

South African Pavement Design Method (SAPDM)

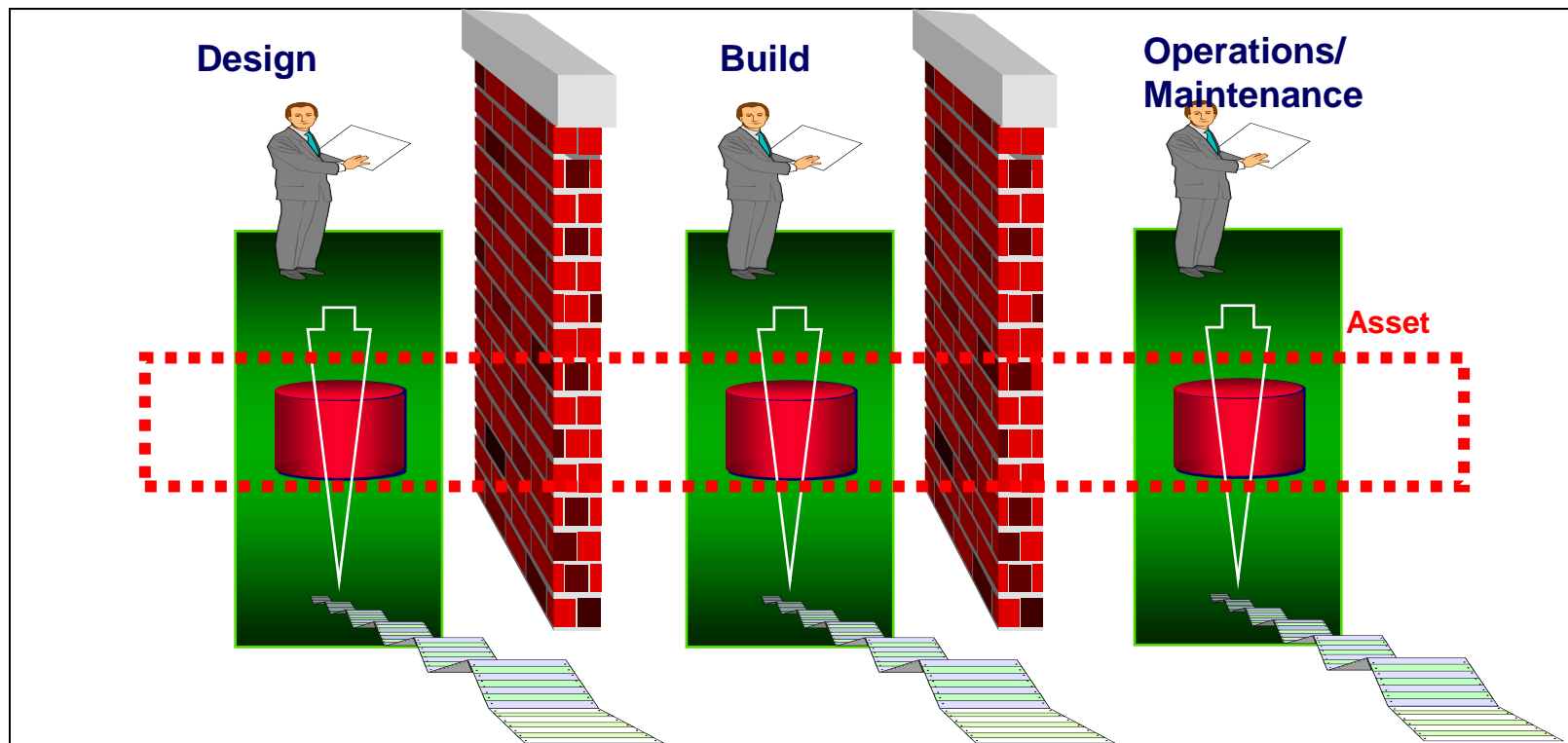
Software Portal and Concept

25th RPF Meeting

8 May 2013

L Kannemeyer

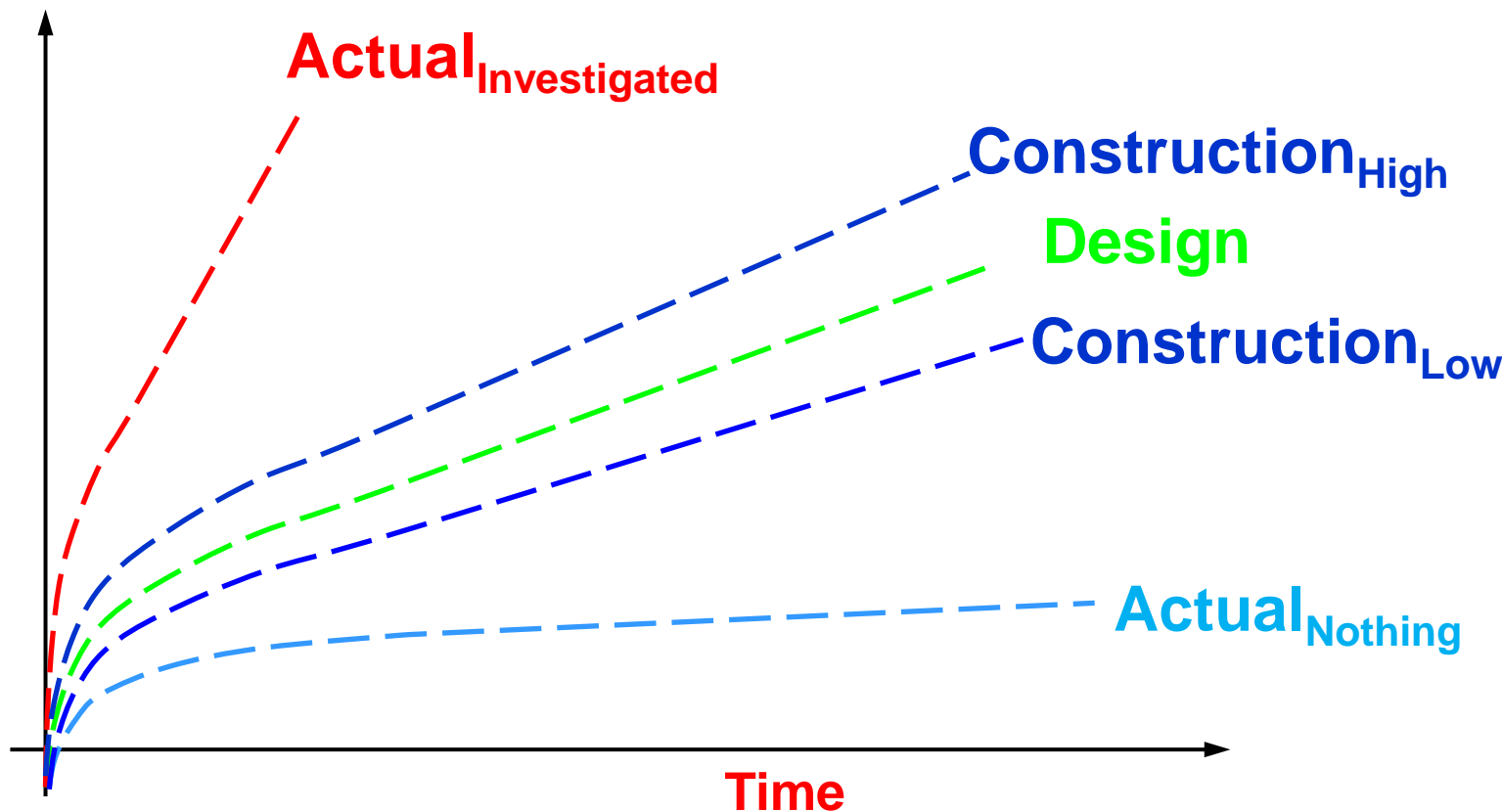
SAPDM Software Portal – Why ?



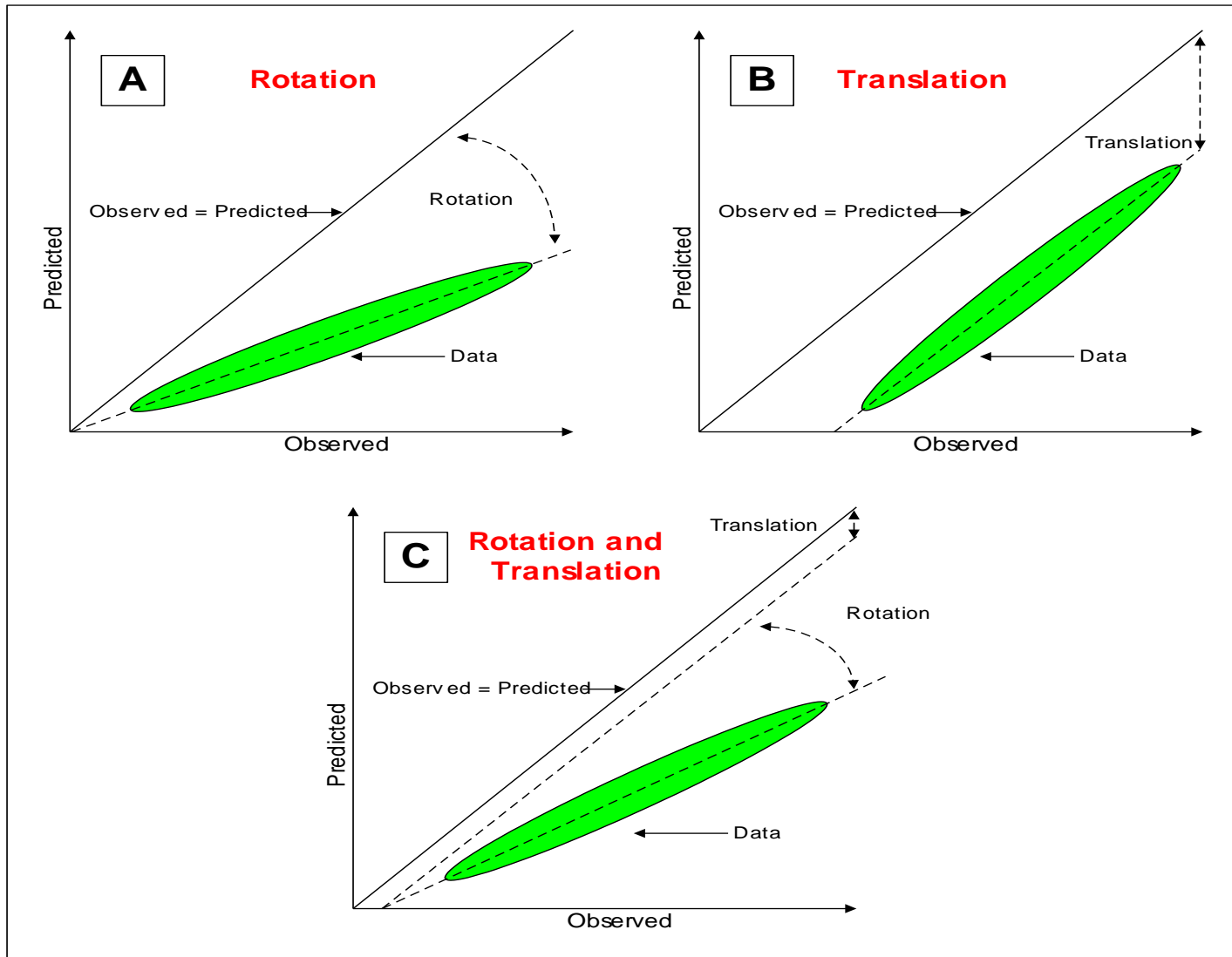
- Traditionally Road Authorities are organised according to vertical silos for administrative convenience, this results in vertical walls between silos resulting in authorities losing sight of the complete asset life cycle and focusing on delivery efficiency within each silo (doing the same thing quicker, cheaper).
- We need to ensure electronic flow of data through the life cycle

SAPDM Software Portal – Why ?

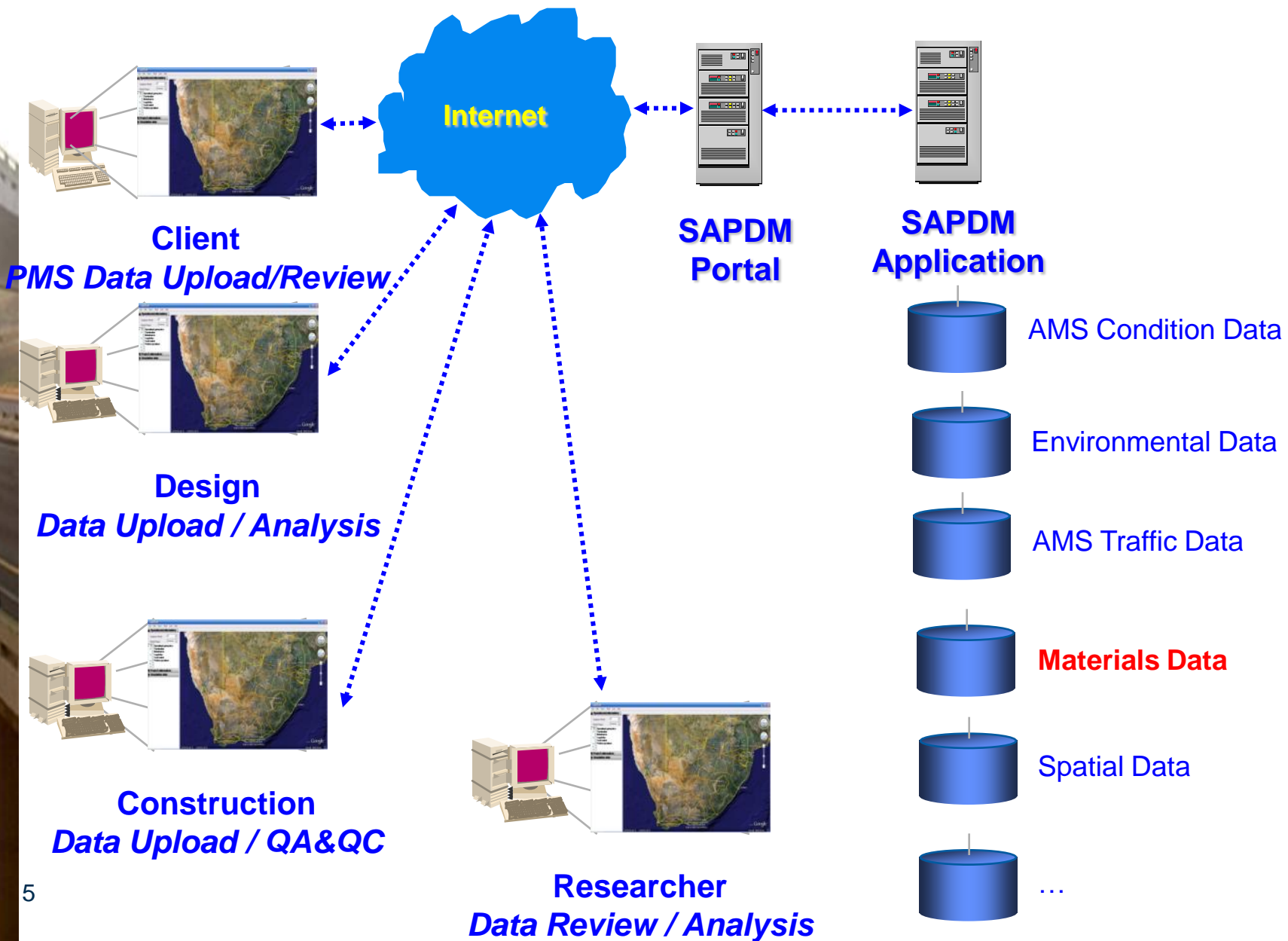
Damage



SAPDM – Updating of Models



SAPDM – Information Flow



SAPDM Project Process

| Project phase | Responsible party | | | | |
|----------------------------------|-----------------------------|---|-----------------------|-------------------|----------------------------------|
| | Road authority | Design office | Central laboratory | Service providers | Site laboratory |
| Project initiation | Create and activate project | | | | |
| Design investigation | | Preliminary investigation and analysis | | | |
| | | | Project level surveys | | |
| | | Detail analysis | | | |
| Recursive performance simulation | | Historic analysis with auto-calibration | | | |
| | | Future performance with economic assessment | | | |
| Final design specification | | Select final design and develop specification | | | |
| Construction | | | | | Q/A testing and approval of work |
| | | Approval of payment certificate | | | |
| | Payment | | | | |

**Administration Module**

Registration Management

User/Account Management

Product Management

Synchronize and Check for Updates

| Product Name | Product Description | Product Type | License Enabled | License Start | License End |
|----------------------|---------------------------------|--------------|-----------------|----------------------|------------------------|
| IDM Contract Module | Contract Management Module | CAB Module | Enabled | Tuesday, 01 May 2012 | Wednesday, 01 May 2013 |
| IDM Incident Module | Incident Capture Module | CAB Module | Enabled | Tuesday, 01 May 2012 | Wednesday, 01 May 2013 |
| IDM RRM Module | Routine Road Maintenance Module | CAB Module | Enabled | Tuesday, 01 May 2012 | Wednesday, 01 May 2013 |
| IDM Structure Module | IDM Structure Module | CAB Module | Enabled | Tuesday, 01 May 2012 | Wednesday, 01 May 2013 |
| ITIS Desktop | ITIS Desktop | CAB Shell | Enabled | Tuesday, 01 May 2012 | Wednesday, 01 May 2013 |



Incident Module

Synchronize Local Data Incident Module Settings

Add Incident Manage Conflicts

| Incident ID | Start | End |
|------------------|------------------------|------------|
| X.002-018-2012/1 | 2012/03/31 | 2015/03/30 |
| N00233N | 0.00 km to 63.32 km | |
| N00234N | 0.00 km to 97.31 km | |
| R03305N | 16.10 km to 48.39 km | |
| R03306N | 0.00 km to 35.98 km | |
| R03307N | 0.00 km to 52.54 km | |
| N.002-025-2010/1 | 2010/05/31 | 2013/05/30 |
| N00202E | 46.00 km to 67.70 km | |
| N00203E | 0.00 km to 48.67 km | |
| Notified | 2012/06/13 at 3.00 km | |
| Notified | 2012/06/13 at 24.00 km | |
| Notified | 2012/06/13 at 30.00 km | |
| Notified | 2012/06/13 at 46.00 km | |
| Notified | 2012/05/18 at 9.00 km | |
| Notified | 2012/05/18 at 20.00 km | |
| Notified | 2012/05/18 at 23.80 km | |
| Notified | 2012/05/18 at 39.80 km | |
| Notified | 2012/05/18 at 42.40 km | |
| Notified | 2012/05/15 at 35.00 km | |
| Notified | 2012/04/18 at 15.80 km | |
| Notified | 2012/04/18 at 26.60 km | |
| Notified | 2012/03/15 at 20.80 km | |
| Notified | 2012/03/15 at 26.00 km | |
| Notified | 2012/03/15 at 29.60 km | |
| Notified | 2012/03/15 at 46.20 km | |
| Notified | 2012/02/13 at 0.10 km | |

Edit Incident Delete Incident Save Changes End Edit Incident Report Server Refresh

Notification and Location Details and Condition Traffic Services Damage Photos Validation Map

Vehicle and Injury Details

| Vehicle Number Plate | Vehicle Type | Count | Injury Type | Count |
|----------------------|--------------|-------|-------------|-------|
| CEG3497 | Motor Car | 1 | No Injuries | 2 |
| | Choose | | Choose | |

 No of Vehicles Entrapments

Conditions and Cause

Weather Condition

 Clear Dust Fire Fog/Mist Hail Overcast Rain Snow Unknown Wind

Light Condition

Type of Incident

Cause of Accident

Incident Description

Structure Module

Package Structure Sort Order: Road KM

| Package | ID | Description | Type | Route | Section | Route KM | Status |
|----------------------|------------------|--|------|-------|---------|----------|--------|
| GFIP Inspection 2012 | | | | | | | |
| Package B - SSI | | | | | | | |
| | N001_20N_IDC0330 | other culveTest Structure 234 | CM | N001 | 20N | 2.00 | 🟢 |
| | N001_20S_B2688 | 3562 9th Avenue Underpass Bridge B | BR | N001 | 20N | 27.40 | 🟢 |
| | N001_20N_B268A | 3562 9th Avenue Underpass Bridge A | BR | N001 | 20N | 27.40 | 🟢 |
| | N001_20N_B0038 | 7th Avenue Pedestrian Bridge (ReplacBR | N001 | 20N | 28.03 | 🟢 | |
| | N001_20N_B267 | 7th Avenue Pedestrian Bridge (To Be fBR | N001 | 20N | 28.03 | 🟢 | |
| | N001_20S_B2638 | 3557 Rabie Street Underpass Bridge B | BR | N001 | 20S | 32.80 | 🟡 |
| | N001_20N_B263A | 3557 Rabie Street Underpass Bridge A | BR | N001 | 20N | 32.80 | 🟢 |
| | N001_20S_B261B | 3555 Cr Swart Drive Underpass Bridge B | BR | N001 | 20N | 35.00 | 🟢 |
| | N001_20N_B261A | 3555 Cr Swart Drive Underpass Bridge A | BR | N001 | 20N | 35.00 | 🟢 |
| | N001_20N_B260 | 3554 Kleinjukeskeisspruit | BR | N001 | 20N | 35.60 | 🟢 |
| | N001_20N_B189A | 3396 Bryanstonspruit Bridge A | BR | N001 | 20N | 37.20 | 🟢 |
| | N001_20S_B189B | 3396 Bryanstonspruit Bridge B | BR | N001 | 20N | 37.20 | 🟢 |
| | N001_20N_B187A | 3395 Jakaranda Street Underpass Bridge A BR | N001 | 20N | 37.40 | 🟢 | |
| | N001_20S_B187B | 3395 Jakaranda Street Underpass Bridge B BR | N001 | 20N | 37.40 | 🟢 | |
| | N001_20N_B185 | 3392 William Nicol Dr I/C: William Nicol Dr BR | N001 | 20N | 41.30 | 🟢 | |
| | N001_20N_B188C | Braamfonteinspruit Bridge C (Rivonia IBR | N001 | 20N | 45.65 | 🟢 | |
| | N001_20N_B188A | 3389 Braamfonteinspruit Bridge A | BR | N001 | 20N | 45.80 | 🟢 |
| | N001_20S_B188B | 3389 Braamfonteinspruit Bridge B | BR | N001 | 20N | 45.80 | 🟢 |
| | N001_20N_B182C | Rivonia Road I/C: Underpass Bridge C BR | N001 | 20N | 46.24 | 🟢 | |
| | N001_20N_B182A | 3388 Rivonia Road I/C: Underpass Bridge A BR | N001 | 20N | 46.24 | 🟢 | |
| | N001_20S_B182B | Rivonia Road I/C: Underpass Bridge B BR | N001 | 20N | 46.24 | 🟢 | |
| | N001_20S_B182D | Rivonia Road I/C Underpass Bridge D BR | N001 | 20N | 46.24 | 🟢 | |
| Package D3 - ARQ | | | | | | | |
| | N001_21S_C0034 | Drainage Culvert under N1S to R21S FCM | N001 | 21S | 23.16 | 🟢 | |
| | N001_21N_B470 | 3022 Brickfield Road Underpass | BR | N001 | 21S | 23.59 | 🟢 |
| | N001_21N_B472 | 2792 Rigel Avenue Interchange Bridge | BR | N001 | 21S | 25.60 | 🟢 |
| | N001_21N_B474A | 2795 Dely Avenue Bridge 474a | BR | N001 | 21S | 27.50 | 🟢 |
| | N001_21S_B474B | 2795 Dely Avenue Bridge 474b | BR | N001 | 21S | 27.50 | 🟢 |
| | N001_21N_B476 | 2797 Garstfontein I/C: Garstfontein Rd (M3)BR | N001 | 21S | 28.15 | 🟢 | |
| | N001_21N_SC033 | City Of Tshwane Service Culvert 1 | CM | N001 | 21S | 28.53 | 🟢 |
| | N001_21N_C2796 | Wolwespruit Culvert Under GarstfonteCM | N001 | 21S | 28.55 | 🟢 | |
| | N001_21N_B0077 | Atterbury Rd I/C: Atterbury Rd (M11) fBR | N001 | 21S | 28.94 | 🟢 | |
| | N001_21N_B478A | 2799 Atterbury Rd I/C: Atterbury Rd (M11 VBR | N001 | 21S | 29.35 | 🟢 | |
| | N001_21N_B478B | 2799 Atterbury Rd I/C: Atterbury Rd (M11 EBR | N001 | 21S | 29.35 | 🟢 | |

Structure Summary Printing

Details of the selected structure are as follows :

Structure Number : N001_20S_B261B
 Other Structure Number : 3555
 Structure Name : Cr Swart Drive Underpass Bridge B
 Route Number : N001
 Section Number : 20N
 Feature Name : C R Swart Drive
 Road KM : 35.00

Please note that maps as provided below should only ever be used as a rough guide.

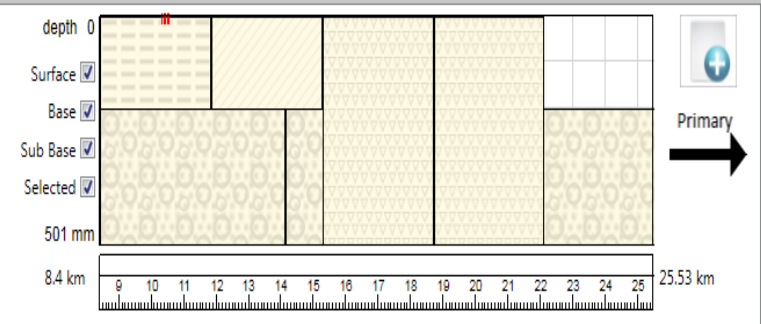
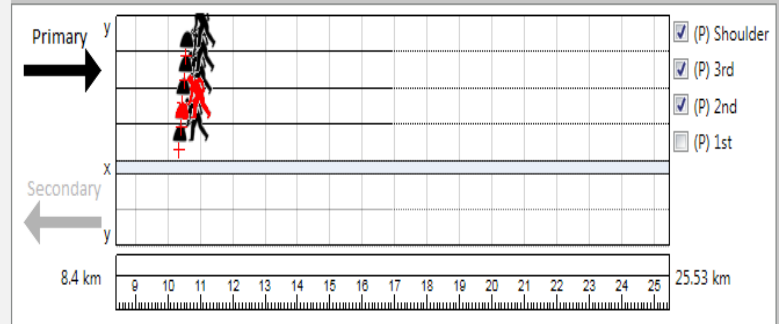
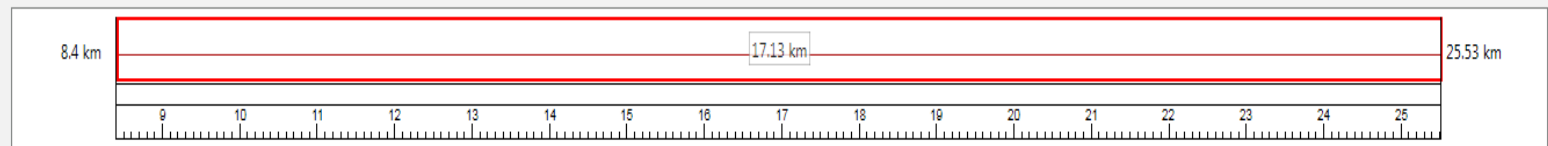


- Projects**
- Project 1
 - Project Setup
 - Design Investigation
 - Design
 - Construction
 - Project 2
 - Project 3
 - Project 4

- Sections**
- N4-01-East**
 - 8.4 km (Koeksuster) - 25.53 km (Pienaarsrivier)
 - Lane 1
 - Lane 2
 - Lane 3
 - Shoulder Lane
 - N4-01-West**
 - 8.4 km (Koeksuster) - 25.53 km (Pienaarsrivier)
 - Lane 1
 - Lane 2
 - Lane 3
 - Shoulder Lane
 - N4-02-East**
 - 0 (Pienaarsrivier) - 55.009 km (Spitskop)
 - Lane 1
 - Lane 2
 - Lane 3
 - Shoulder Lane

- Menu**
- Synchronize
 - Run Q/A scheme
 - TMH10 reports
 - Capture new asphalt slab

Materials Quality Assurance



Lots

| Lot number | Start chainage (km) | End chainage (km) | Date constructed | Date tested | Material type |
|-----------------------------|---------------------|-------------------|------------------|-------------|---------------|
| N004-01-P2-L2-10.500-10.699 | 10.5 km | 10.699 km | 1996/01/01 | 2012/01/01 | Stabilised |
| N004-01-P3-L2-10.500-10.699 | 10.5 km | 10.699 km | 1996/01/01 | 2012/01/01 | Stabilised |
| N004-01-P2-L3-10.300-10.499 | 10.3 km | 10.499 km | 1995/01/01 | 2007/01/01 | Asphalt |
| N004-01-P3-L3-10.300-10.499 | 10.3 km | 10.499 km | 1995/01/01 | 2007/01/01 | Asphalt |
| N004-01-P2-L3-10.100-10.299 | 10.1 km | 10.299 km | 1994/01/01 | 2005/01/01 | Unbound |

Test batch details [Asphalt, L3 - Base]

General information | Bulk sample | Briquettes | Cores | Binder | Aggregate

Test type

Test Battery: THM1 Q/A Scheme: COLTO 8200

Batch production time and temperature

| | Time | Temperature |
|--------------------------|------|-------------|
| When mixed at plant: | | 0 |
| Upon arrival on site: | | 0 |
| When placed into hopper: | | 0 |

Test Batches

| Batch number | Test battery | Q/A scheme | Start chainage (km) | End chainage (km) | Material classification |
|--------------|--------------|------------|---------------------|-------------------|-------------------------|
| 1 | THM1 | COLTO 8200 | 10.3 km | 10.499 km | All |
| 2 | THM1 | COLTO 8200 | 10.3 km | 10.499 km | All |
| 3 | THM1 | COLTO 8200 | 10.3 km | 10.499 km | All |
| 4 | THM1 | COLTO 8200 | 10.3 km | 10.499 km | All |
| 5 | THM1 | COLTO 8200 | 10.3 km | 10.499 km | All |

Placement temperatures

Chainage (km)
 Start: 10.3 km End: 10.499 km

Placement temperatures:

| Sample number | Chainage (km) | C-L offset (m) | Temp (C) |
|---------------|---------------|----------------|----------|
| 1 | 10.35 km | 2 m | 10 |
| 2 | 10.4 km | 5 m | 11 |
| 3 | 10.45 km | 7 m | 12 |

Quality assurance

Trial mix/specification to use for quality assurance:

- Projects**
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 - Project 4

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 - 0 (Pienaarsrivier) - 55.009 km (Spitskop)
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Menu

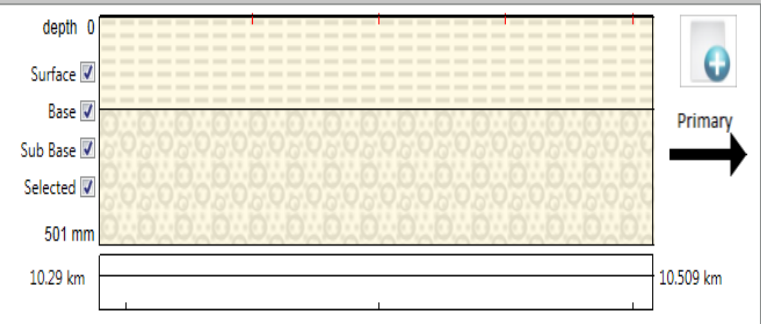
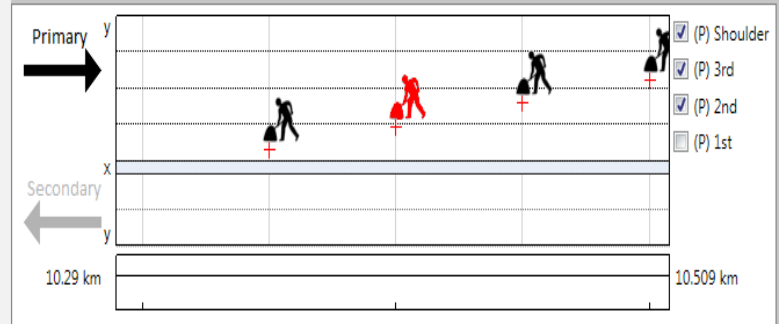
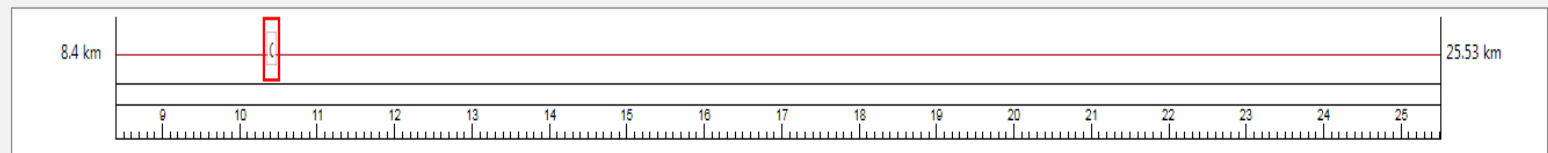
Synchronize

Run Q/A scheme

TMH10 reports

Capture new asphalt slab

Materials Quality Assurance



Lots

| Lot number | Start chainage (km) | End chainage (km) | Date constructed | Date tested | Material type |
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| N004-01-P2-L2-10.500-10.699 | 10.5 km | 10.699 km | 1996/01/01 | 2012/01/01 | Stabilised |
| N004-01-P3-L2-10.500-10.699 | 10.5 km | 10.699 km | 1996/01/01 | 2012/01/01 | Stabilised |
| N004-01-P2-L3-10.300-10.499 | 10.3 km | 10.499 km | 1995/01/01 | 2007/01/01 | Asphalt |
| N004-01-P3-L3-10.300-10.499 | 10.3 km | 10.499 km | 1995/01/01 | 2007/01/01 | Asphalt |
| N004-01-P2-L3-10.100-10.299 | 10.1 km | 10.299 km | 1994/01/01 | 2005/01/01 | Unbound |

Test Batches

| Batch number | Test battery | Q/A scheme | Start chainage (km) | End chainage (km) | Material classification |
|--------------|--------------|------------|---------------------|-------------------|-------------------------|
| 1 | THM1 | COLTO 8200 | 10.3 km | 10.499 km | All |
| 2 | THM1 | COLTO 8200 | 10.3 km | 10.499 km | All |
| 3 | THM1 | COLTO 8200 | 10.3 km | 10.499 km | All |
| 4 | THM1 | COLTO 8200 | 10.3 km | 10.499 km | All |
| 5 | THM1 | COLTO 8200 | 10.3 km | 10.499 km | All |

Quality assurance

Trial mix/specification to use for quality assurance:

Test batch details [Asphalt, L3 - Base]

General information | Bulk sample | Briquettes | Cores | Binder | Aggregate

Test type

Test Battery: THM1 | Q/A Scheme: COLTO 8200

Batch production time and temperature

| | Time | Temperature |
|--------------------------|----------------------|----------------------|
| When mixed at plant: | <input type="text"/> | <input type="text"/> |
| Upon arrival on site: | <input type="text"/> | <input type="text"/> |
| When placed into hopper: | <input type="text"/> | <input type="text"/> |

Placement temperatures

Chainage (km)

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Placement temperatures:

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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.

PROJECT SPONSORS:

CONTACT INFORMATION:

For any queries regarding the project please contact the project team at info@sapdm.co.za

NEWS

Sorry, no new news posted

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CALENDAR

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| September - 2011 | | | | | | |
|------------------|----|----|----|----|----|----|
| Mo | Tu | We | Th | Fr | Sa | Su |
| | | | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 | | |

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