

# CHRISTMAS VALLEY 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 are in compliance 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 CV-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 CV-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 CV-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 Micro PAVER database.

Using the branch, section and sample unit divisions established, a visual condition survey was conducted at Christmas Valley Airport in July 2016. 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 Micro PAVER software for analysis. These data are reproduced in the Re-Inspection Report attached as Appendix 4.

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

Figure CV-1. Airport Layout, Dimensions and Pavement Cross-Sections.  
Christmas Valley Airport

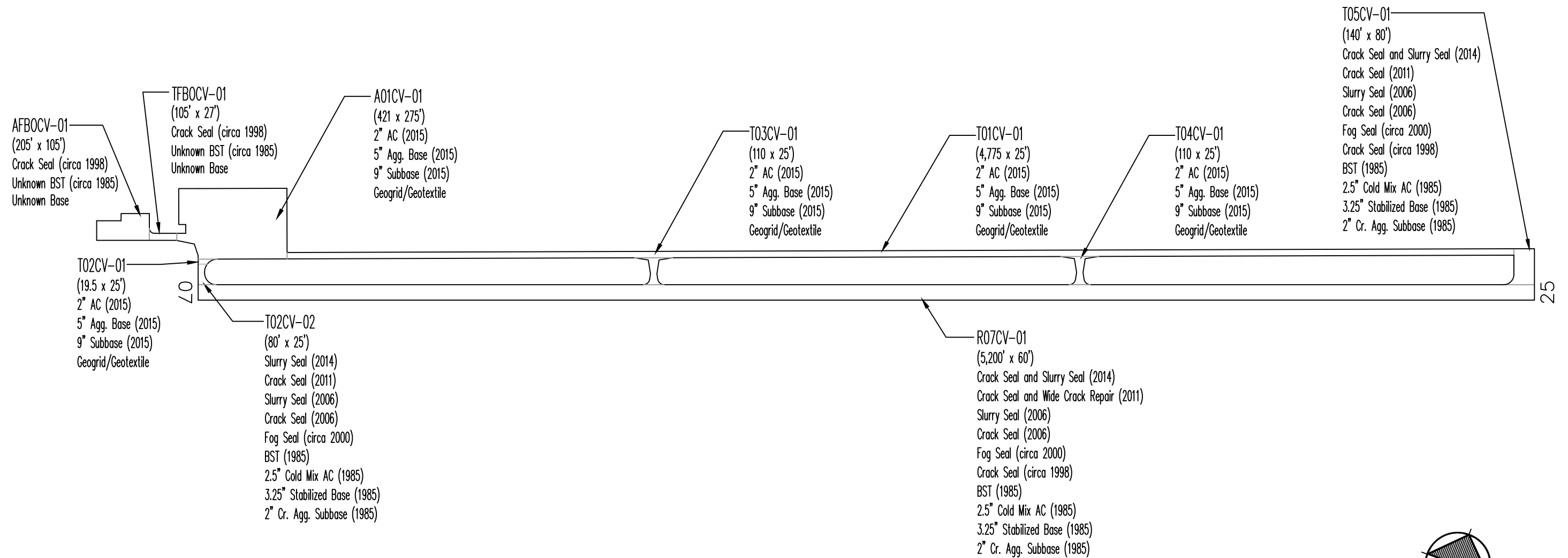
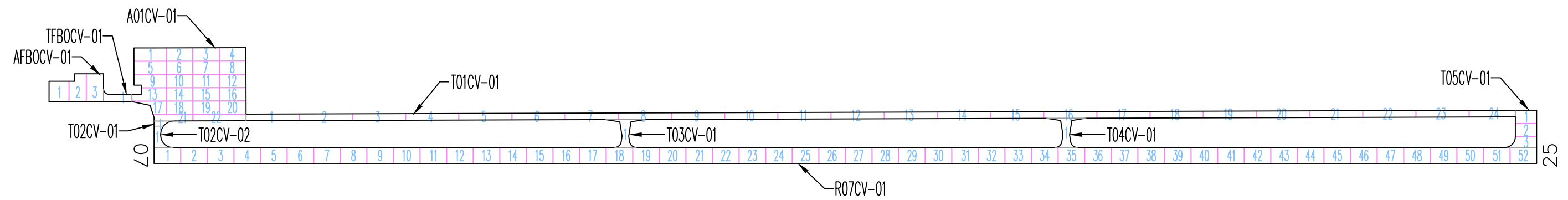


Figure CV-2. Pavement Branch, Section and Sample Unit Layout.  
 Christmas Valley Airport



# RESULTS

Using the data collected during the visual inspection, the Micro 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 2021 and 2026. The projections were based on pavement deterioration models developed by Micro 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 CV-3.

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

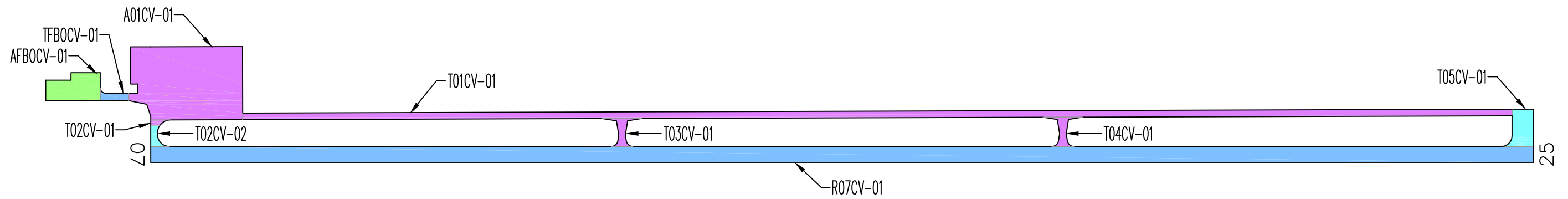
Branch	Section	Inspections			Forecast	
		2009	2013	2016	2021	2026
A01CV	1	37	32	100	88	78
AFBOCV	1	29	58	43	33	24
R07CV	1	73	64	68	52	37
T01CV	1	---	---	100	90	79
T02CV	1	---	---	100	90	79
T02CV	2	83	81	75	72	70
T03CV	1	---	---	100	90	79
T04CV	1	---	---	100	90	79
T05CV	1	75	71	80	76	76
TFBOCV	1	35	50	61	59	58

Section PCIs at Christmas Valley Airport range from a low of 43 (a PCR of “Poor”) to a high of 100 (a PCR of “Good”). The area-weighted average PCI for all airport pavements is 80, corresponding to an overall PCR of “Satisfactory”. Figure CV-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 2009 and 2013.

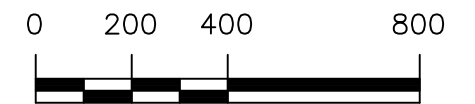
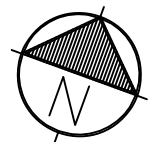
The primary distresses observed during the inspection were: longitudinal and transverse cracking, block cracking, raveling, and an isolated occurrence of depression.

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

Figure CV-3. Pavement Condition in July 2016.  
Christmas Valley Airport

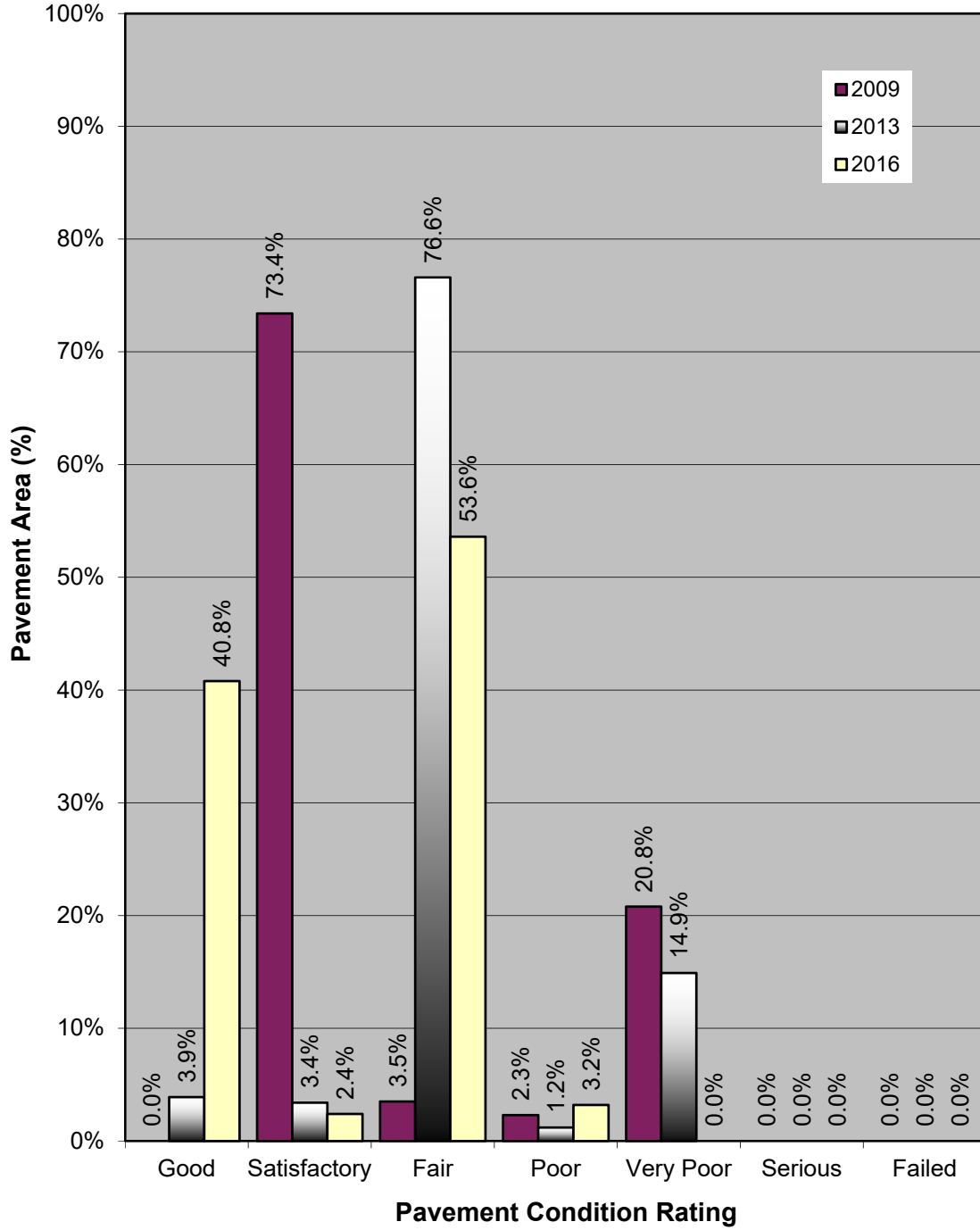


PCI	PCR
100	GOOD
85	SATISFACTORY
70	FAIR
55	POOR
40	VERY POOR
25	SERIOUS
10	FAILED
0	



Drawing Date: August 2016

**Figure CV-4. Pavement Condition Distribution  
Christmas Valley Airport**



### Predicted Condition in 2021.



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

### Predicted Condition in 2026.



Drawing Date: August 2016



**Figure CV-5. Future Pavement Condition.**

## RECOMMENDATIONS

Data collected during the visual condition survey were used by the Micro 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 Micro 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:

- 1,903 linear feet of asphalt concrete crack sealing.

The Micro 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. Micro PAVER schedules global maintenance on a user-defined interval. To schedule major rehabilitation Micro 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 2017 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 CV-6.



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

Year	Branch	Section	Action	Area (sf)	Unit Cost (\$/sf)	Total Cost (\$)
2017	AFBOCV	01	2" AC Overlay	18,722	\$2.50	\$46,805
2017	T02CV	02	Slurry Seal	2,535	\$0.31	\$776
2017	TFBOCV	01	Slurry Seal	3,004	\$0.31	\$919
<b>2017 Total</b>						<b>\$4,019</b>
2019	R07CV	01	2" AC Overlay	312,000	\$2.50	\$780,000
<b>2019 Total</b>						<b>\$780,000</b>
2020	T05CV	01	Slurry Seal	11,543	\$0.31	\$3,532
<b>2020 Total</b>						<b>\$3,532</b>
2021	A01CV	01	Fog Seal	110,615	\$0.19	\$21,459
2021	T01CV	01	Fog Seal	119,353	\$0.19	\$23,154
2021	T02CV	01	Fog Seal	921	\$0.19	\$179
2021	T03CV	01	Fog Seal	4,142	\$0.19	\$804
2021	T04CV	01	Fog Seal	4,338	\$0.19	\$842
<b>2021 Total</b>						<b>\$46,438</b>
<b>TOTAL</b>						<b>\$878,470</b>

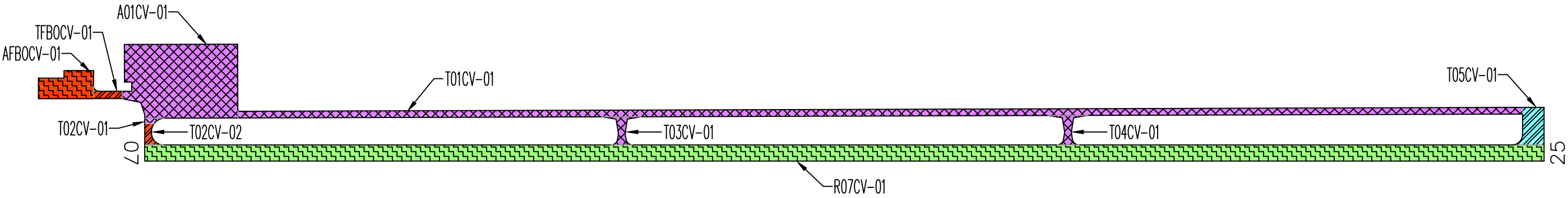
If the global maintenance and/or rehabilitation activities recommended in Table 2 are not completed, the localized maintenance activities identified in the Network Maintenance Report (Appendix 3) for that section should be done. Additionally, for those sections not listed in Table 2 as requiring global 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 2019.

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 CV-6. Five-Year Pavement Management Plan.  
 Christmas Valley Airport



ACTION TIMING		ACTION	
	2017		FOG SEAL
	2018		SLURRY SEAL
	2019		OVERLAY
	2020		RECONSTRUCT
	2021		ROUTINE MAINTENANCE

