Gautrans APT – Heavy Vehicle Simulator

TRB Committee AFD40
11 January 2005

Gauteng Department of Public Transport, Roads and Works
HVS Programme

Recent work related to management:

- Gautrans APT Strategic Plan 2004 –2007
- Quantification of HVS benefits
  - Methodology
  - Pilot assessment (G1 base)
- Summary of HVS testing since 1995
- QMS for HVS operation (ISO 9001)
  - Procedures / protocols / records
  - Task / responsibility matrix

Strategic Plan 2004 –2007

Focus areas

- Cold In-Place Recycling (ET & FT)
- Asphalt Performance
- Provision of Low Volume Roads (including upgrading of unpaved roads)
- Vehicle Pavement Interaction (including dynamic loads and contact stresses)
- Concrete pavements
Strategic Plan 2004 –2007

HVS action plan

- Performance of Hot Mix Asphalt
  - Development of a product certification system for the evaluation of “fitness-for purpose” of proprietary ultra-thin asphalt wearing courses; and

- The validation of the South African HMA design and development of specifications.
Strategic Plan 2004 –2007

HVS action plan (cont)

- Improved understanding of vehicle contact stresses and strains, pavement inter-action

Pavement-vehicle interaction

SIM testing
HVS PROJECTS 2000-2003

- Testing of concrete pavements
- Cold in situ recycling with EB and FB
- Bearing capacity of low volume roads

Testing of concrete pavements

Objectives

- Investigate the influence of the environment and load on joint deterioration
  - Plain aggregate interlock joints
  - Dowelled joints
Concrete Roads in South Africa

Testing of concrete pavements

Objectives
- Determine the remaining life of the inlay N3

Deliverable
- Improved cncPave – Mechanistic and risk based design method for concrete pavements
Cold in situ recycling

Stabilisation with bituminous emulsion and foam

- Mix design
- Structural design
- Construction issues
- TG 2: The Design and Use of Foamed Bitumen Treated Materials

HVS Programme

Investigations on ET and FT:

- Compaction potential of foam and emulsion treated materials
- Property of emulsion treated crushed stone and aeolian sand
- Accelerated curing methods for foam and emulsion treated materials
- Calibration of mechanistic design models based on LTPP sections (N12)
Gautrans HVS reports available on

www.gautrans-hvs.co.za

Thank you