



# **South African Pavement Design Method (SAPDM)**

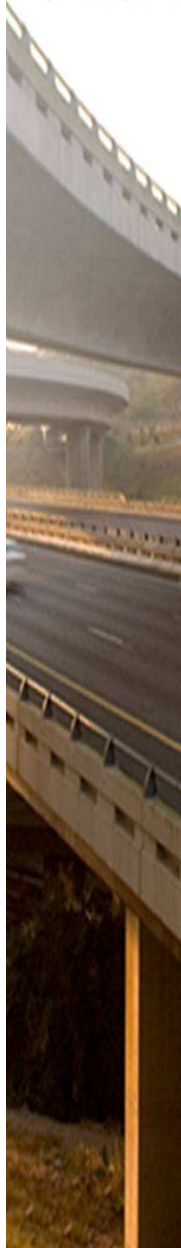
## **Status Report**

20<sup>th</sup> RPF Meeting

10 November 2010

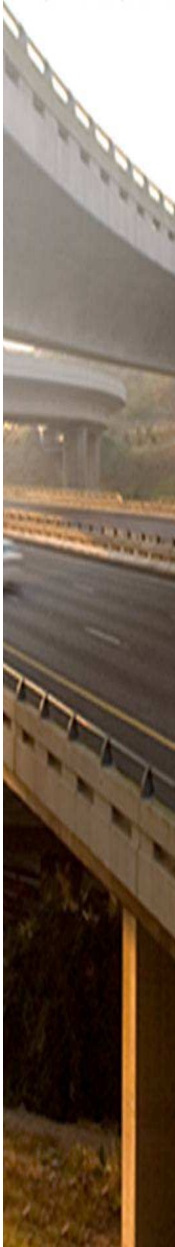
L Kannemeyer

# Aka GODZILLA



# 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**



South African Pavement Design Method - Windows Internet Explorer

http://www.sapdm.co.za/

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**THE SOUTH AFRICAN NATIONAL ROADS AGENCY**

**SOUTH AFRICAN Pavement Design Method**  
IMPROVING THE STRUCTURAL DESIGN MODEL

PROJECT PLAN:  
Location of the site  
Infrastructure  
1:1000m

**CONTENTS**

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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.

**NEWS**

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**CALENDAR**

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November - 2009						
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**PROJECT SPONSORS:**

**THE SOUTH AFRICAN NATIONAL ROADS AGENCY**

**CSIR**  
*our future through science*

South African National Roads Agency Ltd. (SANRAL)    Council for Scientific and Industrial Research

**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.

**CONTACT INFORMATION:**

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

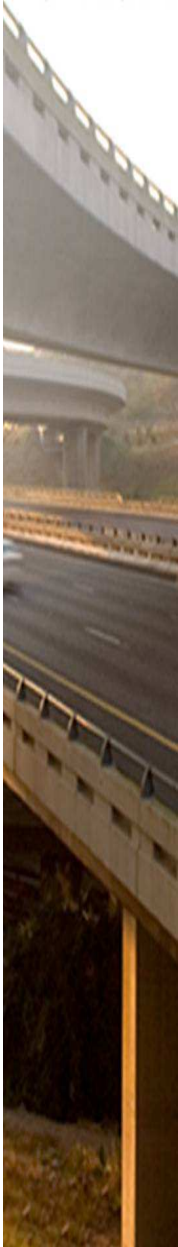
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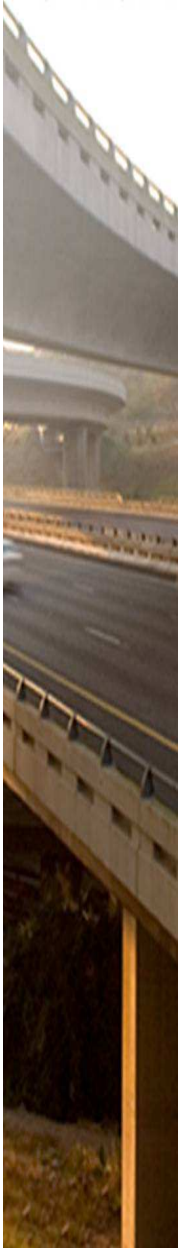
# Progress To Date

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- Reports
  - Nov 2009 = 8 Reports
  - May 2010 = 21 Reports
  - Nov 2010 = 30 Reports
- Field Trials – Ongoing
  - Environmental May 2010 = 3 Sites
  - Environmental Nov 2010 = 41 Sites
  - Material Bulk Samples May 2010 = 3
  - Material Bulk Samples May 2010 = 3
- Lab Testing – Ongoing
  - May 2010 = 3 of 6 Mixes
  - Nov 2010 = 5.99 of 6 Mixes
- Surface Seals (95%)
  - Mechanistic Empirical “solution” using TUDELFT FEM 2D/3D
- Concrete / Block Integration
  - Pumping of Base Material

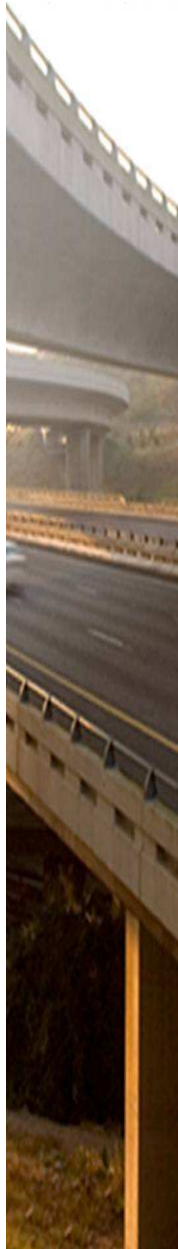


# SAPDM Reports



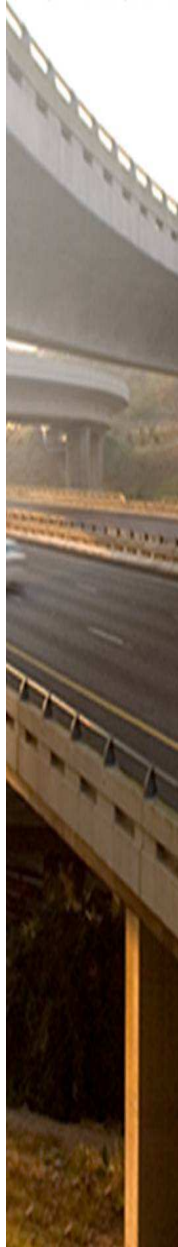
Report No	Report Title	Main Author	Report Date
1	Correction of Systematic Error in WIM Data	de Wet DPG	2009-08-24
2	Research Traffic Data Preparation	SC van As	2009-10-12
3	Traffic Data Verification and Replacement	SC van As	2009-11-19
4	WIM Dynamic load correction	SC van As	2010-09-08
5	Traffic Stratification System	AJ Papenfus	2010-10-25
6	Vehicle Dynamics ♦ First progress report	WJvdM Steyn, AT Visser	2009-11-30
7	Vehicle dynamics ♦ Second progress report	WJvdM Steyn, AT Visser, E van Aswegen	2010-04-19
8	Resilient modulus Models for Partially Saturated Unbound Granular Material	H L Theyse	2010-01-05
9	Density Estimates for Unbound Granular Material	H L Theyse	2010-11-02
10	Review of inception reports PB/2006/B-1b and PB/2006/D-1	Erik Denneman	2010-01-04

# SAPDM Reports



Report No	Report Title	Main Author	Report Date
11	Level 1 Analysis of Bituminous Treated Base (BTB) Asphalt Mix	J Anochie-Boateng	2010-03-10
12	Level 1 Analysis of Coarse Continuous Asphalt Mix with SBS Modified Binder	J Anochie-Boateng, E Denneman, J O'Connell, D Ventura	2010-03-10
13	Level 1 analysis of medium continuous mix with SBS modified binder	J Anochie-Boateng, E Denneman, J O'Connell, D Ventura	2010-03-26
14	Level 1 Analysis of Medium Continuous Asphalt Mix with 60/70 Penetration Grade Binder	J Anochie-Boateng, E Denneman, J O'Connell, D Ventura	2010-09-30
15	Establishing field research databases for stabilised materials	Dr MB Mgangira	2010-03-25
16	Field Parallel Testing - Part 1	J Maina, I van Wijk, A Hefer, E Horak, G Jordaan, P Olivier, P de Bruin	2010-05-06
17	Pavement Analysis based on Multilayer Linear Elastic Theory	J Maina, Y van Rensburg, M de Beer	2010-05-10
18	A benchmark of measured stresses and strains collected on a variety of pavements for various loads	WJvdM Steyn	2010-05-27
19	Introducing Stress-dependent Behavior in the Primary Pavement Response Model	H L Theyse	2009-08-21
20	Development of advanced hot-mix asphalt test protocols for SAPDM	J Anochie-Boateng, E Denneman, J O'Connell, D Ventura	2010-03-26

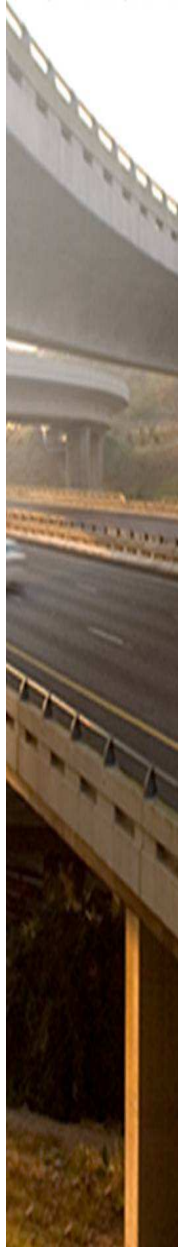
# SAPDM Reports



Report No	Report Title	Main Author	Report Date
21	Soil-water Characteristic Curves and Suction Pressure Models for Partially Saturated Unbound Granular	H L Theyse	2010-01-04
22	Development of a General Yield Strength Model for Unbound Granular Material	H L Theyse	2009-08-13
23	Plastic strain models for unbound pavement layers	H L Theyse	2010-11-02
24	Initial Research Data for Stabilised Material	H L Theyse	2009-08-13
25	Detail planning and test instructions for the field and laboratory components of projects B-1c and D	H L Theyse	2010-01-04
26	Yield strength models for stabilised material	H L Theyse	2010-06-01
27	Preliminary investigation site visits to stabilised road sections	H L Theyse	2010-11-02
28	Regression Analysis with R and RStat	Kimmie Z, Khuluse S, Van As SC	2010-01-05
29	Preliminary System Design: Stochastic Recursive Simulation	H L Theyse	2010-11-02
30	System Design: Mechanistic-Empirical Pavement Deterioration Modeling	H L Theyse	2010-11-02



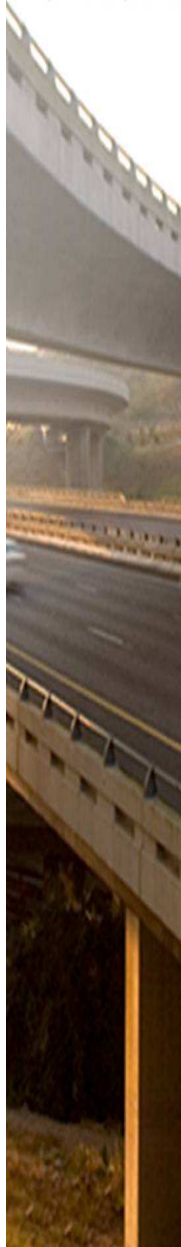
# SAPDM Detail Feedback



<b>Title</b>	<b>Presenter</b>
Simulation of Vehicle Dynamics	W Steyn
Resilient Response Models for HMA	J O'Connell
Interim Enhancement of the 1996 South African Mechanistic-Empirical Design Method	H Theyse

# Rating of Presentations

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**Parental guidance  
advised**



# Thank You

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[www.sapdm.co.za](http://www.sapdm.co.za)

