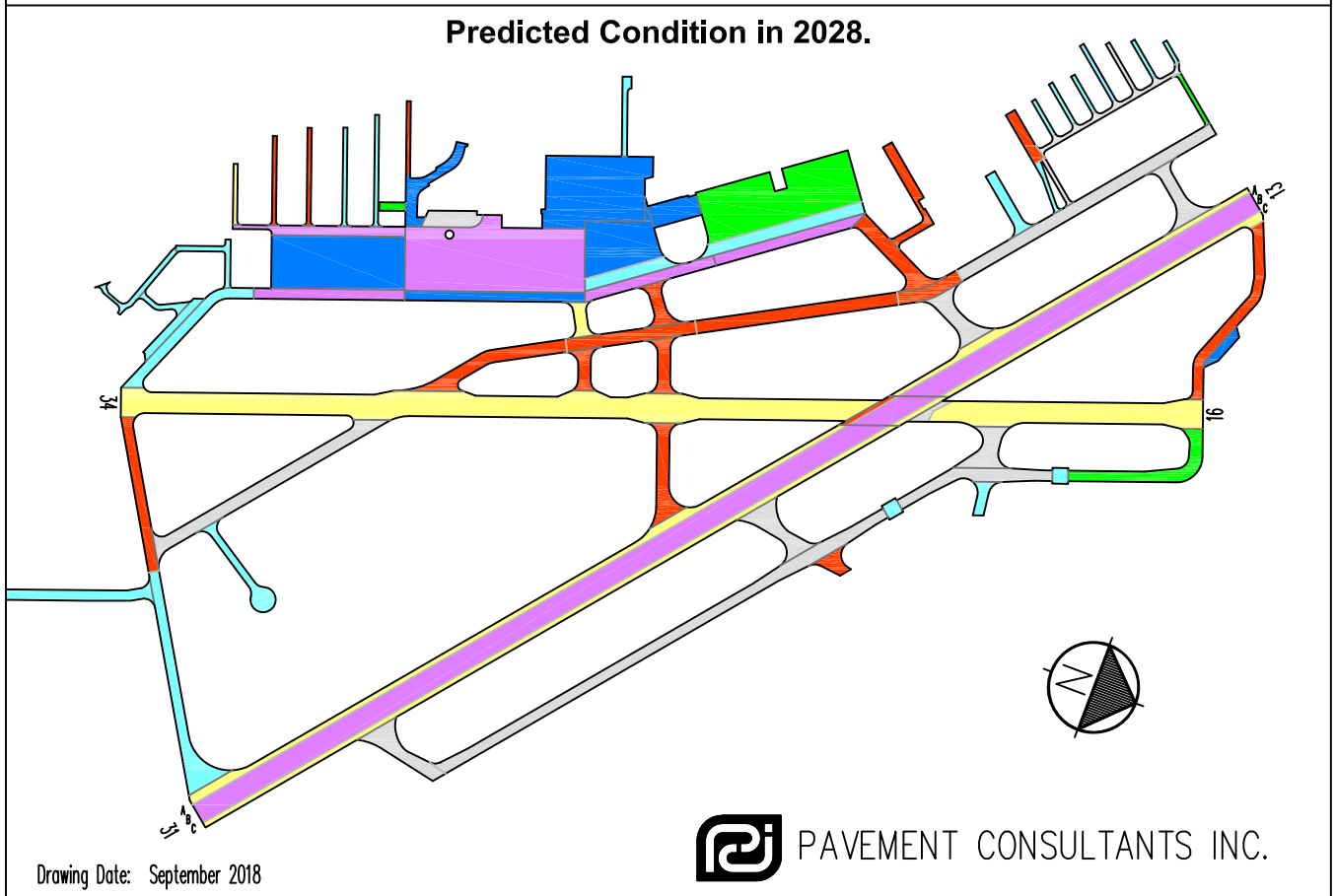
**Figure SA-4. Pavement Condition Distribution  
Salem Municipal Airport - McNary Field**



**Predicted Condition in 2023.**



**Predicted Condition in 2028.**



Drawing Date: September 2018

**Figure SA-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:

- 135,036 linear feet of asphalt concrete crack sealing
- 6,512 square feet of asphalt concrete deep patching
- 3 square feet of asphalt concrete shallow 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 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 SA-6.

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2019	A03SA	01	Slurry Seal	80,652	\$0.31	\$25,002
2019	A04SA	01	Slurry Seal	157,081	\$0.31	\$48,695
2019	A05SA	01	Slurry Seal	24,887	\$0.31	\$7,715
2019	A06SA	01	Slurry Seal	184,232	\$0.31	\$57,112
2019	AH16SA	01	Slurry Seal	9,337	\$0.31	\$2,894
2019	ASACSA	01	4" AC over 6" Crushed Aggregate Base over 6" Aggregate Subbase	20,255	\$9.00	\$182,295
2019	ATS2SA	01	2" AC Overlay	5,000	\$2.50	\$12,500
2019	R13SA	01A	2" AC Overlay	100,765	\$2.50	\$251,913
2019	R13SA	01C	2" AC Overlay	94,094	\$2.50	\$235,235
2019	R13SA	02A	4" AC over 6" Crushed Aggregate Base over 6" Aggregate Subbase	6,212	\$9.00	\$55,908
2019	R13SA	02C	2" AC Overlay	6,801	\$2.50	\$17,003
2019	R13SA	03A	2" AC Overlay	53,828	\$2.50	\$134,570
2019	R13SA	03C	2" AC Overlay	45,328	\$2.50	\$113,320
2019	R16SA	01	2" AC Overlay	385,886	\$2.50	\$964,715
2019	R16SA	02	4" AC over 6" Crushed Aggregate Base over 6" Aggregate Subbase	5,750	\$9.00	\$51,750
2019	R16SA	03	2" AC Overlay	136,838	\$2.50	\$342,095
2019	T01SA	01	Slurry Seal	5,886	\$0.31	\$1,825
2019	T02SA	01	2" AC Overlay	8,672	\$2.50	\$21,680
2019	T03SA	01	2" AC Overlay	9,471	\$2.50	\$23,678
2019	T04SA	01	Slurry Seal	9,532	\$0.31	\$2,955
2019	T05SA	01	Slurry Seal	10,772	\$0.31	\$3,339
2019	T06SA	01	2" AC Overlay	7,000	\$2.50	\$17,500
2019	T07SA	01	Slurry Seal	28,623	\$0.31	\$8,873
2019	T08SA	01	Slurry Seal	11,821	\$0.31	\$3,665
2019	TA1SA	01	2" AC Overlay	25,704	\$2.50	\$64,260
2019	TASA	01	Slurry Seal	76,728	\$0.31	\$23,786
2019	TASA	02	2" AC Overlay	45,210	\$2.50	\$113,025
2019	TASA	03	2" AC Overlay	37,331	\$2.50	\$93,328
2019	TASA	04	2" AC Overlay	58,207	\$2.50	\$145,518
2019	TASA	05	2" AC Overlay	18,988	\$2.50	\$47,470
2019	TASA	06	2" AC Overlay	83,572	\$2.50	\$208,930
2019	TBSA	01	Slurry Seal	130,289	\$0.31	\$40,390

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2019	TBSA	02	Slurry Seal	42,757	\$0.31	\$13,255
2019	TBSA	03	Slurry Seal	45,385	\$0.31	\$14,069
2019	TCRSA	01	Slurry Seal	26,148	\$0.31	\$8,106
2019	TFSA	01	2" AC Overlay	37,702	\$2.50	\$94,255
2019	TFSA	02	Slurry Seal	67,170	\$0.31	\$20,823
2019	TGSA	01	2" AC Overlay	31,225	\$2.50	\$78,063
2019	THSA	01	Slurry Seal	11,797	\$0.31	\$3,657
2019	THSA	02	2" AC Overlay	14,205	\$2.50	\$35,513
2019	TJSA	01	2" AC Overlay	16,562	\$2.50	\$41,405
2019	TJSA	02	2" AC Overlay	19,037	\$2.50	\$47,593
2019	TJSA	03	2" AC Overlay	34,614	\$2.50	\$86,535
2019	TKSA	01	2" AC Overlay	34,704	\$2.50	\$86,760
2019	TKSA	02	2" AC Overlay	27,756	\$2.50	\$69,390
2019	TL0SA	01	Slurry Seal	20,821	\$0.31	\$6,455
2019	TL10SA	01	4" AC over 6" Crushed Aggregate Base over 6" Aggregate Subbase	25,375	\$9.00	\$228,375
2019	TL1SA	01	Slurry Seal	2,388	\$0.31	\$740
2019	TL1SA	02	Slurry Seal	5,782	\$0.31	\$1,792
2019	TL2SA	01	Slurry Seal	3,980	\$0.31	\$1,234
2019	TL3SA	01	Slurry Seal	4,960	\$0.31	\$1,538
2019	TL4SA	01	Slurry Seal	6,060	\$0.31	\$1,879
2019	TL5SA	01	Slurry Seal	3,960	\$0.31	\$1,228
2019	TL6SA	01	Slurry Seal	4,380	\$0.31	\$1,358
2019	TL7SA	01	Slurry Seal	3,800	\$0.31	\$1,178
2019	TL8SA	01	2" AC Overlay	13,899	\$2.50	\$34,748
2019	TL8SA	02	Slurry Seal	5,855	\$0.31	\$1,815
2019	TL8SA	03	Slurry Seal	5,173	\$0.31	\$1,604
2019	TL9SA	01	Slurry Seal	17,098	\$0.31	\$5,300
2019	TMSA	01	2" AC Overlay	47,509	\$2.50	\$118,773
2019	TNSA	01	2" AC Overlay	25,921	\$2.50	\$64,803
2019	TNSA	02	Slurry Seal	9,579	\$0.31	\$2,969
2019	TQSA	01	Slurry Seal	31,173	\$0.31	\$9,664
2019	TQSA	02	2" AC Overlay	10,901	\$2.50	\$27,253
2019	TRSA	01	Slurry Seal	69,000	\$0.31	\$21,390
2019	TWCWSA	01	Slurry Seal	10,560	\$0.31	\$3,274
<b>2019 Total</b>						<b>\$4,459,729</b>

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2021	TLANET7SA	01	Slurry Seal	7,245	\$0.31	\$2,246
2021	TLANET8SA	01	Slurry Seal	13,110	\$0.31	\$4,064
<b>2021 Total</b>						<b>\$6,310</b>
2022	A01SA	01	Slurry Seal	160,338	\$0.31	\$49,705
2022	AH34SA	01	Slurry Seal	15,075	\$0.31	\$4,673
2022	TCSA	01	Slurry Seal	40,040	\$0.31	\$12,412
<b>2022 Total</b>						<b>\$66,790</b>
2023	A03SA	02	Fog Seal	24,388	\$0.19	\$4,634
2023	A06SA	02	Fog Seal	44,936	\$0.19	\$8,538
<b>2023 Total</b>						<b>\$13,172</b>
<b>5-Year Total</b>						<b>\$4,546,002</b>

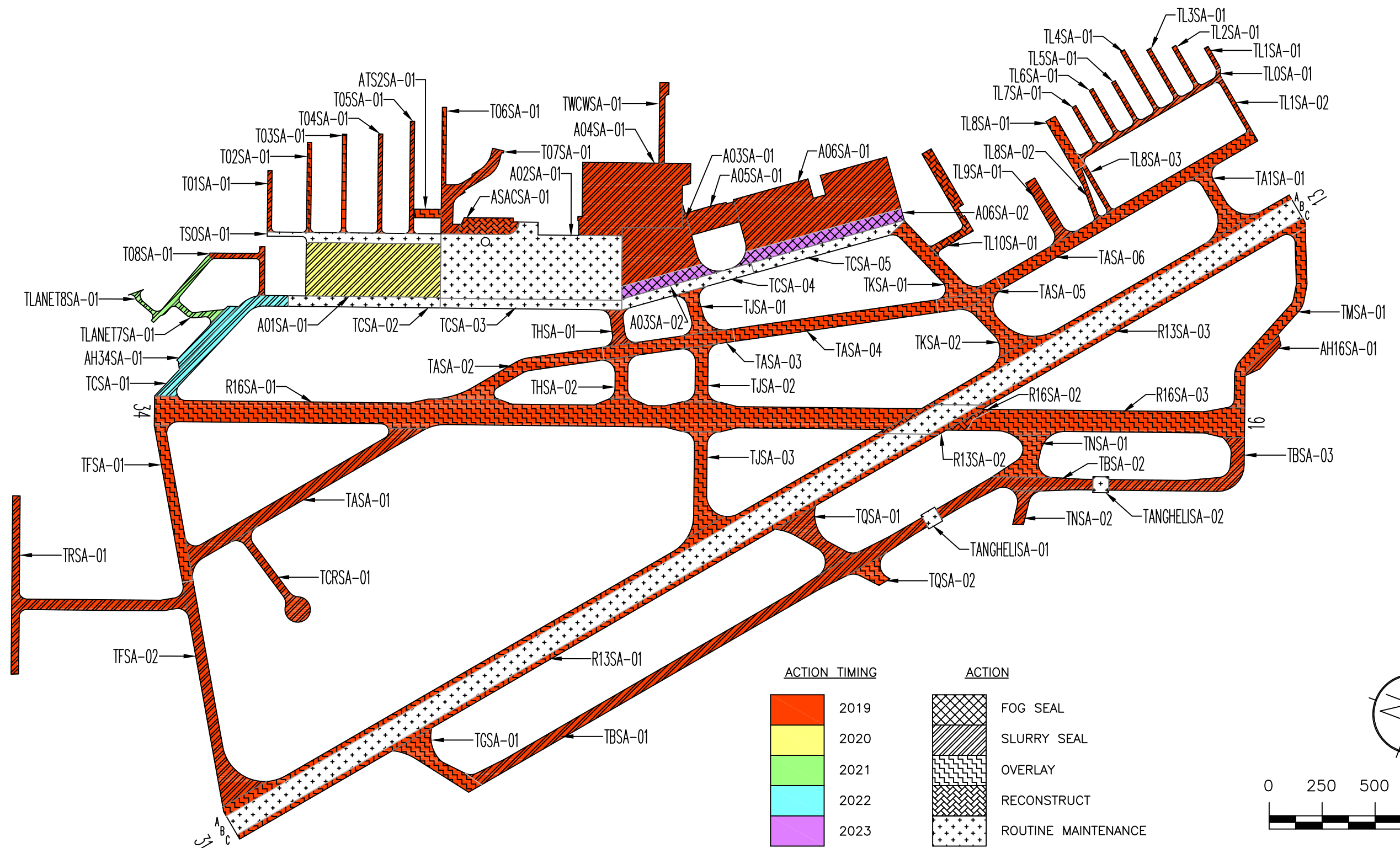
If the global maintenance and/or rehabilitation activities recommended in Table 2 are not completed, the localized maintenance activities identified in the Network Maintenance Report (Appendix 3) for that section should be done. Additionally, for those sections not listed in Table 2 as requiring global 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 2012.

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 SA-6. Five-Year Pavement Management Plan.  
Salem McNary Field



Drawing Date: September 2018