

UK Pavement Management System



Technical Note 42 – Part 1

***Northern Ireland visual survey PI guidance notes for UKPMS
Developers***

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Document Information

Title (Sub Title)	Technical Note 42 – Part 1 Northern Ireland visual survey PI guidance notes for UKPMS Developers
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Description	This Technical Note provides guidance for UKPMS Developers to allow them to produce the Northern Ireland PI based on visual survey data.

Document History

Version No	Status	Author	Date	Changes from Previous Version
0.01	Draft	JMG	25.06.13	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.
1.00	Issue	RAC	22.07.13	Ratified by Roddy Crilly for DRD(NI)
1.01	Draft	RAC	10.03.16	First draft of revision version to reflect the DRD(NI) requirements from 2016 onwards
1.02	Draft	RAC	17.03.16	Revised following response to queries by DRD(NI)
2.00	Issue	RAC	18.04.16	Ratified by Joe Lawson for DRD(NI)
2.01	Draft	RAC	14.01.19	References to the document owner have been updated to the Department for Infrastructure (Northern Ireland)
2.02	Draft	RAC	18.01.19	Reviewed by CCS
3.00	Issue	RAC	08.02.19	Ratified by Jackie Kelly for DfI(NI)
3.01	Draft	RAC	05.03.20	Background information updated to reflect the coverage requirement (12.5%) for 2020/21
4.00	Issue	RAC	05.03.20	Ratified by Jackie Kelly for DfI(NI)
4.01	Draft	RAC	02.02.21	Draft based on version 4.00 but revised as follows: <ul style="list-style-type: none"> ▪ Website references updated
4.02	Draft	RAC	10.02.21	Reviewed by CCS
5.00	Issue	RAC	17.02.21	Ratified by Jackie Kelly for DfI(NI)

Document Owner

The owner of this document is the Department for Infrastructure (Northern Ireland).

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. 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 Northern Ireland PI report.

Part 1 of the Technical Note (this document) gives the requirements for calculating the PI using visual survey data.

Part 2 of the Technical Note gives the requirements for calculating the PI using SCANNER survey data.

This document 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 Northern Ireland visual survey PI is based on CVI survey data collected for 12.5% of the unclassified network each year. The CVI data are collected using XSP 'C'.

Processing & Reporting Requirements

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.

Version 10.01 or later of the UKPMS Rules & Parameters must be used for both the specification of the defects that comprise the UKPMS Visual Inspection survey and for the automatic pass processing.

The data are processed using the UKPMS Automatic Pass with the following basic run parameters:

1. Network selection: Unclassified network
2. Feature selection: Carriageway
3. Survey type: CVI
4. Standard Merge Method 3 (Variable Intervals), with a condition index tolerance of 12 and a percentage tolerance of 10%.

Calculation of Reported Values

The results are calculated only for the unclassified part of the network. In each case the PI is the percentage of the surveyed network satisfying any of the following:

- Structural CI ≥ 85
- Wearing Course CI ≥ 60



- Edge CI \geq 50

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.*
4. *The road classification is fundamental to this report. It is important that this section attribute is populated accurately.*

Part 1 – Selection Criteria

The criteria used to select the sections included on the report are given. Normally for this report, the network is identified as those roads with DfT Classification 6.

Part 2 – Run Details

The run details required are:

- UKPMS system and version
- Calculation date
- Rule Set Identifier
- Feature (which should be 'Carriageway')
- Selected Merging Method (which should be 'Standard Variable')

Users of the report are encouraged to check the UKPMS system and version against the relevant Annual Health Check results 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 Northern Ireland PI for the relevant year.

Part 3 – Survey Data Processed

The following details are required for the survey data processed:

A. **Survey information**

A1: The survey period is the dates entered by the user for the Automatic Pass (normally 1 Jan to 31 Dec).

A2: This gives the survey types for the data used for the PI calculation. Typically this is CVI.

B. **Total length of Selected Network**

The Selected Network is 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

As 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.

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



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 2016		
Selection Criteria: <i>DfT Classification = 6</i>		
Run Details:		
UKPMS System & Version:	<i>UKPMS System & Version</i>	
Calculation Date:	<i>2 Feb 2017</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 2016 to 31 Dec 2016</i>	
Survey Type:	<i>CVI</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>985.442</i>	<i>15.1%</i>
Unsurveyed Length:	<i>5536.788</i>	<i>84.9%</i>
Performance Data:		
Structural CI >=85:	<i>12.413 km</i>	
Wearing Course CI >=60:	<i>98.215 km</i>	
Edge CI >=50:	<i>109.985 km</i>	
Any Above Thresholds:	<i>165.239 km</i>	
Performance Indicator:	<i>16.768%</i>	