Using Pavement Management Systems to Grow Pavement Preservation

By Judith Corley-Lay

You are a pavement preservation professional.

You know that the pavement management system is a toolbox.

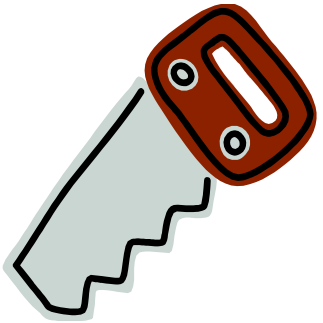
You don’t understand how the PMS can be used to further your PP program.

You want to understand some of the ways PMS can help your preservation program.

Understand three ways PMS can be used to develop, monitor and report your preservation program.

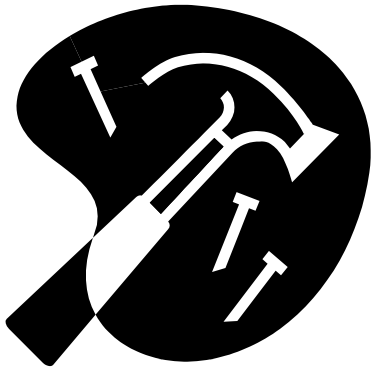
The PMS can be queried to **develop** preliminary candidate roadways for treatment.

Which roads in my county are in fair+ to good condition (and therefore good candidates for preservation treatment)?



Which roads in my county have moderate severity cracking that can be crack sealed?

Which roads in my district have high AADT and minor to moderate rutting that could be treated with microsurfacing?



Which jointed concrete pavement routes in my division have IRI >100 inches per mile that might be reduced by diamond grinding?

The agency sets the limits for each distress type in defining suitable projects. The normal next step is to look at the road and verify that it is a good choice.

PMS can be used to **monitor** the program and assure that program guidelines are followed.

Can evaluate which roadways were treated and what was their condition before treatment.

Did roads meet selection criterion?

Orange County

							Pavement Condition Survey Ratings		
Project / WBS	Material	Route	Begin MP	Begin Description	End MP	End Description	Highest	Lowest	Weighted Average
7SS.20684.40	Drag Seal	40001119	0.000	SR 1117	2.840	END MAINT	100.0	100.0	100.0
7SP.20684.40	Drag Seal	40001113	1.880	SR 1115	2.870	SR 1177	16.7	16.7	16.7
7SP.20684.40	Drag Seal	40001118	0.000	SR 1117	0.730	SR 1115	44.2	44.2	44.2
7SP.20684.40	Drag Seal	40001125	0.000	SR 1120	4.430	SR 1114	57.6	46.7	53.4
7SP.20684.40	Drag Seal	40001128	0.000	SR 1006	0.810	SR 1127	89.7	89.7	89.7
7SP.20684.40	Drag Seal	40001129	0.000	SR 1009	2.950	SR 1006	98.0	78.0	83.5
7SP.20684.40	Drag Seal	40001130	0.000	SR 1006	1.540	SR 1129	95.0	95.0	95.0
7SP.20684.40	Drag Seal	40001131	0.000	SR 1006	0.560	Cul-De-Sac	96.7	96.7	96.7
7SP.20684.40	Drag Seal	40001134	0.000	SR 1144	2.820	SR 1006	100.0	100.0	100.0
7SP.20684.40	Drag Seal	40001135	0.000	SR 1134	1.850	SR 1134	96.7	82.6	85.6
7SP.20684.40	Drag Seal	40001137	0.000	SR 1146	2.230	SR 1114	98.0	98.0	98.0
7SP.20684.40	Drag Seal	40001199	0.000	SR 1006	0.650	END MAINT	70.0	70.0	70.0
7SP.20684.40	Drag Seal	40001959	0.000	SR 1956	1.820	SR 1958	82.2	82.2	82.2
7SP.20684.40	Drag Seal	40001960	0.000	SR 1961	1.886	END MAINT	83.0	83.0	83.0

Project Counts for Orange County:	5	6	1	2

Typical result: There are a few band-aide projects, but the majority matched guidelines.

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Results are not always so rosy.

Ashe County

Project / WBS	Material	Route	Begin MP	Begin Description	End MP	End Description	Pavement Condition Survey Ratings		
							Highest	Lowest	Weighted Average
11SP.20054.01	Drag Seal	40001168	0.000	BEG MAINT	2.080	SR 1003	14.2	14.2	14.2
11SP.20054.01	Triple Seal	40001169	2.920	SR 1171 + 1.71 MI	4.570	SR 1003	30.0	30.0	30.0
11SP.20054.01	Drag Seal	40001350	0.000	SR 1347	1.080	NC 194	30.9	30.9	30.9
11SP.20054.01	Triple Seal	40001500	2.320	SR 15123	4.210	SR 1516	20.0	20.0	20.0
11SP.20054.01	Triple Seal	40001539	4.040	SR 1541 + 0.44 MI	5.520	SR 1523	30.0	30.0	30.0
11SP.20054.01	Drag Seal	40001575	0.000	SR 1574	1.200	SR 1576	73.4	23.0	41.0
11SP.20054.01	Drag Seal	40001575	1.830	SR 1576 + 0.63 MI	1.940	SR 1573	88.4	88.4	88.4

Project Counts for Ashe County:	0	1	0	6

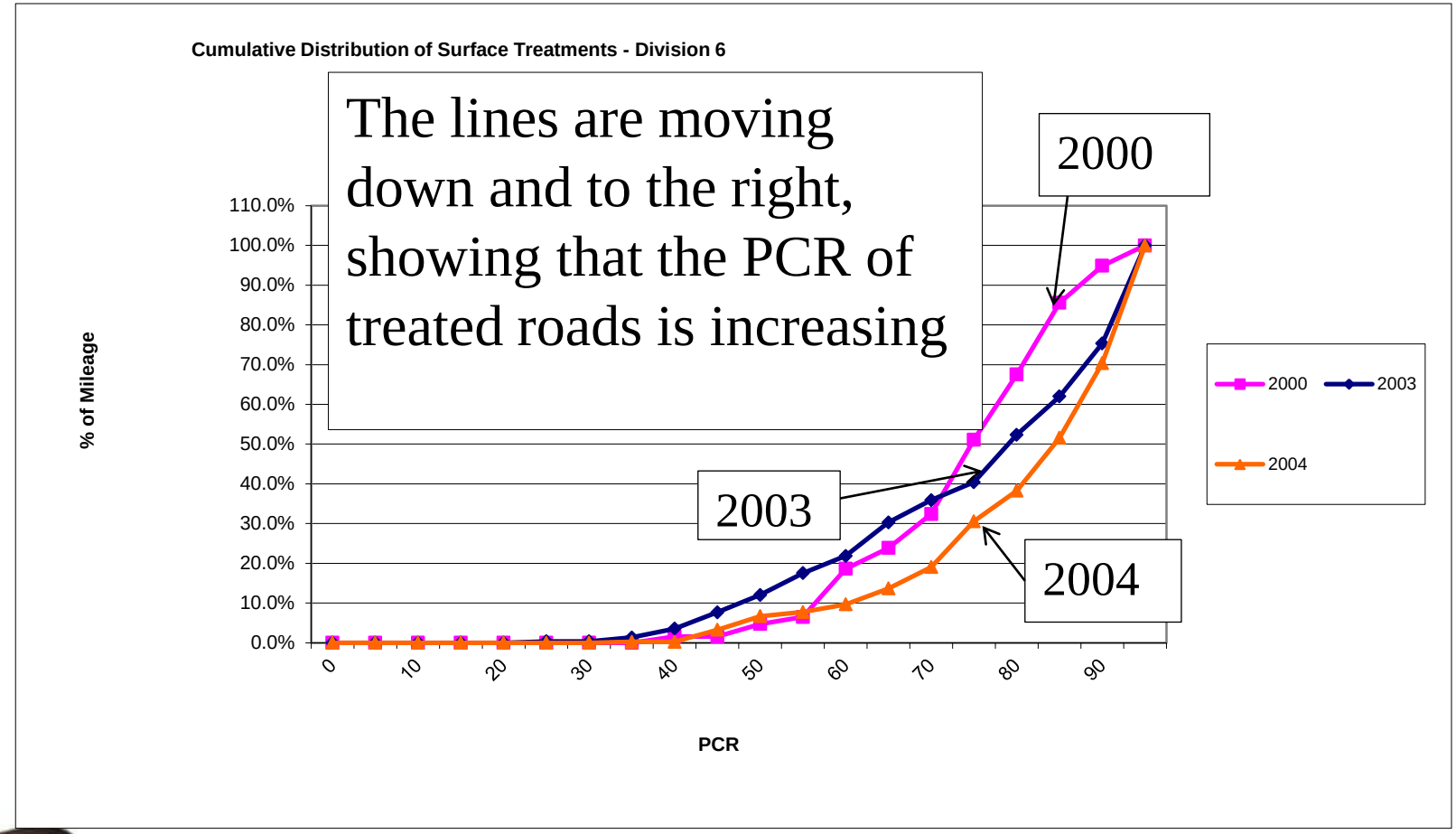
Only one project met the preservation guidelines. Division engineers were provided county by county reports.

Another Monitoring Approach

Use Pavement Condition Ratings for each road selected for treatment. Put in bins to create histogram. Then calculate cumulative distribution function.

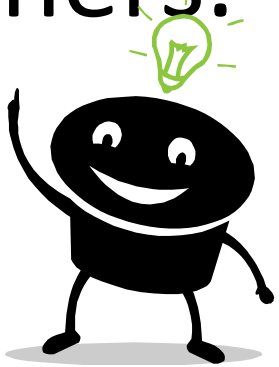
Want graph to move downward and to the right (indicating that roads are treated at higher PCR).

Cumulative Distribution of PCR for treated roads in Div. 6

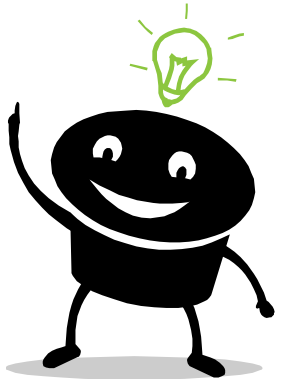


The PMS can be used to **report** on progress of your program.

Borrow what works from others.



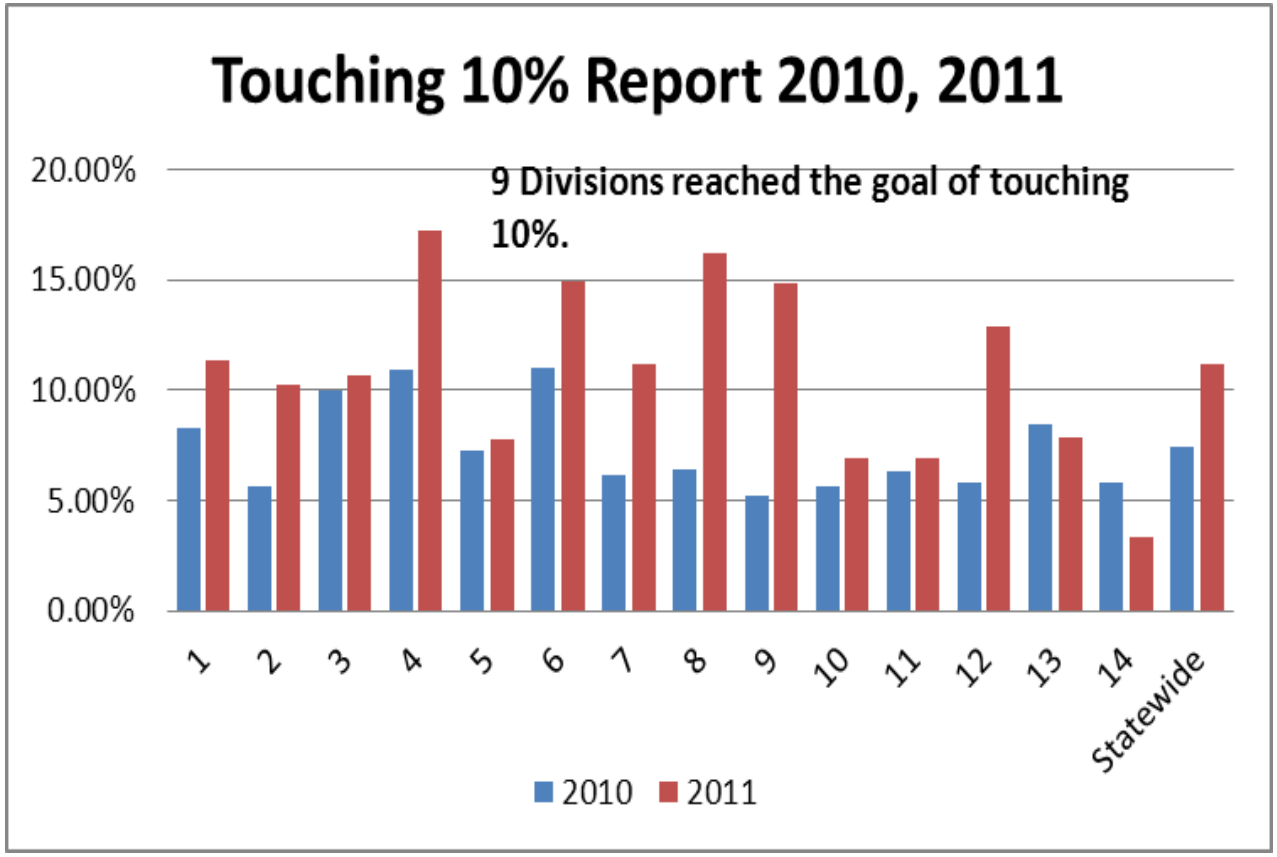
Kansas DOT very successfully implemented pavement preservation more than 15 years ago using the 10% rule.



“Touch 10% of your system every year using a mix of fixes.”

Include crack sealing, chip seals, resurfacing, rehab and reconstruction.

Did we touch 10% of system?



This is a favorite report of leadership in NCDOT. Coupled with PCR and budget, it speaks to effectiveness in using funds.

Work done should be entered into Maintenance Management System or Pavement Management System.

These data will answer important questions from your leadership.

After many years, we still struggle to show preservation effectiveness and you need your data to do this.

If data are recorded from this point forward, you will be able to answer the how long, how much, what condition questions in ten years.

Your Pavement Management System can be a valuable tool to develop projects, monitor the preservation program, report on results, and improve future decision making.

Thank you for your attention.

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