

UK Pavement Management System



Technical Note 32

Report Specification for Task 307: Condition Ranking - Immediate Improvements

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Document Information

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Description	This Technical Note provides a specification for a new UKPMS report.

Document History

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1.02	Revised	RAC	12/11/04	Updated following initial feedback from UKPMS Developers
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Introduction

From November 2002 to May 2003, the Ranking Subgroup (a subgroup of the UKPMS Steering Group) met to consider the use of Condition Ranking in UKPMS. The subgroup produced a report *Progress Report May 2003 v2* which identified a number of problems with condition ranking and provided a strategy for introducing improvements.

The first stage of these improvements, known as ‘Condition Ranking – Immediate Improvements’¹ was approved by the USG for inclusion in the 2004/05 development tasks. Part of this task was to provide a specification for a new report, to be introduced into UKPMS. This Technical Note provides that specification.

Earlier versions of this document have provided the basis for consultation with UKPMS Developers and the UKPMS Steering Group. Based on the outcome of that consultation this specification has been produced and the report will be included as a requirement in the UKPMS Health Check. In addition to the mandatory report specification, a number of suggestions are included for optional extensions to the report; the latter will not form part of the UKPMS Health Check.

This Technical Note is one of two main deliverables for the project; the second being Advice Note 8 (Use of UKPMS Condition Ranking).

Report Specification

This specifies the mandatory part of the report, to be included in the UKPMS Health Check in due course.

Purpose

The purpose of the new report is to provide a list of defect lengths in descending condition index order, for any specified condition index.

The *Progress Report May 2003 v2* identified that there may be benefits in producing a list split by treatment, based on the ‘active’ condition index for that treatment. So, for example, the list of Edge treatments would be sorted in descending Edge Condition Index order. The specified report achieves this by allowing Users to select a treatment and condition index (in conjunction with advice giving the active condition index for each treatment).

The intention is that this report would allow Developers and Users to begin to explore alternatives methods for condition ranking without incurring any major expense; the report does have limitations:

- It does not provide a fully-fledged alternative ranking and is not used as a basis for Budgeting
- The links between treatment and active condition index are simplified.

However, the aim is to establish if these improvements to ranking warrant a more sophisticated (and costly) development in due course.

¹ As defined on pp3-4 of *Progress Report May 2003 v2*



Report Name

The report will be known as the 'Defect Length sorted by Condition Index' report.

Report Contents

The contents for the report are:

- Automatic Pass Identifier
- Section Label
- Feature
- XSP
- Start Chainage
- End Chainage
- Condition Index Value
- Treatment Composition (Generic Treatment, Specific Treatment, Treatment Type)
- Treatment Cost
- Cumulative Treatment Cost

The report should also indicate the Condition Index chosen for the report (see *Report Filters* below), and any other filters.

Report Sort Order

The report should be sorted in the following order:

- Condition Index Value (descending)
- Section Label (ascending)
- Feature (ascending)
- XSP (ascending)
- Start Chainage (ascending)
- Treatment Cost (ascending)
- Automatic Pass Identifier (ascending)
- Treatment Composition (ascending)

Note that the first six attributes give the same order as is used in the Budgeting process, but with Ranking replaced by Condition Index Value.

Report filters

The choices made by the user when filtering the report should be printed as part of the report, either at the beginning or the end.

Condition Index

Condition Index is a mandatory filter; the user must specify one and only one Condition Index when they produce the report.

Treatment

It must be possible for the report to be restricted to one or more Treatment Compositions (as selected by the user). The user should also have the option of including all treatments if they wish.



Section

The user must be able to restrict the report to specific sections, via the section attributes.

Automatic Pass Identifier

The user must be able to restrict the report to a specific Automatic Pass.

Other Filters

The user must also be offered the following filters:

- Feature
- XSP

For each of these the user should be able to select one, several or all values for the filtered field.

Optional Extensions

These are suggested as possible extensions to the report for consideration by Developers in consultation with their Users. The optional extensions will not form part of the Annual Health Check.

Additional Fields

Developers may choose to include additional fields on the report. Possible suggestions include:

- Feature hierarchy
- Pavement type
- Functional failure indicator
- Additional section attributes

Secondary Sort Options

The primary purpose of the report is to provide a list in descending condition index value order. However, Developers may choose to offer options for the secondary sort order (but must include the mandatory option above as one of these).

Condition Index Cut-offs and Ranges

Developers may choose to allow Users to restrict the report, either by specifying a cut-off for the condition index value, or by specifying a range for the condition index values.

Link between Treatment & Active CI

In the mandatory report the link between treatment and active condition index is handled manually, via the filtering of treatments and condition indices. However, Developers may choose to automate the relationship between treatment and active condition index if they wish. Note that it must still be possible for the User to choose any condition index and any (or all) treatments if they wish; the automated approach is an extra.

Budgeting using Active CI

Developers may choose to offer additional options for Budgeting; either by Overall CI or by the Active CI.



Condition Projection and Network Trends

Developers may choose to offer the report for projected data (including results from the Network Trends processing). However the report is only mandated for non-projected data.

Treatment / Condition Index Mapping

Treatments are determined by the levels of one or more of the condition indices, but with regard to Step Level, Off-carriageway Tied to Carriageway, Functional Defect and Feature Hierarchy.² For example Edge treatments are suggested if the Edge Condition Index is at or above a specified intervention level.

The condition index which drives the treatment is termed the 'active' condition index. It is possible to obtain an indication of the relative importance of two defect lengths which each require the same treatment by comparing the values of the appropriate active condition index. For example, defect lengths which all require Edge works can be sorted by using the EDGE CI, to give a list which is roughly in order of importance.

The tables below give the active condition index for each treatment (based on RP5.01). These are applicable where a treatment is driven by a single condition index. Some of the rules are based on more than one condition index, and some lead to multiple treatments. However, despite this, in many cases there is still a link between a treatment and an active condition index. For example for bituminous carriageways a multiple treatment Edge/Parcon plus Stren/Overlay is suggested if both the EDGE CI and the STRUC CI exceed certain levels.³ The assumption using the mapping relationships below is that the Edge works are driven by the EDGE CI and the Strengthen works are driven by the STRUC CI.

Some particular cases where the relationship is not appropriate are also identified.

Off-CW features

The off-carriageway features are Cycletrack, Footway, Kerb and Verge.

Feature	Pavement	Generic Treatment	Active Condition Index
CT, FW, KB, VG	All pavements	All treatments	OVRLL

² Using tables Treatment Selection Rule Line, Treatment Selection Rule Cell, Treatments for Rule Line and Intervention Levels for Hierarchy.

³ Rule Priority Number 7 for BT carriageways



CW block paved

Feature	Pavement	Generic Treatment	Active Condition Index
CW	BP	LOCAL	BPALL
CW	BP	RELAY	BPALL
CW	BP	STREN	BPALL
CW	BP	TTSSSTREN	TTSSST
CW	BP	TTSSURIM	TTSSU

CW bituminous

Feature	Pavement					Generic Treatment	Active Condition Index
	BSLM	BT	BTCC	COCO	UK		
CW	✓	✓	✓	✓		EDGE	EDGE
CW	✓			✓		JOINTCRK	JTCRK
CW	✓	✓	✓	✓	✓	RESUR	WCRSE
CW	✓	✓	✓	✓	✓	STREN	STRUC
CW	✓	✓	✓	✓	✓	SURIMP	SRPRP
CW	✓	✓	✓	✓	✓	TTSRESUR	TTSWC
CW	✓	✓	✓		✓	TTSSSTREN	TTSSST
CW	✓	✓	✓	✓	✓	TTSSURIM	TTSSU

CW concrete

Feature	Pavement				Generic Treatment	Active Condition Index
	CCR	CU	RCR	UCR		
CW	✓	✓	✓	✓	LONGJT	LJNT
CW	✓	✓	✓	✓	STREN	STRUC
CW	✓	✓	✓	✓	SURIMP	SURF
CW	✓	✓	✓	✓	TRANSJT	TJNT
CW	✓	✓	✓	✓	TTSSURIM	TTSSU

Exceptions

There are three main exceptions to the above relationships.

1. The covered concrete (COCO) resurface treatment is triggered by the EDGE and SRPRP condition indices in some circumstances.
2. The concrete (CCR, CU, RCR and UCR) strengthen treatment is triggered by the LJNT and TJNT condition indices in some circumstances.
3. Functional defects (from SCRIM) have an impact on suggested treatments. In this case the relationship between treatment and active CI is no longer valid.