



# South African Pavement Design Method (SAPDM)

## Status Report

17<sup>th</sup> RPF Meeting

14 May 2009

L Kannemeyer

# Historical Overview – SAPDM Revision

- Process initiated at RPF - **May 2005**
- R&R framework - **November 2005**
- Pavement Performance Information System (LTPP)
  - Material Classification Concept
  - Pavement Number Concept (PN)
  - 50 Projects Completed – **February 2008**
  - 15 Stabilized Projects Added – **February 2008**
- Mechanistic-Empirical Analysis System (MEAS)
  - Phase 1 – Develop Detailed Project Briefs – **November 2006**
  - Phase 2 - Inception Phase (22 Projects) – **July 2007**
  - Peer Review – Phase 2 Reports – **November 2007**
  - Additional SANRAL Requirements – **December 2007**
  - Appointment of Main Service Providers – **September 2008**
    - CSIR Built Environment
    - Pavement Modelling Corporation
    - SC Van As Traffic Engineering
- SAPDM Website ([www.sapdm.co.za](http://www.sapdm.co.za)) – **May 2009**



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## welcome to the South African Pavement Design Method Website...

### About the project

Mechanistic-empirical pavement design has been one of the primary pavement design tools in South Africa since the early 1970s. Although some improvements were made to the original method over the years, the main components of the current method are still based on research done during the 1970s and 1980s. The problems associated with the current method were highlighted at the Conference for Asphalt Pavements in Southern Africa held in 2004. These problems were again raised at the subsequent Roads Pavement Forum meeting held in May 2005 and a workgroup appointed to initiate the revision of the South African Mechanistic-Empirical Design Method.

### Project sponsors

Currently two sponsors have approved funding for the revision of the flexible pavement design method, the South African National Roads Agency Ltd (SANRAL) and the CSIR. CSIR funding covers mostly research activities to establish the foundation from which the development and implementation activities will be launched. SANRAL is the main sponsor and largest client body to implement the revised design method.

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY LTD  
 South African National Roads Agency Ltd. (SANRAL)

CSIR  
 our future through science  
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**CONTACT INFORMATION:**

For any queries regarding the project please contact the project team at [info@sapdm.co.za](mailto:info@sapdm.co.za)

### NEWS

#### 1st Industry feedback session at the May RPF

The first industry feedback session on the development of the South African Pavement Design Method t...

2009-04-20

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### CALENDAR

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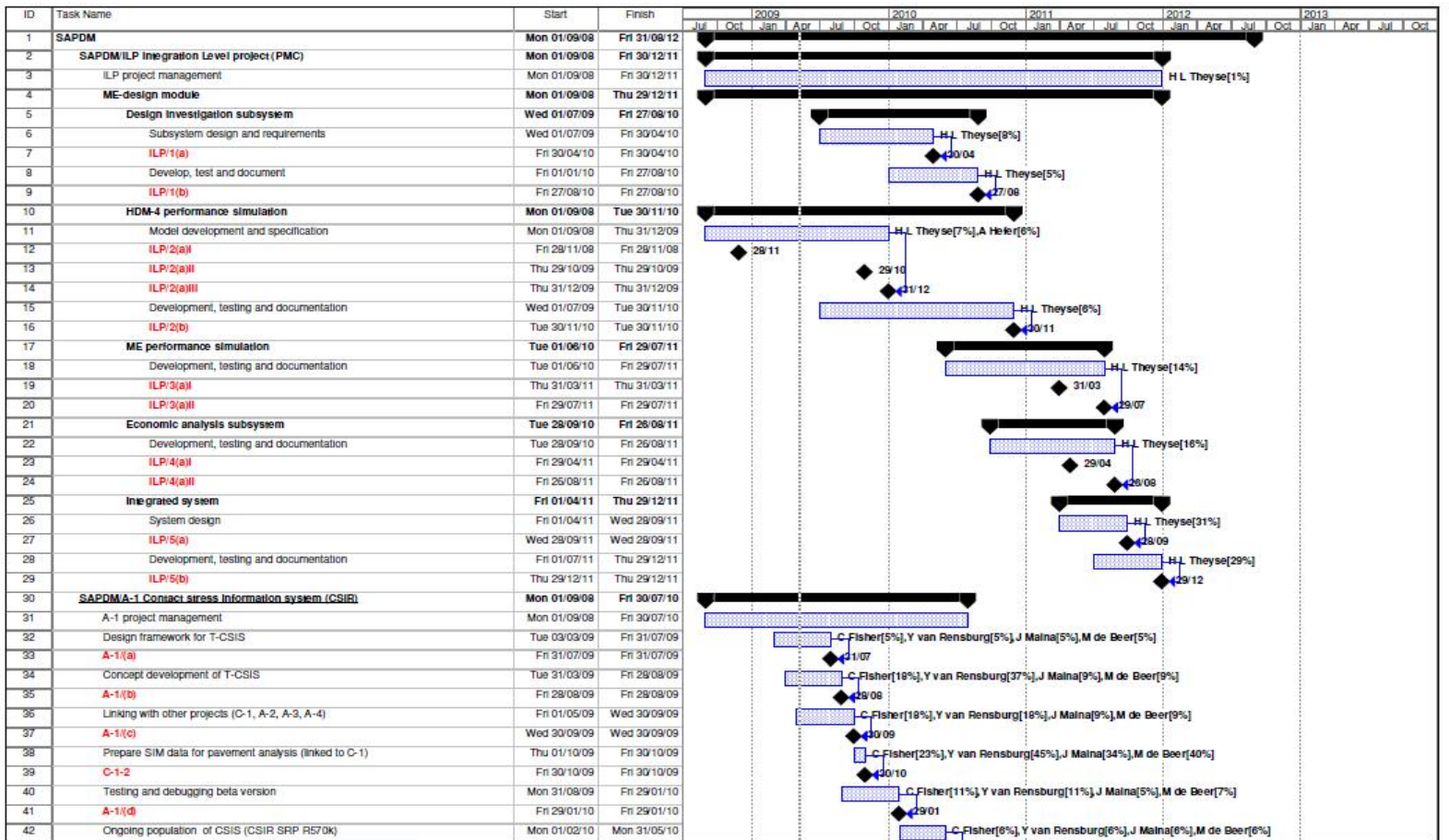
Traffic:

Materials:

Analysis and simulations:

Information systems:

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Project: SANRAL FlexPave (Base Plan) Task: Progress Summary External Tasks Deadline  
 Date: Thu 07/05/09 Task Split: Milestone Project Summary External Milestone

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Phase 1: Project briefs		
Research area	Project title	Project brief number
Integration project	Integration of design subsystems and methodologies into an integrated design system	<a href="#">SAMDM project brief - (ILP).pdf</a>
Traffic demand analysis	A tyre-pavement contact stress information system	<a href="#">SAMDM project brief - (A-1).pdf</a>
	A traffic volume and axle load information system	<a href="#">SAMDM project brief - (A-2).pdf</a>
	Guidelines on conducting traffic surveys and processing the data for the purpose of pavement design	<a href="#">SAMDM project brief - (A-3).pdf</a>
	The effects of vehicle dynamics and vehicle speed on traffic input to the design method	<a href="#">SAMDM project brief - (A-4).pdf</a>
Material resilient response models	Resilient response models for unbound material	<a href="#">SAMDM project brief - (B-1a).pdf</a>
	Resilient response models for bituminous material	<a href="#">SAMDM project brief - (B-1b).pdf</a>
	Resilient response models for stabilised material	<a href="#">SAMDM project brief - (B-1c).pdf</a>
	Agreement between different methods of calibrating material response models, especially linear-elastic material models.	<a href="#">SAMDM project brief - (B-2).pdf</a>
	Documentation on material testing, the interpretation of results, the derivation of design inputs and model calibration.	<a href="#">SAMDM project brief - (B-3).pdf</a>
Primary pavement response models	A design input information system for pavement materials	<a href="#">SAMDM project brief - (B-4).pdf</a>
	Improved modelling of the complex tyre-pavement contact patch in terms of stress magnitude and contact area shape	<a href="#">SAMDM project brief - (C-1).pdf</a>
	A benchmark of measured stresses and strains collected on a variety of pavements for various loading conditions	<a href="#">SAMDM project brief - (C-2).pdf</a>
	Improved modelling of the primary resilient response of pavement systems	<a href="#">SAMDM project brief - (C-3).pdf</a>
	Improved modelling of geometric non-linearity in the pavement system	<a href="#">SAMDM project brief - (C-4).pdf</a>
Damage models calibrated for the effects of field variables and traffic loads	Improved modelling of material non-linearity and dynamic response in pavements	<a href="#">SAMDM project brief - (C-5).pdf</a>
	Improved damage models for bituminous material	<a href="#">SAMDM project brief - (D-1).pdf</a>
	Improved damage models for unbound material including the pavement subgrade	<a href="#">SAMDM project brief - (D-2).pdf</a>
	Improved damage models for stabilised material	<a href="#">SAMDM project brief - (D-3).pdf</a>



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**Phase 2: Project inception reports**

Research area	Project title	Project inception report number
Integration project	Integration of design subsystems and methodologies into an integrated design system	<a href="#">PB-2006-ILP.pdf</a>
	Framework for a highway planning system	<a href="#">PB-2007-HPS.pdf</a>
Traffic demand	A tyre-pavement contact stress information system	<a href="#">PB-2006-A1.pdf</a>
	A traffic volume and axle load information system	<a href="#">PB-2006-A2.pdf</a>
	Guidelines on conducting traffic surveys and processing the data for the purpose of pavement design	<a href="#">PB-2006-A3.pdf</a>
	The effects of vehicle dynamics and vehicle speed on traffic input to the design method	<a href="#">PB-2006-A4.pdf</a>
Material resilient response models	Resilient response models for unbound material	<a href="#">PB-2006-B1a.pdf</a>
	Resilient response models for bituminous material	<a href="#">PB-2006-B1b.pdf</a>
	Resilient response models for stabilised material	<a href="#">PB-2006-B-1c.pdf</a>
	Agreement between different methods of calibrating material response models, especially linear-elastic material models.	<a href="#">PB-2006-B2.pdf</a>
	Documentation on material testing, the interpretation of results, the derivation of design inputs and model calibration.	<a href="#">PB-2006-B3.pdf</a>
	A design input information system for pavement materials	<a href="#">PB-2006-B4.pdf</a>
Primary pavement response models	Improved modelling of the complex tyre-pavement contact patch in terms of stress magnitude and contact area shape	<a href="#">PB-2006-C1.pdf</a>
	A benchmark of measured stresses and strains collected on a variety of pavements for various loading conditions	<a href="#">PB-2006-C2.pdf</a>
	Improved modelling of the primary resilient response of pavement systems	<a href="#">PB-2006-C3.pdf</a>
	Improved modelling of geometric non-linearity in the pavement system	<a href="#">PB-2006-C4.pdf</a>
Damage models calibrated for the effects of field variables and traffic loads	Improved damage models for bituminous material	<a href="#">PB-2006-D1.pdf</a>
	Improved damage models for unbound material including the pavement subgrade	<a href="#">PB-2006-D2.pdf</a>
	Improved damage models for stabilised material	<a href="#">PB-2006-D3.pdf</a>
Variability, statistics	An environmental and field variable information system	<a href="#">PB-2006-E1.pdf</a>



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Calendar Event For: 2009-5-22

	Time Begin:	Time End:	Event Type:	Event Title:
1	09:00:00	12:30:00	Meeting	<u><a href="#">Analysis and simulation cluster meeting</a></u>
2	13:00:00	16:30:00	Meeting	<u><a href="#">Integration meeting</a></u>

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Welcome user: **Louw Kannemeyer**

Project Administrator



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# Questions ?



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