

SANRAL USE OF WIM DATA

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JULY 2025

SANRAL



BUILDING SOUTH AFRICA
THROUGH BETTER ROADS

EASTERN CAPE, N2 WILD COAST, MSIKABA BRIDGE

PRESENTATION OVERVIEW

1. SANRAL OVERVIEW
2. SANRAL NETWORK
3. USE OF TRAFFIC DATA
4. AVERAGE SPEED OVER DISTANCE (ASOD)
5. WEIGH-IN-MOTION ENFORCEMENT (WIMe)

SANRAL MANDATE

- The South African National Roads Agency Limited (SANRAL) is an **independent, statutory company** registered in terms of the Companies Act and established through the SANRAL ACT (No. 7 of 1998) .
- The South African government, **represented by the Minister of Transport**, is the sole shareholder and owner of SANRAL.
- **SANRAL is a Schedule 3A entity** as per the Public Finance Management Act 1 of 1999.



PRINCIPAL TASKS

PLAN

Plan, design, construct, operate, maintain and rehabilitate South Africa's national roads.

GENERATE

Generate revenue from the development and management of assets.

UNDERTAKE






Undertake research and development to advance knowledge in the design and construction of roads and related fields.

ADVISE

Advise the Minister of Transport on matters relating to South Africa's roads.

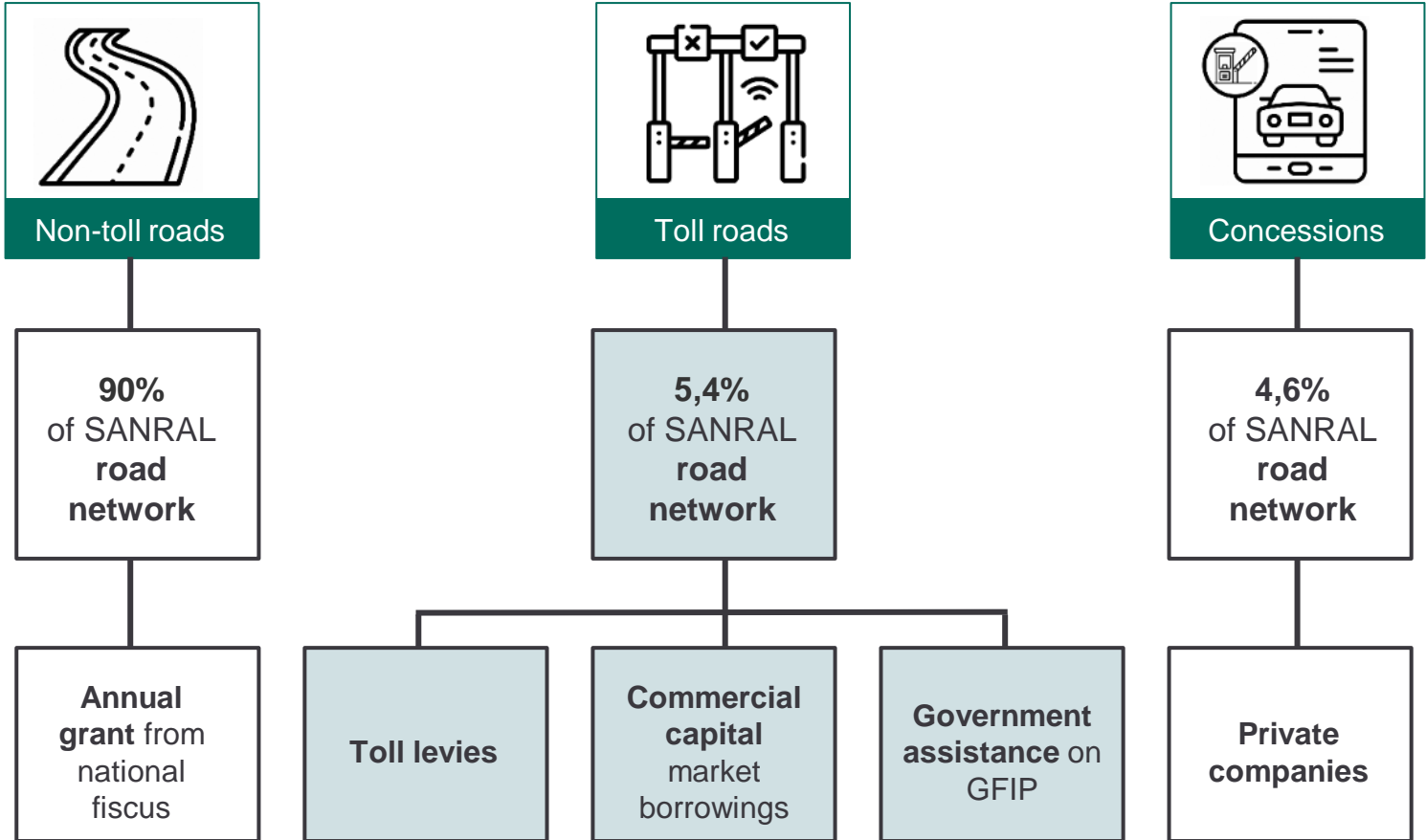


BUSINESS PILLARS

 <p>Roads Pillar</p>	 <p>Road Safety Pillar</p>	 <p>Stakeholders Pillar</p>	 <p>Mobility Pillar</p>	 <p>Transformation Pillar</p>
<ul style="list-style-type: none"> • Road finance • Planning • Development and maintenance, • Use of innovative technology 	<ul style="list-style-type: none"> • Research • Public awareness and education • Incident Management • Engineering standards • Law enforcement partnerships 	<ul style="list-style-type: none"> • Promotion of SMMEs participation and rural communities • Communication strategies to strengthen partnerships and public engagement 	<ul style="list-style-type: none"> • Improved roads for better, more integrated public transport • Enhanced urban planning and cross-border connections 	<ul style="list-style-type: none"> • SANRAL's efforts to contribute to the growth and transformation of the industry • Enable economic transformation through roads infrastructure development

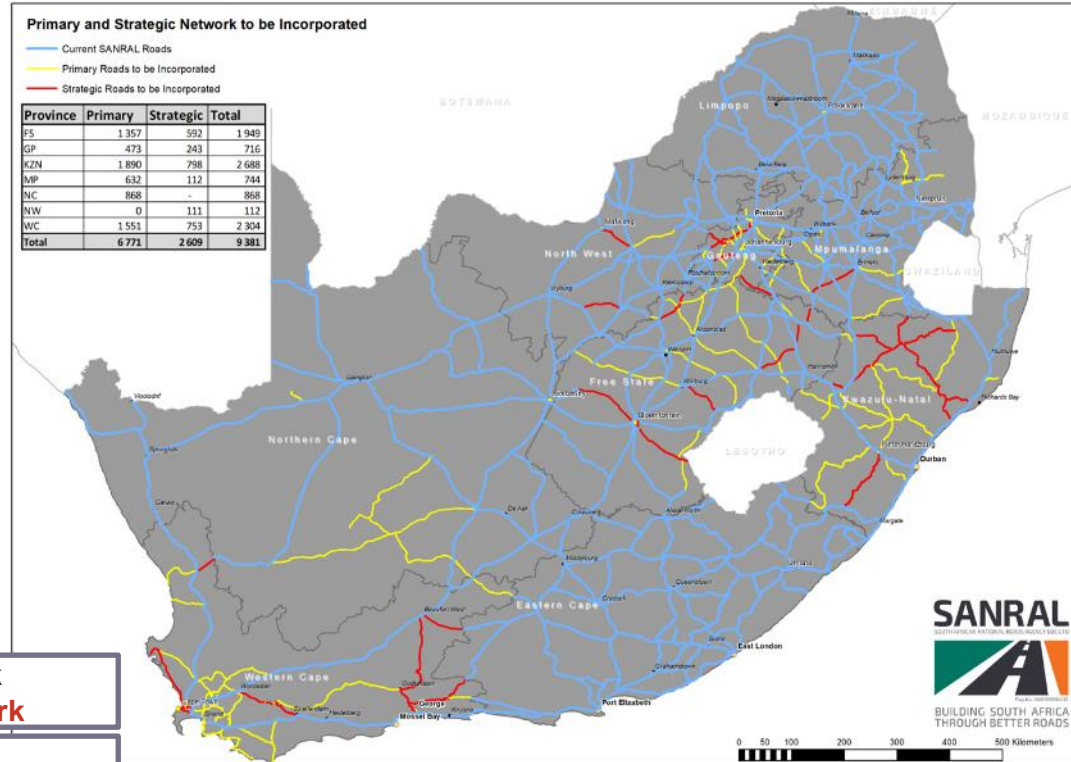
SANRAL's long-term strategy, **Horizon 2030**, defines five business pillars that serve to integrate its operations and activities across the Agency and deliver different forms of value.

SANRAL FUNDING SOURCES



SANRAL ROAD NETWORK - BREAKDOWN BY PROVINCE

Province	Paved (km)	Gravel (km)	Total (km)
EC	5,483	402	5,885
FS	3,051	7	3,058
GP	853	0	853
KZN	1,321	0	1,321
LP	4,368	0	4,368
MP	3,412	0	3,412
NC	4,360	113	4,473
NW	2,642	0	2,642
WC	1,465	0	1,465
Total	26,956	522	27,478



SANRAL 27,478 Centreline km network
4,45% of South Africa's total road network






Carries **33.3%** of all annual vehicle km travelled



Carries more than **70%** of all long-distance freight

SANRAL MANDATE ± 35 000 KM
Total RSA Network ± 750 000 km (10th/11th longest)

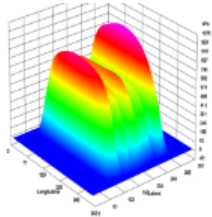
USE OF TRAFFIC DATA - COTO TMH STANDARDS

 <p>TMH 3</p> <p>Specifications for the Provision of Traffic and Weigh-in-Motion Monitoring Service</p> <p>Version 1.0 December 2013</p> <p>Committee of Transport Officials</p>	 <p>TMH 8</p> <p>Traffic and Axle Load Monitoring Procedures</p> <p>Version 1.0 Oct 2014</p> <p>Committee of Transport Officials</p>	 <p>TMH 14</p> <p>South African Standard Automatic Traffic Data Collection Format</p> <p>Version 3.00 November 2013</p> <p>Committee of Transport Officials</p>
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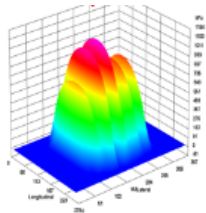
USE OF TRAFFIC DATA – AXLE LOAD DATA (WIM)

Pavement Design/Maintenance

- Old – Axle Load Histogram reduced to Equivalent Standard Axle Load per vehicle - E80
- **New** – SARDS Complete Axle Load Histograms used along with Tyre Contact Stress (How load is transferred to Pavement !!!)

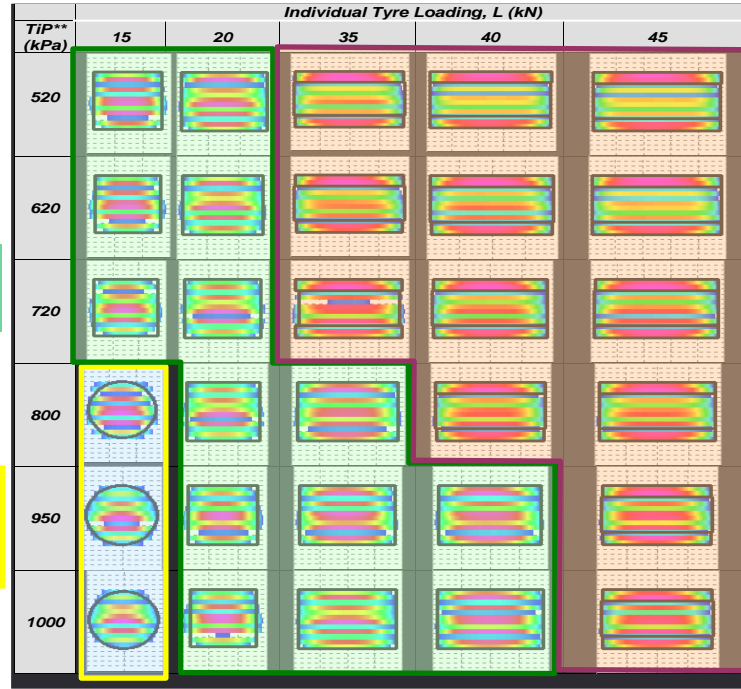


m-shape:
- Triple rectangular



n-shape:
- Single rectangular

n-shape:
- Single Circular



AVERAGE SPEED OVER DISTANCE (ASOD) STATUS

ASOD Interim Requirement approved on 1 March 2019.

Received National Regulator for Compulsory Specifications (NRCS) Type Approval – March 2021.

N1 PROJECT

- Started pilot project for ASOD – December 2018.
- **4 Sections**
 - Zebetiela – Polokwane (NB) = 43.503 km
 - Polokwane – Zebetiela (SB) = 43.442 km
 - Kranskop – Nyl (NB) = 65.262 km
 - Nyl - Kranskop (SB) = 65. 255 km
- All sections received On-Site Verifications – December 2021.
- Live data stream to SANRAL Back-Office – April 2022.
- Receive DPP approval to proceed with prosecutions – April 2022.



ASOD ENFORCEMENT CHALLENGES (1 of 2)

Issuing Authority

- SANRAL is not an issuing authority
- According to SANRAL Act agreements can be made with Municipal/Provincial Authorities for law enforcement.
- Provincial authority to provide adjudication officials.
- **Formal agreement to be finalised.**

Limpopo DPP approval


- Lapsed in March 2023.
- **RTMC to apply for new approval.**

eNatis Link

- SANRAL have existing link at COC in Midrand for e-Tolls in Gauteng.
- **RTMC could not provide confirmation if the link can be used nationally.**



National Prosecutions Service
Director of Public Prosecutions
Limpopo Polokwane



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DIRECTOR OF PUBLIC PROSECUTIONS
POLOKWANE UNIT
2022 -04- 06
REGISTRY
LIMPOPO

Dear Sir/ Madam

**APPLICATION TO OPERATE AVERAGE SPEED OVER DISTANCE (ASOD)
ON THE N1 BY MEANS OF SANRAL SYSTEM**

1. Your correspondence dated 30 March 2022 has reference.
2. Authorisation is hereby granted to the Road Traffic Management Corporation and the Limpopo Provincial Traffic Department to operate the Average Speed Over Distance (ASOD) on the section of the N1 public road between Polokwane and Kranskop toll plaza for the purpose of speed law enforcement.
3. This authorisation is effective immediately and valid until 31 March 2023.
4. The authorisation is subject to the equipment/s being used compliant with relevant legal prescripts including regular calibration.
5. The prosecuting guidelines contained in Circular No.3 of 1998 and part 29 of the NPA Policy Directives must be complied with.
6. The speed law enforcement must always be conducted according to the Technical Committee for Standards and Procedures for traffic control and traffic equipment and that all technical and mechanical prescripts are adhered to at all times.


ADV. M.J. THENGA
DIRECTOR OF PUBLIC PROSECUTIONS
LIMPOPO DIVISION, POLOKWANE

ASOD ENFORCEMENT CHALLENGES (2 of 2)

Courts

- Estimated number of offences (44,000 per month) send to **Limpopo Province** in February 2025. – Courts will be flooded.
- Confirmation from Limpopo courts must be provided that fines will only be applicable from a specific threshold.** SANRAL suggested > 140km/h for initial phase to reduce strain on courts.
- Limpopo Province** default fines to be set.
- AARTO Rollout ?**


Back Office

- Data from ASOD systems hosted at SANRAL COC in Midrand.


Prosecution Guidelines for Speed Enforcement (TCSP)

- RTMC responsible for TCSP guidelines.
- Speed Enforcement Guidelines currently under review.
- Need approved guidelines before enforcement can proceed.
- Number of meetings cancelled due to quorum issues.





KH19ZRGP Site A



KH19ZRGP Site B

SECTION DESCRIPTION

N001 Southbound : Between Polokwane and Zebetela
 Section Distance: 43442 m Frame Number: 8665

Frame	Primary Date & Time	Secondary Date & Time	Time Difference	Speed	Speed Limit	Classification	ANPR
Total : 5				Max : 167 km/h			
14265	29/05/2023 01:04:53.610	29/05/2023 01:20:25.673	932 sec	167 km/h	120		KH19ZRGP
2587	03/05/2023 22:39:51.393	03/05/2023 22:55:55.657	964 sec	162 km/h	120		KH19ZRGP
4758	07/05/2023 22:30:01.287	07/05/2023 22:46:54.830	1013 sec	154 km/h	120		KH19ZRGP
8124	14/05/2023 22:03:29.507	14/05/2023 22:20:49.927	1040 sec	150 km/h	120		KH19ZRGP
▶ 8665	17/05/2023 14:13:56.627	17/05/2023 14:33:16.740	1160 sec	134 km/h	120		KH19ZRGP

SPEED CRITERIA APPLIED

Limit

Light Motor Vehicles : 120 (km/h)

Minibuses : 100 (km/h)

Buses : 100 (km/h)

Heavy Motor Vehicles : 80 (km/h)

Speed Limit Applied : 120 (km/h)

Primary Date and Time: 17/05/2023 14:13:56.627 } 00h:19m:20s

Secondary Date and Time: 17/05/2023 14:33:16.740

Heavy speeds split by GVM Split Threshold: 16001 kgs
ellatis GVM: 0 kgs

Load

Print

Make (eNatis): Unknown

Model (eNatis): Unknown

Colour (eNatis): Unknown

Violations ASD File Header <XML>

134 k...

ASD Violations
BMT Violations
JIS Violations
TRF Viewer

WEIGH-IN-MOTION ENFORCEMENT (WIM_e) STATUS

- Currently only use Static Weigh Bridges, costly and easily bypassed.
- Development for WIM_e Interim Requirements started in August 2018.
- **WIM_e Interim Requirement approved on 1 September 2024 by NRCS.**
- Historically only bending plates used as WIM sensors.
 - Temperature sensitive.
 - Not accurate enough for enforcement.
- Piezo Strip technology used internationally for WIM_e.
- SANRAL Researchers appointed in March 2025 to lead a technology pilot to test NRCS interim specifications on South African pavements and determine if accuracy requirements can be reached.
- **Expression of Interest advertised internationally at the end of 30 June 2025 and closes 21 July 2025 – more details in later presentation.**
- Estimated time for Technology Pilot completion 6 to 9 months.
- SANRAL Tender process for WIM_e (± 250 locations) will be issued after analysis of Technology Pilot have been completed and NRCS approved final specifications.



WIMe POSSIBLE CHALLENGES

- Technical Guidelines for Weight Enforcement must be drafted (RTMC/SANRAL).
- Enforcement MOU's must be drafted for all provinces (SANRAL/Provinces).
- DPP approvals must be obtained from all provinces (Provinces/RTMC/SANRAL).
- Pavement improvements must be done on all site locations where pavement thickness is not suitable for piezo sensor installations (SANRAL).
- Traffic Regulations must be amended to allow for the following (DOT/SANRAL):
 - Enforcement on Gross Vehicle Mass.
 - Dynamic High-Speed Weigh-in-Motion Enforcement. Currently only Static Weighing at Weighbridges is permitted.
 - Fine structure must be set.
- SANRAL Back Office services must be streamlined for WIM enforcement.
- Availability of power and fibre communications (SANRAL).
- Possible vandalism with high end equipment (SANRAL).



NRCS national regulator for compulsory specifications		LM-10: WIM-TLE Rev: 2024-05-12
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Thank you

