Appendix B

Analysis Report

Milton Keynes carriageway network treatment analysis

Client: Milton Keynes Council

Primary Contact: Andy Dickinson

Date:23/05/12

Consultant: Gary Morland

Project Outline

Milton Keynes Council is investigating the appropriate scheme selection for the carriageways around the Milton Keynes borough.

The justification for any scheme selected is to be based on an informed approach, utilising an accredited United Kingdom Pavement Management System (UKPMS), and be based on condition data and local knowledge.

This would make use of the data from the Scanner and Course Visual Inspection Surveys that were collected during 2008 and 2011.

It's worth noting that any analysis carried out in a UKPMS system must always be verified by an Engineer to ensure the data is representing the on-site conditions. It is also common that authorities have the maintenance and capital schemes split between directorates, which can cause duplication of work if not communicated correctly.

The event layers (G.I.S tables) created from Insight will not take into effect any maintenance carried out nor any further deterioration that has occurred from the last survey carried out.

Scheme preparation and treatment selection

The work carried out utilised Symology's accredited UKPMS system. The Automatic pass required to produce reporting and treatments was run using the latest Rules and Parameters (RP10.01*) Weighting sets as stated in the Technical Note 44 and 45 (WSPrinv0201 and WSBCv02002). When configuring the Automatic Pass merge method 1 – fixed sub sections of 50m was deemed appropriate.

Treatment rates

Treatments had been processed using the Automatic pass and exported to produce a master list. Treatment rates have then been created within Insight after discussions with Andrew Dickinson on the relevance of the treatments produced and whether these are acceptable for Milton Keynes' carriageway network. The automatic pass re-run was then re-run; this calculated the associated costs for each treatment defined within the Insight system.

Treatment rate table

Treatment	Unit Type	Hierarchy	XSP	Cost	Use SOR?
ED/IN/BI	0001 CARRIAGEWAY	* *ALL*		30	N
ED/PA/BI	0001 CARRIAGEWAY	* *ALL*		75	N
ED/PT/BI	0001 CARRIAGEWAY	* *ALL*		30	N
ED/RC/BI	0001 CARRIAGEWAY	* *ALL*		100	N
LJ/IG/JO	0001 CARRIAGEWAY	* *ALL*		3	N
LJ/IL/JO	0001 CARRIAGEWAY	* *ALL*		3	N
LJ/LM/JO	0001 CARRIAGEWAY	* *ALL*		3	N
LJ/MN/JO	0001 CARRIAGEWAY	* *ALL*		3	N
LO/LR/BL	0001 CARRIAGEWAY	* *ALL*		50	N
RE/RB/BL	0001 CARRIAGEWAY	* *ALL*		50	N
RS/OL/BI	0001 CARRIAGEWAY	* *ALL*		15	N
RS/PT/BI	0001 CARRIAGEWAY	* *ALL*		50	N
ST/OL/BI	0001 CARRIAGEWAY	* *ALL*		15	N
ST/RC/BI	0001 CARRIAGEWAY	* *ALL*		25.25	N
ST/RC/BL	0001 CARRIAGEWAY	* *ALL*		75	N
TE/TD/UN	0001 CARRIAGEWAY	* *ALL*		30	N
TE/TP/UN	0001 CARRIAGEWAY	* *ALL*		30	N
TE/TR/UN	0001 CARRIAGEWAY	* *ALL*		100	N
TJ/IG/JO	0001 CARRIAGEWAY	* *ALL*		3	N
TJ/LM/JO	0001 CARRIAGEWAY	* *ALL*		3	N
TJ/MT/JO	0001 CARRIAGEWAY	* *ALL*		3	N
TR/TS	0001 CARRIAGEWAY	* *ALL*		15	N
TR/TS/UN	0001 CARRIAGEWAY	* *ALL*		15	N
TR/TW	0001 CARRIAGEWAY	* *ALL*		50	N
TR/TW/UN	0001 CARRIAGEWAY	* *ALL*		50	N
TU/TS/UN	0001 CARRIAGEWAY	* *ALL*		15	N

Mapping outputs delivered:

RAG Mapping

- Principal RAG map Milton Keynes Borough
- Non Principal RAG map Milton Keynes Borough
- Unclassified RAG map Milton Keynes Borough

Treatment Mapping:

- Principal Treatment map Milton Keynes Borough
- Non Principal Treatment map Milton Keynes Borough
- Unclassified Treatment map Milton Keynes Borough

Additional Mapping outputs and data provided:

- Principal and Non Principal Roads
    - LLRT Left Wheel track Rutting
    - LRRT Right Wheel track Rutting
    - LLTX Left Wheel track Texture
    - LV3 3m Longitudinal variances
- Excel spread sheets of the grid exports for:
    - 2011_PRN_RAG
    - 2011_NONPRN_RAG
    - 2011_PRN_50m_Treat
    - 2011_NONPRN_50m_Treat
    - 2011_UNC_Treat

Budget and treatment selection

Scheme treatments total costs were discussed as the SCANNER data produces schemes for any sub sections with defects relating to the treatment groups. The below extract explains the Treatment group triggers for each of the treatment rules.

Below is an extract taken from the TTS Treatment Rules – Summary document No112

Strengthen

The rule is that any of the following combinations trigger a strengthen treatment:

1. Left wheel track rut ≥ 20mm and 3m LPV ≥ 10mm2
2. Right wheel track rut ≥ 20mm and 3m LPV ≥ 10mm2
3. Left wheel track rut ≥ 20mm and whole CW cracking intensity ≥ 4%
4. Right wheel track rut ≥ 20mm and whole CW cracking intensity ≥ 4%
5. Left wheel track rut ≥ 20mm and left WT cracking intensity ≥ 4%
6. Right wheel track rut ≥ 20mm and right WT cracking intensity ≥ 4%
7. 3m LPV ≥ 10mm2 and whole CW cracking intensity ≥ 4%
8. 3m LPV ≥ 10mm2 and left WT cracking intensity ≥ 4%
9. 3m LPV ≥ 10mm2 and right WT cracking intensity ≥ 4%

Resurface

The rule is that any of the following combinations trigger a resurfacing treatment:

1. Left wheel track rut ≥ 15mm
2. Right wheel track rut ≥ 15mm
3. 3m LPV ≥ 10mm2
4. Whole CW cracking intensity ≥ 4%
5. Left wheel track rut ≥ 11mm and 3m LPV ≥ 4mm2
6. Right wheel track rut ≥ 11mm and 3m LPV ≥ 4mm2
7. Left wheel track rut ≥ 11mm and whole CW cracking intensity ≥ 1%
8. Right wheel track rut ≥ 11mm and whole CW cracking intensity ≥ 1%
9. Left wheel track rut ≥ 11mm and left WT cracking intensity ≥ 1%
10. Right wheel track rut ≥ 11mm and left WT cracking intensity ≥ 1%
11. Left wheel track rut ≥ 11mm and right WT cracking intensity ≥ 1%
12. Right wheel track rut ≥ 11mm and right WT cracking intensity ≥ 1%
13. 3m LPV ≥ 4mm2 and whole CW cracking intensity ≥ 1%
14. 3m LPV ≥ 4mm2 and left WT cracking intensity ≥ 1%
15. 3m LPV ≥ 4mm2 and right WT cracking intensity ≥ 1%

And a resurfacing/patch wheel track treatment is triggered by:

16. Left WT cracking intensity ≥ 4%
17. Right WT cracking intensity ≥ 4%

Milton Keynes have two options to identify the schemes and associated cost for the carriageway network.

Option 1

Using the RAG maps they can use a generic rate to target the upper Amber banding and target the critical carriageway on the verge of turning to Red. It is deemed that upper amber targeting is more effective and the treatment rates will be lower as the level of treatment required should be cheaper. An additional rate to target the sub sections already in a state of Red (requiring treatment) should be used this will reduce your amount of backlog (Accumulated depreciation)

Option 2

The Scanner and Course Visual Inspections had been run using RP10.01. This process determined a treatment and cost. Those Principal and Non Principal Sections surveyed using Scanner will need reviewing due to the nature of the automatic pass delivering schemes for most of the sub sections. It is regarded in the industry that harmonisation between CVI and Scanner is challenging but can still be used.

Please refer to the following website to gain access to the documents referred to within this report.

http://www.pcis.org.uk