



AAPA **2011** **STUDY TOUR** **CAPSAT**


Surface Treatments #1

AAPA2011 Study Tour – Surface Treatments #1 www.aapa.asn.au

AAPA **2011** **STUDY TOUR** **CAPSAT**

Introduction

- Spray Seals
 - Preventative maintenance
 - Seal procurement/selection
 - Breakdown of seals used
 - Primerseals
 - Reseal practice
 - Fog sprays
 - Rejuvenation
 - Sand Seals

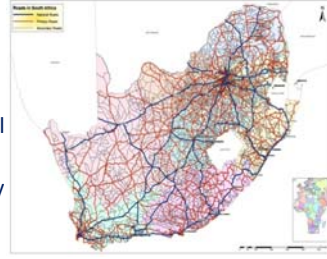


AAPA2011 Study Tour – Surface Treatments #1 www.aapa.asn.au



Road Network

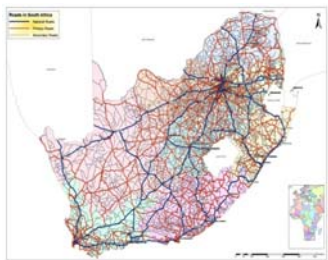
- Municipal (Council)
- Provincial (State)
- National (Federal)
 - South African National Roads Agency Ltd
 - Independent statutory authority owned by the South African Government



AAPA2011 Study Tour – Surface Treatments #1 www.aapa.asn.au




Road Network

- 153 000 km paved
- 90% Spray Sealed
- Reseal rate
 - Was 7 to 12%



AAPA2011 Study Tour – Surface Treatments #1 www.aapa.asn.au

SANRAL Network

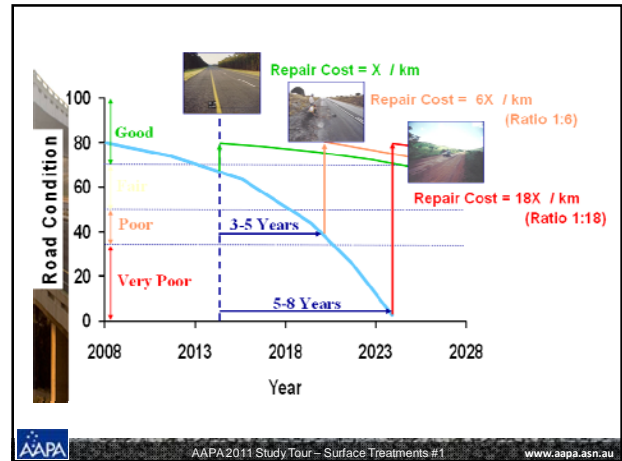
| Description | Non Toll | Agency Toll | BOT | Total |
|---|---------------|--------------|--------------|---------------|
| Dual Carriageway  | 610 | 520 | 443 | 1 573 |
| 4-Lane Undivided  | 11 | 299 | 240 | 550 |
| 2-Lane Single  | 12 429 | 1013 | 605 | 14 047 |
| Total | 13 050 | 1 832 | 1 288 | 16 170 |
| % of SANRAL Network | 81% | 11% | 8% | |

AAPA2011 Study Tour – Surface Treatments #1 www.aapa.asn.au



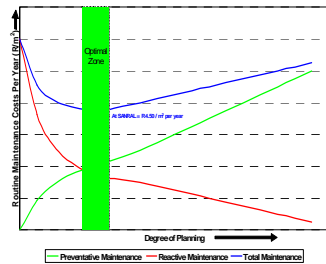
Preventative Maintenance

- Allocation of funding is optimised using modeling tools such as HDM4 / dTIMS
- Avoid worst first, preventative maintenance given priority.
- Roads in a poor state of repair are maintained in a safe condition (signing, lowering speed limits) until rehabilitation funding can be secured



Preventative Maintenance

- Extract the greatest value from maintenance funding to maintain the road in a good condition
- Economy of scale
 - reseal long sections
 - up to 80km

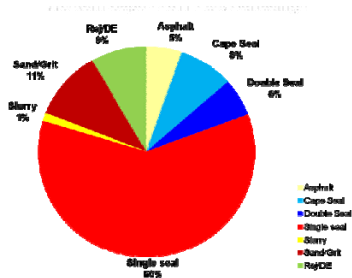


Selection of Treatments

- Consultants perform investigation, design, tender documentation and site supervision
- A number of alternatives put forward from which a treatment is recommended
- Based on similar reasons to Australia
 - Cracking, traffic, texture, turning movements...
- Road authority will assess the alternatives based on
 - Cost
 - motivation provided by Consultants
 - Functionality, appropriateness
 - Comparison with surfacings of adjacent sections on the same route

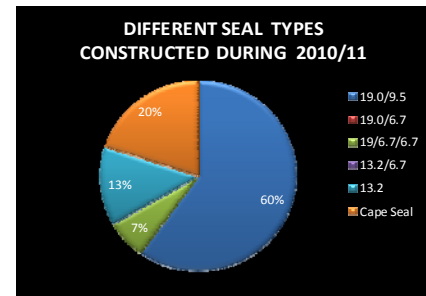
Seal Selection

- Seal type varies between authorities
- Western Cape Province



Seal Selection

- SANRAL Western Region



Sealing New Works

- Primersealing not practiced
 - Prime and seal
 - 50% dry back requirement
 - PMB emulsion double seals in winter
- Rehabilitation under traffic; build, prime and seal the road in half widths.
- Stop/go traffic control on the remaining lane operates 24 hours per day
- Undertaken on sections up to 4km in length



Sealing Practice #1

- Hot binder resealing embargo, May – August
- Use of cutters discouraged
 - Use prohibited by SANRAL
 - Risk of bleeding in summer
 - Perceived OH&S issues
- Cutter added at depot/plant
- Maximum cutter levels for PMB's
 - heavy traffic 3%
 - light traffic 5%.

Sealing Practice # 2

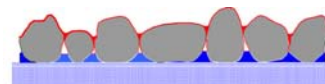


Sealing Practice # 3

- Measures to minimise stone loss
 - Spraying when pavement temperatures 25° C & rising
 - Use of emulsion binders
 - Aggregate precoating
 - Perform sealing in lane widths with work closed overnight.
 - Rolling and sweeping the following day when the pavement has warmed.
 - Traffic is only permitted on the seal when the pavement temperature is above 15° C.
 - Fog sprays

Fog Spray

- Diluted CRS60 emulsion (50:50) over final layer of aggregate



- Bind aggregate together, prevent early stone loss
- Alternative to prespraying, adds binder in lightly trafficked areas



AAPA AAPA2011 Study Tour – Surface Treatments #1 www.aapa.asn.au

Rejuvenation

- Common treatment
- Oxidized binder
- Fill fine cracks
- Slow set emulsion
- Diluted 50:50
 - 0.8 – 1.0 l/m²
 - Trial patches
- 3 years life



AAPA AAPA2011 Study Tour – Surface Treatments #1 www.aapa.asn.au



AAPA AAPA2011 Study Tour – Surface Treatments #1 www.aapa.asn.au

Sand Seals

- Graded sand or grit
- Low volumes roads
- Initial seal - 3 years
- Reseal - 15 years



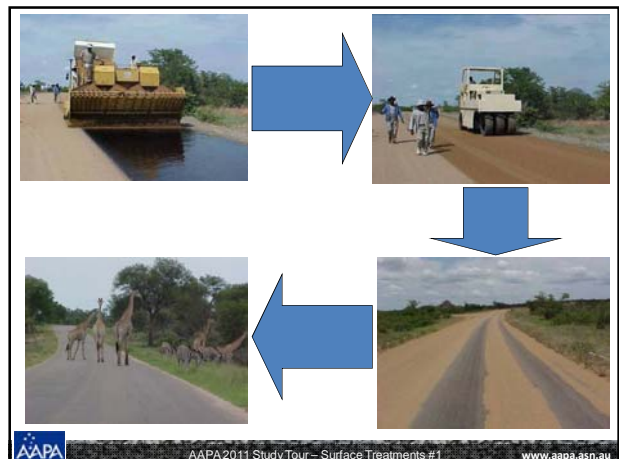
AAPA AAPA2011 Study Tour – Surface Treatments #1 www.aapa.asn.au

Sand Seal



| Sieve size (mm) | Cumulative % passing | |
|--------------------|----------------------|-------------|
| | KNP Limpopo | KNP Skukuza |
| 9,5 | 100 | 100 |
| 6,7 | 97,2 | 99,6 |
| 4,75 | 95,9 | 97,3 |
| 2,36 | 87,9 | 80,2 |
| 1,18 | 59,5 | 43,9 |
| 0,600 | 19,1 | 14,2 |
| 0,300 | 4 | 2,3 |
| 0,150 | 0,5 | 0,6 |
| 0,075 | 0,4 | 0,4 |

AAPA AAPA2011 Study Tour – Surface Treatments #1 www.aapa.asn.au



AAPA AAPA2011 Study Tour – Surface Treatments #1 www.aapa.asn.au

