

# FLORENCE 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

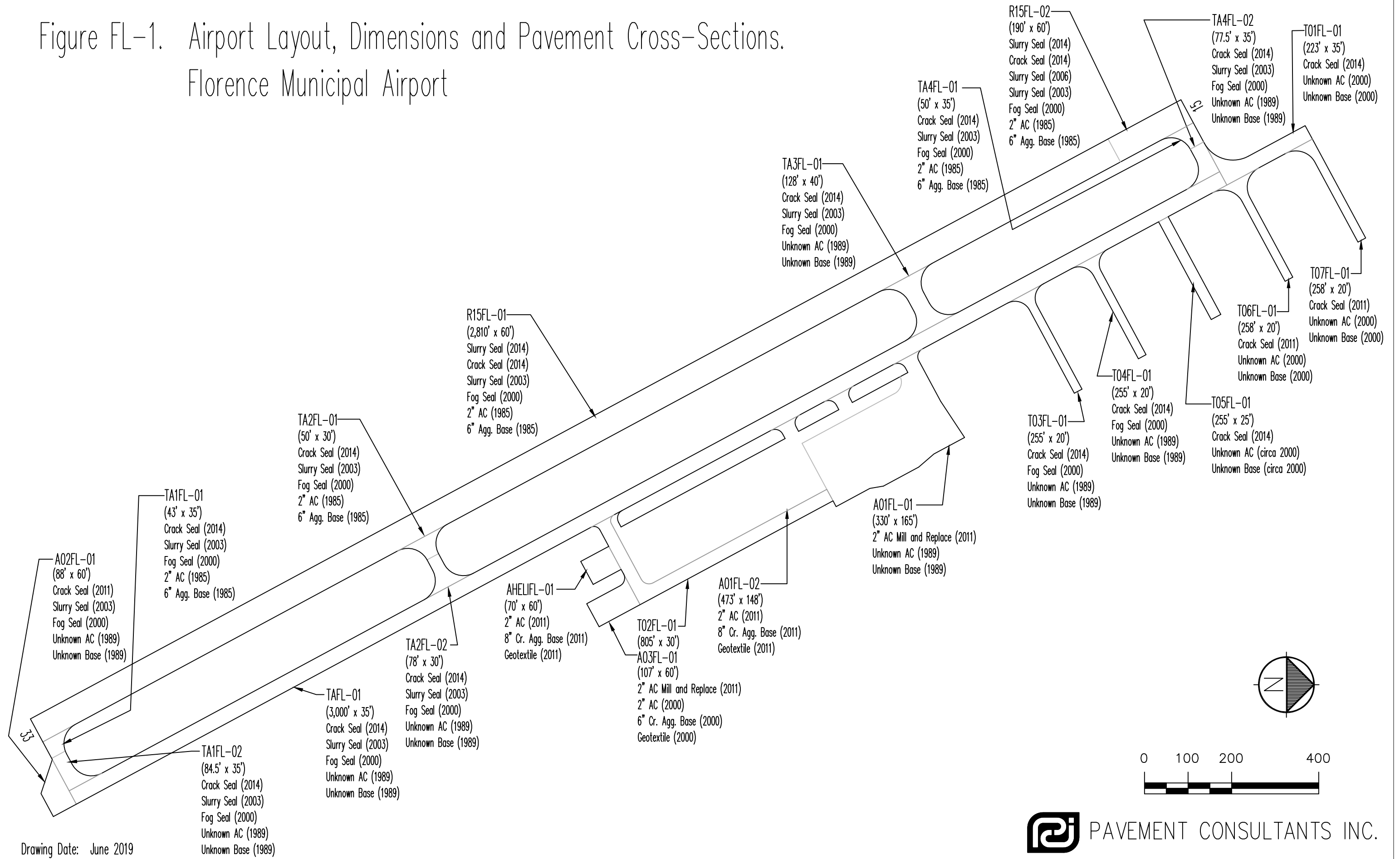
To determine how your pavements were constructed and their age, a records review was conducted. Figure FL-1 shows the records review results. This figure identifies pavement boundaries, dimensions, pavement layer types, thicknesses and dates of construction. The most recent construction date for each pavement can also be found in the Section Condition Report in Appendix 2. Figure FL-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 FL-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 Florence Municipal Airport in May 2019. 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.

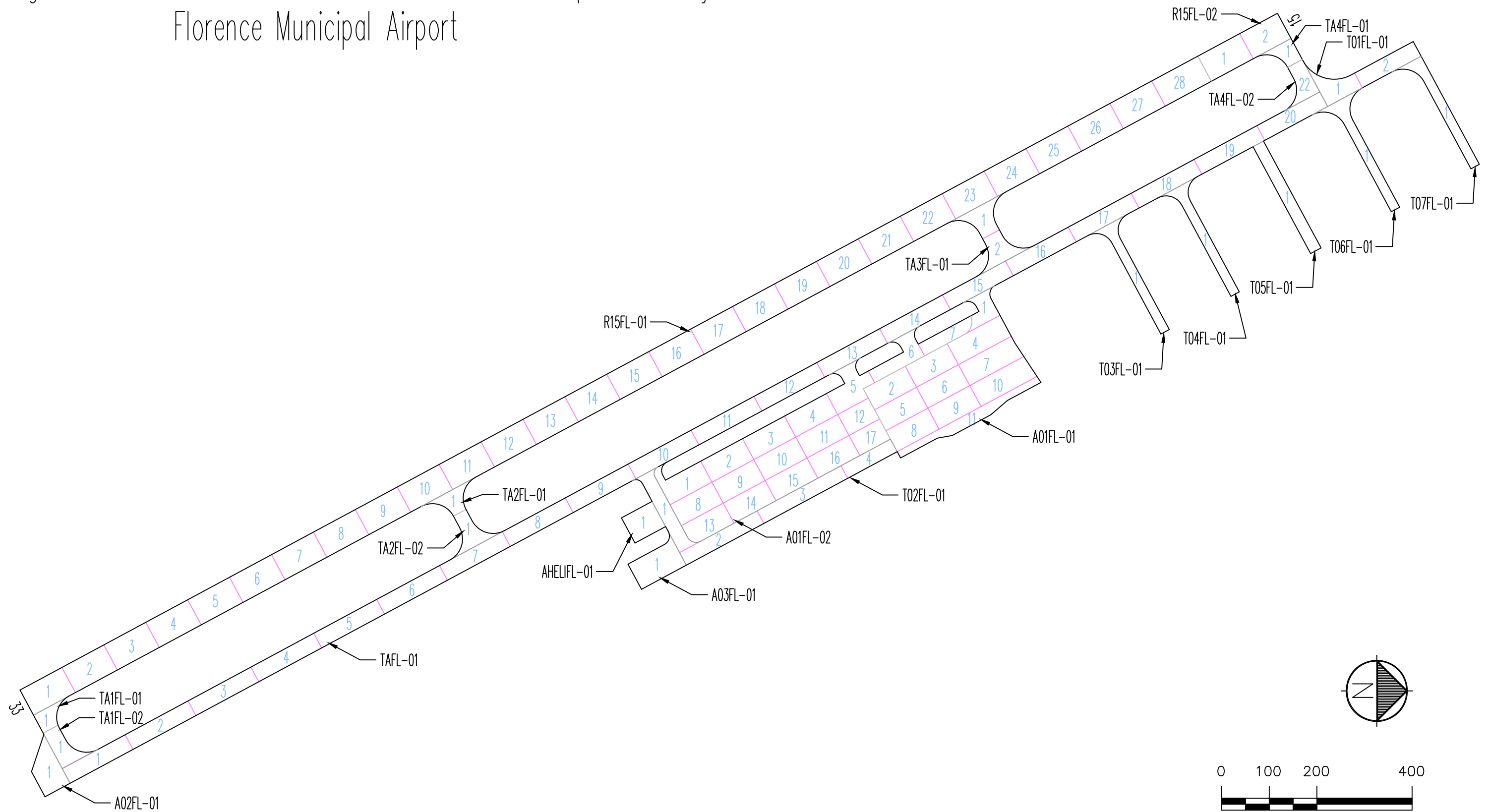
The PAVER database updated during this project ensures your airport complies with the “record keeping and information retrieval” requirements of FAA’s PMMP guidelines.

Figure FL-1. Airport Layout, Dimensions and Pavement Cross-Sections.  
 Florence Municipal Airport



Drawing Date: June 2019

Figure FL-2. Pavement Branch, Section and Sample Unit Layout.  
 Florence Municipal Airport



# RESULTS

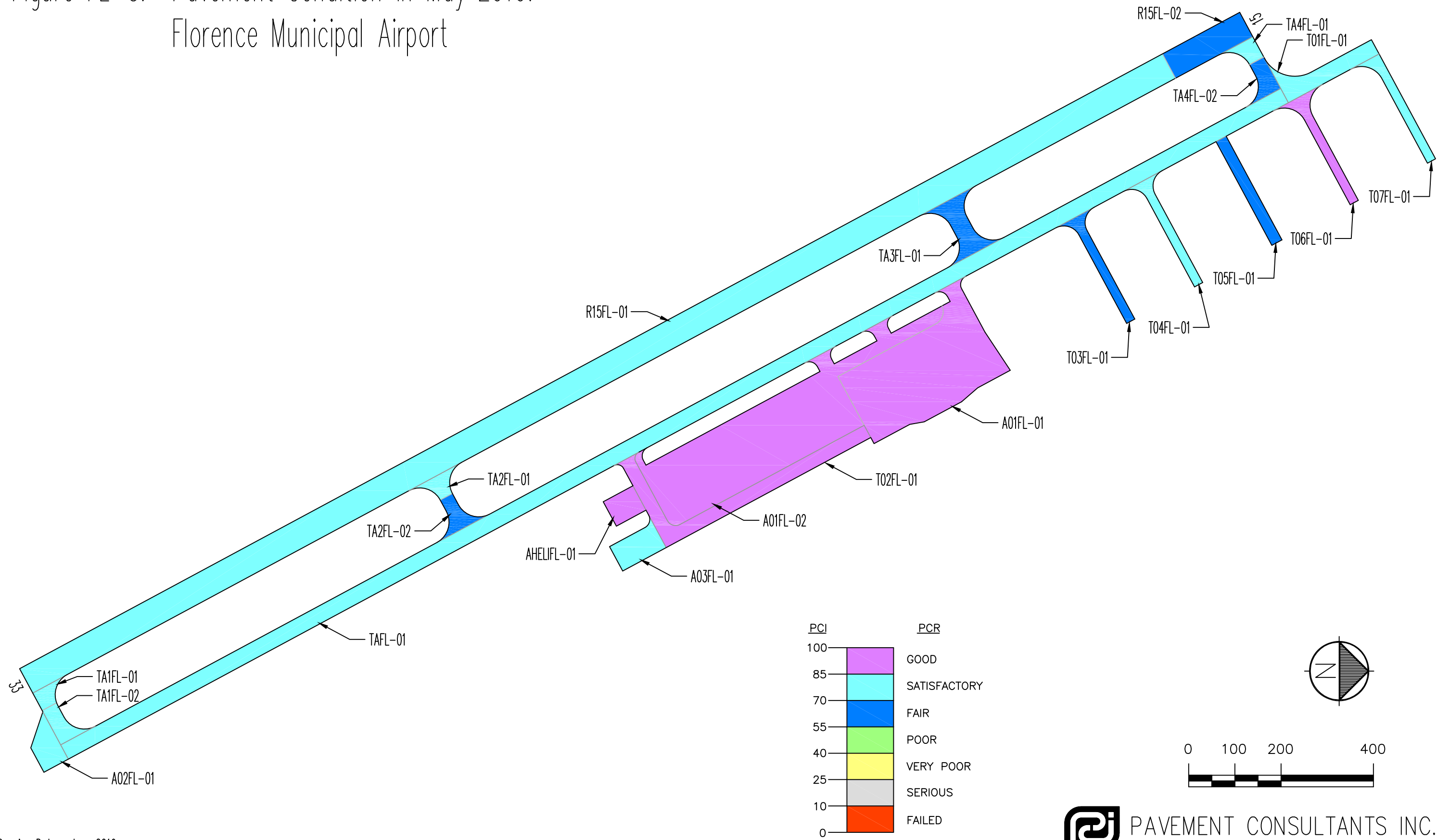
Using the data collected during the visual inspection, the PAVER software was used to calculate an area-weighted average Pavement Condition Index (PCI) for each pavement section inspected using the sample units evaluated. Using each section’s PCI, a Pavement Condition Rating (PCR) was assigned. The PCIs measured during this inspection are shown in Table 1. The table also contains PCIs from past inspections as well as projected PCIs for 2024 and 2029. 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 FL-3.

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

Branch	Section	Inspections			Forecast	
		2013	2016	2019	2024	2029
A01FL	1	100	100	100	97	93
A01FL	2	100	100	97	90	84
A02FL	1	83	85	78	78	78
A03FL	1	100	89	79	76	72
AHELIFL	1	---	100	100	95	88
R15FL	1	85	84	77	76	75
R15FL	2	84	83	68	68	68
T01FL	1	90	89	81	77	75
T02FL	1	100	100	100	97	88
T03FL	1	59	77	62	57	53
T04FL	1	64	78	74	73	72
T05FL	1	86	66	60	55	51
T06FL	1	100	90	90	85	80
T07FL	1	100	94	83	79	76
TA1FL	1	91	86	72	70	66
TA1FL	2	---	---	72	70	66
TA2FL	1	96	91	78	75	74
TA2FL	2	87	82	64	59	55
TA3FL	1	86	81	70	66	61
TA4FL	1	94	83	73	72	70
TA4FL	2	---	---	67	62	58
TAFL	1	82	83	74	73	72

Figure FL-3. Pavement Condition in May 2019.  
 Florence Municipal Airport



Drawing Date: June 2019

Section PCIs at Florence Municipal Airport range from a low of 60 (a PCR of “Fair”) to a high of 100 (a PCR of “Good”). The area-weighted average PCI for all airport pavements is 82, corresponding to an overall PCR of “Satisfactory”. Figure FL-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 2013 and 2016.

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

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

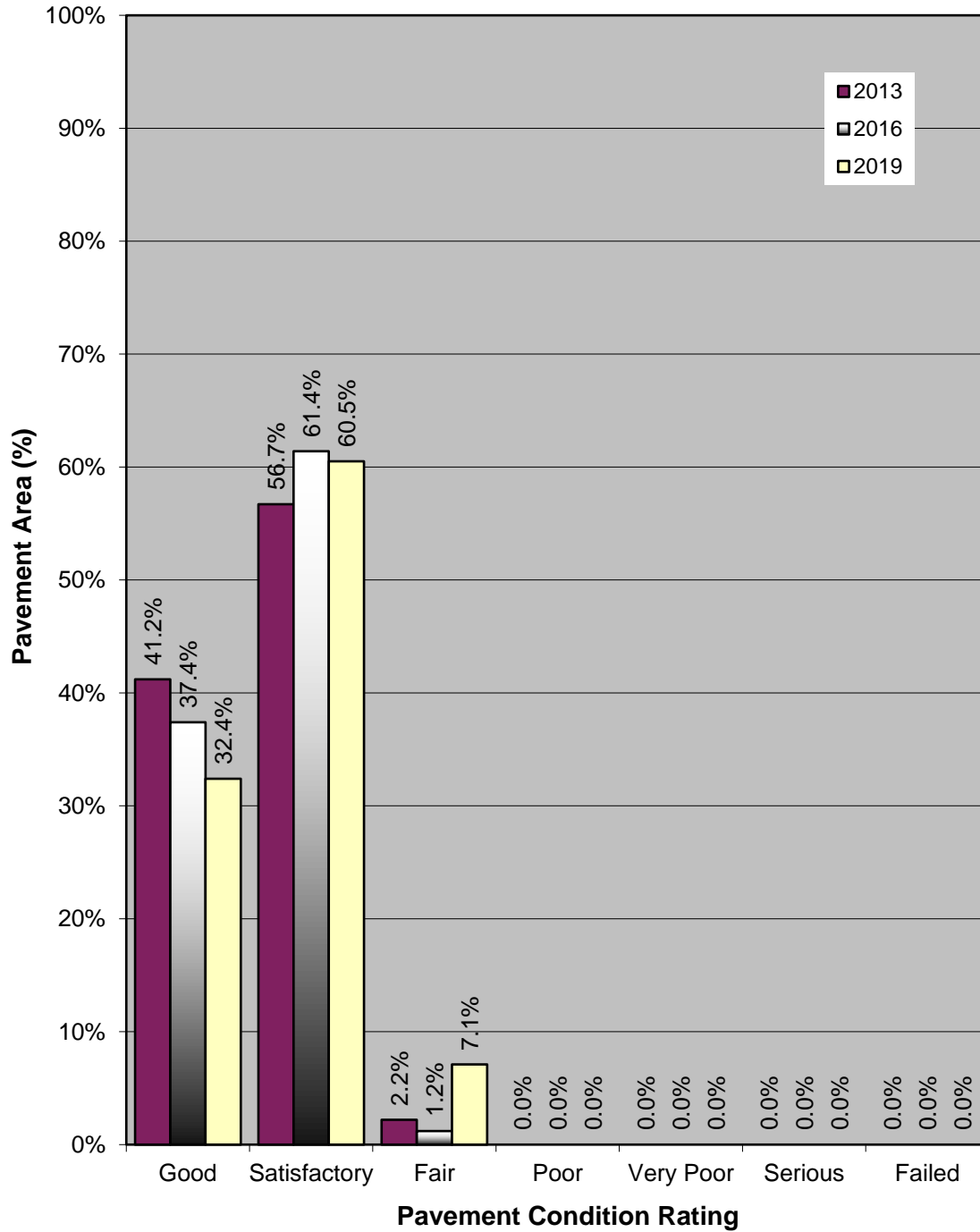
The recommended localized maintenance activities to be applied are selected by the PAVER software based on a Distress Maintenance Policy established for the Oregon airport system. The report results indicate that, over your entire airport, the following quantity of localized maintenance is needed:

- 10,663 linear feet of asphalt concrete crack sealing.

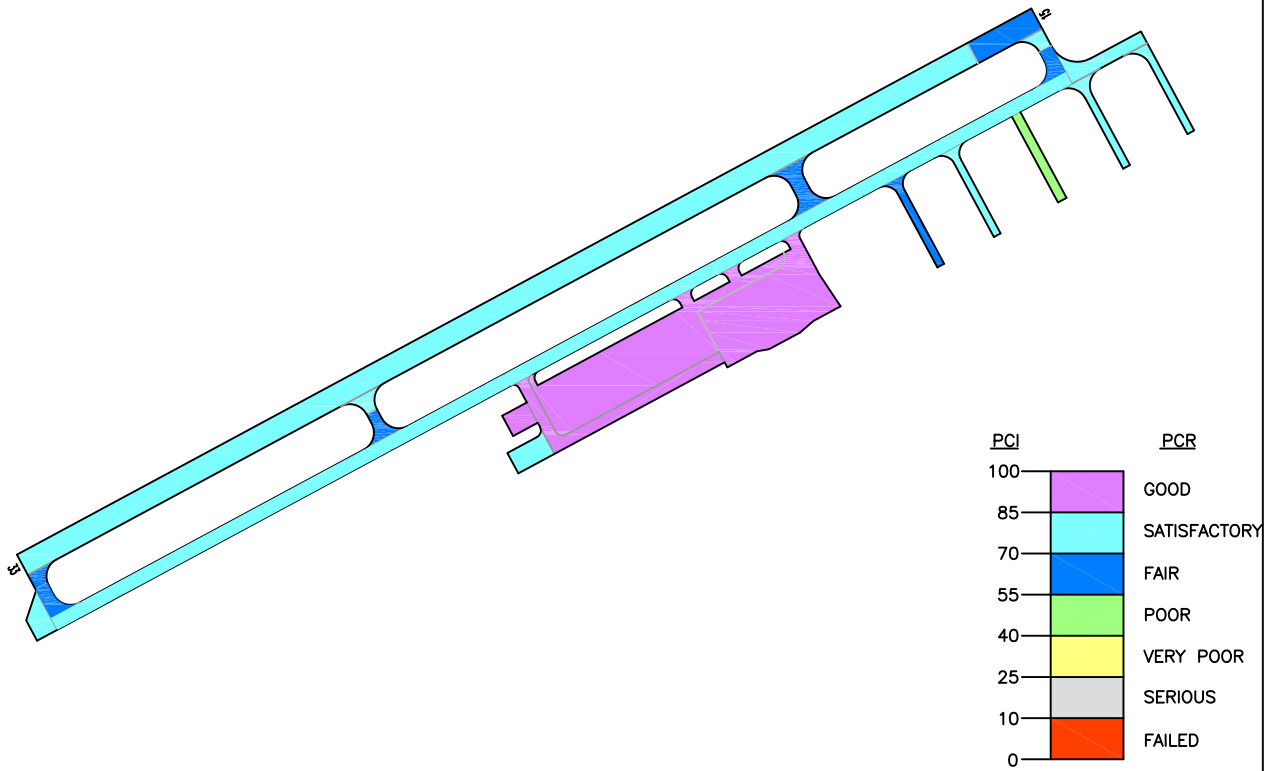
The PAVER software can also identify and schedule recommended global (applied over an entire section) maintenance activities such as fog seals, slurry seals and other surface treatments, as well as major rehabilitation activities such as asphalt concrete overlays and complete reconstruction. PAVER schedules global maintenance on a user-defined interval. To schedule major rehabilitation PAVER uses pavement deterioration models FL-3 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 2020 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 FL-6.

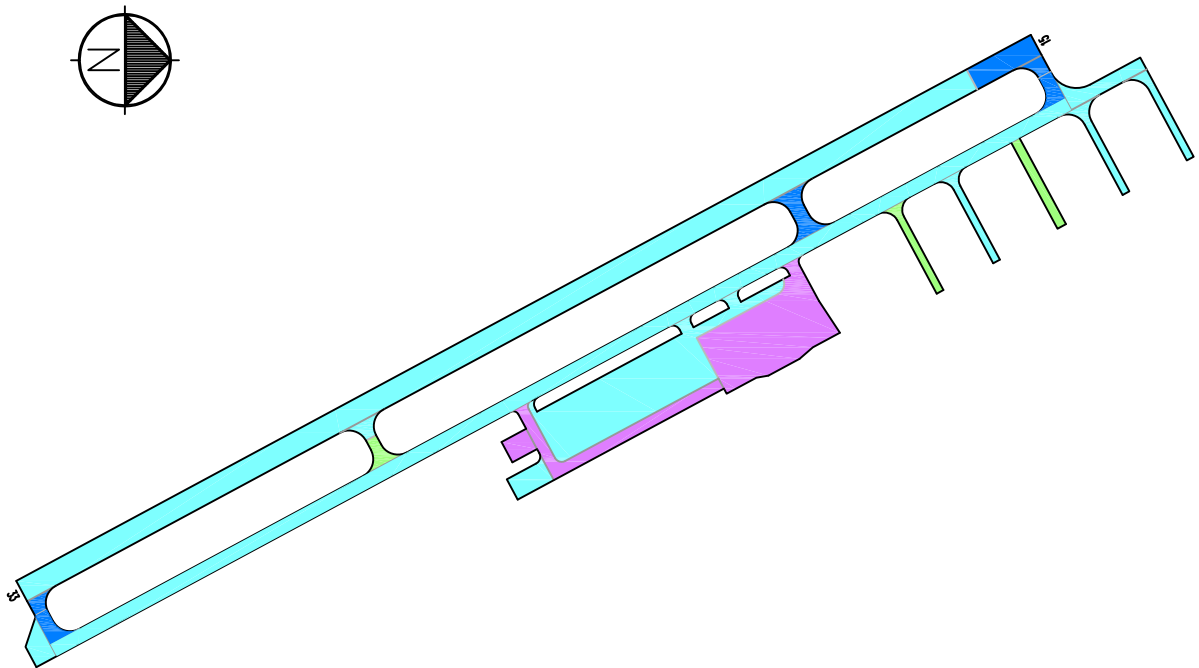
**Figure FL-4. Pavement Condition Distribution  
Florence Municipal Airport**



### Predicted Condition in 2024.



### Predicted Condition in 2029.



Drawing Date: June 2019

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Figure FL-5. Future Pavement Condition.

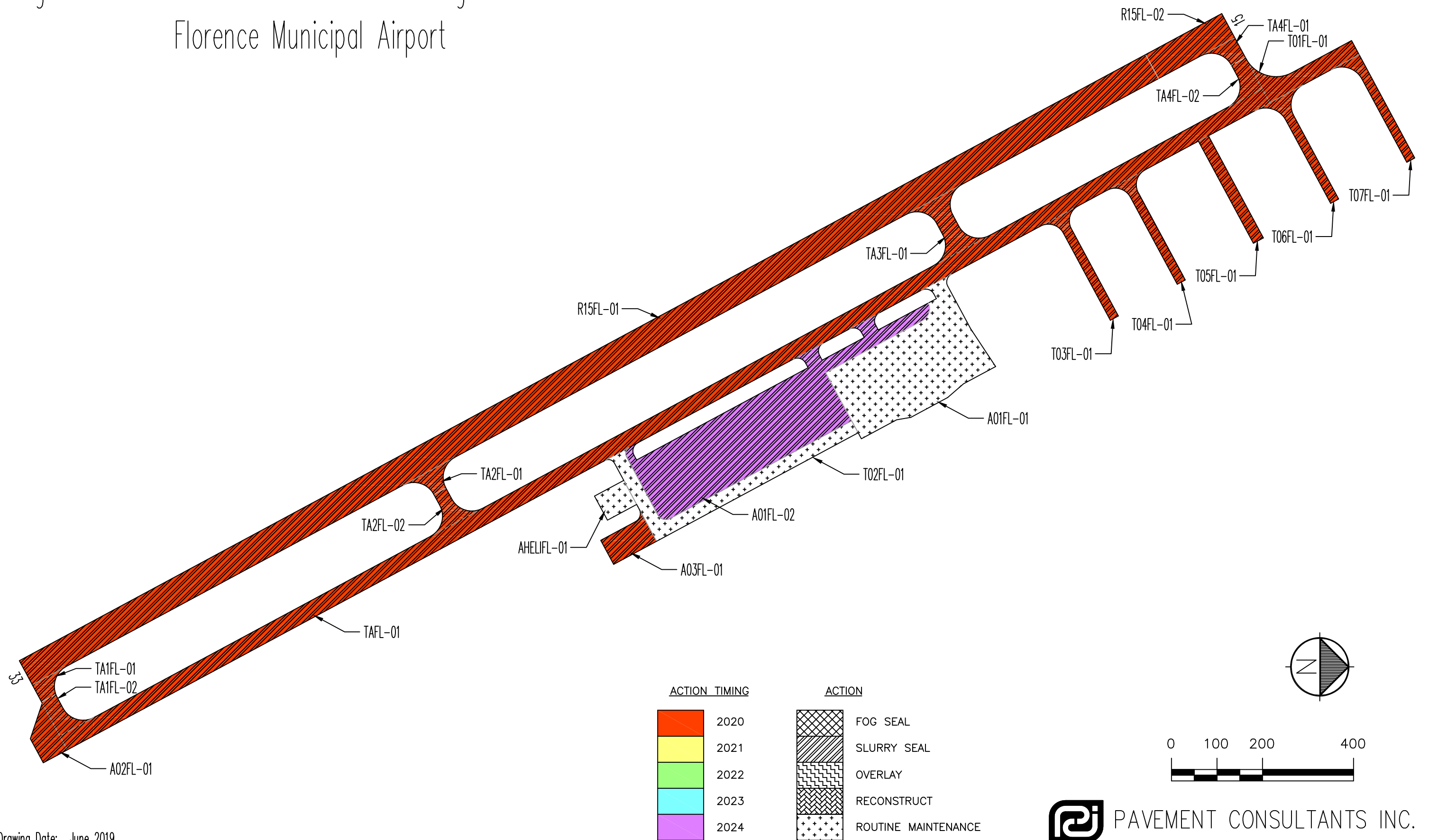


**Table 2. Five-Year Global Maintenance and Rehabilitation Plan.**

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2020	A02FL	01	Slurry Seal	5,295	\$0.31	\$1,641
2020	A03FL	01	Slurry Seal	6,505	\$0.31	\$2,017
2020	R15FL	01	Slurry Seal	168,600	\$0.31	\$52,266
2020	R15FL	02	Slurry Seal	11,400	\$0.31	\$3,534
2020	T01FL	01	Slurry Seal	9,012	\$0.31	\$2,794
2020	T03FL	01	Slurry Seal	5,704	\$0.31	\$1,768
2020	T04FL	01	Slurry Seal	5,704	\$0.31	\$1,768
2020	T05FL	01	Slurry Seal	6,375	\$0.31	\$1,976
2020	T06FL	01	Slurry Seal	6,233	\$0.31	\$1,932
2020	T07FL	01	Slurry Seal	5,697	\$0.31	\$1,766
2020	TA1FL	01	Slurry Seal	2,040	\$0.31	\$632
2020	TA1FL	02	Slurry Seal	3,495	\$0.31	\$1,083
2020	TA2FL	01	Slurry Seal	2,573	\$0.31	\$798
2020	TA2FL	02	Slurry Seal	3,398	\$0.31	\$1,053
2020	TA3FL	01	Slurry Seal	7,246	\$0.31	\$2,246
2020	TA4FL	01	Slurry Seal	2,287	\$0.31	\$709
2020	TA4FL	02	Slurry Seal	3,249	\$0.31	\$1,007
2020	TAFL	01	Slurry Seal	105,000	\$0.31	\$32,550
<b>2020 Total</b>						<b>\$111,542</b>
2024	A01FL	02	Slurry Seal	80,448	\$0.31	\$24,939
<b>2024 Total</b>						<b>\$24,939</b>
<b>5-Year Total</b>						<b>\$136,480</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.

Figure FL-6. Five-Year Pavement Management Plan.  
 Florence Municipal Airport



**ACTION TIMING**

	2020
	2021
	2022
	2023
	2024

**ACTION**

	FOG SEAL
	SLURRY SEAL
	OVERLAY
	RECONSTRUCT
	ROUTINE MAINTENANCE

Drawing Date: June 2019

## **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 2022.

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.