UK Pavement Management System

Technical Note 38

Production of the Best Value Performance Indicator Report for BV224b – Condition of Non-Principal Unclassified Roads

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Document Information

Title (Sub Title)	Technical Note 38
	Production of the Best Value Performance Indicator Report for BV224b – Condition of Non-Principal Unclassified Roads
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Description	This Technical Note provides guidance for UKPMS Developers to allow them to produce BV224b, the PI report for the condition of non-principal unclassified roads.

Document History

Version No	Status	Author	Date	Changes from Previous Version
0.01	Draft	JMG	27.06.13	First draft based on 2007/08 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	08.07.13	Transferred to new template. The Technical Note has been updated so that the style and structure are more consistent with other, more recent, UKPMS Technical Notes for performance indicators. This includes updating the references to Rule Sets to refer to 'RP10.01 or later'.
0.03	Draft	RAC	15.07.13	Reviewed by JMG
1.00	Issue	RAC	05.08.13	Ratified by Amanda Richards for RCMG
1.01	Draft	RAC	08.01.19	The website references have been updated. An explanation has been added for Statistic B
1.02	Draft	RAC	18.01.19	Reviewed by CCS
2.00	Issue	RAC	18.02.19	Ratified by Amanda Richards for RCMG
2.01	Draft	RAC	02.02.21	Draft based on version 2.00 but revised as follows: ▪ Website references updated
2.02	Draft	RAC	10.02.21	Reviewed by CCS
3.00	Issue	RAC	02.03.21	Ratified by Amanda Richards for RCMG

Document Owner

The owner of this document is the Road Condition Management Group (RCMG).

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 BV224b, the PI report for the condition of non-principal unclassified roads.

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

Authorities are required to base their BV224b survey result on CVI or DVI data for their entire (unclassified) network and the minimum survey coverage is 90%. All data used for the result must have been collected within the last four financial years, and at least 25% of data should have been collected in the most recent financial year.

Notes:

1. *Visual surveys must be carried out in accordance with "Visual Data Collection for UKPMS", Volume 2 of the UKPMS User Manual.*
2. *All inspectors carrying out visual surveys for BV224b and all Data Capture Device (DCD) software used to collect data must be accredited in accordance with the current UKPMS accreditation procedures.*
3. *Concrete or part-covered roads should be included in the visual survey for BV224b.*
4. *If DVI surveys are to be used as the basis for the survey, the data should be collected using the standard 20m aggregation length. A DVI survey should be converted to a 'CVI-equivalent' survey using the current version of the UKPMS HMDIF Conversion Software, and processed as a CVI survey.* ***Unconverted DVI data must not be used.***
5. *Note that the cross sectional position (XSP) level used for any section should remain consistent over the four year cycle. Data should not be collected using a mixture of Minimal and Full XSPs for the same section.*
6. *The road classification is fundamental to this report. It is important that this section attribute is populated accurately.*

Authorities should also provide the following information to support the BVPI:

- UKPMS system & version
- Version of Rules & Parameters used
- Name(s) of Inspector(s) & accreditation date(s)
- DCD software & version used
- CVI or DVI used?
- Reasons for reduced survey coverage (if applicable)
- Other comments

Processing & Reporting Requirements

The data are processed using the UKPMS Automatic Pass and the PI is based on data collected in the last four financial years.

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

1. Version RP10.01 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.
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. The default inventory should be used.
4. Selective report by Feature - for Carriageway only
5. CVI survey types should be selected

The selection of treatments and the calculation of their associated cost estimates are NOT required for the BV224b PI report. However, some authorities may wish to see cost estimates on an extension of the same report, and this could be an 'optional extra' to the PI report.

Since UKPMS Visual Surveys may use either 'Full' or 'Minimal' cross-sectional positions, the survey length on the network, the actual length surveyed and the length over which the relevant CI exceeds the threshold value must be calculated with caution. It is not sufficient to assume that the full length (and all lanes, if using 'full' XSP method) of all the 'sections within survey' have actually been surveyed. In principle all of the unclassified road length should be surveyed, in practice this will not be possible and so the minimum coverage requirement is 90%. The 'excluded length' should not be included in the PI calculation, and for the avoidance of doubt, the PI Report layout suggests that the excluded (non-surveyed) length is separately tabulated.

Calculation of Reported Values

The PI is the percentage of the surveyed unclassified network satisfying any of the following:
- Structural CI ≥ 85
- Wearing Course CI ≥ 60
- Edge CI ≥ 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 PI is given to the nearest whole number and other percentages are given to 1 decimal place.*

4. *The sum of the individual lengths of CI's exceeding a threshold will usually not be the same as the performance indicator value, because on many lengths more than one CI will be exceeded at the same time, but the length is counted only once for the PI.*

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 BV224b for the relevant year.

Part 1 - Background Information

A. Total length of Selected Network i.e. Non-Principal Unclassified Roads (in Carriageway-km)

Simply, the sum of all Section Lengths on the selected network converted to km (i.e. divided by 1000) and displayed to three decimal places. These Sections are identified as having a DfT Classification of 6 for Unclassified Roads.

B. Total Possible Survey Length, in Lane-km

This is calculated for the sections in the selected network. It is the sum of the Section Lengths for sections which use Minimal XSPs plus the sum of the Section Length multiplied by the number of lanes for sections which use Full XSPs. Sections that have not been surveyed within the last four financial years are assumed to use Minimal XSPs.

C1. Surveys undertaken in last four financial years for BV224b (all lanes covered, on all XSPs applicable)

The sum of Section Lengths on the selected network for sections which have been surveyed using Minimal XSPs plus the sum of all Section Lengths multiplied by the number of lanes for sections which have been surveyed using Full XSPs. If a section has data collected using both Full and Minimal XSPs then a warning should be issued. In cases where no observations have been recorded for the surveyed section then Minimal XSPs should be assumed. It is strongly recommended that in this situation a warning is issued.

Note that any section/XSP that has been surveyed more than once within this four year period should only be included once in this calculation.

Using the data actually processed by the Automatic Pass for each section/XSP, the length of any "Not Assessed" defects are then deducted from the combined length to derive the total length surveyed. Note that it is important to use the data actually processed so that if a section/XSP is surveyed and then in a later survey recorded as "Not Assessed" the latter is not included in this calculation, as this will be ignored in favour of the data recorded earlier.

Note that this assumes that "Not Assessed" defects are accurately recorded and that those lengths where no defects are recorded are implicitly "Not Defective".

C2. Surveys undertaken from 1 April onwards of the most recent financial year for BV224b (all lanes covered, on all XSPs applicable)

This is calculated as for C1, but using only that part of the network which has been surveyed from 1 April onwards of the relevant year. Note that if "Not Assessed" defects have been recorded in this time period they should be taken account of in the calculation, unless the section/XSP has been surveyed earlier in the C2 time period. This is to ensure that C2 gives the length actually surveyed since 1 April of the relevant year. The following example illustrates this point. Suppose that, for reporting for 2007/08, a section/XSP was surveyed on 10 May 2007 and subsequently "Not Assessed" in a survey on 28 Sept 2007. In this case the "Not Assessed" data would be ignored in the calculation of C2. If, however, the date of the survey was 10 May 2006, then the "Not Assessed" data would be used in the C2 calculation as the previous survey lies outside the time period used for C2.

This may lead to situations where some "Not Assessed" data is used in the C2 calculation but ignored in the C1 calculation.

Part 2 - Performance Data

D. Processed Network Length within CI Type

This is calculated as the Sum of Defect Lengths converted to km, greater than or equal to the relevant threshold for each Structural, Wearing Course and Edge CI (respectively) in each defect length.

E. 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, divided by Length Surveyed in Survey Period ("C1" above) multiplied by 100 (and rounded to the nearest whole number).

PI = [(Σ Defect Lengths exceeding one or more threshold) x 100] ÷ Total Length Surveyed

Example Report:

Part 1: Background Information

Authority:	*Oldshire CC*
UKPMS:	*Bloggs PMS v2.45*
Road Categories selected:	*U*

Run Details:

Automatic Pass Run Reference:	2013 PI Run 3
Automatic Pass Run Date:	10th July 2013
Rule Set:	*RP10.01*
Feature:	*Carriageway*
Pavement Type(s):	*All*
Selected Merging Method:	*Standard Merge Method 3 (Variable Intervals)*
Inventory Used:	*Default*
Condition Index Merge Tolerance:	*12*
Percentage Merge Tolerance:	*10*
Structural CI Exception Level:	*85*
Wearing Course CI Exception Level:	*60*
Edge CI Exception Level:	*50*

Survey Input Processed:

Total Length of Selected Network (carriageway-km):		203.560km	
Total Possible Survey Length (XSP-km):		350.400km	
Comprising;			
Valid Survey Period: *1st April 2009*		*to*	*31st March 2013*
	Selected Survey Type	*Length (km)*	*% network*
Length surveyed in Survey Period (XSP-km):	*CVI*	*327.300*	*93.4%*
Un-surveyed length (XSP-km):		*23.100*	*6.6%*
			100.0%
Of which;			
Length surveyed in current year (XSP-km): *1st April 2012*		*to*	*31st March 2013*
	Selected Survey Type	*Length (km)*	*% network*
	CVI	*92.694*	*26.5%*

Part 2: Performance Data

Total length exceeding threshold	Processed Network Length within CI band (km)		PERFORMANCE INDICATOR Percentage Length which has exceeded the point at which surface or structural repair of the carriageway should be considered
Any of the 3 thresholds below	92.500		**28%**
Structural CI >= 85	24.400	7.5%	
Wearing Course CI >= 60	77.700	23.7%	
Edge CI >= 50	26.400	8.1%	