ONTARIO 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 ON-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 ON-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 ON-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 Ontario Municipal Airport in June 2074. 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 ON-1. Airport Layout, Dimensions and Pavement Cross-Sections.
Ontario Municipal Airport

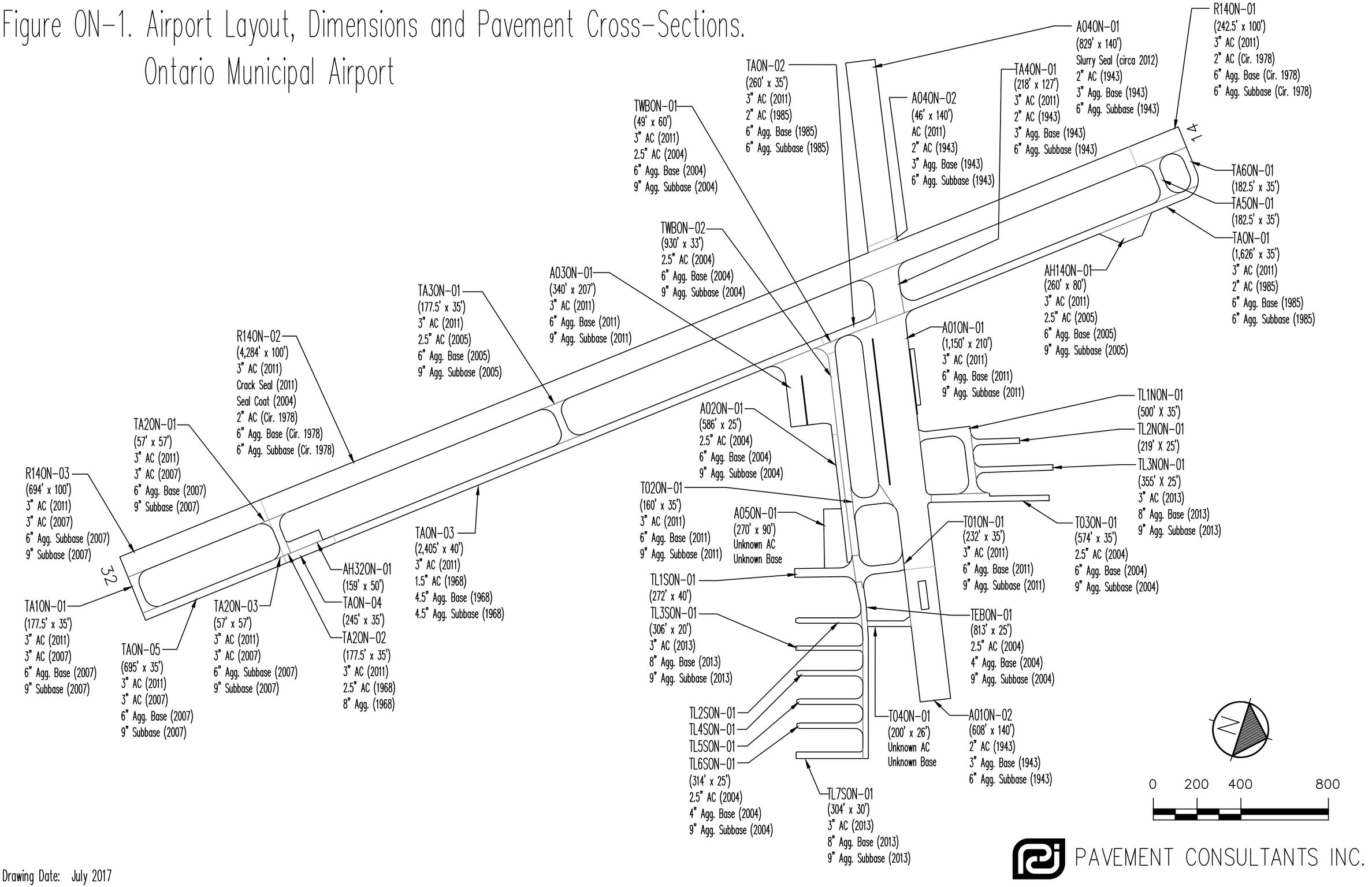

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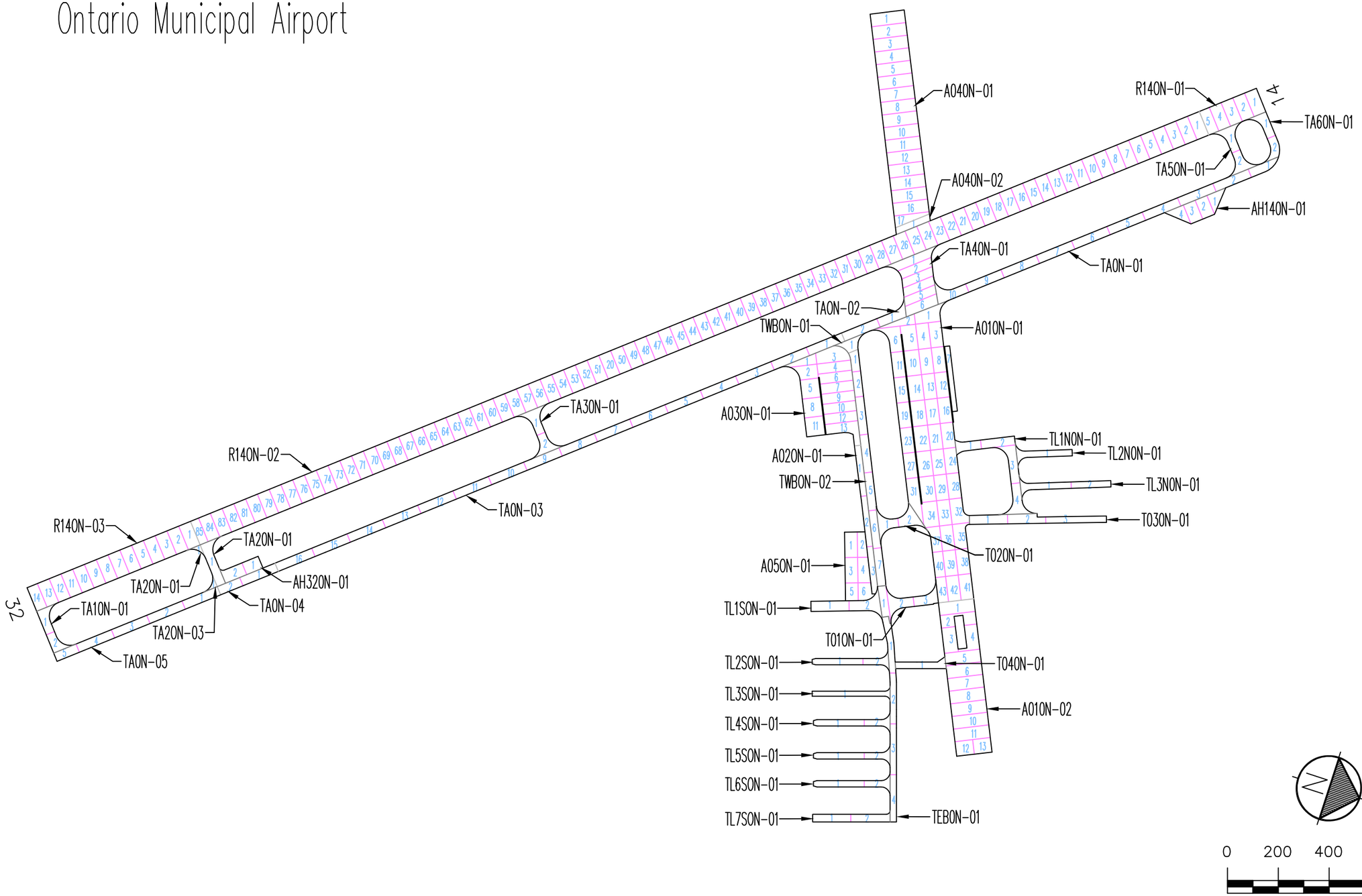
Figure ON-2. Pavement Branch, Section and Sample Unit Layout.
Ontario Municipal Airport



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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 ON-3.

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

Branch	Section	Inspections			Forecast	
		2011	2014	2017	2022	2027
A01ON	01	100	99	90	78	71
A01ON	02	---	43	28	20	13
A02ON	01	28	78	74	69	65
A03ON	01	100	100	87	76	70
A04ON	01	---	64	69	65	62
A04ON	02	---	---	88	77	70
A05ON	01	---	---	30	22	15
AH14ON	01	100	90	89	70	58
AH32ON	01	100	100	90	71	59
R14ON	01	100	89	78	69	68
R14ON	02	100	91	82	81	73
R14ON	03	100	97	94	83	82
T01ON	01	100	100	94	85	77
T02ON	01	100	100	88	79	73
T03ON	01	92	90	79	72	69
T04ON	01	94	75	60	50	39
TA1ON	01	100	94	89	79	68
TA2ON	01	100	99	94	84	74
TA2ON	02	100	94	85	74	63
TA2ON	03	100	100	94	84	74
TA3ON	01	100	96	88	78	66
TA4ON	01	100	96	91	81	70
TA5ON	01	100	96	89	79	68
TA6ON	01	100	97	90	80	69

Figure ON-3. Pavement Condition in June 2017.
Ontario Municipal Airport

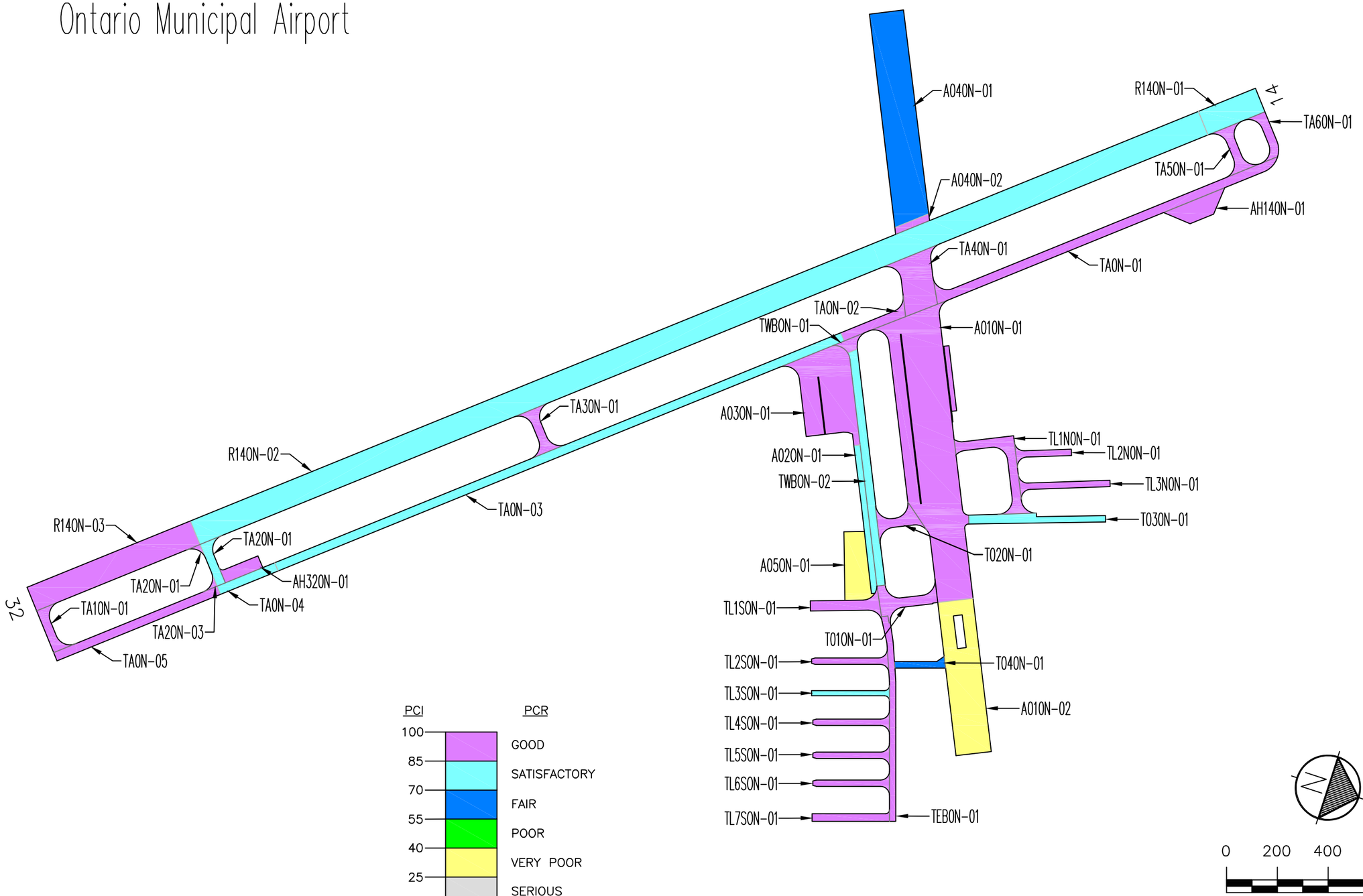

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Table 1. Past, Present and Future Pavement Condition Indices.

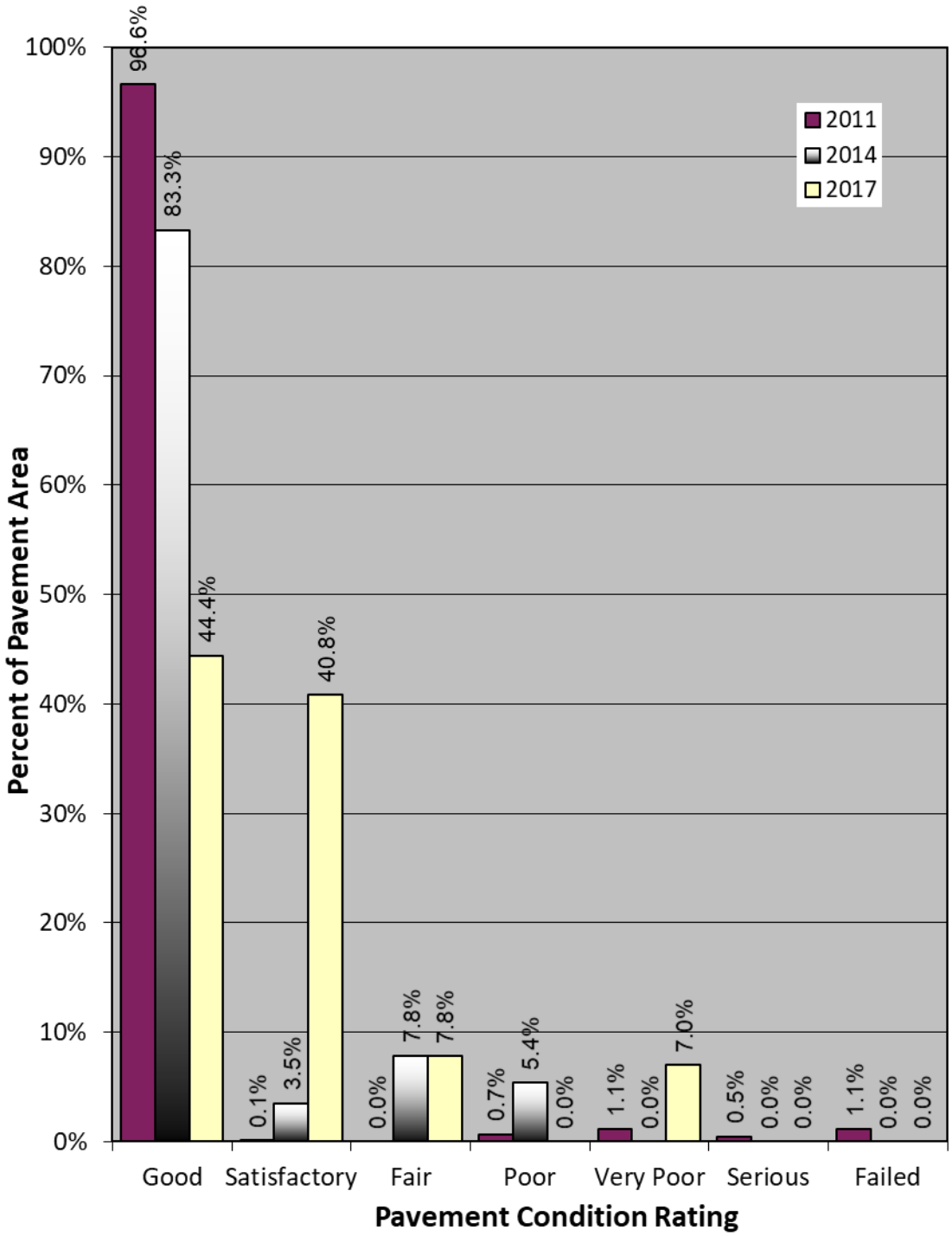
Branch	Section	Inspections			Forecast	
		2011	2014	2017	2022	2027
TAON	01	100	96	88	78	66
TAON	02	100	95	88	78	66
TAON	03	100	95	83	72	61
TAON	04	100	97	85	74	63
TAON	05	100	97	94	84	74
TEBON	01	90	89	91	82	74
TL1NON	01	---	100	100	92	82
TL1SON	01	---	100	86	78	72
TL2NON	01	---	100	100	92	82
TL2SON	01	92	94	86	78	72
TL3NON	01	---	100	100	92	82
TL3SON	01	---	100	81	74	69
TL4SON	01	94	91	94	85	77
TL5SON	01	94	87	88	79	73
TL6SON	01	94	94	90	81	74
TL7SON	01	---	100	89	80	73
TWBON	01	100	92	87	77	65
TWBON	02	91	75	79	72	69

Section PCIs at Ontario Municipal Airport range from a low of 28 (a PCR of “Very Poor”) to a high of 100 (a PCR of “Good”). The area-weighted average PCI for all airport pavements is 81, corresponding to an overall PCR of “Satisfactory”. Figure ON-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.

The primary distresses observed during the inspection were: weathering, longitudinal and transverse cracking, patching, depressions and block cracking, with isolated occurrences of alligator cracking and raveling.

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

Figure ON-4. Distribution of Pavement Condition
Ontario Municipal Airport



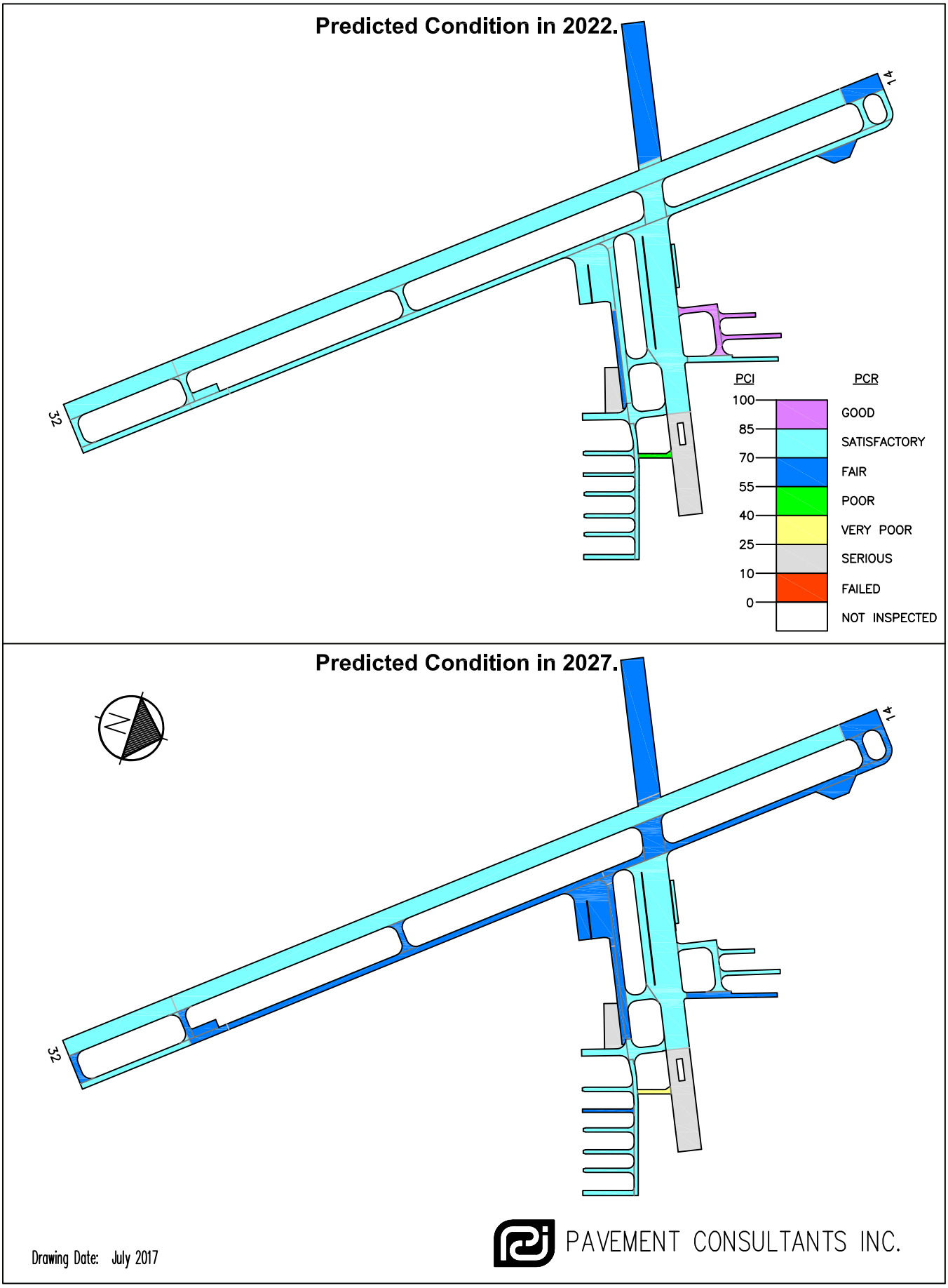


Figure ON-5. Future Pavement Condition.

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:

- 24,839 linear feet of asphalt concrete crack sealing
- 4,909 linear feet of asphalt concrete wide crack repair
- 42 square feet of deep (full-depth) asphalt concrete patching
- 25,300 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 ON-6.

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

Year	Branch	Section	Action	Area (sf)	Unit Cost ($/sf)	Total Cost ($)
2018	A01ON	01	Slurry Seal	223,598	$0.31	$69,315
2018	A01ON	02	3" AC over 8" Aggregate Base over 9" Aggregate Subbase	80,531	$9.90	$797,257
2018	A02ON	01	Slurry Seal	14,093	$0.31	$4,369

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

Year	Branch	Section	Action	Area (sf)	Unit Cost ($/sf)	Total Cost ($)
2018	A03ON	01	Slurry Seal	69,505	$0.31	$21,546
2018	A04ON	01	Slurry Seal	113,512	$0.31	$35,189
2018	A04ON	02	Slurry Seal	3,749	$0.31	$1,162
2018	A05ON	01	3" AC over 8" Aggregate Base over 9" Aggregate Subbase	25,300	$9.90	$250,470
2018	AH14ON	01	Slurry Seal	14,400	$0.31	$4,464
2018	AH32ON	01	Slurry Seal	7,998	$0.31	$2,479
2018	R14ON	01	Slurry Seal	24,250	$0.31	$7,517
2018	R14ON	02	Slurry Seal	428,400	$0.31	$132,804
2019	R14ON	03	Slurry Seal	69,400	$0.31	$21,514
2018	T02ON	01	Slurry Seal	9,277	$0.31	$2,876
2018	T03ON	01	Slurry Seal	16,596	$0.31	$5,145
2018	T04ON	01	Slurry Seal	5,499	$0.31	$1,705
2018	TA1ON	01	Slurry Seal	7,631	$0.31	$2,366
2020	TA2ON	01	Slurry Seal	702	$0.31	$218
2018	TA2ON	02	Slurry Seal	6,929	$0.31	$2,148
2020	TA2ON	03	Slurry Seal	717	$0.31	$222
2018	TA3ON	01	Slurry Seal	9,051	$0.31	$2,806
2018	TA4ON	01	Slurry Seal	29,928	$0.31	$9,278
2018	TA5ON	01	Slurry Seal	9,226	$0.31	$2,860
2018	TA6ON	01	Slurry Seal	7,436	$0.31	$2,305
2018	TAON	01	Slurry Seal	51,336	$0.31	$15,914
2018	TAON	02	Slurry Seal	9,842	$0.31	$3,051
2018	TAON	03	Slurry Seal	84,206	$0.31	$26,104
2018	TAON	04	Slurry Seal	8,575	$0.31	$2,658
2018	TEBON	01	Slurry Seal	20,638	$0.31	$6,398
2018	TL2SON	01	Slurry Seal	8,012	$0.31	$2,484
2018	TL5SON	01	Slurry Seal	8,007	$0.31	$2,482
2018	TL6SON	01	Slurry Seal	8,007	$0.31	$2,482
2018	TWBON	01	Slurry Seal	3,347	$0.31	$1,038
2018	TWBON	02	Slurry Seal	30,826	$0.31	$9,556
					2018 Total	$1,452,180
2019	TL1SON	01	Slurry Seal	12,281	$0.31	$3,807
2019	TL3SON	01	Slurry Seal	6,301	$0.31	$1,953
2019	TL7SON	01	Slurry Seal	9,183	$0.31	$2,847
					2019 Total	$8,607
2020	T01ON	01	Fog Seal	13,923	$0.19	$2,645

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

Year	Branch	Section	Action	Area (sf)	Unit Cost ($/sf)	Total Cost ($)
2020	TAON	05	Fog Seal	24,325	$0.19	$4,622
2020	TL4SON	01	Fog Seal	8,007	$0.19	$1,521
					2020 Total	$8,788
					TOTAL	$1,469,575

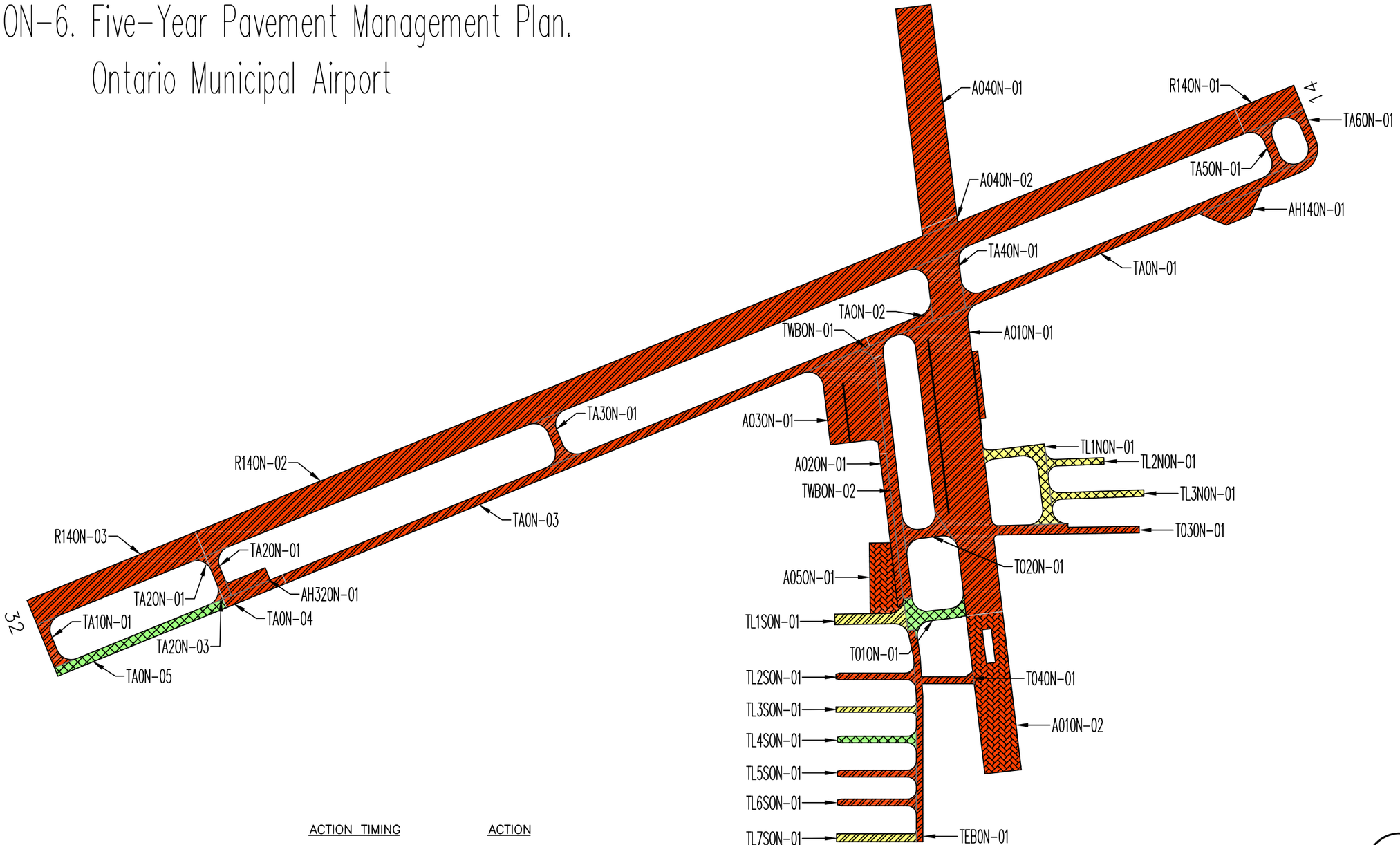
If the global maintenance and/or rehabilitation activities recommended in Table 2 are not completed, the localized maintenance activities identified in the Network Maintenance Report (Appendix 3) for that section should be done. Additionally, for those sections not listed in Table 2 as requiring global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



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

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