

**MINUTES OF THE APT STEERING COMMITTEE MEETING
22nd JANUARY 2003
GAUTRANS LABORATORY**

| PRESENT: | | | | |
|------------------|-------------------------------------|------------------|-------------|--|
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1 WELCOME

Ms Sadzik welcomed all the members of the Steering Committee and gave a presentation outlining outcomes of the previous meeting, the current status of the HVS testing programme and required outputs from this meeting. The presentation is attached in Appendix A.

2 ROLE OF APT STEERING COMMITTEE

It was agreed that the role of the APT Steering Committee would be:

- Prioritise APT research
- To co-ordinate research related to APT projects
- To plan related testing (long and short term)
- To serve as an advisory body to Gautrans HVS testing programme
- To give comments on APT work proposals
- To give comments on APT reports

3 FEEDBACK ON INTERNATIONAL CONSORTIUM FOR HVS USERS (ICHVSU)

Following on from the workshop of 7th & 8th October 2002, the international HVS user group represented by the 6 owners of HVS's and CSIR as an HVS operator, had agreed to set up an

international consortium to promote knowledge related to HVS technology and establish structures to disseminate information to consortium members.

Gautrans was chosen as the lead agency for the first 3 years and Ms Sadzik was elected as Chairperson. The first ICHVSU meeting will be held in South Africa in June/July 2003.

A proposal is being developed to obtain pooled funding from Federal Highways to support members in attending ICHVSU meetings. Prof Joe Mahoney is driving the process and the regional T² Centre in South Africa is likely to be involved in the process. It is expected that South Africans will have access to the funds, should they become available.

4 CURRENT STATUS

4.1 Priority List for APT

The priority list from the previous meeting was presented, discussed and updated, based on currently available information. The following list was agreed:

- Cold recycling - ETB and foam;
- Suitable materials for intersections;
- Asphalt overlay comparisons;
- Upgrading of gravel roads;
- Vehicle Pavement Interaction (VPI) related to dynamic loads and contact stresses;
- Concrete pavements; and
- Stabilisation of sands

4.2 FEEDBACK ON N7 TESTING

The current HVS testing on the N7 was being carried out in the slow lane, which had a G2 granular recycled material stabilized with 2.3% foamed bitumen and 1% cement. The results from the test would be used to calibrate and confirm performance models as inputs to the revision of the foamed bitumen guideline (TG2).

The HVS testing will be completed by 15 February 2003 and the laboratory testing will be completed in July 2003.

Decisions were required on which site to move to on completion of the current HVS tests in February, based on the priority list shown in Section 4.1.

5 OPTIONS FOR FUTURE TESTING

From the discussions, the following sites were identified, related to the APT priority list shown in Section 4.1:

1. **Foamed bitumen – N7 fast lane (priority item: Cold recycling - ETB & foam)**
 - Test on unstabilised G2 material for comparison with foamed bitumen stabilized sections currently being tested.
 - Would give an indication of the benefits of foamed bitumen stabilization.
 - HVS already on site.
 - Gautrans and PAWC support.

2. **Foamed bitumen – MR439 Mseleni to Phelandaba in KwaZulu Natal (priority item: Cold recycling - ETB & foam)**
 - This road has recently been constructed by SANRAL and Mr Rossmann gave a presentation of some of the test results, based on stabilizing the calcareous sand with 4% foamed bitumen and 2% lime. The presentation is given in Appendix B.
 - Testing of this would provide valuable information for calibrating and confirming performance models for the Foamed Bitumen Guideline, TG2.
 - Limited support from Gautrans as this would have little relevance to the materials being used in Gauteng.
 - Limited support from SANRAL as they would not normally use sand as construction material.
 - Support from KwaZulu Natal DOT as part of a bigger project related to sand stabilization for road construction. However, they consider 4% foam as an expensive option.
 - Would also have positive implications for the SADC region, especially Mozambique.
 - The World Bank is currently considering supporting an APT testing programme (including labour-intensive construction), related to stabilized sands in Mozambique.

3. **ETB Sections on N12 (priority item: Cold recycling - ETB & foam)**
 - The section is 20 years old and has performed well.
 - Could provide important information for the new ETB guidelines currently being developed.
 - Would provide valuation information as a LTPP section.
 - Unsure whether the section is still performing as an emulsion treated material.
 - Would require preliminary investigation and possible laboratory work.
 - Should not be considered for HVS testing until preliminary work has been carried out.
 - CSIR requested to submit a proposal for preliminary work.

4. **Asphalt Overlays – Bloemfontein (priority item: Asphalt Overlays)**
 - Asphalt mix design tested by the CSIR wheel tracking test and the MMLS showed variable results in terms of rut resistance.
 - Site suggested to provide an HVS comparison with the MMLS and wheel tracking results.

- Could be tested as a possible site en route from Cape Town to Gauteng.
 - May not be cost-effective, as it only tests one mix.
 - Need a full-scale experimental design to evaluate various asphalt overlay options and relate it back to the new South African Hot Mix Asphalt Design Guideline.
 - It was agreed that testing in Bloemfontein would have very limited benefit.
5. **Concrete Pavements – N4 Toll Plaza (priority item: Concrete Pavements)**
- A proposal has been prepared by C&CI for SANRAL, to test thin layer concrete, the performance of various joint configurations and the suitability of labour-intensive construction for the thin concrete pavements.
 - Some Gautrans support for the project.
 - The project could start in October 2003.
 - SANRAL would like the tests carried out before the toll plaza is opened.
6. **Dynamic Loading – Road 2388 (priority item: VPI)**
- Current tests with new machines still carried out using uniform bi-directional loading.
 - Uni-directional and dynamic loading facilities need to be testing and understood, related to the current loading configuration of the HVS sections.
 - New data capturing equipment will be required for dynamic loading.
 - New capabilities of the machine should be checked out by Gautrans and CSIR with a view to selling the new capabilities to potential funders of projects.
 - Could be built in as part of other test sites with the costs for this part of the investigation carried by the owner and operator.
7. **Low Volume Roads – Cape Town (priority item: Upgrading of Gravel Roads)**
- Proposal distributed by Mr Henderson (PAWC). See Appendix C.
 - Proposal would supplement previous work carried out by Gautrans on Road 702.
 - PAWC and Gautrans would support the proposal financially.
 - Project will take 9 weeks to complete.
 - Project would address the risk issue related to upgrading gravel roads to a paved standard.
 - Sites have been identified and could be tested while the HVS is in Cape Town.
8. **Low Volume Roads – KwaZulu Natal Sands (priority item: Upgrading of Gravel Roads)**
- Would need a full experimental design to include several sand stabilization options, including foamed bitumen.
 - KwaZulu Natal and CSIR would need to initiate the project and prepare a proposal with cost implications.
 - May not be a project for HVS testing. Other forms of APT could be considered.
 - Would have important regional (SADC) implications.
 - Suppliers could be approached to fund the testing of their own products.
9. **P58/1 – LAMBS (priority item: Materials for Intersections)**
- Site has carried heavy traffic and still performs well.
 - Would provide input into materials for intersections.

- Testing on the asphalt overlay would also provide information related to overlays on the specific mix used.
- 10. ETB Site Road D540 (priority item: Cold recycling - ETB & foam)**
- Should be investigated as a site providing input into the ETB Guideline.
 - Should be included with the investigation of the N12, shown in 3 above.
- 11. Controlled Tests for Asphalt Overlays (priority item: Asphalt Overlays)**
- Full-scale experimental design to evaluate various overlay options.
 - This option to replace option 4 and prioritized accordingly.

6 PRIORITISATION AND ACTION PLAN

Following discussion of the various testing options, each option was prioritized (on a 1 – 3 scale, where 3 = high (beneficial); 2 = average; and 1 = low) in terms of:

- Research Need;
- Road Authorities Need;
- Funding Availability;
- Complimentary Benefits;
- Cost;
- Regional (SADC) Benefits;
- Ease of Logistics;
- Provision of Supplementary Information.

In the time available, no weightings were developed as part of the prioritization. The priorities are shown in Table 1.

Based on the prioritization, the following actions were suggested:

- The HVS should remain in Cape Town until October 2003 to test the fast lane of the N7 and the low volume road sites. CSIR to prepare detailed proposals with financial and logistical implications.
- The HVS to return to Gauteng by October 2003 to test concrete pavement sections on the N4 Toll Plaza at Bronkhorstspuit. This is expected to take up to 10 months.
- CSIR and Gautrans to investigate the inclusion and investigation of dynamic loading into test sections.
- CSIR to prepare an experimental design for the testing of asphalt overlays.
- CSIR and KwaZulu Natal to develop a full-scale experimental design for sand stabilization (not necessarily including HVS testing).
- CSIR to submit a proposal to Gautrans for the preliminary evaluation of ETB sites, including N12 and Road D540.

| HVS testing priorities | | | | | | | | | |
|---------------------------------------|----------|------------------|---------|------------------------|------|-------------------|-----------|---------------|-------|
| | Research | Road Authorities | Funding | Complimentary Benefits | Cost | Regional Benefits | Logistics | Supplementary | Total |
| 1. Foamed Bitumen - N7 fast lane | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 21 |
| 7. Low Volume Roads - Cape Town | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 2 | 19 |
| 5. Concrete pavements - N4 toll plaza | 3 | 3 | 2 | 2 | 2 | 1 | 2 | 3 | 18 |
| 6. Dynamic loading, road 2388 | 3 | 1 | 1 | 3 | 3 | 1 | 3 | 2 | 17 |
| 11. Control set of asphalt overlays | 3 | 3 | 1 | 1 | 2 | 1 | 3 | 3 | 17 |
| 8. Low Volume Roads - KZN sand | 3 | 3 | 0 | 2 | 1 | 3 | 2 | 2 | 16 |
| 2. Foamed Bitumen - Makhatini Flats | 3 | 2 | 1 | 1 | 1 | 3 | 1 | 3 | 15 |
| 3. ETB on N12 + alternatives | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 15 |
| 9. P58/1 - LAMBS | 2 | 3 | 1 | 2 | 2 | 1 | 2 | 2 | 15 |
| 4. Asphalt overlays - Bloemfontein | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10. ETB site road D540 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

7 GENERAL

- Prof Horak requested that the Accelerated Road Tester (ART) be included under the auspices of the APT Steering Committee. The ART is currently being used to evaluate various foamed tar mixes, and should be included in any comparative testing of various APT facilities and equipment. Prof Horak will provide information to the Steering Committee related to ART.
- Ms Sadzik will coordinate all communications within the Steering Committee. E-mail should be used in this regard.
- The following two associated projects have been approved by Gautrans:
 - Database with recycled materials expanding to other experiments; and
 - Protocol for long-term pavement performance.
The Steering Committee will be requested to give comment once the protocol is in draft form.
- During the feedback at RPF, Ms Sadzik will request information related to LTPP for inclusion in the database being developed.

Appendix A

APT Steering Committee

Ms Elzbieta Sadzik

Appendix B

Foamed Bitumen

Mr Dennis Rossmann

Appendix C

Project Proposal

HVS Testing of Low-Volume Roads