

# McMINNVILLE 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. Figures MM-1A and MM-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 MM-1A and MM-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 MM-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 McMinnville Municipal Airport 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 MM-1A. Airport Layout, Dimensions and Pavement Cross-Sections – Runways and Taxiways.  
McMinnville Municipal Airport

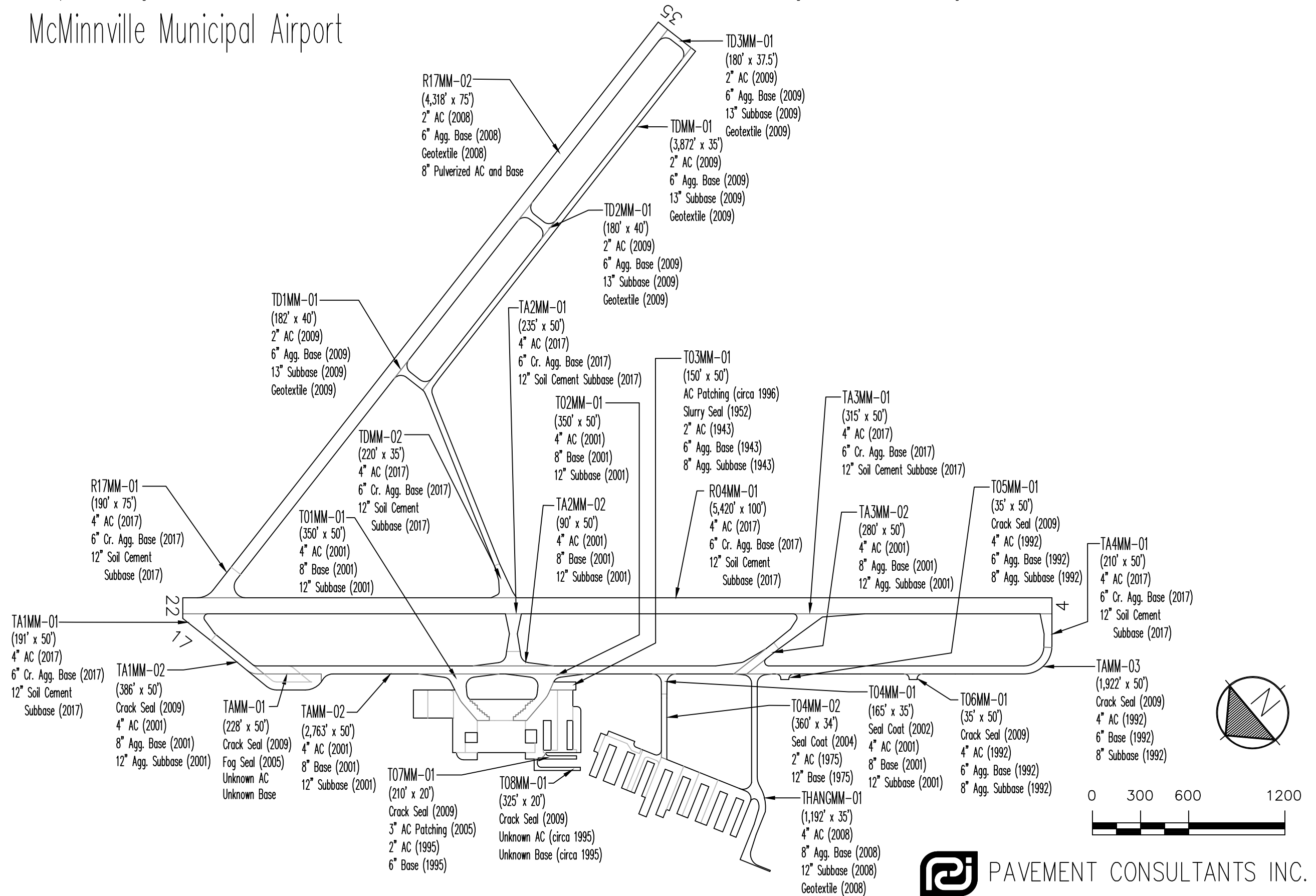
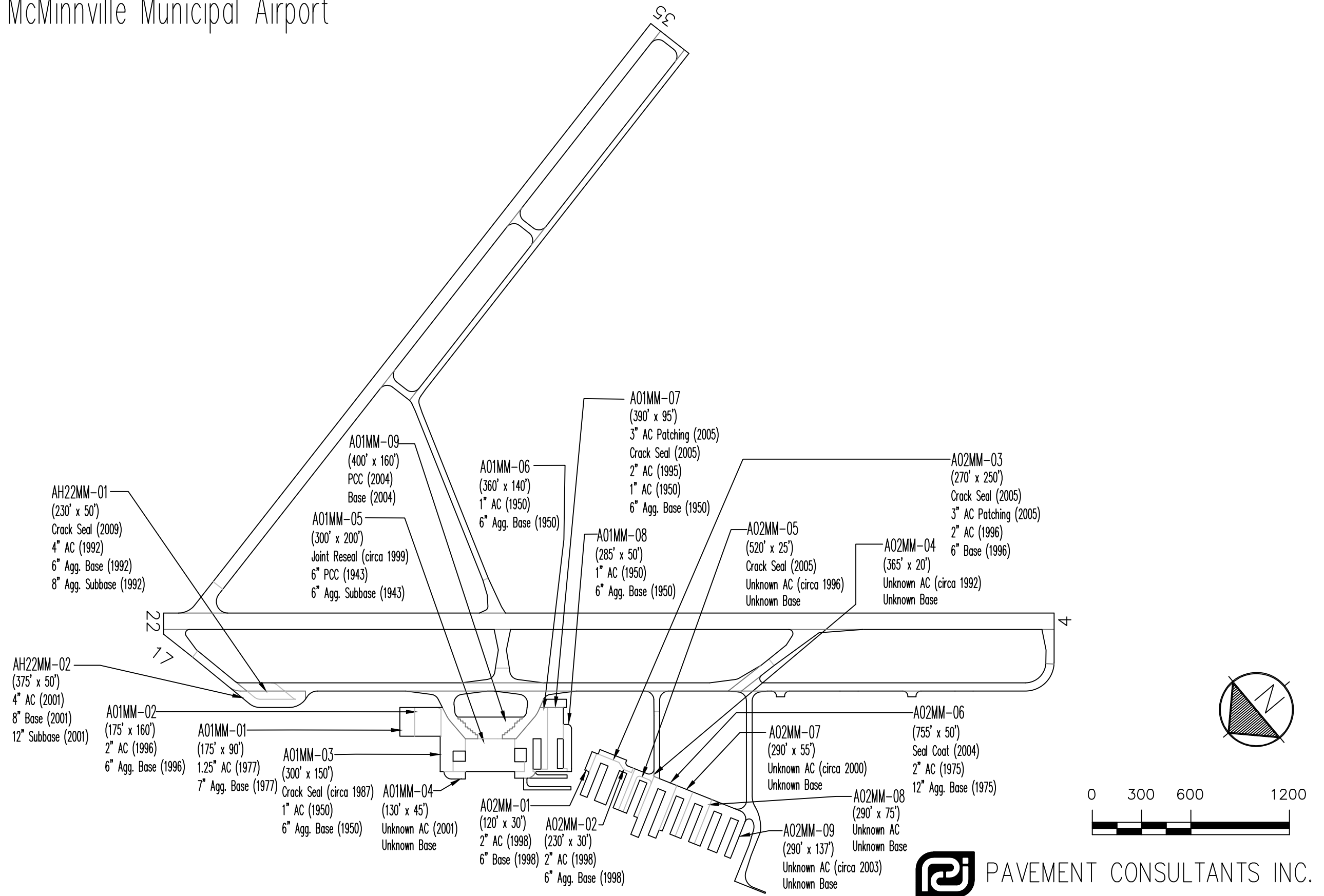
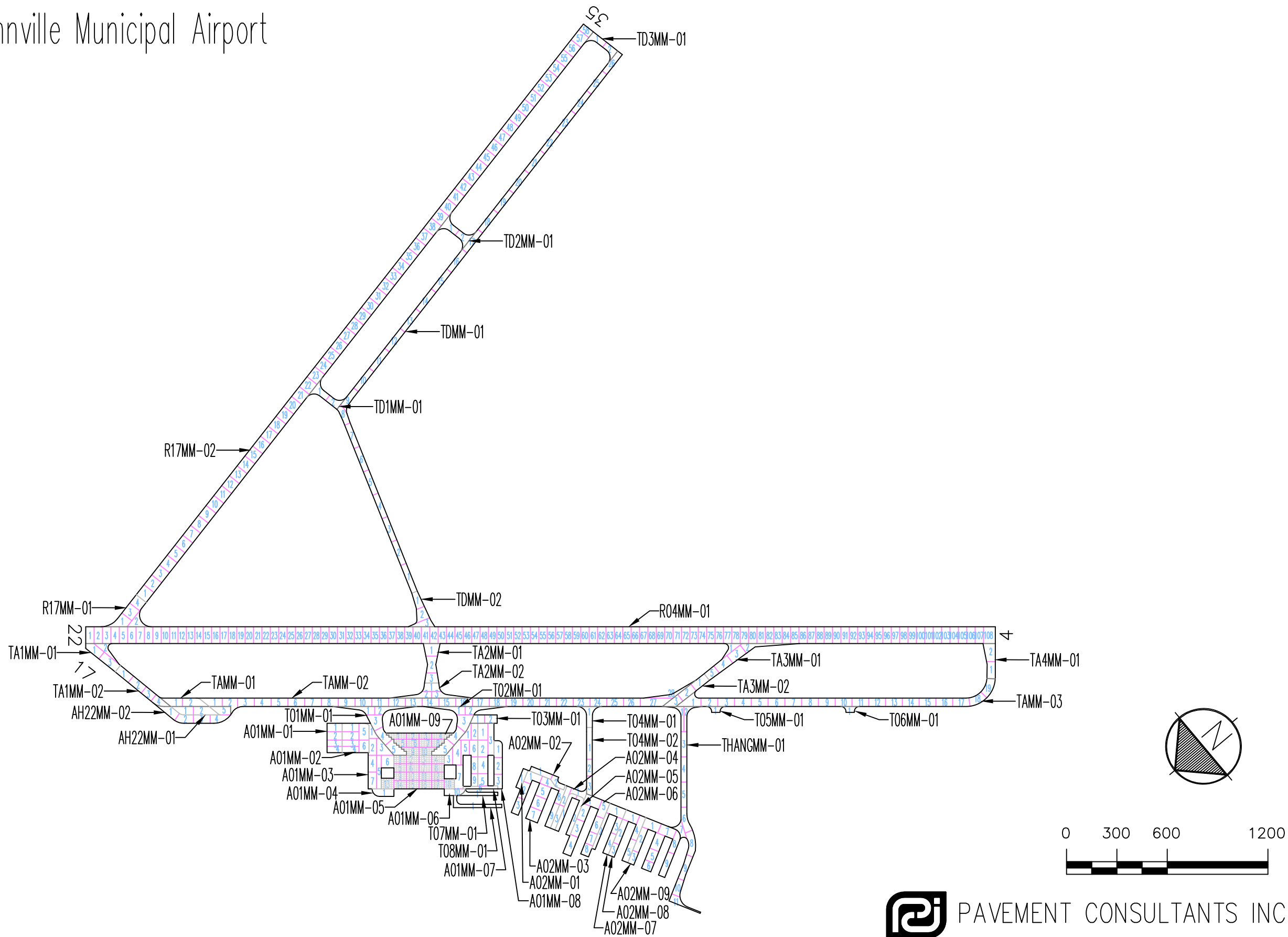


Figure MM-1B. Airport Layout, Dimensions and Pavement Cross-Sections – Aprons and Hangar Areas.  
McMinnville Municipal Airport



Drawing Date: September 2018

Figure MM-2. Pavement Branch, Section and Sample Unit Layout.  
McMinnville Municipal 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 MM-3.

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

Branch	Section	Inspections			Forecast	
		2012	2015	2018	2023	2028
A01MM	01	42	37	25	6	0
A01MM	02	42	67	46	43	40
A01MM	03	24	8	4	0	0
A01MM	04	97	97	97	84	78
A01MM	05	92	98	98	87	80
A01MM	06	25	25	30	13	0
A01MM	07	47	59	58	57	56
A01MM	08	25	12	3	0	0
A01MM	09	97	100	100	88	81
A02MM	01	80	85	80	76	72
A02MM	02	70	83	70	65	60
A02MM	03	77	75	64	58	53
A02MM	04	87	84	79	75	72
A02MM	05	64	84	85	78	74
A02MM	06	64	64	49	45	42
A02MM	07	94	92	83	77	74
A02MM	08	90	88	72	68	63
A02MM	09	98	89	84	78	74
AH22MM	01	54	54	49	45	42
AH22MM	02	91	84	67	62	56
R04MM	01	---	---	100	89	80
R17MM	01	---	---	100	89	80
R17MM	02	94	85	74	58	43
T01MM	01	81	93	79	78	72

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

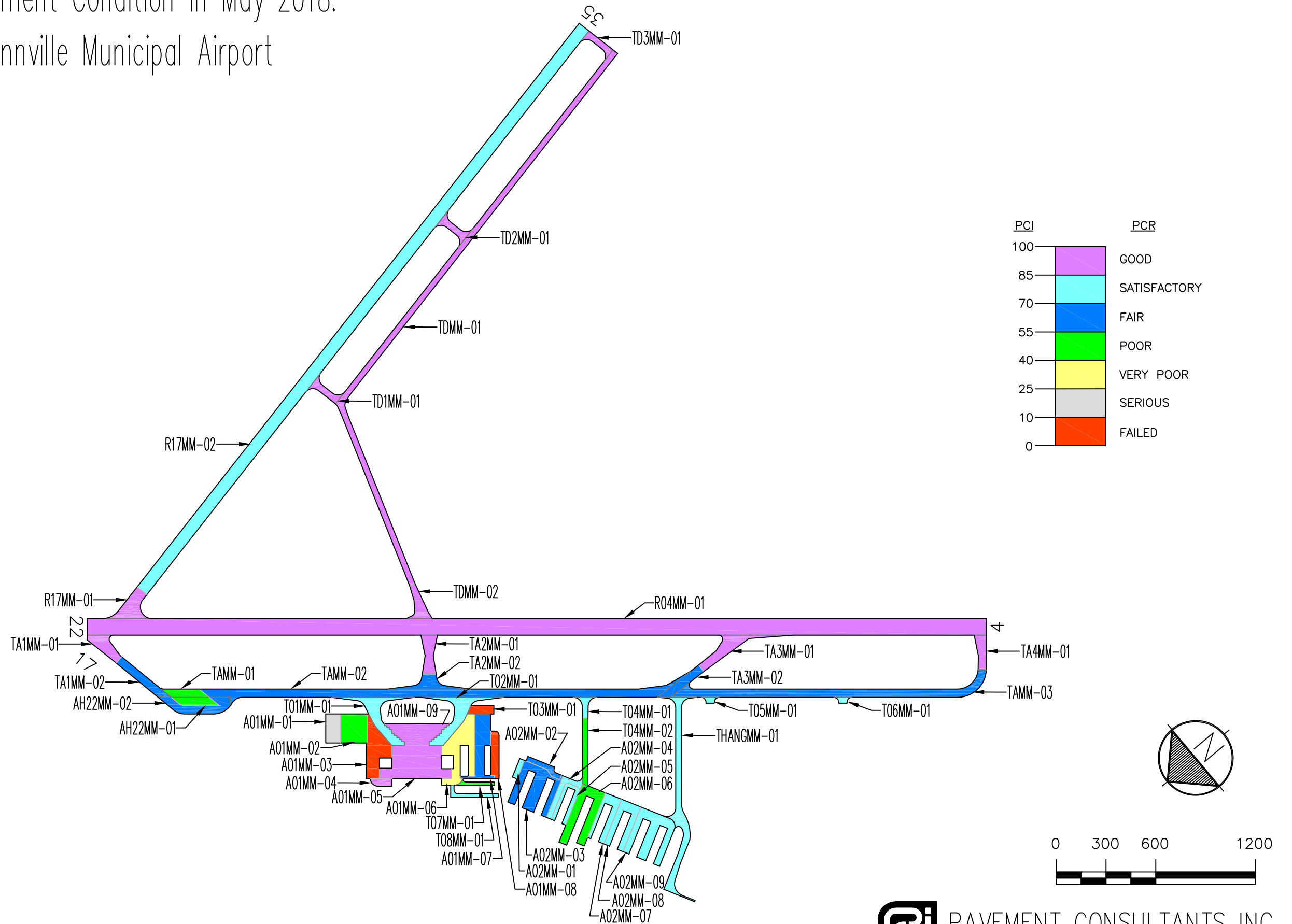
Branch	Section	Inspections			Forecast	
		2012	2015	2018	2023	2028
T02MM	01	94	85	74	65	52
T03MM	01	37	35	4	0	0
T04MM	01	100	94	85	80	79
T04MM	02	47	56	49	35	24
T05MM	01	87	88	75	67	54
T06MM	01	94	91	82	79	79
T07MM	01	81	62	45	31	21
T08MM	01	96	77	73	63	50
TA1MM	01	---	---	100	93	84
TA1MM	02	86	75	64	51	36
TA2MM	01	---	---	100	93	84
TA2MM	02	97	82	68	56	41
TA3MM	01	---	---	100	93	84
TA3MM	02	91	79	63	49	35
TA4MM	01	---	---	100	93	84
TAMM	01	64	52	53	39	26
TAMM	02	90	81	64	51	36
TAMM	03	83	80	69	57	43
TD1MM	01	100	100	90	82	79
TD2MM	01	100	100	87	81	79
TD3MM	01	100	100	87	81	79
TDMM	01	100	100	88	81	79
TDMM	02	---	---	100	93	84
THANGMM	01	100	100	80	79	79

Section PCIs at McMinnville Municipal Airport range from a low of 3 (a PCR of “Failed”) to a high of 100 (a PCR of “Good”). The area-weighted average PCI for all airport pavements is 79, corresponding to an overall PCR of “Satisfactory”. Figure MM-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: weathering, longitudinal and transverse cracking, block cracking, alligator cracking, depressions, raveling and patching. The distresses observed in the concrete pavement were: linear cracking, small patch, large patch, joint spall, and shrinkage cracks.

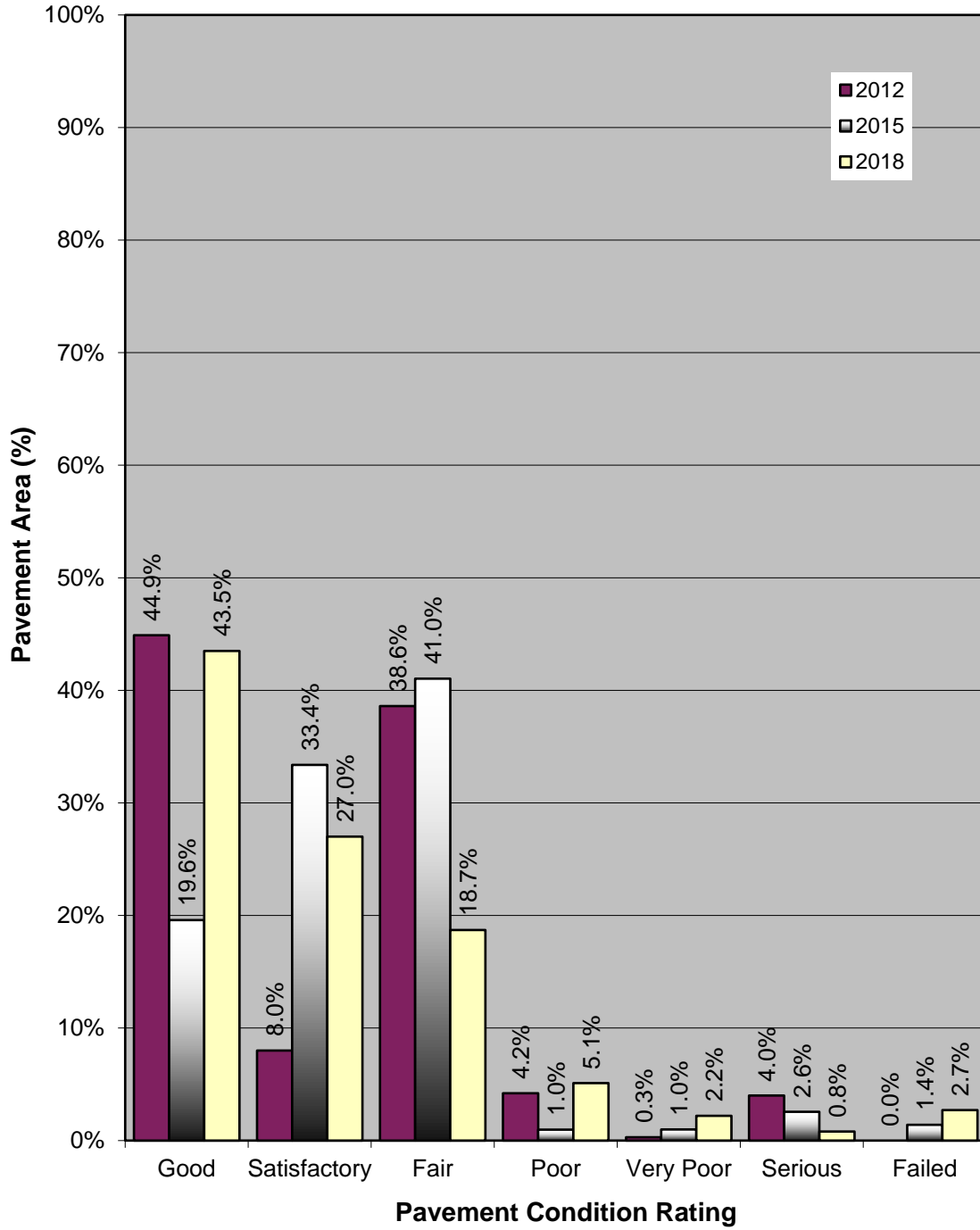
A graphical representation of the projected PCIs listed in Table 1 is shown in Figure MM-5.

Figure MM-3. Pavement Condition in May 2018.  
McMinnville Municipal Airport



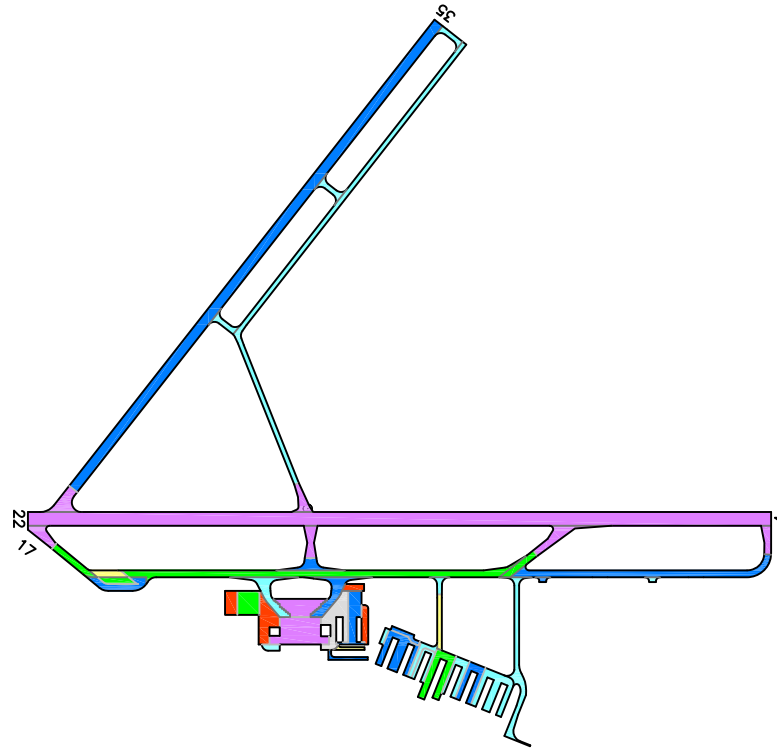
Drawing Date: September 2018

**Figure MM-4. Pavement Condition Distribution  
McMinnville Municipal Airport**



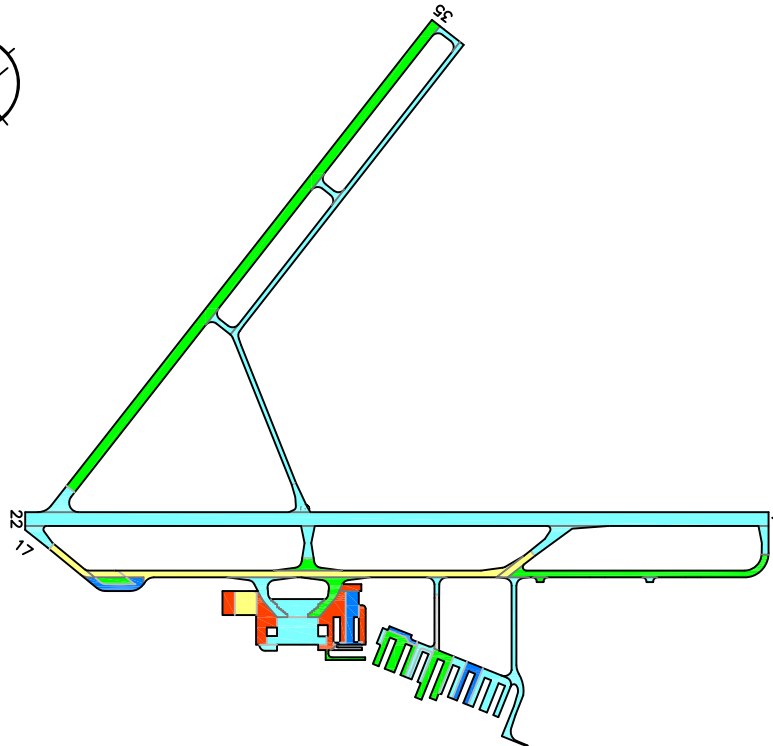


**Predicted Condition in 2023.**



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 MM-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:

- 57,104 linear feet of asphalt concrete crack sealing
- 63 linear feet of asphalt concrete wide crack sealing/repair
- 24,835 square feet of asphalt concrete deep patching
- 53,308 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 MM-6.

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2019	A01MM	01	4" AC over 6" Crushed Aggregate Base over 12" Soil Cement	15,750	\$8.40	\$132,300
2019	A01MM	02	2" AC Overlay	27,903	\$2.50	\$69,758

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2019	A01MM	03	4" AC over 6" Crushed Aggregate Base over 12" Soil Cement	35,038	\$8.40	\$294,319
2019	A01MM	06	4" AC over 6" Crushed Aggregate Base over 12" Soil Cement	46,407	\$8.40	\$389,819
2019	A01MM	07	Slurry Seal	32,672	\$0.31	\$10,128
2019	A01MM	08	4" AC over 6" Crushed Aggregate Base over 12" Soil Cement	13,802	\$8.40	\$115,937
2019	A02MM	01	Slurry Seal	3,621	\$0.31	\$1,123
2019	A02MM	02	Slurry Seal	7,475	\$0.31	\$2,317
2019	A02MM	03	Slurry Seal	44,039	\$0.31	\$13,652
2019	A02MM	04	Slurry Seal	11,573	\$0.31	\$3,588
2019	A02MM	05	Slurry Seal	12,429	\$0.31	\$3,853
2019	A02MM	06	2" AC Overlay	39,250	\$2.50	\$98,125
2019	A02MM	07	Slurry Seal	18,950	\$0.31	\$5,875
2019	A02MM	08	Slurry Seal	24,750	\$0.31	\$7,673
2019	A02MM	09	Slurry Seal	45,334	\$0.31	\$14,054
2019	AH22MM	01	2" AC Overlay	11,420	\$2.50	\$28,550
2019	AH22MM	02	Slurry Seal	24,568	\$0.31	\$7,616
2019	R17MM	02	Slurry Seal	323,878	\$0.31	\$100,402
2019	T01MM	01	Slurry Seal	28,708	\$0.31	\$8,899
2019	T02MM	01	Slurry Seal	30,334	\$0.31	\$9,404
2019	T03MM	01	4" AC over 6" Crushed Aggregate Base over 12" Soil Cement	7,500	\$8.40	\$63,000
2019	T04MM	01	Slurry Seal	5,665	\$0.31	\$1,756
2019	T04MM	02	2" AC Overlay	13,693	\$2.50	\$34,233
2019	T05MM	01	Slurry Seal	2,136	\$0.31	\$662
2019	T06MM	01	Slurry Seal	2,136	\$0.31	\$662
2019	T07MM	01	2" AC Overlay	4,472	\$2.50	\$11,180
2019	T08MM	01	Slurry Seal	6,935	\$0.31	\$2,150
2019	TA1MM	02	Slurry Seal	17,781	\$0.31	\$5,512
2019	TA2MM	02	Slurry Seal	14,472	\$0.31	\$4,486
2019	TA3MM	02	Slurry Seal	14,214	\$0.31	\$4,406
2019	TAMM	01	2" AC Overlay	11,436	\$2.50	\$28,590
2019	TAMM	02	Slurry Seal	143,160	\$0.31	\$44,380

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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2019	TAMM	03	Slurry Seal	97,143	\$0.31	\$30,114
2019	TD1MM	01	Slurry Seal	9,347	\$0.31	\$2,898
2019	TD2MM	01	Slurry Seal	9,997	\$0.31	\$3,099
2019	TD3MM	01	Slurry Seal	8,236	\$0.31	\$2,553
2019	TDMM	01	Slurry Seal	136,100	\$0.31	\$42,191
2019	THANGMM	01	Slurry Seal	52,865	\$0.31	\$16,388
<b>2019 Total</b>						<b>\$1,615,650</b>
2021	A01MM	04	Fog Seal	5,415	\$0.19	\$1,029
<b>2021 Total</b>						<b>\$1,029</b>
2023	R04MM	01	Fog Seal	542,000	\$0.19	\$102,980
2023	R17MM	01	Fog Seal	21,120	\$0.19	\$4,013
<b>2023 Total</b>						<b>\$106,993</b>
<b>5-Year Total</b>						<b>\$1,723,672</b>

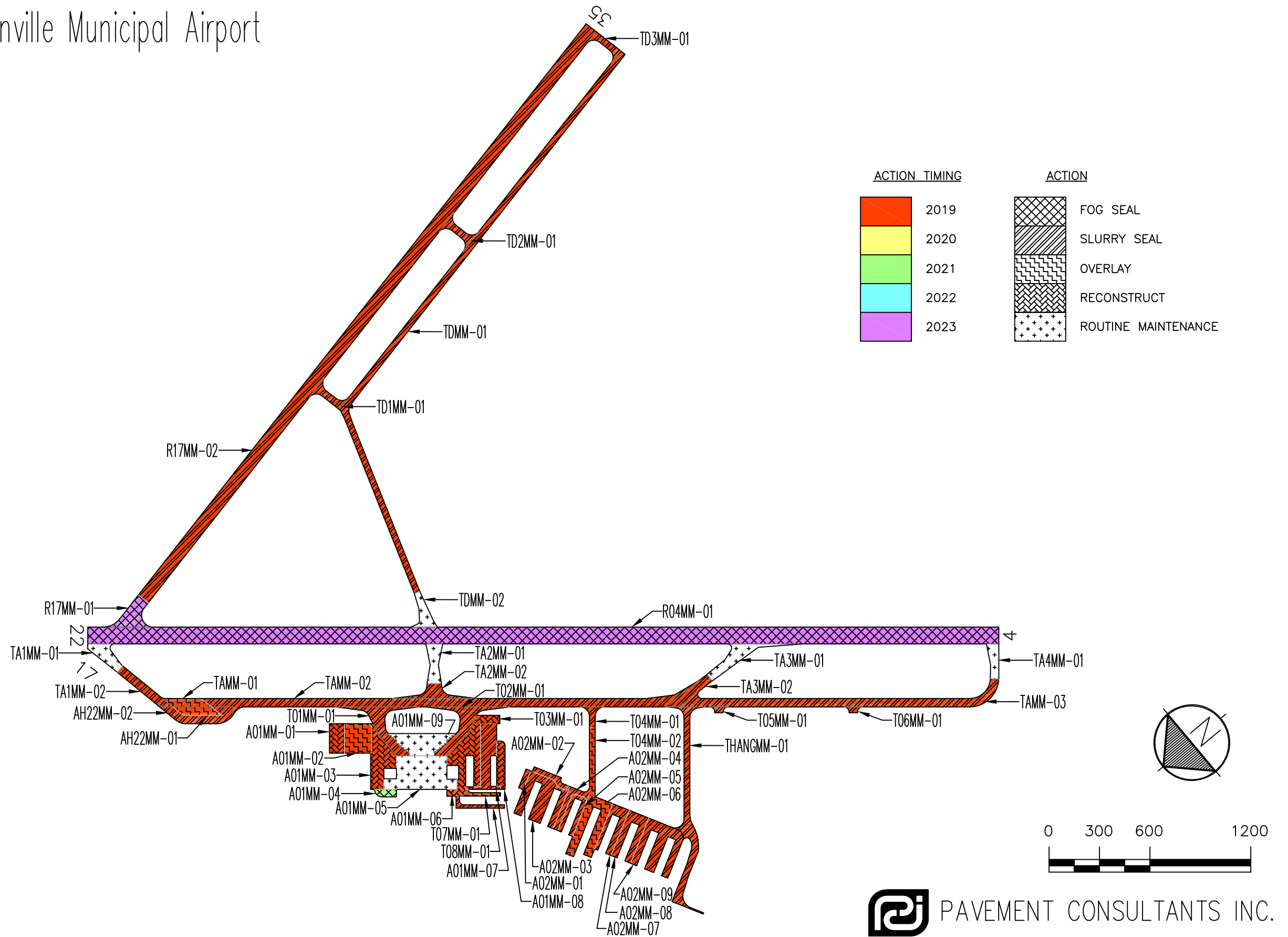
If the global maintenance and/or rehabilitation activities recommended in Table 2 are not completed, the localized maintenance activities identified in the Network Maintenance Report (Appendix 3) for that section should be done. Additionally, for those sections not listed in Table 2 as requiring global 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 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 MM-6. Five-Year Pavement Management Plan.  
McMinnville Municipal Airport



Drawing Date: September 2018