

UK Pavement Management System



UKPMS Technical Note 29 (2007/08)

*Production of the Best Value Performance Indicator Report for
BV187 - Condition of Footways*

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Document Information

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Introduction

DfT Performance Indicators for Best Value include BV187 to measure the Condition of Footways.

This Technical Note provides guidance on the production of BV187 and consists of three parts:

Part 1 summarises the requirements for BV187 and is aimed primarily at local authorities. It forms the guidance on the DfT website and therefore necessarily refers to this Technical Note 29.

Part 2 provides more detailed guidance on the calculation of BV187 and is aimed primarily at UKPMS system suppliers.

Part 3 summarises the requirements for BV187 for 2007/08.



Part 1 - Summary

Best Value Performance Indicator BV187

This indicator is based on the collection and analysis of Detailed Visual Inspection (DVI) measurements, processed using Version 8.01¹ of the national Rules and Parameters for UKPMS. It is designed to provide the percentage length of the footway network with a Footway Condition Index greater than a defined threshold value (see below). This threshold is indicative of the need for an investigation to determine whether maintenance is needed to preserve the footway serviceability. These rules cover different footway types and the defects associated with the type of footway (e.g. bituminous, flags) on different footway categories (hierarchies).

Authorities should measure the percentage length of the footway Category 1, 1a and 2 network with a Footway Condition Index greater than or equal to a threshold value of 20, calculated using the Variable Length Merge method set out within UKPMS through Version 8.01 of the Rules and Parameters, and expressed to the nearest whole percentage. Footway categories are defined in the current version of the Code of Practice for Maintenance Management.

Footway Identification Process

Identify those UKPMS sections with Category 1, 1a or 2 footways. If a detailed record of footway hierarchies has been collected against inventory in an authority's UKPMS system, then any occurrence of such a footway would qualify a section for inclusion. If footway hierarchy is recorded against the section, then all those sections with a "Default Footway Hierarchy" of 1, 1a or 2 are included. Those authorities that have not previously allocated footway hierarchies will have to identify the 1, 1a and 2 Category footways prior to this step.

Inventory Data for BV187

Footway inventory data must be available for all sections identified with Category 1, 1a or 2 footways.

Condition Surveys for BV187

DVI surveys must be carried out in accordance with the current version of "Visual Data Collection for UKPMS", Volume 2 of the UKPMS User Manual.

Each year authorities should survey at least 50% (by number rather than by section length) of the sections identified with Category 1, 1a and 2 footways so that over each two-year period the entire network has been surveyed (with a minimum survey coverage of 90%). For 2007/08 authorities are required to base their BV187 results on all data collected since 31 March 2007 and this must cover at least 50% of the network.

Note that the condition data and the inventory data **must** be collected using the same cross sectional positions (XSPs) in order for the data to be processed together.

¹ UKPMS Rules and Parameters Version 8.01 will be the version of the UKPMS Rules and Parameters released to UKPMS Developers on 30 September 2007 for implementation by 31 December 2007. UKPMS Rules and Parameters Version 8.01 will form the basis of both the BVPIs for 2007/08 and the 2007 UKPMS Annual Health Check.



All inspectors carrying out visual surveys for BV187 and all Data Capture Device (DCD) software used to collect the data must be accredited in accordance with the current UKPMS accreditation procedures. Further information is available from the UKPMS Support Consultant, telephone 01483 304364 or see www.ukpms.com for further information.

It is the intention that any survey data collected on or after 1st April 2008, and used for BV187, should have been collected by inspectors that have been accredited under the new UKPMS inspector accreditation scheme, set up by the UKPMS Steering Group. Full details of the accreditation scheme are available on the UKPMS web site.

The UKPMS system used to produce the results must be accredited by the UKPMS Annual Health Check to produce BV187 for 2007/08 and configured using the UKPMS Rules and Parameters 8.01.

The following information should also be provided to support the BVPI:

UKPMS System & Version	
Version of Rules & Parameters Used	
Name of Inspector & Accreditation Date	
DCD Software & Version Used	
Reasons for reduced survey coverage (if applicable)	
Other Comments	



Part 2 -Detailed Guidance not Included Above

Introduction

This part is intended to provide more detailed guidance on the production of BV187 for users and System Developers.

For 2007/08, the indicator covers only the most important or most heavily used Hierarchy 1, 1a and 2 footways.

This indicator is based on the collection and analysis of Detailed Visual Inspection (DVI) measurements using an accredited UKPMS system. It is designed to provide the percentage length of the footway network with a Footway Condition Index greater than or equal to a defined threshold value (see below). This threshold is indicative of the need for an investigation to determine whether maintenance is needed to preserve the footway serviceability. These rules cover different footway types and the defects associated with the surface type of footway (e.g. bituminous, flags) on different footway hierarchies.

The format for reporting of BV187 (the "PI Report") from a UKPMS Tranche 3 accredited system approved by the DfT is attached. This standard report has been accepted by DfT if produced as output from a system that has successfully undergone Tranche 3 UKPMS testing and subsequent Annual Health Check testing of BV187 for 2007/08, and that has been configured to use rule set RP8.01; the version of the UKPMS Rules and Parameters released to UKPMS Developers on 30 September 2007 for implementation by 31 December 2007². These notes are intended to assist developers and to ensure that the important PI statistics produced for such a report are calculated in a consistent manner.

Scope and Survey Requirements

BV187 is based on all the data collected since 31 March 2007 by a (walked) DVI survey of the Category 1, 1a and 2 footways. Each year at least 50% of the network is surveyed, so that the entire Category 1, 1a and 2 network will be covered every two years; the minimum survey coverage is 90%. Footway Hierarchies (Categories) are defined in the Code of Practice for Maintenance Management as shown in the following Table.

² UKPMS Rules and Parameters Version 8.01 will form the basis of both the BVPIs for 2007/08 and the 2007 UKPMS Annual Health Check.



Category	Category Name	Description
1(a)	Prestige Walking Zones	Very busy areas in towns and cities with high public space and street scene contribution.
1	Primary Walking Routes	Busy urban shopping and business areas and main pedestrian routes.
2	Secondary Walking Routes	Medium usage routes through local areas feeding into primary routes, local shopping centres etc.
3	Link Footways	Linking local access footways through urban areas and busy rural footways.
4	Local Access Footways	Footways associated with low usage, short estate roads to the main routes and cul-de-sacs.

Within UKPMS systems there is also a “special” footway hierarchy of “ND”, which should be allocated to those sections with no footway present.

Footways that are not associated with carriageways (i.e. footpaths etc.) should also be included, provided that they are public highway maintainable at public expense.

Paved Verges are not included as part of the Performance Indicator.

Shared pedestrian and cycleway facilities should also be included.

All types of Footway surface are included.

Footway inventory data is required for all footways included in the Performance Indicator and **must** use the same cross sectional positions (XSPs) as the condition data.

CVI surveys are not permitted for the derivation of the indicator. Developers are encouraged to provide facilities that prevent CVI surveys being inadvertently selected when producing BV187 reports.

DVI Surveys are to be carried out in accordance with the provisions of the current version of “Visual Data Collection for UKPMS”, Volume 2 of the UKPMS User Manual. In addition, all inspectors carrying out visual inspections for the purpose of calculating BV187 and all Data Capture Device (DCD) Software used to collect the data must be fully accredited in accordance with the current UKPMS accreditation procedures. Further information is available from the UKPMS Support Contractor or the UKPMS website (www.ukpms.com).

It is the intention that any survey data collected on or after 1st April 2008, and used for BV187, should have been collected by inspectors that have been accredited under the new UKPMS inspector accreditation scheme, set up by the UKPMS Steering Group. Full details of the accreditation scheme are available on the UKPMS web site.



Selection of Footways for Survey and for Inclusion within the Report

Inventory requirements

Footway inventory is mandatory for all sections included in the Performance Indicator and must be collected using the same XSPs as the condition data. Since in the first years of the indicator authorities will not necessarily have carried out full inventory surveys of their footways, including the allocation of a footway hierarchy to each length of footway within each section of their network, it was strongly recommended that a basic inventory, including the allocation of footway hierarchies was collected in conjunction with the DVI survey in the first two years of the indicator. The inventory will collect the following attributes for each length of footway:

- Start Chainage
- End Chainage
- Cross Section Position
- Width
- Hierarchy

Construction Type is optional, and may be recorded as “UK” (Unknown).

Selection Process

UKPMS provides for the allocation of footway hierarchy at two levels, a “default” hierarchy for the whole section and a more detailed hierarchy linked to inventory which allows the different characteristics of footways within a section to be accounted for. Figure 1 describes an approach, which allows the surveys for the indicator to be carried out without having to carry out a full inventory survey prior to the DVI Survey.

Identify those UKPMS sections with Hierarchy 1, 1a or 2 footways. If a detailed record of footway hierarchies has been collected against inventory in an authority's UKPMS system, then any occurrence of such a footway would qualify a section for inclusion. If footway hierarchy is recorded against the section, then all those sections with a “Default Footway Hierarchy” of 1, 1a or 2 are included. Those authorities that have not previously allocated footway hierarchies will have to identify the 1, 1a or 2 category footways prior to this step. The section hierarchy should be set to the “highest” hierarchy within that section³.

³ i.e. 1a being the highest and 4 the lowest

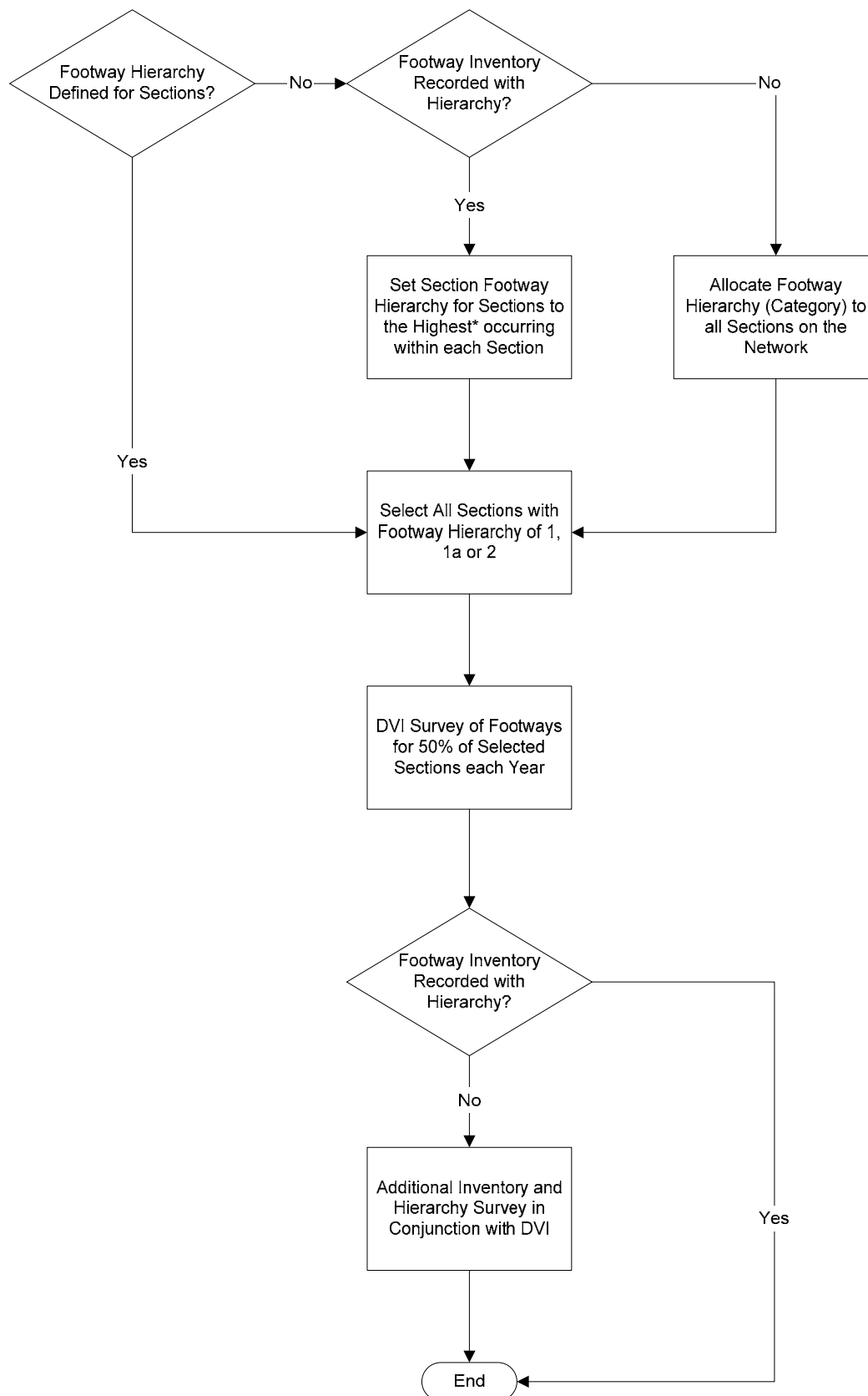


Figure 1. Selection and Survey of Footways

* The "highest" footway hierarchy is 1a, then 1, 2, 3 and then 4.



Calculation and Reporting of the Performance Indicator

BV187 is a report of the percentage length of the footway Hierarchy 1, 1a and 2 network with a Footway Condition Index greater than or equal to a threshold value of 20.0, calculated using the standard variable merge within UKPMS and the approved rule set, based on a survey of at least 50% of the Category 1, 1a and 2 footways using all data collected since 31 March 2007. The entire Category 1, 1a and 2 footway network should be surveyed over two years (minimum coverage 90%).

It is assumed that the section attribute “default footway hierarchy” is populated for all sections with 1, 1a and 2 footways, so that these sections can be selected for the footway survey, and that Inventory already exists or is collected for those footways which are surveyed.

The Standard Merge Method 3 (Variable Intervals) is to be used with a condition index tolerance of 12 and a percentage tolerance of 10%.

Only fully accredited (i.e. Tranches 1, 2 and 3, plus the 2007 Annual Health Check for the 2007/08 BV187 report) UKPMS systems are to be used in the production of the performance indicator

UKPMS Rules and Parameters Version RP8.01 are to be used for the production of the report.

The BVPI Report

A sample report format follows; the following statistics are to be included on the report for BVPI 187, for Category 1a, 1 and 2 footways:

1. Network length, given as:
 - a. the number of sections with a Section Footway Hierarchy of 1a, 1 or 2
 - b. the length in km of these sections.
2. Surveyed network length over the complete 2-year period (i.e. 1 Apr 2006 to 31 March 2007), given as:
 - a. the number of sections surveyed
 - b. the length in km of these sections.
 - c. The percentage network surveyed, calculated as the number of surveyed sections divided by the number of network sections. This figure should be 90% or greater.
 - d. The length percentage may also be given (the length of surveyed sections as a percentage of the length of the network sections).
3. Surveyed network length for the most recent year (i.e. 1 Apr 2007 to 31 Mar 2008), given as:
 - a. the number of sections surveyed
 - b. the length in km of these sections.
 - c. The percentage network surveyed, calculated as the number of surveyed sections divided by the number of network sections. This figure should be 50% or greater.



- d. The length percentage may also be given (the length of surveyed sections as a percentage of the length of the network sections).
4. Surveyed footway length for the most recent year (i.e. 1 Apr 2007 to 31 Mar 2008), based on the footway inventory for those surveyed.
5. The footway length within CI band, using only the data for the most recent year:
 - a. Overall CI ≥ 20
 - b. Overall CI < 20 and > 0
 - c. Overall CI = 0
 - d. plus Not Assessed Lengths
6. BVPI 187: This is calculated as the length of footway with Overall CI ≥ 20 , divided by the surveyed footway length less Not Assessed lengths.

All lengths should be given in km to 3dps; percentages are given to 1dp other than the BVPI figure itself which is given to the nearest whole percentage.

Example Report

1. Run Parameters

Authority	Oldshire CC
UKPMS	Bloggs PMS v2.45
Automatic Pass Run Reference:	DVI3_BV187_02
Run Date:	21/01/2008
Rule Set ID:	RP8.01
Feature:	Footway
Pavement Types:	All (BP, BT, CR, FG)
Selected Merging Method	Standard Merge Method 3 (Variable Intervals)
Merging Parameters CI Tolerance	12
Merging Parameters Percent Tolerance	10
CI Exception Level	20

Summary of data processed by this automatic pass for the selected network:

Selected network 304 sections **(1a)**
67.800 km **(1b)**

2. DVI Length Surveyed in full 2-year Survey Period (1 Apr 06 to 31 Mar 08):

Hierarchy	Sections			
	Number	Km	% Network (No)	% Network (Length)
1a	20	7.300	6.6%	10.8%
1	91	22.400	29.9%	33.0%
2	182	34.600	59.9%	51.0%
All 1a, 1 and 2	293 (2a)	64.300 (2b)	96.4% (2c)	94.8% (2d)



3. DVI Length Surveyed in most recent year (1 Apr 07 to 31 Mar 08):

Hierarchy	Sections				Footway Length	
	Number	Km	% Network (No)	% Network (Length)	% Network	Length (km)
1a	12	4.300	3.9%	6.3%	8.7%	4.900
1	47	10.800	15.5%	15.9%	26.2%	14.800
2	115	21.200	37.8%	31.3%	65.1%	36.750
All 1a, 1 and 2	174 (3a)	36.300 (3b)	57.2% (3c)	53.5% (3d)	100.0%	56.450 (4)

4. Performance Data

<i>CI Band</i>	<i>Processed footway length within CI band (km)</i>			
<i>Hierarchy:</i>	<i>1a</i>	<i>1</i>	<i>2</i>	<i>1a,1 & 2</i>
20 and greater	0.305	1.450	4.420	6.175 (5a)
under 20	1.710	4.560	12.575	18.845 (5b)
Zero	2.865	8.415	19.690	30.970 (5c)
Not Assessed	0.020	0.375	0.065	0.460 (5d)
All	4.900	14.800	36.750	56.450

<i>Hierarchy</i>	<i>Percentage Footway Lengths over Threshold</i>
1a	6.3%
1	10.1%
2	12.0%
1a, 1 and 2 (BV187 Value)	11% (6) i.e.(5a/(4-5d))*100

Notes on the derivation of the Sample Report

1. The sample report suggests a format for hierarchy 1a, 1 and 2 footways. As a minimum, the data listed as items 1 to 6 should be included. Provided these items are included, calculated as specified in this document, developers may adopt their own report format and may include additional information, including reporting on other footway hierarchies and other features.
2. Footway inventory is required for all sections included in the Performance Indicator and this inventory must use the same XSPs as the condition data. It is suggested that Developers may wish to ensure that inventory is used, or at least indicate on the BVPI report if it has not been used.
3. The selection and reporting for sections is based upon the section attribute Default Footway Hierarchy. The reporting for Footway Length in Part 3 is based upon the Feature Hierarchy recorded against the footway inventory, and is restricted to those footways which are located on sections with the required Default Footway Hierarchies. Similarly the condition index results in Part 4 are



only derived from Defect Lengths on sections with the required Default Footway Hierarchies.

4. Footway lengths recorded as “Not Assessed” are excluded from the reporting. It is assumed that if an inventory including footway hierarchy is being collected in conjunction with the DVI survey, then inventory data is still being collected, even though the DVI has not been possible.
5. The Zero CI band is calculated as ‘All’ minus ‘Others’. That is, the All figure is set to the Footway Length (4), and the Zero CI Band (5c) is calculated as (4) minus Sum((5a), (5b), (5d))



Part 3 - BV187 Summary for 2007/08

Footways

<i>BVPI:</i>	BVPI 187
<i>Hierarchy:</i>	1a, 1 and 2 Footways
<i>Amount:</i>	At least 50% collected since 1 Apr 07 Entire network since 1 Apr 06 (minimum 90%)
<i>Dates:</i>	1 year 1 Apr 07 to 31 Mar 08
<i>Survey type:</i>	DVI
<i>CI Threshold:</i>	Overall CI ≥ 20
<i>Merge Method:</i>	Standard Merge Method 3 (Variable Intervals)
<i>Merge Tolerances:</i>	12 (Condition Index) 10 (Percentage)
<i>Rule Set:</i>	RP8.01*

* - UKPMS Rules and Parameters RP8.01 is the formal release for the calculation of BVPIs and undertaking of the Annual Health Check during 2007/2008. RP8.01 is released to Developers by 30th September 2007 for implementation by 31st December 2007.