

# **UK Pavement Management System**



## **Technical Note 41**

***SRMCS PI guidance notes for UKPMS Developers***

**Version Number 3.00 – Issue**

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## Document Information

<b>Title (Sub Title)</b>	Technical Note 41 SMRCS PI guidance notes for UKPMS Developers
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<b>Description</b>	This Technical Note provides guidance for UKPMS Developers to allow them to produce the SRMCS PI.

## Document History

<b>Version No</b>	<b>Status</b>	<b>Author</b>	<b>Date</b>	<b>Changes from Previous Version</b>
0.01	Draft	JMG	19.06.13	First draft based on 2012/13 version but revised to remove date specific references so that the Technical Note applies to any year from 2013/14 onwards until further notice.
0.02	Draft	RAC	04.07.13	Transferred to new template.
0.03	Draft	RAC	09.07.13	Revised following review by JMG.
0.04	Draft	RAC	25.07.13	Incorporating minor comments by GF
1.00	Issue	RAC	25.07.13	Ratified by Graeme Ferguson for SCOTS
1.01	Draft	RAC	08.01.19	The website references have been updated Clarification has been added to explain why colours have been used in the example report.
1.02	Draft	RAC	18.01.19	Reviewed by CCS
2.00	Issue	RAC	11.02.19	Ratified by Graeme Ferguson for SCOTS
2.01	Draft	RAC	02.02.21	Draft based on version 2.00 but revised as follows: <ul style="list-style-type: none"><li>Website references updated</li></ul>
2.02	Draft	RAC	10.02.21	Reviewed by CCS
3.00	Issue	RAC	18.02.21	Ratified by Graeme Ferguson for SCOTS

## Document Owner

The owner of this document is the Society of Chief Officers of Transportation in Scotland (SCOTS).

## Document Support

Support for this document is provided by Linhay Consultancy Ltd and Hyperion Infrastructure Consultancy Ltd who can be contacted via [ukpms@hyperion-uk.com](mailto:ukpms@hyperion-uk.com). These organisations have been appointed as the UKPMS system accreditors by the UK Roads Board.

This document can be found online on the [RCMG website](#).



## Introduction

This Technical Note provides guidance for UKPMS Developers to allow them to produce the SRMCS PI report. It provides:

- **Changes since the last version**
- **Background Information** on survey coverage
- **Processing & Reporting Requirements** including an example report

## Changes since last version

The website references have been updated.

## Background Information

The Scottish PI is based on SCANNER data collected according to the road class as follows:

- **A Roads:** 100% in a single direction each year, with the direction reversed in the following year.
- **B & C Roads:** Based on a 4 year cycle.
  - Year 1: 50% in a single direction
  - Year 2: The remaining 50% in a single direction
  - Year 3: Repeat of Year 1, but in the opposite direction
  - Year 4: Repeat of Year 2, but in the opposite direction
- **Unclassified Roads:** 10% in a single direction each year.

## Processing & Reporting Requirements

The data are processed using the SCANNER Road Condition Indicator (RCI) with a specified weighting set. The RCI should use data from the previous 2 years for classified roads and for the previous 4 years for unclassified roads but in both cases the dates are entered by the user so as to allow some flexibility with the survey timetable.

The RCI results are calculated separately for rural/urban within each road class, and are then combined to give an overall result for each road class, a result for all urban roads and for all rural roads, and the statutory PI for the whole of the authority's road network.

### Notes:

- *The road classification is fundamental to this report. It is important that this section attribute is populated accurately.*
- *The report excludes roundabouts. In general SCANNER data are not collected on roundabouts, but if such data are present, they should not be included in any of the figures on the report. Roundabouts are defined using the 'Road Type' section attribute.*
- *On occasion some of the SCANNER parameters used in the RCI calculation may be missing from individual subsections. Such subsections are still included in the report.*



The combined results are obtained using a weighted average based on road length; the figures for the road lengths are obtained from outside UKPMS and are entered manually by the user.

As the example report below shows, results are provided for the Red, Amber and Green RCI categories but the final statutory PI is the sum of the Red & Amber and is given to 1 decimal place.

All lengths shown on the report are given in km to 3 decimal places and all percentages (other than the PI itself) are given to 2 decimal places.

In due course confidence limits will be desirable but as these are based on values for the bias and random error which are not yet available the requirements for confidence limits are not yet specified.

### **Example Report**

The example report below uses fictitious data and is intended to show the data required and the way in which the various results are calculated. The information shown in italics (Local Authority, Run Time, UKPMS System & Version, Weighting Set Identifier and survey dates) is customised for each individual case.

Users of the report are encouraged to check the UKPMS System and Version on the [RCMG website](#) to ensure that the version of the UKPMS system being used to produce the results is accredited to produce valid results for the SRMCS PI for the relevant year.

The figures are derived as follows:

- The Red, Amber and Green lengths (km) shown in black are obtained from the survey data via the RCI calculation.
- The coverage lengths (km) shown in dark blue are obtained by summing the Red, Amber and Green lengths across the row.
- The Network lengths (km) shown in black with a light turquoise background are entered manually by the user.
- The percentage figures shown in red are calculated from the Red (Amber or Green) length as a percentage of the coverage length.
- The percentage figures shown in pink are calculated using the network length.
- The total lengths shown in blue are obtained by summing the relevant sub-categories in the column.
- The figures with a light yellow background in the second table are obtained directly from the first table.
- The lengths shown in teal in the second table are obtained by multiplying the network length by the percentage.
- The SPI figure is obtained by summing the two figures (Red & Amber) shown in bold pink.

Note that the figures in black, on which the report is based, are given and used to 3 decimal places. Thereafter full accuracy is used in the calculation of the other figures even though they are only reported to the specified number of decimal places. For example, the teal value calculated for the Red Urban A roads is calculated as:

$$(2.627 / 24.423) * 37.200 = 4.001$$



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rather than as:

$$10.76\% \text{ of } 37.200 = 4.003$$

Colours have been used for the example report solely to facilitate the above explanation of how the various groups of figures are calculated. There is no intention (or requirement) for these colours to be used in the report produced by a UKPMS system.



<b>Local Authority SPI 2012 2013</b>										
<b>SRMCS PI Report – Run Time: dd/mm/yyyy hh:mm:ss</b>										
<b>UKPMS System &amp; Version:</b>		<i>UKPMS System &amp; Version</i>								
<b>Weighting Set Identifier:</b>		<i>WS Identifier</i>								
<b>Survey data for classified roads:</b>		From dd/mm/yy to dd/mm/yy								
<b>Survey data for unclassified roads:</b>		From dd/mm/yy to dd/mm/yy								
<b>SPI CARRIAGEWAY CONDITION INDICATOR – 46.7%</b>										
<b>Results from Network Lengths Surveyed</b>										
Environment	Class	Red		Amber		Green		Coverage		Network km
		km	%	km	%	km	%	km	%	
Urban	A	2.627	10.76	10.636	43.55	11.160	45.69	24.423	65.65	37.200
	B	0.521	8.52	2.002	32.72	3.595	58.76	6.118	27.31	22.400
	C	1.028	15.11	2.547	37.44	3.227	47.44	6.802	43.32	15.700
	U	28.544	26.32	41.334	38.12	38.555	35.56	108.433	42.89	252.800
Rural	A	20.274	8.22	75.283	30.51	151.226	61.28	246.783	97.58	252.900
	B	7.207	7.23	32.875	32.96	59.661	59.81	99.743	44.85	222.400
	C	5.254	2.84	47.290	25.59	132.262	71.57	184.806	45.17	409.100
	U	9.576	21.04	18.632	40.94	17.297	38.01	45.505	11.22	405.400
Overall by class	A	22.901	8.44	85.919	31.68	162.386	59.88	271.206	93.49	290.100
	B	7.728	7.30	34.877	32.95	63.256	59.75	105.861	43.24	244.800
	C	6.282	3.28	49.837	26.01	135.489	70.71	191.608	45.11	424.800
	U	38.120	24.76	59.966	38.95	55.852	36.28	153.938	23.39	658.200
Urban	All	32.720	22.45	56.519	38.77	56.537	38.78	145.776	44.43	328.100
Rural	All	42.311	7.34	174.080	30.18	360.446	62.49	576.837	44.72	1289.800
All	All	75.031	10.38	230.599	31.91	416.983	57.70	722.613	44.66	1617.900
<b>Results of Surveys Weighted Across Total Network Lengths</b>										
Environment	Class	Red		Amber		Green				Network km
		km	%	km	%	km	%			
Urban	A	4.001	10.76	16.200	43.55	16.998	45.69			37.200
	B	1.908	8.52	7.330	32.72	13.162	58.76			22.400
	C	2.373	15.11	5.879	37.44	7.448	47.44			15.700
	U	66.547	26.32	96.366	38.12	89.887	35.56			252.800
Rural	A	20.777	8.22	77.149	30.51	154.974	61.28			252.900
	B	16.070	7.23	73.302	32.96	133.028	59.81			222.400
	C	11.631	2.84	104.685	25.59	292.785	71.57			409.100
	U	85.312	21.04	165.991	40.94	154.097	38.01			405.400
Overall by class	A	24.778	8.54	93.349	32.18	171.973	59.28			290.100
	B	17.977	7.34	80.632	32.94	146.190	59.72			244.800
	C	14.003	3.30	110.563	26.03	300.233	70.68			424.800
	U	151.859	23.07	262.357	39.86	243.984	37.07			658.200
Urban	All	74.829	22.81	125.775	38.33	127.496	38.86			328.100
Rural	All	133.789	10.37	421.127	32.65	734.885	56.98			1289.800
All	All	208.618	12.89	546.902	33.80	862.381	53.30			1617.900