

UK Pavement Management System



Technical Note 42

*Northern Ireland PI (2007/08) guidance notes for UKPMS
Developers*

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Document Information

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Document History

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Introduction

This Technical Note provides guidance for UKPMS Developers to allow them to produce the Northern Ireland PI report for 2007/08. It provides:

- **Background Information** on survey coverage
- **Processing & Reporting Requirements** including an example report

Background Information

The Northern Ireland PI is based on data collected according to the road class as follows:

- **B & C Roads:** CVI and CRUT data based on a two year cycle. Data for 50% of the network is collected each year.
- **Unclassified Roads:** CVI data based on a four year cycle. Data for 25% of the network is collected each year.

The CVI data is collected using XSP 'C' and the CRUT data is collected using the lane-specific XSP codes, CL1, CR1 etc.

Processing & Reporting Requirements

The data is processed using the UKPMS Automatic Pass with Rule Set RP8.01. Two results are required, one for the non-principal classified network (B & C roads) and the other for the unclassified network.

The PI is based on data collected in the current year only. Usually the report is based on data collected between 1 Jan and 31 Dec, but the dates are entered by the user so as to allow some flexibility with the survey timetable.

The basic run parameters for the Automatic Pass to produce a PI report are as follows;

1. Version 8.01 of the Default UKPMS Rules and Parameters Rule set must be used for both the specification of the defects that comprise the UKPMS Visual Inspection survey and for the automatic pass processing.
2. Standard Merge Method 3 (Variable Intervals) is to be used, with a condition index tolerance of 12 and a percentage tolerance of 10%.
3. Selective report by Feature - for Carriageway only
4. The survey type should be selected
 - a. CVI & CRUT for the B& C roads
 - b. CVI for the unclassified roads

The results are calculated separately for the non-principal classified (B&C) and the unclassified parts of the network. In each case the BVPI is the percentage of the surveyed network satisfying any of the following:

- Structural CI \geq 85
- Wearing Course CI \geq 60
- Edge CI \geq 50



Calculation of Reported Values

Notes:

1. Other than that the report should be presented in the parts given below, the following is not intended to give guidance on the layout or format of the report merely to show what content should be included and how that content should be derived.
2. All calculations are performed only for the 'carriageway' feature.
3. All lengths shown on the report are given in km to 3 decimal places, the coverage percentage is given to 1 decimal place and the PI is given to 3 decimal places.

Part 1 - Selection Criteria

The criteria used to select the sections included on the report are given. Normally for the Non-Principal Classified report the network is identified as those roads with DfT Classification 4 (B roads) or 5 (C roads); and for the Unclassified report, those with DfT Classification 6.

Part 2 - Run Details

The run details required are:

- UKPMS system and version
- Calculation date
- Rule Set Identifier (which should be 'RP8.01' for 2007/08)
- Feature (which should be 'Carriageway')
- Selected Merging Method (which should be 'Standard Variable')

Part 3 - Survey Input Processed

The following details are required for the survey data processed:

A. Survey Period

These are the dates entered by the user for the Automatic Pass (normally 1 Jan 2007 to 31 Dec 2007)

B. Total length of Selected Network

The Selected Network is either the Non-Principal Classified or the Unclassified network and the total length is measured in carriageway-km. It is calculated simply as the sum of all Section Lengths on the selected network converted to km (i.e. divided by 1000) and displayed to three decimal places.

C. Total Possible Survey Length

Since the CVI survey uses XSP 'C', this is the sum of all Section Lengths on the selected network converted to km i.e. this is the same as statistic B.

D. Length Surveyed in Survey Period

This is the sum of Section Lengths on the selected network for sections which have been surveyed in the Survey Period. It is expressed in km and also as a percentage of the Total Possible Survey Length (statistic C above).

***E. Unsurveyed length***

The Unsurveyed Length is calculated as the Total Possible Survey Length minus the Length Surveyed in Survey Period (i.e. C – D) and is expressed in km and also as a percentage of the Total Possible Survey Length.

Part 4 - Performance Data***F. Processed Network Length exceeding CI Threshold***

F1: Three figures are given; one each for the Structural CI, the Wearing Course CI and the Edge CI. Each figure gives the sum of Defect Lengths, converted to km, greater than or equal to the threshold for that CI.

F2: This is the length triggering any of the three CI thresholds (i.e. the sum of Defect Lengths, converted to km, where one or more of the CI thresholds has been equalled or exceeded).

Part 5 - Performance Indicator***G. Percentage Length Where Significant Treatment Should Be Considered***

This is the PI itself, and is calculated as the sum of all defect lengths for which one or more of the CI thresholds has been equalled or exceeded (statistic F2), divided by Length Surveyed in Survey Period (statistic D) multiplied by 100 and rounded to 3 decimal places.

$$PI = \left[\left(\sum \text{Defect Lengths exceeding one or more threshold} \right) \times 100 \right] \div \text{Length Surveyed}$$



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 (UKPMS System & Version, Calculation Date, Rule Set Identifier etc) is customised for each individual case.

Northern Ireland PI 2007 2008		
Selection Criteria Are:		
<i>DfT Classification = 4 or 5</i>		
Run Details:		
UKPMS System & Version:	<i>UKPMS System & Version</i>	
Calculation Date:	<i>2 Feb 2008</i>	
Rule Set Identifier:	<i>Rule Set Identifier</i>	
Feature:	<i>Carriageway</i>	
Selected Merging Method:	<i>Standard Variable</i>	
Survey Input Processed:		
Survey Period:	<i>1 Jan 2007 to 31 Dec 2007</i>	
Total Length of Selected Network:	<i>6522.230 (carriageway-km)</i>	
Total Possible Survey Length:	<i>6522.230 (XSP/Lane-km)</i>	
	Length (km)	% network
Length Surveyed in Survey Period:	<i>3202.415</i>	<i>49.1%</i>
Unsurveyed Length:	<i>3319.815</i>	<i>50.9%</i>
Performance Data:		
Structural CI >=85:	<i>12.413km</i>	
Wearing Course CI >=60:	<i>198.215km</i>	
Edge CI >=50:	<i>209.985km</i>	
Any Above Thresholds:	<i>365.239km</i>	
Performance Indicator:	<i>11.405%</i>	