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Network Operations Division Memorandum No. TM 5004

Subject: 2008 Skid Resistance Survey Data

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Circulation: Zone Managers (For circulation in your zone)

1. Purpose

Seasonal correction coefficients for skid resistance have been entered into the RAMM database for the 2008 survey. This survey for skid resistance has been different in three aspects from previous surveys. This memo discusses the differences and gives guidance on programming maintenance work (treatments) as a result of the skid resistance survey.

2. Differences

- a. Due to the late arrival of the SCRIM+ vehicle the survey has been completed later in the season.
- b. Two SCRIM+ vehicles were used for the survey.
- c. The summer was longer, hotter and dry for longer than is normal. But the most extreme effects have been localised.

3. Discussion of Differences

- a. Normally a later survey will allow more resurfacing to be completed and show the higher skid resistance associated with the new surfacings.
- b. The use of two SCRIM+ vehicles; this has not significantly affected the survey. Consistent validation procedures have been followed for both vehicles. In addition where there was concern regarding some skid resistance readings repeat surveys have been completed with the same result.

- c. The extreme summer has had two effects.
- The longer summer with little or no rain has led to a build up of contaminants on the top of surfacing aggregate. In addition less rejuvenation of the microtexture has occurred resulting in more polished aggregates.
 - Rapid loss of macrotexture has occurred leading to reduction in skid resistance and in some cases bleeding with dramatic reduction in skid resistance. Where bleeding has occurred tracking may reduce skid resistance for a kilometre or more down the road from the bleeding site.

In summary, the later survey and use of two machines will not have affected the survey results. The longer hotter dryer summer has affected survey results and the effect of this is discussed in the following sections.

4. Seasonal Corrections

Below in table 1 are the seasonal correction factors that have been entered into RAMM.

Table 1: 2008 MSSC and ESC factors			
Seasonal Zone	MSSC factor	ESC Factor	Overall Correction Factor
A	1.017 (Dec)	1.040	1.057
	0.960 (Jan)		0.998
B1	0.985	1.068	1.052
B2	0.982	1.056	1.037
B3	0.974	1.077	1.049
C	0.987 (Jan)	1.089	1.075
	0.935 (April/May)		1.018
D	1.043 (Feb)	1.069	1.115
	1.012 (Mar)		1.082
	0.986 (April/May)		1.054
E	1.003	1.058	1.061
F	1.069 (Jan)	1.021	1.091
	0.918 (April/May)		0.937
G	1.012	1.049	1.061
H	1.006	1.060	1.066
I1			
J	0.993	1.070	1.063
K1	1.011	1.072	1.082
K2	1.018	1.070	1.091
L1	1.008	1.064	1.073
L2	1.006	1.063	1.069

It will be noticed that MSSC factors are generally close to 1 or above. This due to the later survey start. ESC factors are all well above 1 reflecting the very low skid resistance for our surfacings during last summer compared to previous years.

The seasonal correction factors were calculated according to the standard methodology.

As is normal, a logical check is then applied to the data, and finally network averages compared to previous years. This year, in addition, 41 new seasonal control sites were surveyed and used for the MSSC calculation (They cannot be used for ESC until multiple years data are available). Some seasonal control sites showed extreme behaviour, with one site indicating a correction factor of 1.230

The extreme summer has made interpretation of the results more difficult. Hence the following strategy is recommended for programming treatment.

5. Programming Skid Resistance Treatment

First, refer to Transit Specification T/10, Exception Report Instructions and the NetOps memo TM5003 Macrotexture Requirements for Surfacing.

All sites with ESC values below the Threshold Level (TL) must be considered for treatment but:

- a. **Top priority** is to be given to sites with low macrotexture or where bleeding has occurred. The bleeding and low macrotexture must be treated. Where bitumen has tracked from the bleeding sites to lengths where the surfacing is in good condition, the most likely cause of low skid resistance is the tracked bitumen. This effect may extend 1 to 2km from the bleeding and will wear off over time (weeks to months)
- b. Where the surfacing appears to be in good condition and low ESC is not due to tracking, the ESC values should be compared over the last three or four years.
 - Where the ESC was constant or only dropping slowly and the 2008 survey shows a large drop it may be assumed, in the interim that the very low ESC was due to the extreme summer. Experience has shown that skid resistance will increase quickly with rain. Some check skid resistance measurements should be programmed with correlation to the closest seasonal correction site. GripTester, Roar or British Pendulum will be adequate for these measurements.
 - Where ESC is reducing fairly steadily it should be assumed that the aggregate may be polishing and further investigations made to determine appropriate treatment.

6. Sharing Information & Assistance

Some difficult decisions will be required regarding treatment of skid resistance concerns following the 2008 survey. Should assistance be required or you have some interesting experience please contact National Office, David Cook (04 894 6298)

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