

MINUTES OF THE APT STEERING COMMITTEE MEETING

GAUTENG DEPARTMENT OF PUBLIC TRANSPORT, ROADS & WORKS

15th MAY 2007

08:00 – 15:00

PRESENT:					
Name	Representative	Telephone	Fax	Cell	E-mail
Elzbieta Sadzik	GDPTRW	012-3102253	012-3102230	082 887 6749	elzbieta.sadzik@gauteng.gov.za
Mervyn Henderson	WCPA Roads Infrastructure	021-4832020	021-4832205	083 641 5185	mhenders@pgwc.gov.za
Benoit Verhaeghe	CSIR	012-8412907	012-8412690	082 894 2206	bverhaeg@csir.co.za
Hechter Theyse	PMC	012-3325507	012-3325508	083 380 0760	htheyse@telkomsa.net
Fred Hugo	ITT/University of Stellenbosch	021-8084364	021-8084361	082 652 5824	fhugo@sun.ac.za
Eric Denneman	CSIR	012-8412933	012-8412081	083 545 5976	edenneman@csir.co.za
Dennis Rossmann	SANRAL	031-3928100	031-3863365	083 677 3465	rossmand@nra.co.za
Morris de Beer	CSIR Built Environment	012-8412953	012-8427114	082 451 7925	mbeer@csir.co.za
Louw du Plessis	CSIR Built Environment	012-8412922	012-8427158	082 443 1334	lplessis@csir.co.za
Simon Oloo	KZN DOT	033-3558609	033-3558049	082 803 5016	simon.oloo@kzntransport.gov.za
Bruce Morton	Ninham Shand Consulting	012-6439000	012-6636238	082 926 4212	bruce.morton@shands.co.za
Leslie Johnson	DOT	012-3093338	012-3093239		johnsonl@dot.gov.za
Frank Netterberg	Frank Netterberg	012-8047203	012-8046179		fnetterberg@absamail.co.za
Joe Grobler	GDPTRW	012-3102212	012-3333236		joe.g@gpg.gov.za
Les Sampson	Sampson Consulting	012-3611070	012-3611070	082 447 6241	lsampson@iafrica.com
Pat Loots	Executive Focus (Minutes Secretary)	012-3480865	012-3480865	083 375 6945	patloots@iafrica.com

APOLOGIES:					
Name	Representative	Telephone	Fax	Cell	E-mail
Wynand Steyn	CSIR	012-8412634	012-8413232	082 219 9704	wsteyn@csir.co.za
Emile Horak	University of Pretoria, Dept of Civil Engineering	012-4202429	012-3625218	083 228 1694	emile.horak@up.ac.za
Arthur Taute	Vela VKE	012-4813800	012-8034411	083 274 8885	tautea@vke.co.za

1 WELCOME, PRESENT AND APOLOGIES

Ms Sadzik welcomed members to the Steering Committee meeting and highlighted the items on the agenda.

The minutes of the previous meeting were accepted as correct.

2 SUMMARY OF RECENT AND PRESENT PROJECTS/ISSUES

Ms Sadzik gave a summary presentation on APT strategy, projects, funding and the HVSIA which is shown in Appendix A.

Mr Henderson will investigate the possibility of obtaining funding for the HMA project.

MH

With regard to the HVISA, Mr Verhaeghe stated that the final Caltrans specifications for modified binders have been completed and have been circulated to the modified binders task group of the RPF. Should members of the committee require a copy of the specifications, they are available from Mr Verhaeghe.

Mr du Plessis informed the meeting that the CSIR were undertaking a benefit study on some of the Caltrans projects in line with the HVS benefits framework developed by Dr Jooste for the Gautrans HVS. It was also mentioned that the 3rd APT conference is in Spain in October 2008 and has benefits of APT testing as the theme of the conference. Papers for the conference should be considered for submission.

3 PROJECT FEEDBACK

HMA Testing: HVS and Laboratory

The presentation from Mr Denneman is shown in Appendix B. The following was noted:

- HVS and laboratory testing related to temperature variations has been completed and the variation in thickness is now being tested under the HVS at 25 & 60mm (the presentation was only related to temperature variations).
- General conclusions from the testing were still to be drawn but the results show that at higher temperatures and relatively slow moving wheel loads, the standard mix was very susceptible to permanent deformation and was considered unsuitable for roads that could experience high surface temperatures (above 60°C) for significant time periods in association with slow moving traffic (eg: climbing lanes, approaches to intersections and turning points at intersections).
- It was noted that the mix could perform well in service where traffic was relatively free-flowing and the “speed of loading” was high.

- The variations between the results obtained from the HVS tests, the Hamburg tests and the CSIR wheel tracking test, compared to the results from the MMLS will be discussed separately in section 5.

Marshall Tests Variability

Feedback on the variability of results obtained using the Marshall compaction hammer was given by Mr Denneman and is shown in Appendix B and combined with the presentation on the HVS and Laboratory testing of HMA. The following points were noted:

- A series of round-robin tests between 7 laboratories had shown unacceptable variability of results emanating from the Marshall compaction tests.
- The following two aspects will need to be investigated:
 - Improvements to the test method to ensure more consistent results with the development of acceptable precision limits for the test.
 - Placing the test and the results obtained in context of how they should be used and interpreted within the larger framework of HMA mix design, approvals, acceptance and quality control.
- As chairman of the Materials Testing Committee (MTC), Mr Henderson said that the actual Marshall Test method could be considered as part of the project to standardise and upgrade all current test methods. However the development of acceptable precision limits and investigation of problems and variability related to application of the test method could only be investigated as part of the proficiency scheme which is in the process of being implemented.
- The urgency of establishing a proficiency scheme for materials testing related to road construction was again highlighted. Mr Henderson reported that tenders for the appointment of a service provider to establish a proficiency scheme would be called for by SANRAL in the next few weeks.
- There was general consensus that the Marshall Test should be retained and the precision limits of the Test should be handled as a matter of urgency. The Test also needs to be placed in context on how it should be used in the bigger framework of mix design, approval of design, mixed acceptance and quality control.

MH

4 MMLS/MLS RESEARCH ACTIVITIES

The MMLS/MLS research activities were presented by Prof Hugo (Appendix C). The following was noted from the discussion:

- At higher temperatures the permanent deformation observed under the MMLS was significantly lower than the failures observed with the HVS and Hamburg test in the laboratory. Three parameters were identified as the causes for the variation:
 - The relative speed of testing (HVS at 10km/hour compared with the MMLS of 25km/hour).
 - Temperature control of the MMLS test on site.
 - Differences in stress distribution in the pavement under the MMLS wheel compared to the HVS wheel.
- Tests carried out under laboratory conditions by the MMLS at 60°C on cores taken from the test sections and tested with a slow moving wheel load showed similar failure characteristics to those obtained from the Hamburg test.
- The results show that the speed of testing and hence the speed of loading has a significant effect on permanent deformation characteristics and is accentuated by increases in temperature. It was agreed that the CSIR would reconsider the test matrix in light of the results obtained, make amendments to the matrix and resubmit to the HMA Task Group for consideration and comment. The following time schedule was agreed:
 - A revised draft matrix will be prepared for discussed at the industry task group meeting of 23 May 2007.
 - Based on the discussions at the meeting, the matrix will be updated by 1 June 2007 and circulated to members for comment.
 - Comments on the matrix should be sent to Mr Verhaeghe by 30 June 2007.
- It was also agreed that the MMLS test on the test section at road P159/1 would be repeated with improved temperature control and at lower speeds.
- In terms of presentation of results at the HVS symposium of 24 May 2007, Mr Denneman was requested to provide tentative conclusions to the current results and include a slide explaining the variation in results with the MMLS tests related to HVS tests and other laboratory tests as indicated in the presentation from Prof Hugo.

BV

BV

All

WS/LdP

ED/WS

5 REPORTS FOR COMMENTS AND REVIEW

The following reviewers were agreed for draft reports:

- P-SPA Technical Memorandum – Eben de Vos
- HMA Laboratory Technical Memorandum 1 – Joe Grobler (Jnr), Dennis Rossmann and Arthur Taute
- R80 HVS Report 1 (tests 441A4 to 443A4) – Fred Hugo & Terence Milne
- SIM advanced analysis – Fred Hugo and Bruce Morton
- Job creation, skills development and empowerment in road construction – Dave Wright (or Rikkie Litter), Simon Oloo and Mervyn Henderson

Dr Steyn will update the tables as indicated and submit the reports to the relevant reviewers as and when they are available.

WS

6 **MARKETING AND DISTRIBUTION OF FINDINGS**

AsAc HVS Symposium 24/5/07

The following was noted:

- The variability obtained on the Marshall Tests should be shared at the symposium to create increased industry awareness of the problems of the test. The test should also be put into perspective and an explanation provided as to how it fits into the overall design procedure.
- It was agreed that the symposium will only be held in Pretoria at this stage.

ED

HVS Workshop at SATC

Mr Verhaeghe reported that an HVS workshop has been included in the programme for SATC in July 2007. The intention is to provide an explanation as to how the results from HVS testing are obtained and used to develop transfer functions for development of the various design models recommended for use by practitioners.

7 **OTHER BUSINESS**

Reinforced Asphalt

Ms Sadzik reported that Mr Philip Joubert, chairman of the Reinforced Asphalt Task Group of the RPF had requested that a section of reinforced asphalt be included as an HVS test section to investigate its suitability for rut resistance compared to other materials being investigated. In the absence of the presentation from Mr Joubert, the feeling of the meeting was that reinforced asphalt may be more relevant to fatigue resistance rather than permanent deformation.

Modified Asphalt

- Modified asphalts for rut resistance are currently not included in the "rut mix" challenge as the intention is to first optimise the aggregate packing and subsequent grading to investigate improvements to rut resistance. The designs will be discussed in detail at an industry task group meeting on 23 May 2007 where the inclusion of modified binders for future testing of relevant mixes will be discussed in more detail.
- Mr Rossmann reported that provision has been made in the revised TG1 for additional classes of modified asphalt for rut resistance.

SMA

Questions were asked related to the inclusion of SMAs as rut resistant mixes. This item will require further discussion at the Industry Task Group meeting of 23 May 2007.

ES

Warm Asphalt

The use of warm mixes is becoming increasingly more popular in Europe and the USA for environmental reasons and their investigation for use in South

Africa as part of the HMA design validation project was discussed. From the discussions it was noted that Caltrans are embarking on an HVS study related to warm mixes and attention should be given to these results before including these mixes in the current South African HVS testing schedule.

Cape Initiatives

Mr Henderson reported that the anticipated test sections on the N7 for APT testing of emulsion-treated G2 hornfels for comparison with the foam-treated sections tested in 2005 did not materialise. However, provision has been made for the establishment of an HVS site should testing be required at any future date. An LTPP section has been established and will be monitored along with the other sections in the Western Cape.

MLS

Prof Hugo reported the following related to the activities of the MLS:

- Testing in Mozambique had been completed and the machine had performed well and provided interesting results that will be reported in detail in due course.
- The MLS is now being shipped to Switzerland to undertake testing related to European Technical Guidelines.
- An MLS/MMLS user group has been established and reports to the TRB, AFD40 committee 2.

9 DATE OF NEXT MEETING

The date of the next meeting will be in April 2008 before RPF. Further details will be communicated at a later date.

ES

Appendix A

Summary of Recent and Present Projects/Issues

E Sadzik

Appendix B

**Project Feedback: HMA Testing – HVS and
Laboratory
&
Project Feedback: Marshall Tests Variability**

E Denneman

Appendix C

MMLS/MLS Research Activities

F Hugo