Western Cape Government

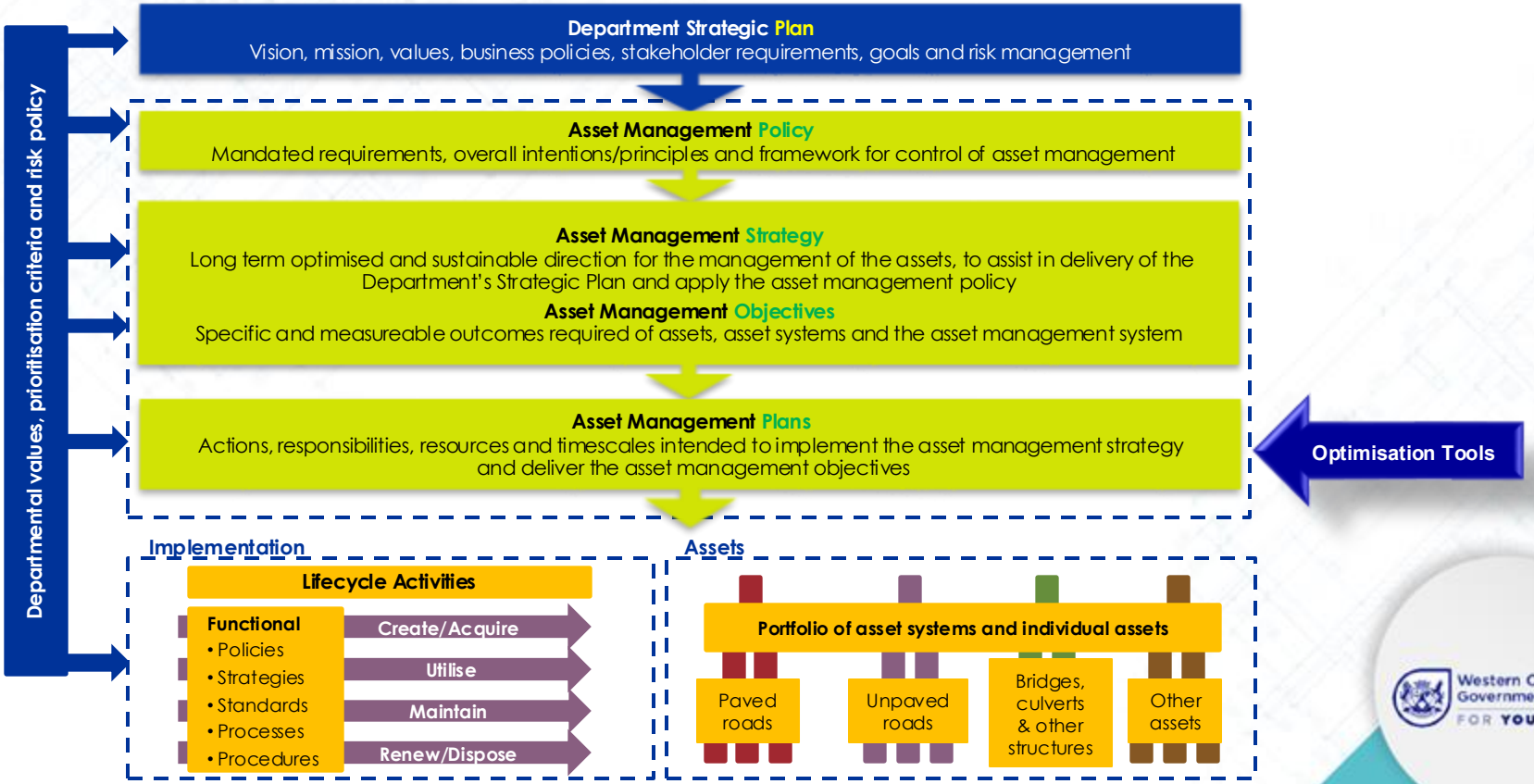
Bridging the Gap: Unlocking Private Sector Participation through Project Preparation and Blended Finance for Infrastructure Growth

Azni November

Overview of presentation

- Road Asset Management Strategy and Approach
- State of Road Assets
- Optimisation Model and Maintenance Backlog
- Project Pipeline
  - Wingfield Project
  - R300 Extension
  - Upgrade of the Gravel Network to Surface Standard

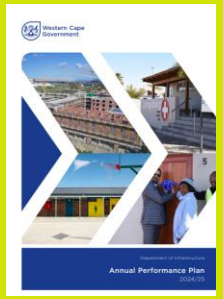
AM approach to strategic planning & implementation



AM approach – Line of Sight

The line of sight – Objectives → Infrastructure Preservation

Strategic Plan & Objectives



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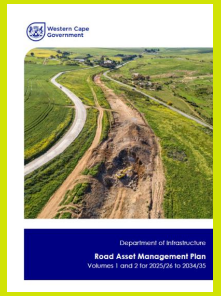
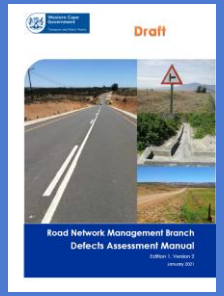
AM Policy & Plan



Strategic Level - Direction

Defects Manual



Maintenance Methods Manual

Tactical & Operational Levels

Enablers

Technicians, foremen, road workers

Tools & plant

Materials

Maintenance Budget

Maintenance Management System

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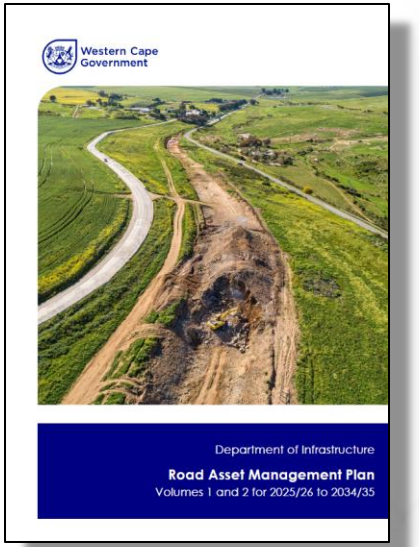
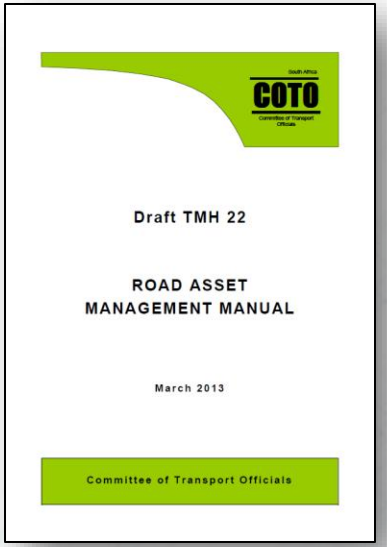
Asset Management Policy and Plans

Policy principles for management & development of the road-related assets

- Implement **international best practice** benchmarks for asset management - **SANS 55000 and TMH 22**
- Employ a **maintenance strategy** to maintain the condition of physical assets at the **appropriate Level of Service**
- Apply **Lifecycle Value Realisation** - Lifecycle Costing & Value Optimisation - at portfolio, system & asset levels
- Provide **'fit-for-purpose' solutions** that are sustainable - define appropriate an **affordable Levels of Service** that **balance performance, costs and risks** over the asset's life to ensure the road network is sustainable
- Capital expansion programs & projects will be accompanied by a clear position on the ongoing funding required to maintain & operate the new assets & services





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State of Road Assets

The Provincial Road Network

823 Bridges · 1 839 Major culverts · 152 Gantries · 2 Tunnels · 128 Retaining walls · 30 000+ Lesser culverts

7 349 km Paved roads · 24 866 km Gravel roads

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Data Sources for Road Network

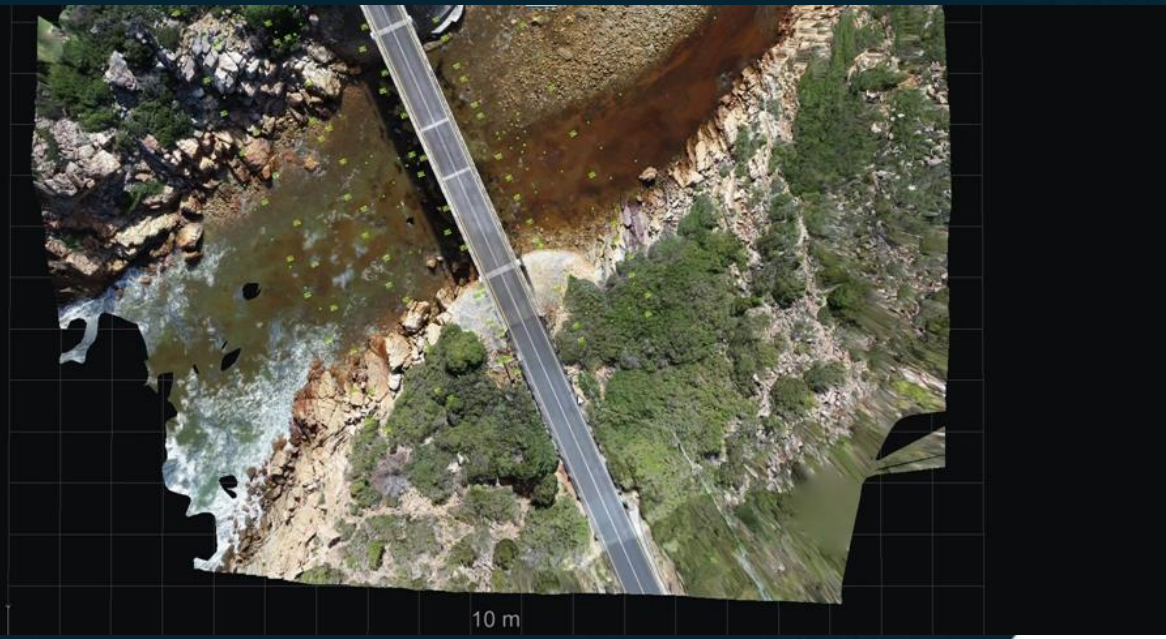
Data collected/received	System	Collection Interval	Legislation
Principal Inspections (Structures)	StrumanBMS/RNIS	5 years	TMH19
Panel inspection (Structures)		5 years	TMH22
Safety Inspections (Structures)		Annually	Construction Regulations
Surfaced Visual Inspections	PMS / PMSVA	Annually	TMH22
Gravel Visual Inspections	GRMS	Annually	TMH22
Panel Inspection (Surfaced)	PMS/RNIS	Annually	TMH22
Panel Inspection (Gravel)	GRMS	Annually	TMH22
Maintenance management	iMMS	Ongoing	
Maintenance management	iPlant	Ongoing	
Project specific information	Robinson	Ongoing	

Data collected/received	System	Collection Interval	Legislation
R1, R2, R3 Surfaced Instrument data and images	MSM / Karretjie	2 years	PRMG Proposed practice note 2
R1, R2, R3 Gravel Instrument data and images	MSM / Karretjie	2 years	PRMG Proposed practice note 2
R4, R5 Surfaced Instrument data and images	MSM / Karretjie	3 years	PRMG Proposed practice note 2
R4, R5 Gravel Instrument data and images	MSM / Karretjie	3 years	PRMG Proposed practice note 2
Road logging	RNIS VA	5 years?	
Traffic Counts	TCS	Annually (3 year cycles)	
Accident data	iPAS	Continuously	
HDM calibration data (37 sites)		Annually?	
Imagery (Drones/ Inspections)		Ad-hoc	
Raw GPS Data		2 years	

Condition of Road Network: Explainer video

Condition of Bridges: Explainer video Realistic 3D Models

Number of photographs in imagery dataset	225
Imagery dataset size (MB)	1790
Imagery dataset aggregate megapixels	4500
Aerotriangulation processing time (minutes)	13
3D model creation processing time (minutes)	196
Model data set size (GB)	7



The Provincial Road Network & traffic

Total Network **32 215 km**
Managed Network of **17 964 km**
28,4 million vehicle-km per day
in 2023 (on managed network)
96% were travelled on paved roads

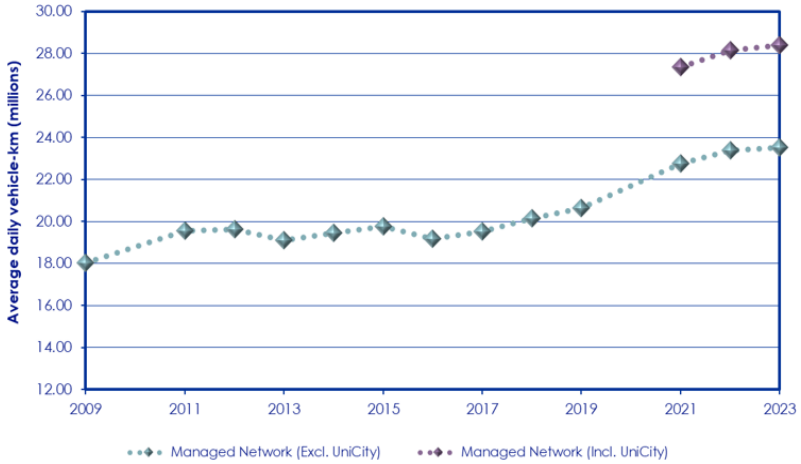


Table 4-5: Traffic categories for 2023 (including UniCity roads)			
Traffic category	**AADT**	**Managed network length km**	**% of managed network**
S0	≤100	7 044	39.2
S1	101 – 300	3 832	21.3
T0	301 – 500	1 220	6.8
T1	501 – 1 500	2 707	15.1
T2	1 501 – 4 500	1 619	9.0
T3	4 501 – 13 500	1 173	6.5
T4	13 501 – 40 000	292	1.6
T5	>40 000	77	0.4
Total		**17 964**	**100.0**

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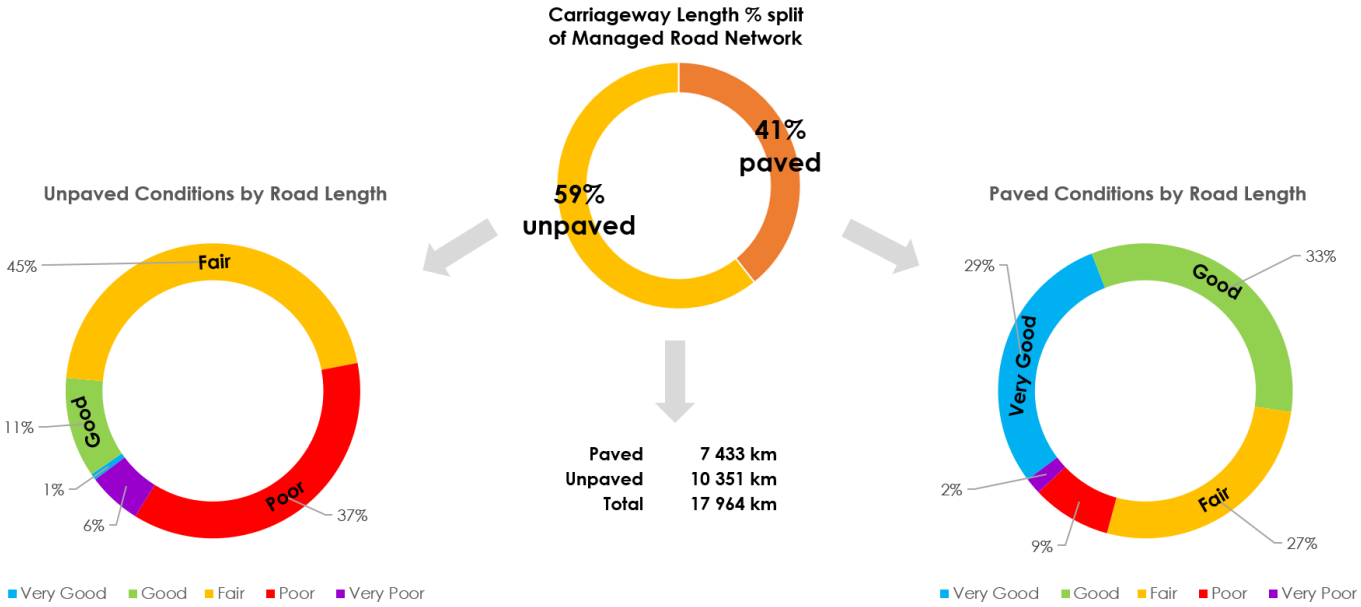
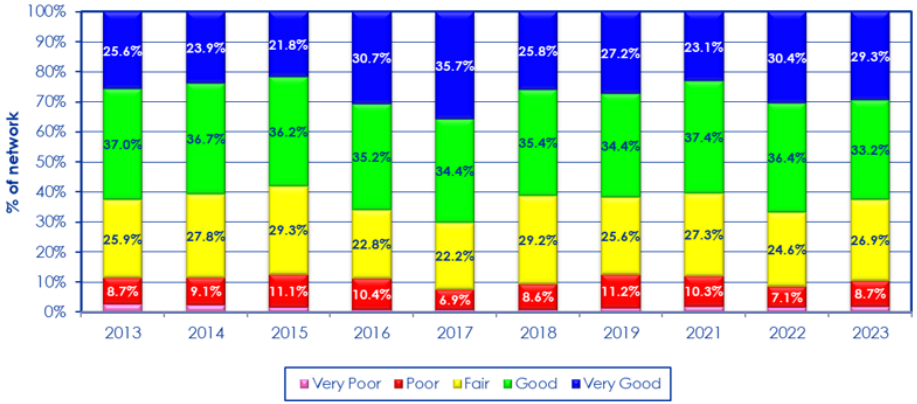
The Provincial Road Network – State of the Assets



**Road conditions: RAMP 2025/26 to 2034/35

Current trend condition on paved road network



Roads operating within their design life

Roads exceeding their design life

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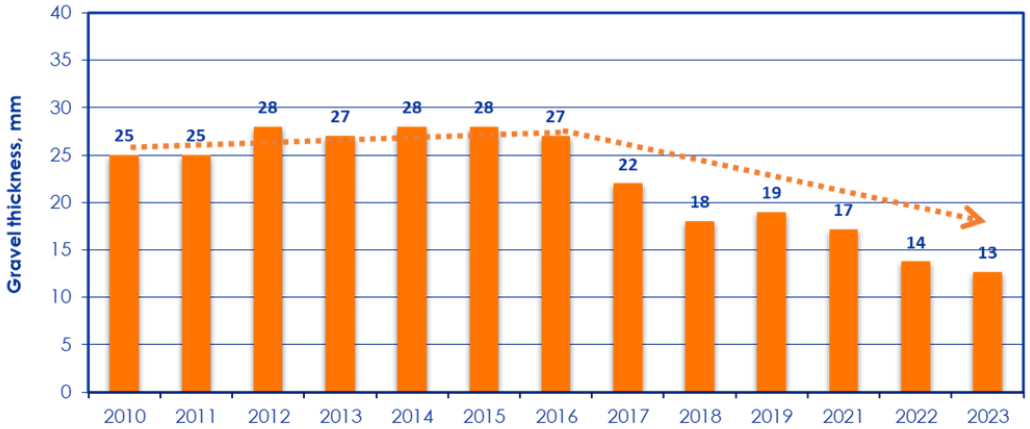
Current condition – unpaved road network



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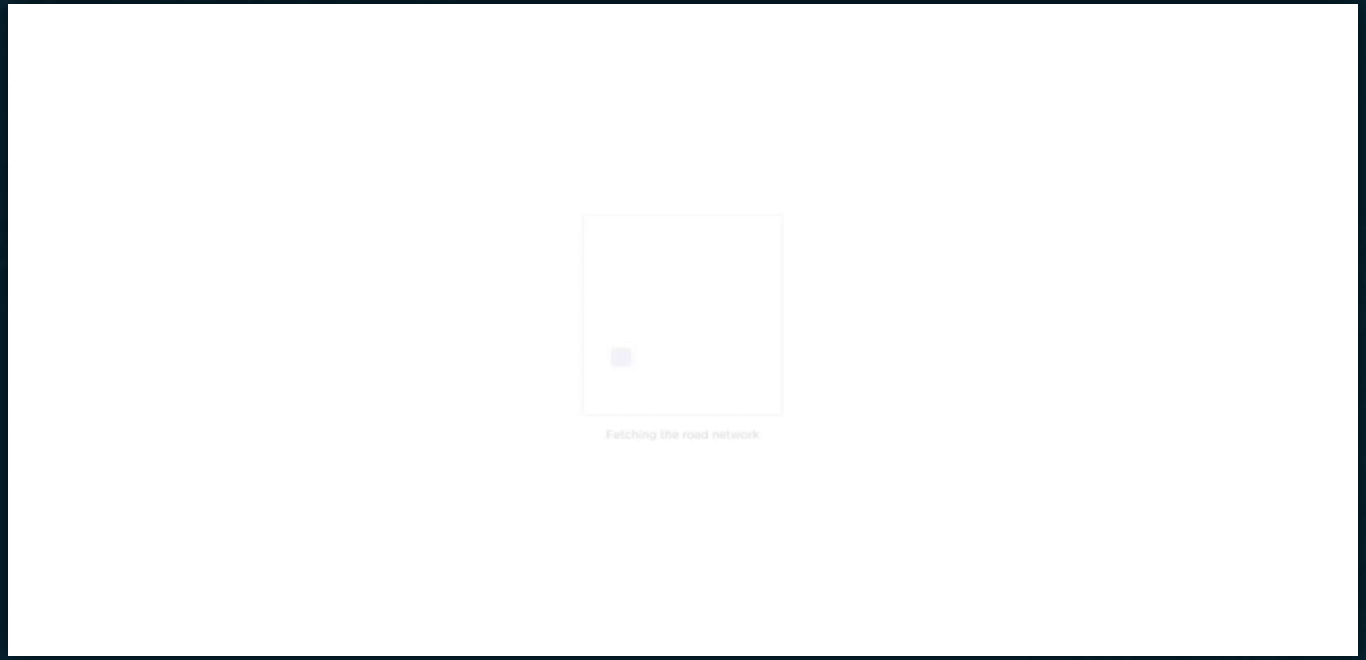
KM Viewer: Explainer video



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Optimisation Model and Maintenance Backlog

Asset Management Objectives

The Asset Management Objectives were derived from the Branch's two Strategic Objectives:

Strategic Objectives

- Enable an efficient (& effective) road-based transport infrastructure network through maintenance and repair
- Support economic growth and empowerment through road-based transport infrastructure investment

Asset Management Objectives

- **Maintain road assets** to ensure that the road is **safe and smooth** for private motorists, road-based public transport and commercial vehicles
- Optimise **asset preservation** over the long term
- Prioritise road asset investments that **support economic growth** on the economic road network
- Improve road asset performance to **reduce agency and user costs**
- Provide new asset capacity where demand exceeds capacity

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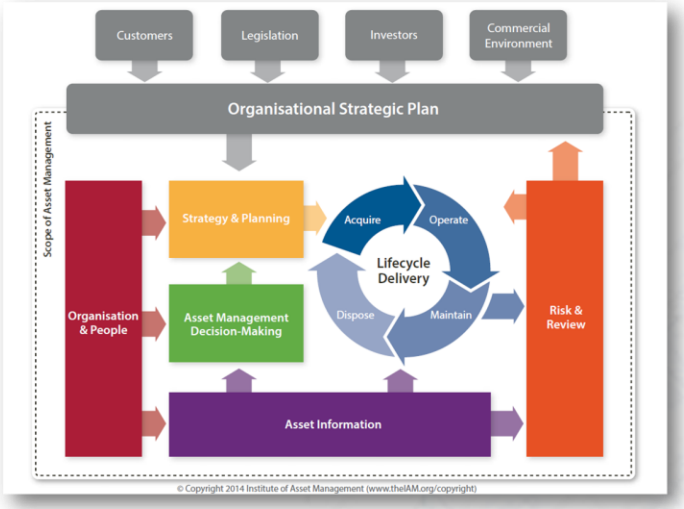
How do we Achieve Asset Management Objectives?

- Gaining an understanding of the Big Picture and ISO55000, etc.
- Asset management translates the organisation's objectives into asset-related decisions, plans and activities, using a risk based approach and enables an organisation to realise value from assets in the achievement of its objectives
- The framework within which the Branch currently operates to achieve its strategic objectives using Deighton Total Infrastructure Management System (dTIMS)



*The Institute of Asset Management

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Deighton Total Infrastructure Management System

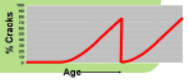
LIFE CYCLE COST ANALYSIS:

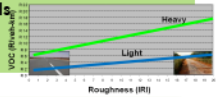
Input

Data

- **Network definition**
  
- **Current and Historic Condition data**
  - Visual survey
  
- **Traffic data**
  
- **Pavement data**
  

Information

- **Pavement performance models**
  - HDM4
  - Aset Value
  

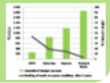
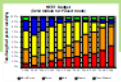
- **Vehicle operating cost models**
  

- **Maintenance**
  - Treatments
  - Triggers
  - Unit costs
  - Policies
  
- **Budgets**
  - MTEF
  - Any other fund level
  

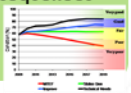
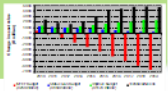
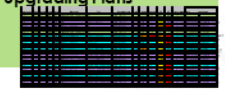
Life cycle cost analysis with dTIMS

Output

Decision support

- **Efficiency frontier**
  
- **Support to planning and budgeting**
- **Funding need**
  
- **Determine effect of maintenance policies on road network**
  

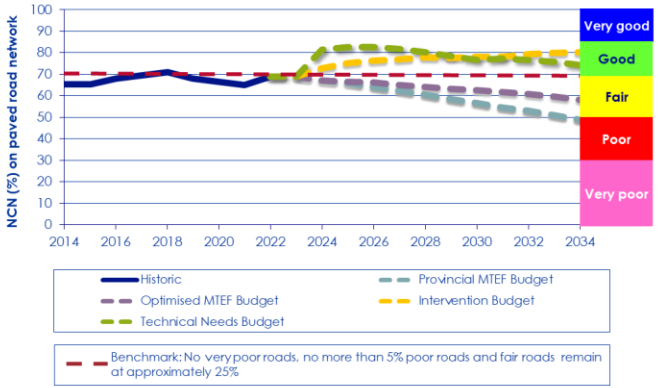
Reporting

- **Condition consequences**
  - HDM4
  - Aset Value
  
- **Asset Value Lists And Report**
  
- **Maintenance, Rehabilitation and Upgrading Plans**
  
- **Geographic maps**
  - MTEF
  - Any other fund level

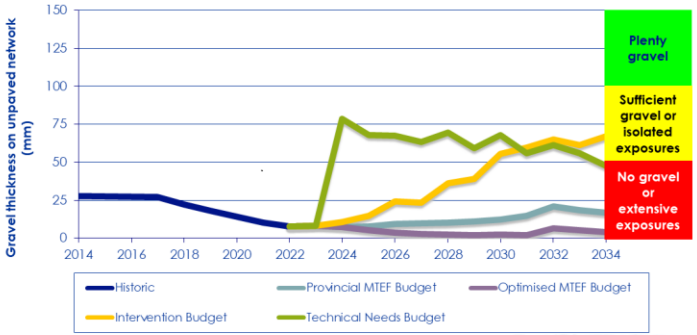
Road Maintenance Backlog

- The Optimisation Model is updated annually based on latest available condition data.
- The current MTEF is insufficient to maintain the current condition on the paved and unpaved network.
- The reduced MTEF funding will further decrease the condition to unacceptable levels.
- To maintain current levels of service, different budget scenarios must be considered.

Paved Network modelling (Network Condition)



Unpaved Network modelling (Gravel thickness)



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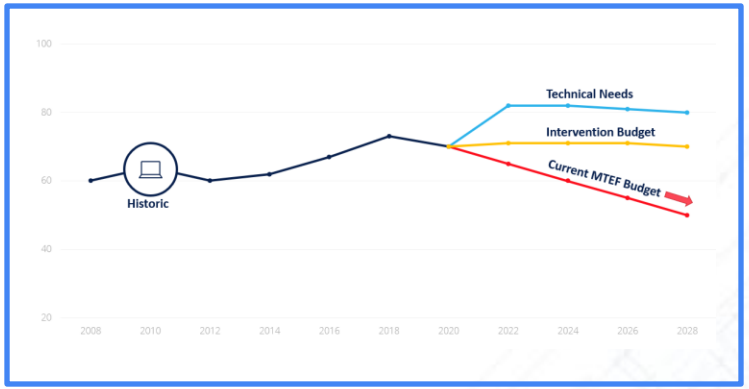
The Road Maintenance Backlog

Technical Need Backlog

For the road network to be in good to very good condition, the immediate need as follows:
5 705 km spot regravel (R530mil)
3 860 km regravel (R3 545mil)
355 km gravel road surfacing (R4 050mil)
2 260 km reseal (R4 045mil)
2 240 km rehabilitation (R19 000mil)



R 32 000 million backlog

(2024 estimate)

To eliminate this technical need backlog over the next 5 years in theory would require an additional R 7 135 million over and above the current R 4 150 million allocated to Transport Infrastructure i.e.

R 11 285 million per annum towards capital expenditure and administration

Too high an expectation

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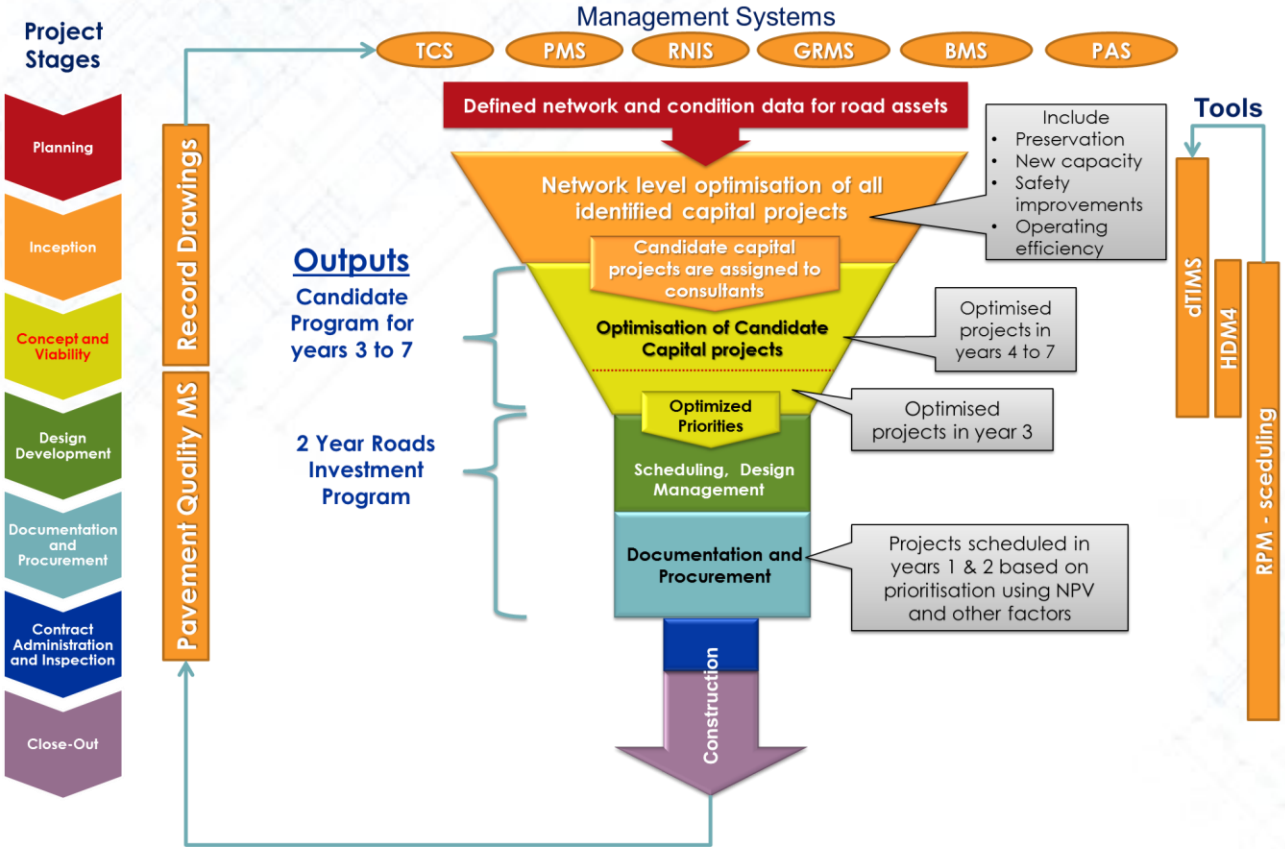
Funnel analogy – the process of resource allocation



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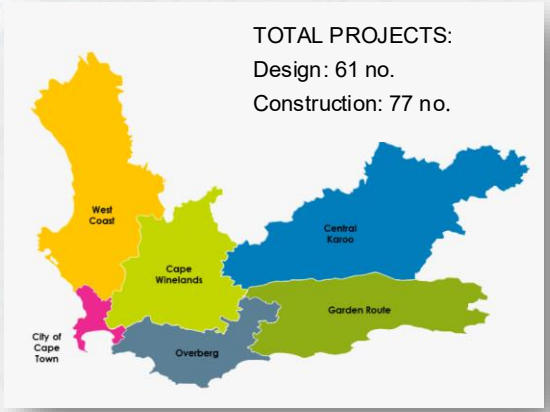
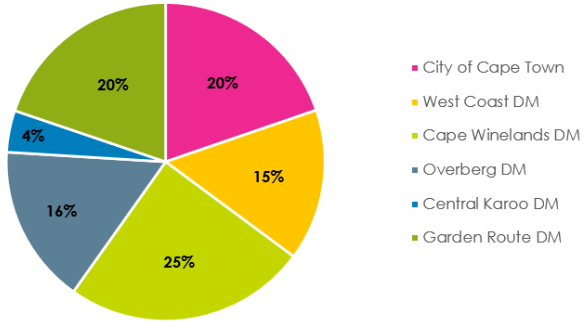
Projects per District Municipality, in current MTEF

Construction projects include DM upgrades and programme package projects. It also includes all projects in Defects Liability Period.



MTEF expenditure split between DMs



City of Cape Town (Unicity area)
- Design: 11 no.
- Construction: 14 no.
- Total MTEF allocation: R 1 792million

Cape Winelands DM
- Design: 13 no.
- Construction: 18 no.
- Total MTEF allocation: R 2 240million

Central Karoo DM
- Design: 3 no.
- Construction: 4 no.
- Total MTEF allocation: R 385 million

West Coast DM
- Design: 7 no.
- Construction: 11 no.
- Total MTEF allocation: R 1 399 million

Overberg DM
- Design: 12 no.
- Construction: 18 no.
- Total MTEF allocation: R 1 466 million

Garden Route DM
- Design: 15 no.
- Construction: 12 no.
- Total MTEF allocation: R 1 797 million

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Project Pipeline

Alternative Models of Financing: definition and types

Public Finance

Government revenue through taxation and other means to fund public expenditures.

Private Finance

Borrowing from the private sector through various loan structures for projects.

Project Finance

Financing infrastructure through public-private partnerships and special purpose vehicles.

Concessional Finance

Support from development institutions offering lower-cost loans and grants.

Blended Finance

Blended finance is the combination of catalytic capital from public or philanthropic sources with private, development, and multilateral financing to increase investment in public goods and services, drive sustainable development, and share risk. By strategically leveraging limited public funds, it mobilizes finance from outside the fiscus to bridge funding gaps for high-impact projects.

Types of Alternative Infrastructure Financing models

- Public Private Partnerships
- Infrastructure bonds
- Sovereign Wealth Funds and Pension Funds
- Revenue-Based Financing
- Blended financing
- Asset recycling
- Land swops
- Concessional financing
- Impact investing
- Crowdfunding

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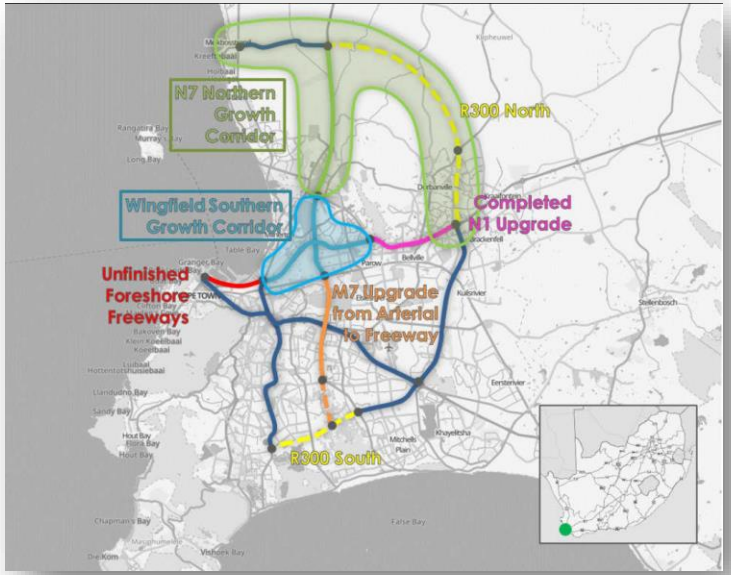
Large Road Infrastructure Projects

1. Wingfield Southern Upgrade Scheme
2. R300 Extension
3. N7 to Freeway Standards

N7 Northen Growth Corridor

- Projects bringing:
  - Catalyst project to the region
  - Inclusive opportunities
  - Enabling environment
  - Sustainable regional socio-economic development
  - Closing the widening gap in the provision of high-quality, efficient infrastructure.
  - Link numerous suburbs, allow cross movement, support mobility and interconnectivity.



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Wingfield Project

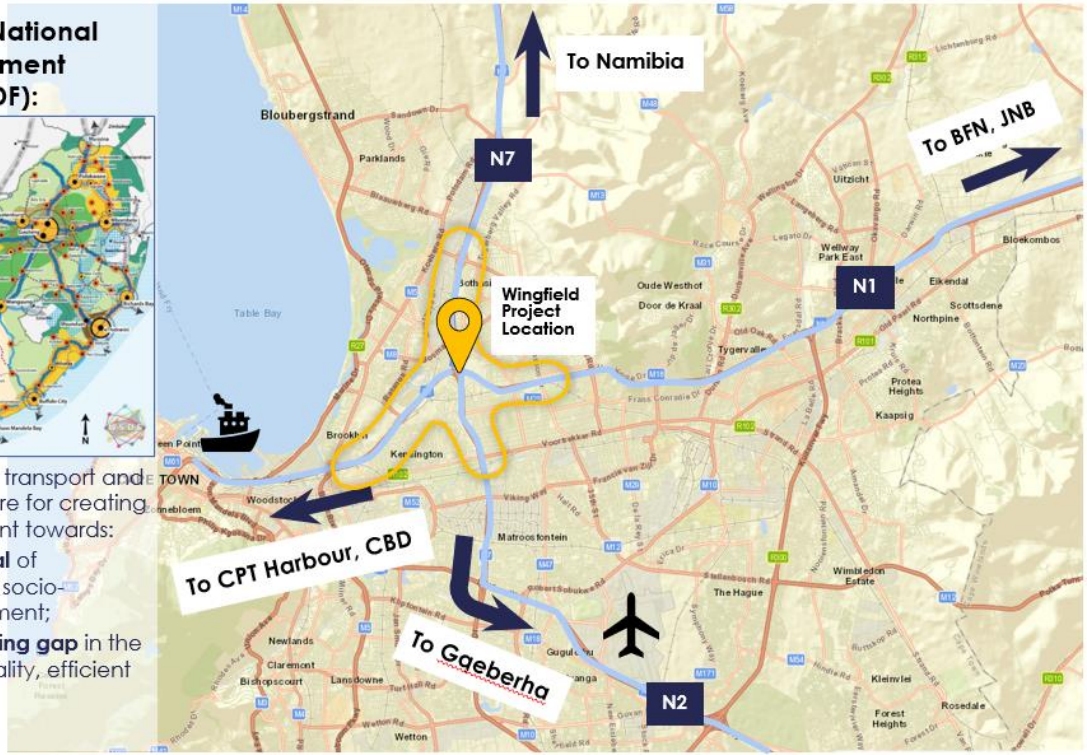
Project Location

Node serving routes of national significance

Aligns with the National Spatial Development Framework (NSDF):

"The NSDF identified transport and logistical infrastructure for creating enabling environment towards:

1. **Achieving the goal** of sustainable regional socio-economic development;
2. **Closing the widening gap** in the provision of high-quality, efficient infrastructure



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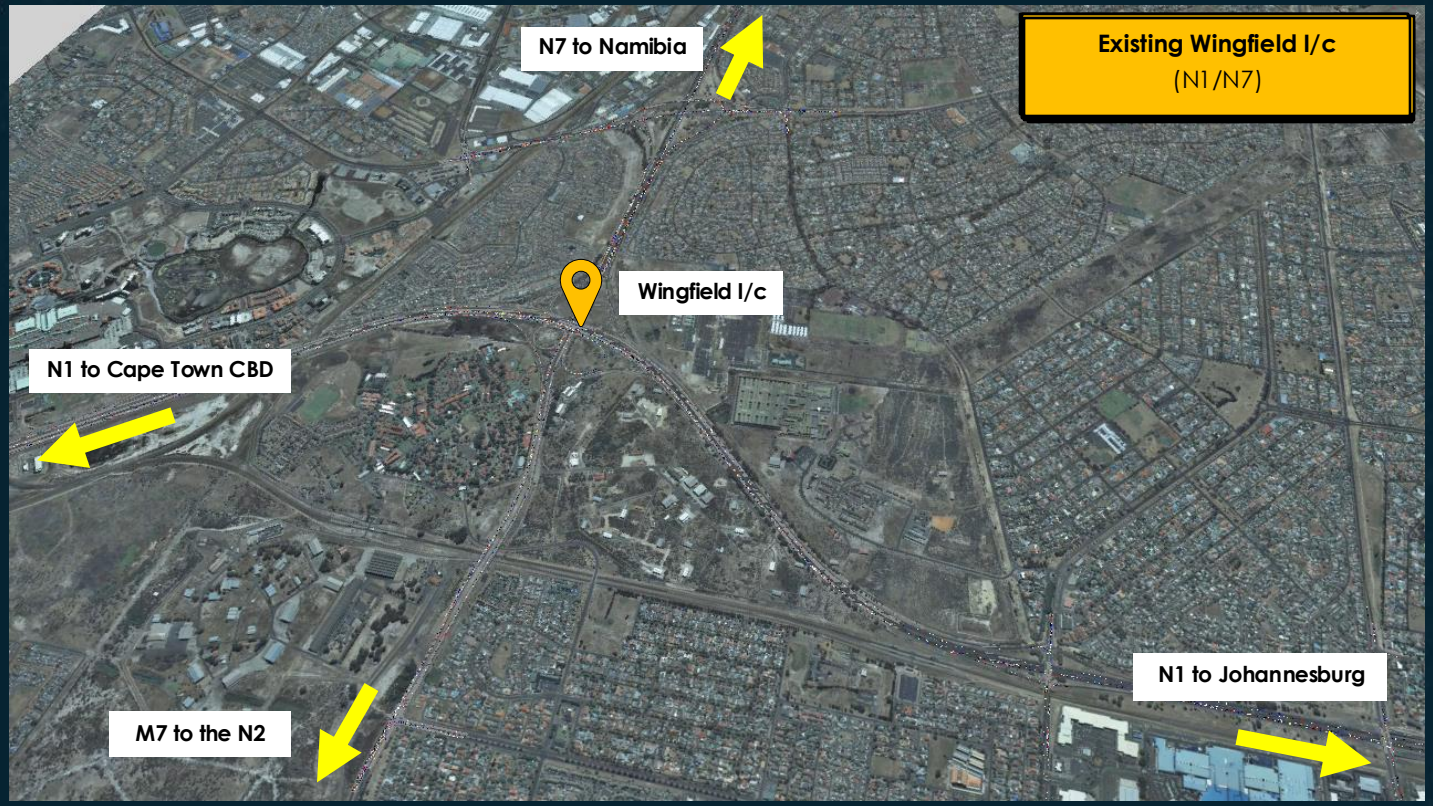
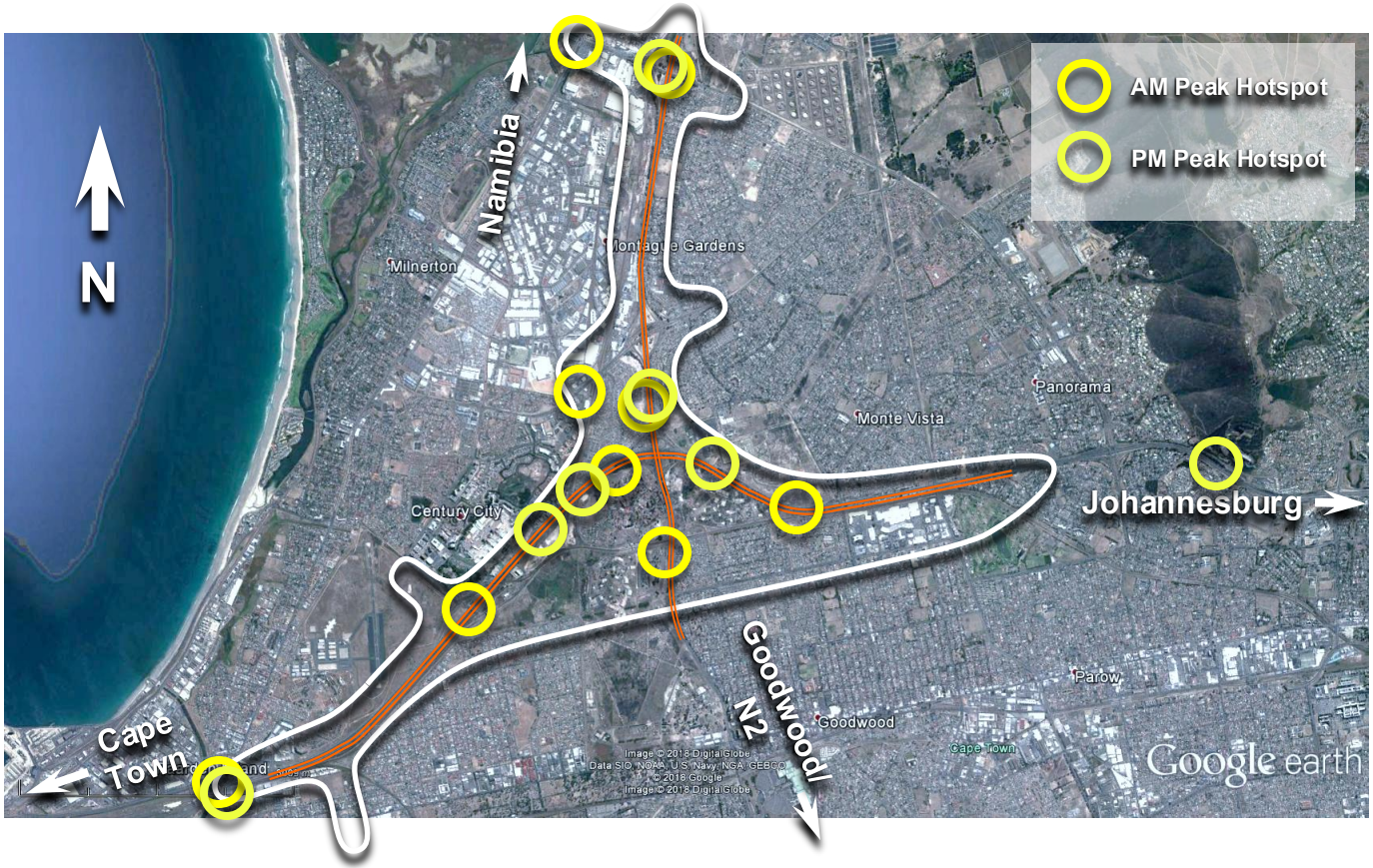
Wingfield AM Peak Status Quo



AM and PM Peak Problem Areas



Modelling results: Now and then

Current peak hour average speed:

44 km/h

On a trip which should take 60mins to complete, the Capetonian commuter spends 101mins. That equates to almost one month's working hours lost to travel time per commuter each year! – *TomTom Index*

Modelled peak hour speed in 2032 scenario, with no intervention:

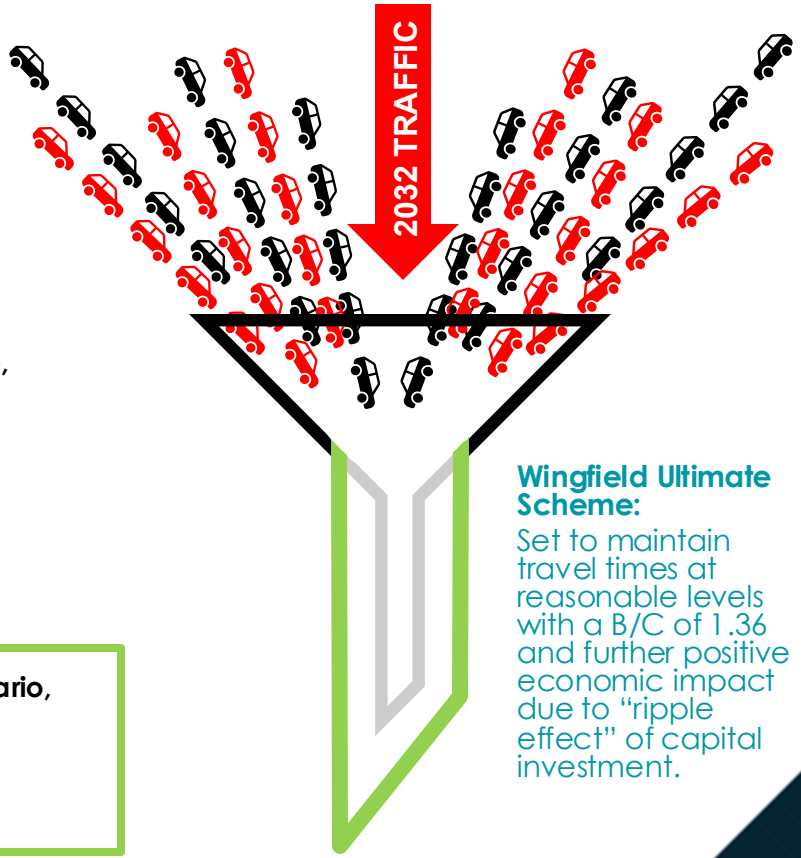
14 km/h

This includes modal shift toward public transport and a fully operational Metro Rail.

14 km/h = GRIDLOCK in peak direction.

Modelled peak hour speed in 2032 scenario, with intervention:

51 km/h



Wingfield Ultimate Scheme:

Set to maintain travel times at reasonable levels with a B/C of 1.36 and further positive economic impact due to "ripple effect" of capital investment.

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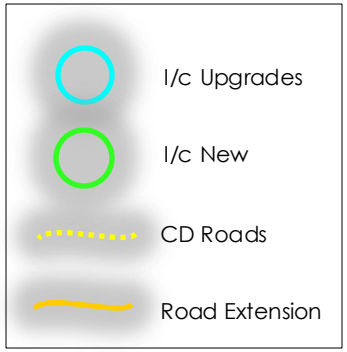
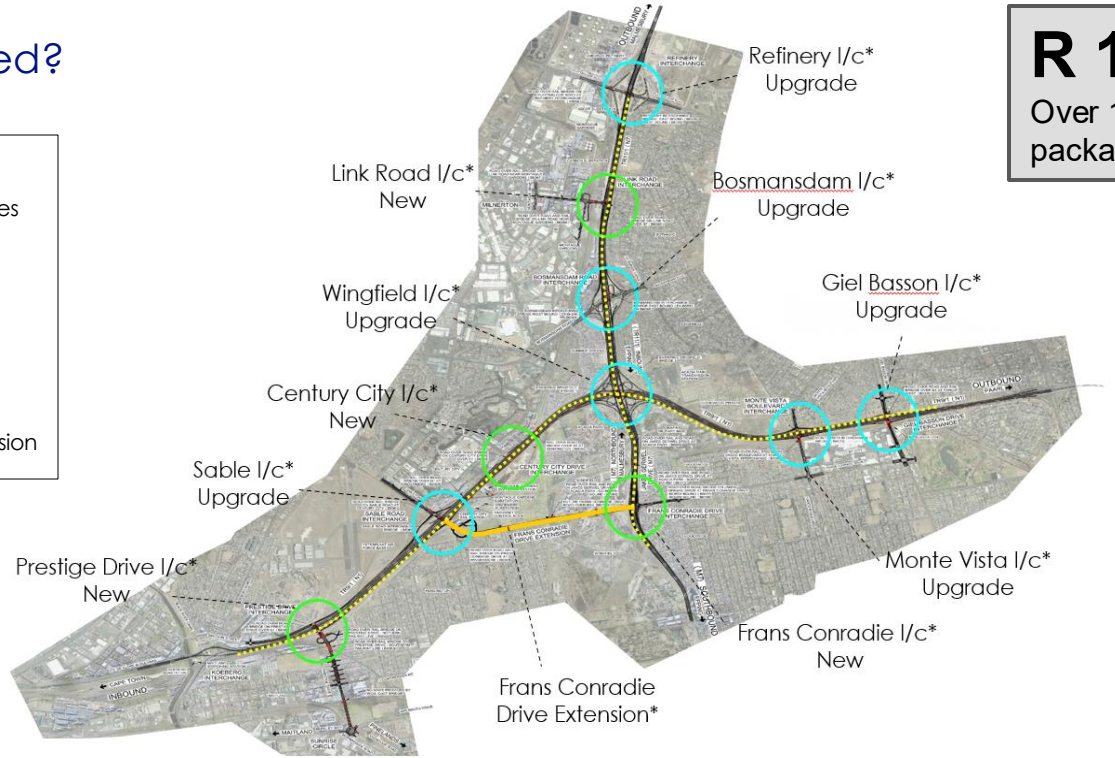
Large Infrastructure Projects – Wingfield Project

What is planned?





R 11 billion
Over 12 implementation packages

In line with the current application criteria, **Refinery** have already been completed and there is funding contribution from the private sector development for **Century City I/C** (or similar infrastructure)

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Wingfield Project – Progress

- 12 Implementation packages estimated at R11 Billion (including VAT, 2021 estimate).
- The 1st package reached practical completion in March 2024 (Refinery Interchange Upgrade) and the estimated cost was R255 million (including VAT).

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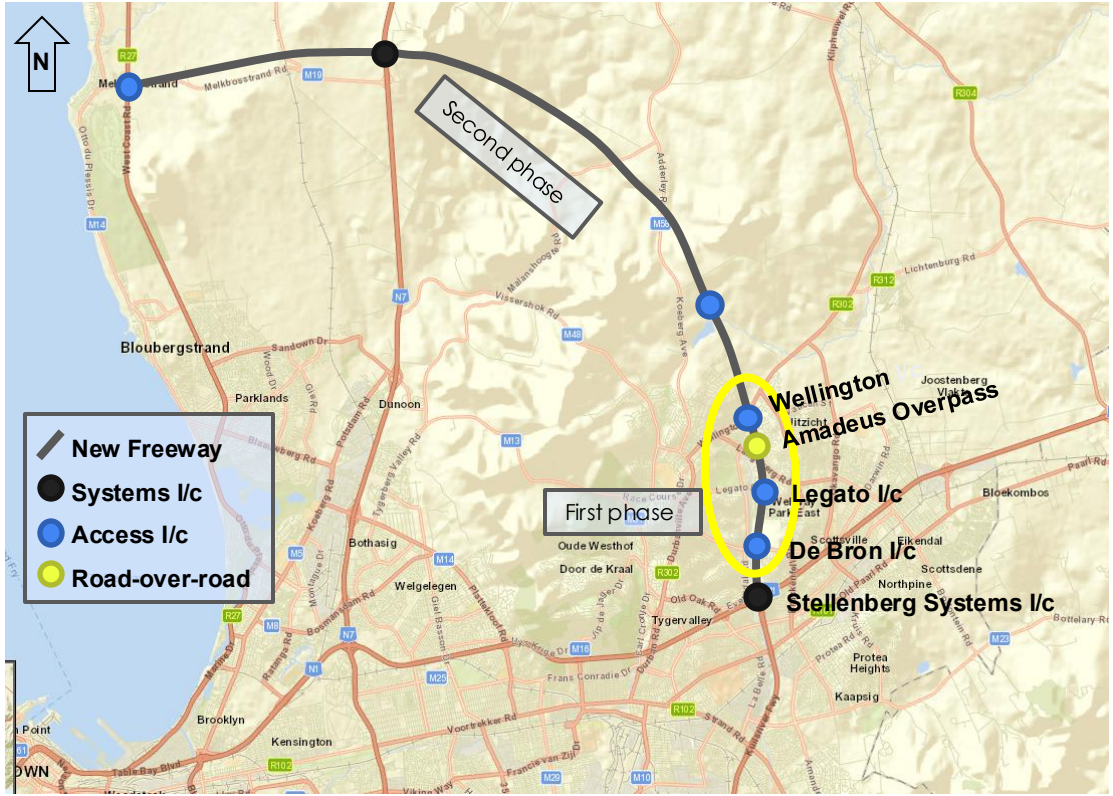
R300 Extension

Large Infrastructure Projects – R300 Extension

What is planned?



First phase
R 1.05 billion

Investment and support for Phase 1 will unlock the Phase 2 of the R300 towards the N7 and R27 – Melkbosstrand

SANRAL committed to complete the Stellenberg I/c and N1 realignment.

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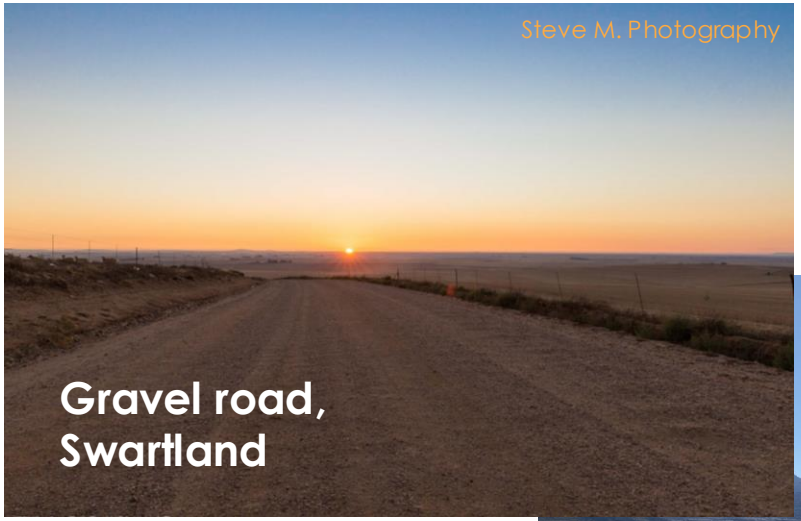
Upgrade of the Gravel Road Network

The Provincial Road Network in pictures



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Key Challenges – infrastructure issues

- Deteriorating condition of the road network to below acceptable levels of service
- Effects of climate change (Floods etc)
- Limited supply of gravel wearing course
- Under-funding hampers the planning and execution of routine and periodic maintenance and upgrading of gravel roads, leading to faster deterioration and increased long-term costs.
- Poor gravel roads compromise safety through accidents and slow emergency response.
- Limit economic opportunity by increasing transport costs and isolating communities from jobs and markets.

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Vision and Goals

- To surface up to 50% of the critical gravel road network across the Western Cape — unlocking access, stimulating local economies, and building inclusive, climate-resilient communities.
- Key Goals:

  ✅ Universal Access: Ensure that every household, school, clinic, and business in targeted areas can be reached reliably — in any weather, at any time.

  🚧 Infrastructure for Development: Lay the groundwork for future growth corridors, new housing developments, and integrated service delivery.

  💼 Job Creation & Skills Development: Use road construction and maintenance as a platform for employment, contractor development, and technical upskilling — especially for youth and SMMEs.

  🌱 Sustainability and Climate Resilience: Build roads that last — with drainage, erosion control, and green design principles built in.

  🗺️ Spatial Transformation: Reduce inequality by improving connectivity between historically underserved areas and the urban economy.

  💡 Catalytic Investment: Position roads as the first step in attracting further private and public sector investment — in housing, retail, transport, tourism, and logistics.

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Upgrade of Gravel Roads – Connection things/places/business

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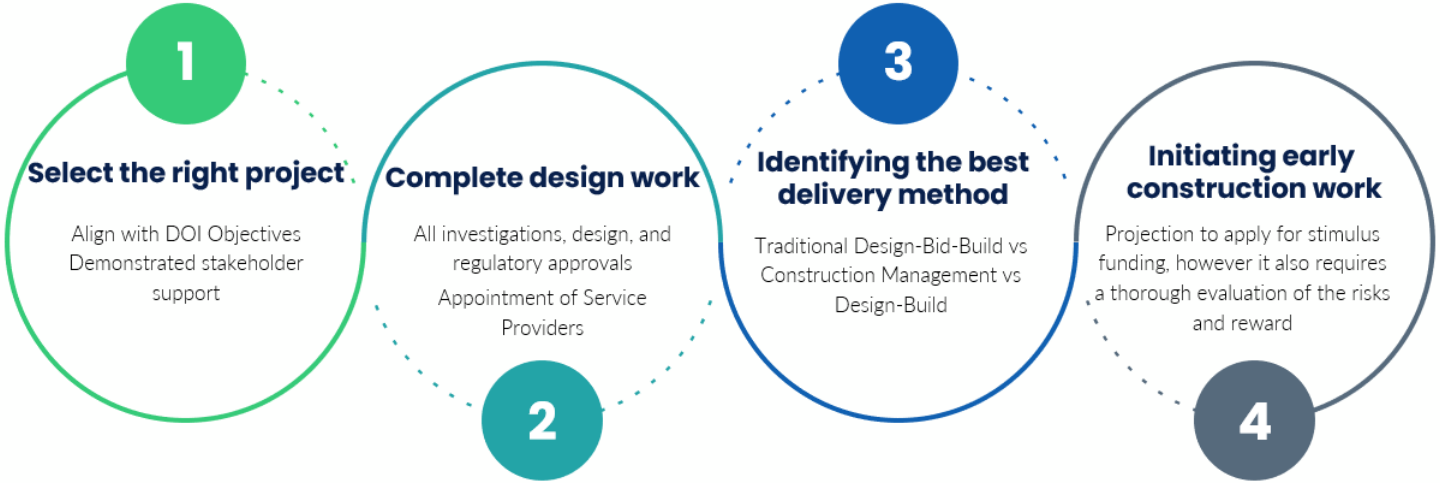
Work Ahead for Upgrade Gravel Road Scheme



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Work Ahead for Upgrade Gravel Road Scheme

Divisional Road 1797,
Redford Road

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Growing and creating Partnerships

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INFRASTRUCTURE South Africa

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12th Annual

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Procurement Conference

THANK YOU!

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