



2011
STUDY TOUR


Improving Pavement Performance

Part 1


AAAPA 2011 Study Tour – Improving Pavement Performance #1



Introduction


- New Pavement design Procedure
- Asset management
- Funding and pavement maintenance
- New technologies




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New SAPDM


- Also know as...




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History – Damage models




• Thick wearing courses (Maree – 1970s)
 • Thick base layers (including published data – 1970s to 1980s)


- Permanent deformation for unbound material (Maree – 1970s to 1980s)
- Effective fatigue and crushing failure for cement stabilized layers (de Beer – 1980s)
- Vertical strain criteria for subgrade (Dorman and Metcalf – 1965)


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History of pavement performance in South-Africa


- Isolated from international community: late 1970' s to mid 1990' s
- Oil ??
- Thick asphalt pavements → NO-NO
- \$\$\$??
- Need to stretch every cent
- Force innovation

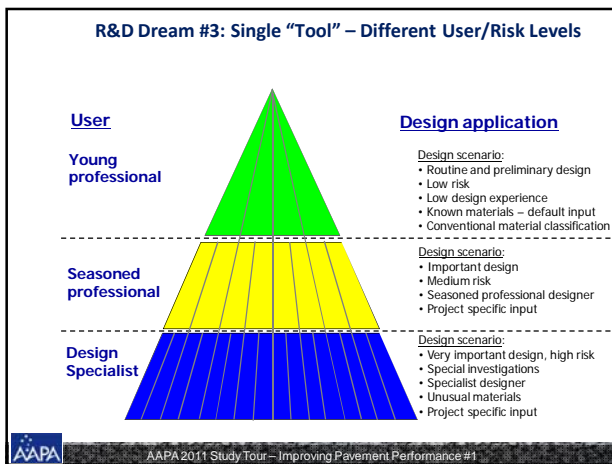
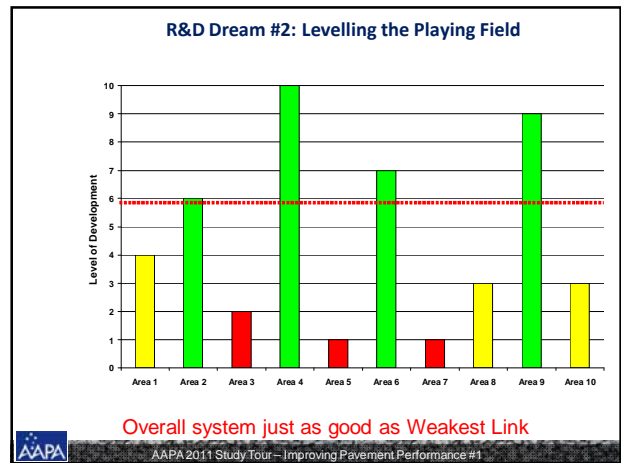
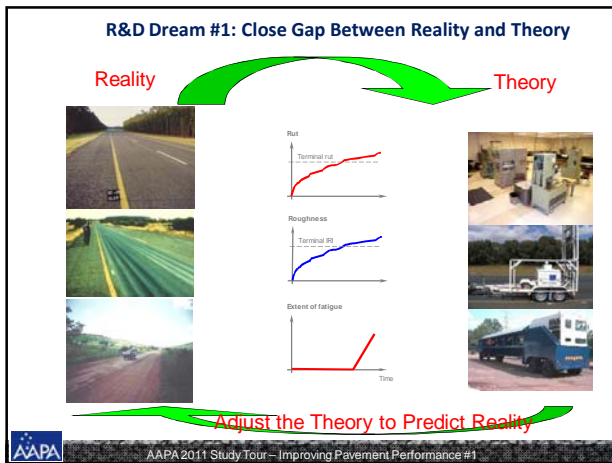



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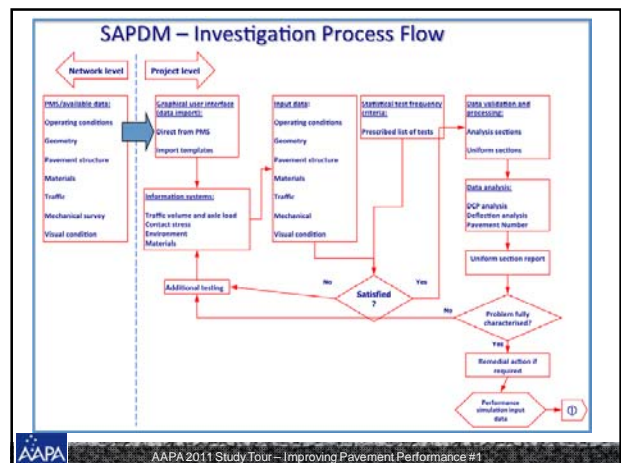
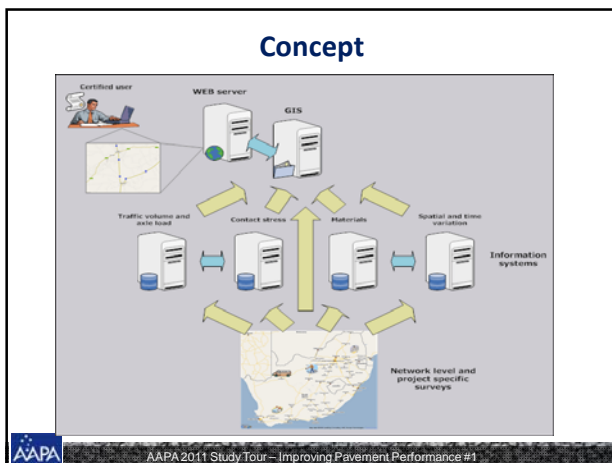
Problems with current method

- Past implementation exposed all the weaknesses of the method
- Users became disillusioned with the method
 - Counter-intuitive and inadmissible results
 - Extreme sensitivity of the method to input
 - Inconsistent input
 - Resilient response (FWD, MDD, Laboratory)
 - Strength parameters
- Outdated models
- Too many unexplained effects (chaos) 


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- ### Process
- May 2005: RPF initiate process
 - November 2005: P&R framework established
 - November 2006: Project briefs ready
 - February 2008 – PPIS
 - revisit LTPP sections
 - Three horizons of deliverables:
 - Short: 12 to 18 months
 - Med: 5 to 8 years
 - Long: 8 to 12 years
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It will include:

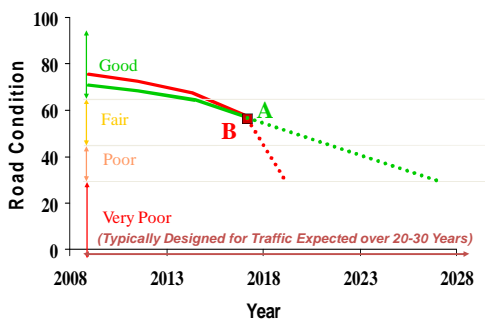
- Traffic loading predictions
- Material resilient response
- Pavement resilient response
- Damage models
- Probabilistic and recursive schemes
 - Predict pavement response/performance, not E80's



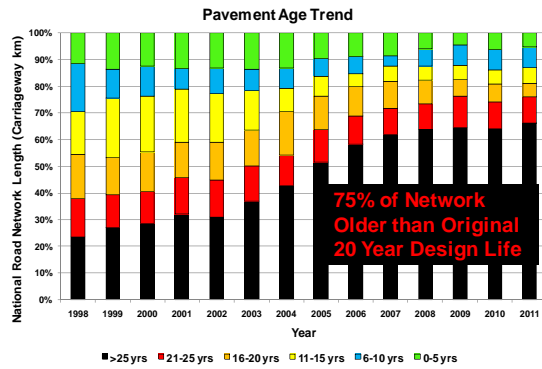
Asset Management



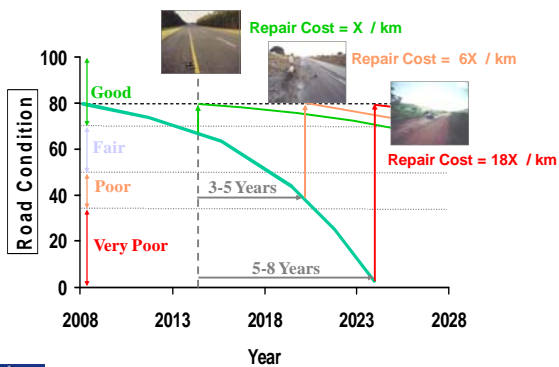
What is Asset Management ?



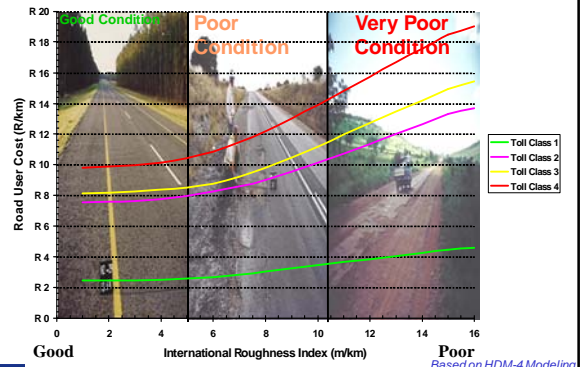
Asset management: Why is it important?

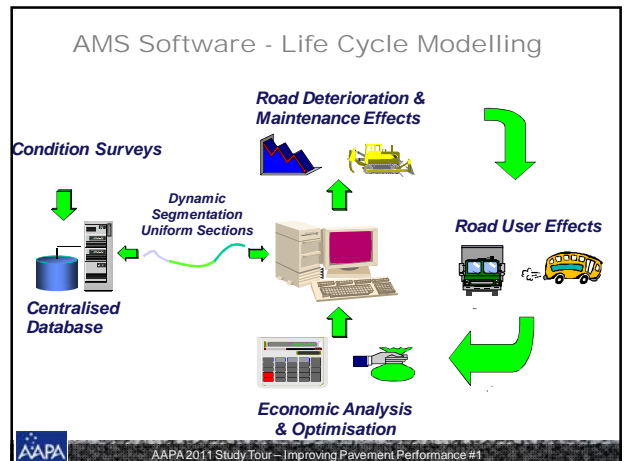
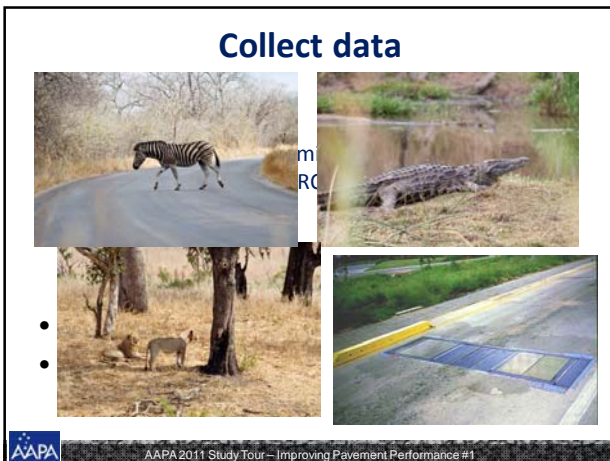
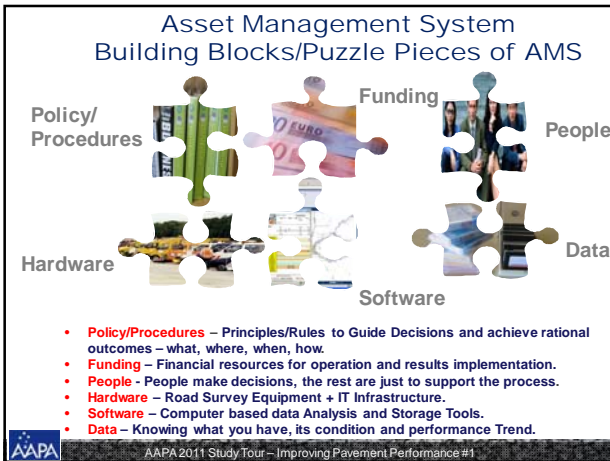
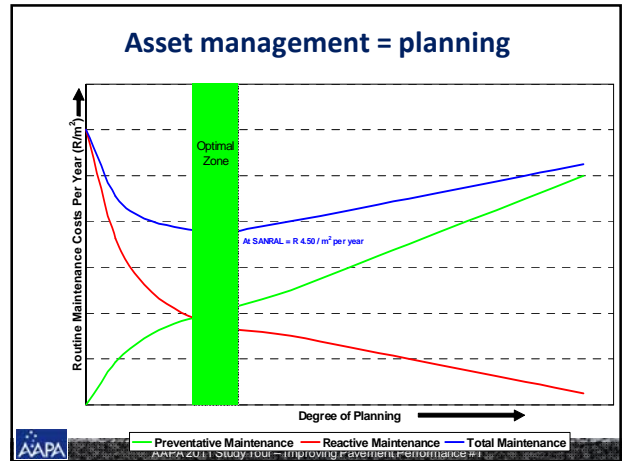
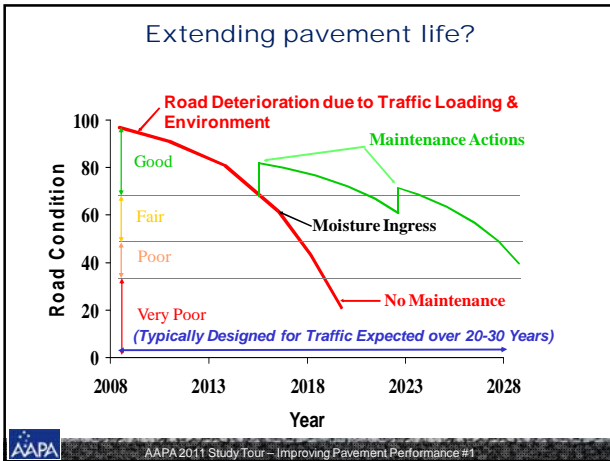


What Is The Price We Pay (SANRAL)



What Is The Price We Pay – Road User





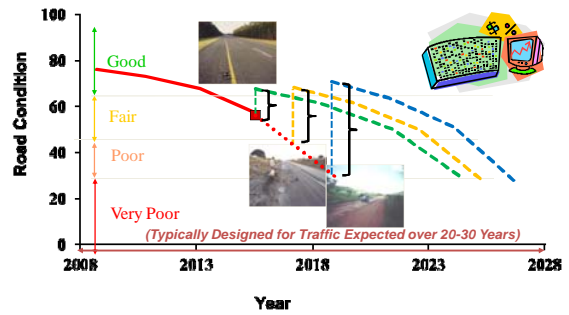
Performance prediction

- Use commercially available “off the shelf” software
 - HDM4
 - PERS
 - dTIMS
- Prediction models updated regularly
 - Calibrated against LTPP sections



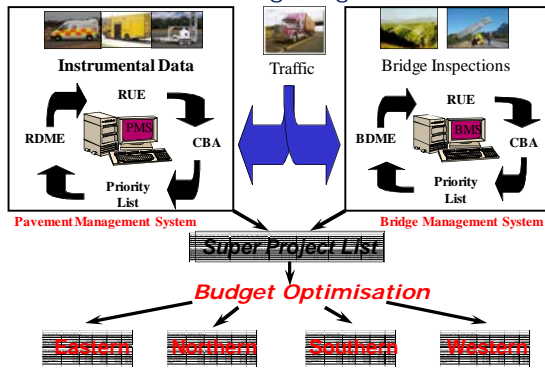
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Effect of intervention on pavement performance

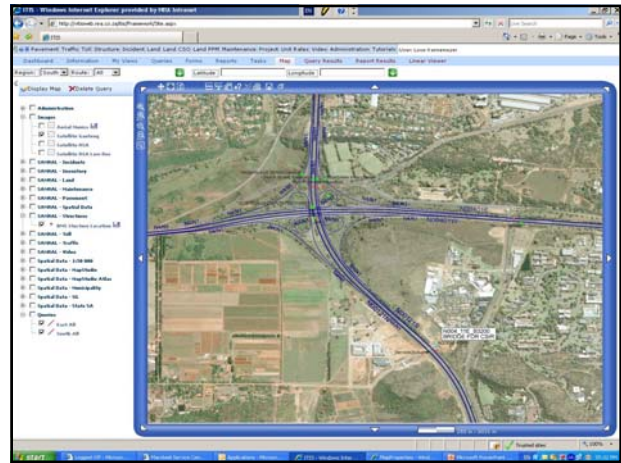


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SANRAL AMS Budgeting Procedure



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AAAPA 2011 Road maintenance funding

- Before 1994
 - Provincial road maintenance allocated nationally

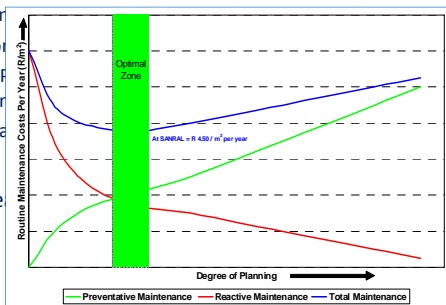


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Future or Road maintenance funding in South Africa

- New bill
- provincial
- National
- BUT: funding system
- Capital
- Metros
- Main roads



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End of part 1

