

2019
INTEGRATED REPORT
VOLUME 1



Building
SOUTH AFRICA
THROUGH BETTER ROADS



Integrated Report 2018/19

The South African National
Roads Agency SOC Limited

Reg no: 1998/009584/30



The South African National Roads Agency SOC Limited

Integrated Report 2018/19

About the Integrated Report

The 2019 Integrated Report of the South African National Roads Agency (SANRAL) covers the period 1 April 2018 to 31 March 2019 and describes how the agency gave effect to its statutory mandate during this period.

The report is available in printed and electronic formats and is presented in two volumes:







- **Volume 1:** Integrated Report is a narrative and statistical description of major developments during the year and value generated in various ways.
- **Volume 2:** Annual Financial Statements contains the corporate governance report in addition to the financial statements.

In selecting qualitative and quantitative information for the report the agency has striven to be concise but reasonably comprehensive and has followed the principle of materiality – content that shows the agency's value-creation in the short, medium and long term.





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6.1 Introduction

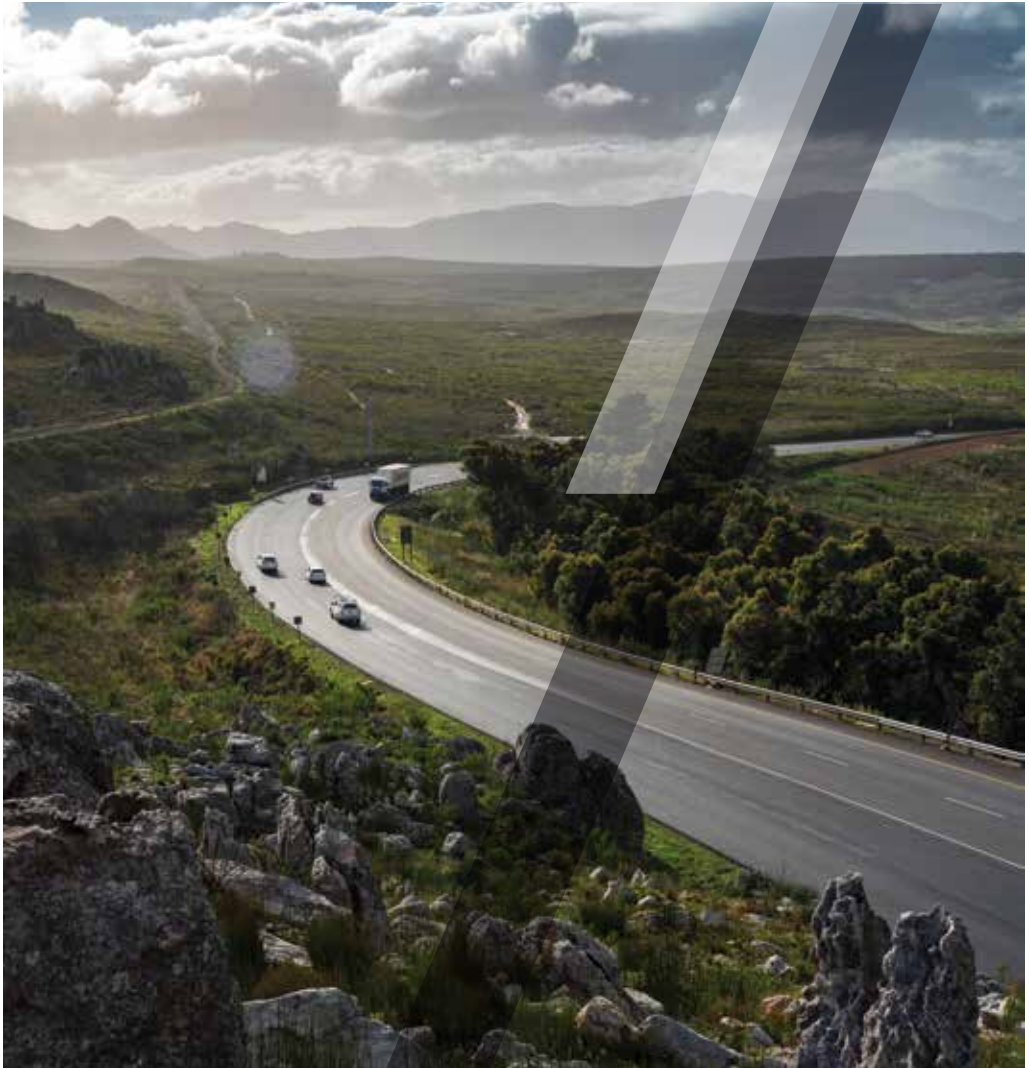
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Chairperson's Report



SANRAL was one of the first state-owned entities established by the democratically elected government and was given the mandate to manage the country's extensive national road network.

The value of a well-planned and well-maintained world-class primary road system was clearly realised at the time. It remains a major catalyst for inclusive growth with an impact on every sector of the country's economy - from agriculture and manufacturing to tourism and small business development.

Twenty-five years later SANRAL manages a primary road network of 22 214km. In our long-term strategy – Horizon 2030 – we identify one of the greatest challenges to the

sustainability of the agency as balancing the gradual expansion of the national road network within a constrained funding envelope. Funding constraints for road construction worsened during the past financial year because of a downturn in the global economy and a stagnant South African economy, both of which have also dampened the overall outlook of the construction and related sectors.

Additionally, low levels of payment of e-tolls have led to the National Treasury approving the reallocation of R5.75bn from the non-toll portfolio to the toll portfolio. This resulted in a 27% reduction on expenditure in the construction of road infrastructure. The consequential slowdown in road construction has been further exacerbated by delays in the process of securing clarification of National Treasury's supply chain reform processes related to the PPPFA.

The resolution of the e-toll non-payment impasse is therefore absolutely critical and crucial for the future of our roads and the country's economy. Our Minister's commitment to chart a firm way forward on e-tolls is thus comforting to all who recognise the centrality of adequately funded roads for real and sustainable socio-economic growth and development.

The future challenge is to manage – and expand – the current network and ensure that it continues to contribute to balanced growth throughout the country. Both urban and rural communities are dependent on the quality of the national road system to facilitate the movement of people and products and ensure the efficient delivery of vital government services to communities.

The importance of SANRAL will continue to grow, but only if the network growth is capped, at 25 000km according to our objective assessment, and the funding of roads is resolved. In this regard, the agency can simply not rely solely on taxpayer funding. Toll must

remain on the table as an option if SANRAL is to achieve its stated purpose of delivering a safe, efficient, reliable and resilient national road transport system for the benefit of all the people of South Africa.

SANRAL sets an example of what government wants to achieve in the transformation of state-owned entities and the creation of a capable state. The governance of SANRAL was again a highlight in the year under review with a record 15th unqualified audit report achieved.

During the year, SANRAL incurred irregular expenditure of R179m following the purchase of a building for the accommodation of staff. The Assets and Liabilities Committee (ALCo) of the Board approved the purchase, which was subsequently ratified by the Board.

The Auditor-General (AG) deemed that the Charter of ALCo which details its functions did not explicitly state that ALCo was authorised to approve the purchase of property with improvements, and the transaction should have been approved by the Board. We acknowledge the fact that ALCo's decision was based on the Board's mistaken view that its delegation to ALCo went as far as allowing the latter to approve the acquisition of property, for Board ratification.

The Board notes the AG's concern and has undertaken to replicate, in greater detail, the powers it has delegated to ALCo. It has also undertaken to ensure that transactions of key implications are specifically and explicitly approved by the Board rather than broadly ratified with the minutes of SANRAL's committees. With specific reference to the said transaction itself, the Board has further advised the AG that it will conduct an internal audit thereon, with a view to seeking National Treasury condonation.

Finally, while the Board is disappointed at this irregular expenditure as identified by the AG, it is encouraged by the lessons it has learnt

therefrom, and by the fact that had it not been for that lapse, this year's irregular expenditure would have been lower at R240m, than last year's R334m.

This signifies some progress towards our stated mission to take SANRAL to a clean audit opinion by 2020/21.

The unqualified audit is by no means the only highlight. Another major highlight is that 201 SMMEs benefited from our community development projects. That is 23% more than the previous year. All of these are black-owned.

While we celebrate this, our long-term plan is that every project will have community development sub-projects which will be executed by SMMEs from the surrounding community. The intention is to reach out to communities and create platforms to train, mentor and develop new businesses across the spectrum, including suppliers of materials, contractors and consultants. The development of contractors will not be confined to lower CIDB grades, but include those up to grade 9. As these contractors move up the ladder, the type of development initiatives will be different – from basic business training to strategy setting and the positioning of their entities on growth trajectories.

Beyond transformation and empowerment through skills development, SANRAL has decided to ensure greater participation and ownership by the previously disadvantaged throughout the road construction value chain. In line with government's programme of producing black-industrialists the Board has, therefore, mandated management to evolve a special project for the targeted development of black industrialists in those areas of the road construction value chain where black people are currently un- or under-represented.

SANRAL also continues to take the lead in transforming the industry from within its own walls. Of the 127 engineers in the organisation's

employ, 52 – 41% - are black. Together with coloured and Indian engineers, this number increases to just under 60%, or 76. Greater focus must now be paid to the magnitude of the projects led and managed by these engineers.

This shows that continuous strides are made towards diversity to better reflect the demographics of our country in the sector. This is done within a context where staff turnover has been limited to a rate of just 5.44%, balancing the experience and wisdom of long service with the innovation and energy of younger employees. SANRAL remains committed to skills transfer at every level of the organisation. For that to continue effectively, it is paramount that skilled and experienced specialists are assigned mentorship and coaching roles across various portfolios in the organisation.

Transformation is also being driven by SANRAL's Technical Excellence Academy where over 50 candidate engineers, technologists and technicians have been assisted since 2014. In 2018/19 there were 35 candidate engineers and technologists. The number included several who had held bursaries from SANRAL and the Department of Transport for their university studies.

However, gender parity is not yet where it needs to be with 81% of the candidates being male. It bodes well for transformation in SANRAL that 75% of the total is African, 9% coloured, 9% Indian and 6% white as these bursars constitute part of the skills supply pipeline for the company.

As the focus of country turns towards the massive investment in infrastructure championed by the President, our national road network will continue to be the catalyst for growth and socio-economic transformation. As SANRAL we are poised to continue our sterling contribution towards this national priority.

I would like to convey our thanks and appreciation to the previous and current Board, the CEO (Mr Skhumbuzo Macozoma),

our executives, management and staff for their dedication to qualitatively deliver on the mandate and work of SANRAL.

On behalf of the Board, I would also like to thank the former Minister of Transport, Dr Bonginkosi Blade Nzimande, MP and his then deputy, Ms Sindisiwe Chikunga, MP and their staff for their steadfast support and guidance during their tenure as the executive authority of SANRAL. In the same breath I would like to welcome the recently appointed Minister of Transport, Mr Fikile Mbalula, MP, and his deputy, Ms Dikeledi Magadzi, MP, and thank them for the clear path they are charting for us.

Without the support of the Department of Transport, the National Treasury, the Auditor-General and Parliament we cannot achieve our objectives and fulfil our mandate. Their invaluable contribution to our success is therefore also highly appreciated.



Themba Mhambi
CHAIRPERSON



Chief Executive Officer's Report



The social and economic climate prevailing in 2018/19 presented numerous challenges to SANRAL in its pursuit of its mandate to preserve, improve and develop the network of national roads that are so critical to our country's growth prospects.

With a reduced allocation of R12 369m from the fiscus and continued financial pressure on the toll portfolio due to the sustained under-collection of the Gauteng Freeway Improvement Project's (GFIP) e-toll fees, SANRAL's executive management had to consider carefully how to utilise existing resources during this relatively lean period. We were aware that our decisions during this time would determine how well

we would be positioned to take advantage of opportunities when the financial situation recovers.

Our first concern was to keep our programme of construction on toll and non-toll roads moving steadily forward with as little delay as possible and to protect our road assets by sustaining essential road maintenance work. How we did so is described in more detail below.

It was also imperative to resist sacrificing or putting "on hold" our commitment to social justice and economic transformation simply because redistribution may be harder to implement when the economic pie is shrinking. It was equally important to continue our investment in human capital for a future construction sector, in road safety and in the physical development of rural communities, and to honour our obligations to minimise the impact of roads on the natural environment.

In accordance with Horizon 2030, we prioritised the building of our business around a sturdy pillar of respectful stakeholder relations. We are committed to consensus-building in the planning and construction of roads and to facilitating economic participation in an open and inclusive manner.

The sporadic (sometimes violent) protests we have witnessed at a number of our construction sites in the recent past have been driven by demands for access to SANRAL contracts and work opportunities. Like other popular protests, they have several dimensions. There is at times an element of corrupt coercion, while in other instances we appear to be witnessing burning frustration with a deeply unequal society.

At SANRAL we will fight corruption and the erosion of honest tender administration at all costs. But we willingly play our part in creating a more inclusive, just and equal country – which is also, ultimately, a more stable country. We must

help create the conditions for our own long-term sustainability – we cannot sit back and expect others to do the job.

Outlined below are some features of the agency's work during the course of the last year:

Our **investment in road development, improvement and maintenance** for the year was R12 680m – 19% lower than the preceding year. This reduction was partly planned due to constrained income. But it was also affected by tender delays attributable to the combined effect of supply chain reforms initiated by National Treasury and the introduction of the Preferential Procurement Policy Framework Act (PPPFA) in 2017, as well as project interruptions due to financial difficulties of contractors.

The imperative of safeguarding the **solvency of the toll road portfolio** had an impact on funding available for non-toll roads. An amount of R5.75bn was transferred from the agency's government grant to the toll portfolio to offset the shortfall due to non-payment of tolls by many users of Gauteng freeways. Servicing of loans for the GFIP is a non-negotiable responsibility. Good management of toll roads is equally imperative given the massive traffic volumes they carry and their critical contribution to economic activity.

We accorded high priority to the **protection of existing road assets**. Our spending on routine road maintenance remained roughly consistent with amounts spent in the last two years as these mundane activities are critical in preventing premature deterioration of roads. The average condition of the pavement – measured across the whole national road network – was 72.37% in 2018/19, only marginally lower than the scores for 2017/18 (73.32%) and 2016/17 (72.7%).

We strove to achieve a balance between contributing to **rural development** and greasing the wheels of the **urban economy**.

On the one hand, we maintained and improved urban freeway management systems in Cape Town, Gauteng and KwaZulu-Natal that kept traffic flowing and saved lives by attending to more than 77 000 incidents and 10 600 collisions.

On the other hand, three-quarters of spending on capital projects and road maintenance was devoted to non-toll roads, which tend to carry less traffic and traverse more remote rural areas. The green fields section of N2 Wild Coast Route will go where no road has gone before, drawing isolated and impoverished parts of the Eastern Cape into the economic mainstream. Work on this section got going in earnest in 2018/19, with one mega-bridge under construction and work on the second initiated.

The current reporting year also saw the first measures to implement the **Transformation Policy** launched in 2017.

SANRAL has always used its contracting power to enable black contractors to participate in the construction industry. The black empowerment agenda adopted by SANRAL had the advantage of affording emerging contractors active involvement in the construction sector (rather than the mere acquisition of shares). It was also broadly based, favouring small businesses, often from rural areas. But it had limits: black contractors encountered solid barriers to securing major contracts for complex projects – a lack of access to capital and difficulties in purchasing equipment and building the expertise required.

At SANRAL we decided to **leverage partnerships** with important role players in the construction industry to overcome these barriers – if you like, to break the asphalt ceiling that black contractors had hit. We are pleased to say the first four partnerships in the form of MoUs were concluded during the year and systems have been created within our offices to enable contractors to utilise the facilities created by these partnerships for

the purchasing equipment and provision of mentorship.

At the same time, our existing policy of **affirming black contractors** through the tendering system delivered more opportunities than in previous years. About 71% of contracts, representing 61% of total contract value, were awarded to black-owned companies. We were especially encouraged to note how black women have cast aside the gender bias of this industry: fully 25% of total contract value was secured by companies owned by black women.

However, the value of actual work performed by SMMEs and the number of **work and training opportunities** were affected by the number of work projects available on the ground at the time. About 10 000 fewer work opportunities were created than in the previous year and work periods were of shorter duration. The human impact of a reduced activity in national road construction stretches way beyond road users to impoverished households in many hidden villages.

Other aspects of the agency's social investment fared better. We allocated the highest amount yet – nearly R25m – to bursaries for staff members and university students studying engineering and related fields and **scholarships** for high school learners performing well in maths and science. This programme is strongly geared to the goal of improving racial and gender equity in the sector. Our **road safety** education programme reached approximately 200 000 learners and we continued to fund mass media campaigns to improve road safety.

Developments during the year highlighted a number of concerns and risks.

Chief among these was a sense of urgency about developing the **Integrated Funding Model** that will diversify sources of income and be more resilient than the present twin-track approach of a government-funded non-toll road portfolio and a road user-funded toll road network. The existing arrangement will continue

to feature prominently in the Integrated Funding Model but other options will be introduced. Talks with important lending institutions were held during 2018/19 and SANRAL initiated activities to generate income from its assets, including its expertise in road construction and management, and its land and property holdings.

Without sufficient and sustainable funding it is inevitable that the quality of the national road network will suffer and, given the dominance of road transportation in this country, this would have an adverse economic impact. In addition, SANRAL's ability to play a dynamic role in the construction industry and the transformation of this industry depends directly on its power to drive its core mandate.

The financial difficulties experienced during the year by some outstanding construction companies raised the possibility of their demise and an associated loss to the sector of high-level expertise.

Similarly, the traditional role of the construction sector as a generator of jobs for unskilled and semi-skilled work seekers has been seriously eroded in recent times. Until 2018/19 SANRAL was able to swim against the prevailing tide and expand work opportunities, especially in rural areas and for young people. The agency's reversal in work creation in 2018/19 takes a particularly serious meaning when viewed in the context of South Africa's perilous unemployment rate.

The introduction of the long-awaited carbon tax was a timely reminder that SANRAL has a leadership role to play in improving industry practices in terms of emissions and exploitation of non-renewable natural resources. This is a pressing duty that cannot be postponed.

The final major challenge I wish to mention is the building of **consensus about supply chain management** and the opportunities it offers for **inclusive economic growth**. As the model for black economic empowerment has grown more



sophisticated, there have been differences of opinion on the interpretation of the regulations in the PPPFA.

As a result, SANRAL has engaged with National Treasury to clarify ambiguities underlying these differences. Currently the majority of issues raised by National Treasury affecting our tender processes have been resolved and the agency proceeded with advertising of tenders from April 2019.

SANRAL also took significant internal measures to manage this, and related challenges. Much of the growth in our staff establishment in recent years has been precisely to expand and deepen our supply chain management capacity. We have strengthened our stakeholder engagement processes and sustained a vigorous communication programme. Our management team has been available to help calm the waters wherever storms over contracts have erupted. But clearly more work remains to be done and the agency will continue to invest our efforts in this area in the years to come.

The role of the national roads agency is very meaningful, especially in light of its broader economic and developmental contribution. The achievements of SANRAL are tangible and the

employees take pride in their work. But our work is often complex and demanding and, with this in mind, I extend my sincere appreciation to everyone concerned.

We are grateful to the former Minister of Transport, Dr Blade Nzimande, and his former deputy, Ms Sindisiwe Chikunga, for their insight and support during the reporting period.

I am thankful to the Chairperson and members of the board and its committees for the time and attention they devote to the agency. In periods of change, collective wisdom plays an unusually important role.

We look forward to working with the recently appointed Minister of Transport, the Honourable Mr Fikile Mbalula, and his deputy, Ms Dikeledi Magadzi.

Finally, to our managers and staff members who are ultimately custodians of the agency's reputation and track record of performance: thank you for yet another year of service with integrity.

Skhumbuzo Macozoma
CHIEF EXECUTIVE OFFICER



SECTION ONE





1

Our vision, mission and core values **18**

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Company Overview



VISION

Ensuring our national road transport system delivers a better South Africa for all.



MISSION

Our purpose is to deliver a safe, efficient, reliable and resilient national road transport system for the benefit of all the people of South Africa.



PRINCIPAL TASKS

- Plan, design, construct, operate, maintain and rehabilitate South Africa's national roads.
- Generate revenue from the development and management of assets.
- Undertake research and development to advance knowledge in the design and construction of roads and related fields.
- Advise the Minister of Transport on matters relating to South Africa's roads.

Business pillars

SANRAL’s long-term strategy, Horizon 2030, defines four business pillars which serve to integrate its operations. These are:

<p>The Roads Pillar</p>	<p>This consolidates all functions pertaining to the financing, planning, development, improvement and maintenance of national roads. This area of business includes the management of toll roads and the road engineering and maintenance aspects of road safety. There is an emphasis on road solutions that embrace innovative technology.</p>
<p>The Road Safety Pillar</p>	<p>This embraces a holistic approach to road safety, including research and data collection on collisions, public awareness and road safety education, improved road incident management systems, development of engineering standards for safe roads, and strengthening of partnerships for law enforcement.</p>
<p>The Stakeholders Pillar</p>	<p>This pillar focuses on communication activities to build partnerships, manage community expectations of major road projects, and influence public opinion in relation to SANRAL. The pillar lays the foundation for economic participation of small businesses and rural communities in construction projects.</p>
<p>The Mobility Pillar</p>	<p>The focal point is on road infrastructure to enable public transport and inter-modal transport solutions, increase access to strategic locations, integrate regions and facilitate seamless cross-border movement, and enhance urban planning.</p>

The four pillars serve to integrate activities across the agency and deliver different forms of value, as set out in the graphic representation on pages 22 and 23.



Implementation of Horizon 2030: the start of the roads less travelled

The role envisaged for SANRAL in Horizon 2030 is an extension of the role it has played for two decades, with important new emphases and opportunities. It is therefore impossible to isolate a moment when implementation began but important processes unfolded from 1 April 2018.

These included the establishment of a Strategy Implementation Monitoring Committee (SIMC), comprising a cross-section of staff who are well placed to review progress and report to the Executive Committee and the Board.

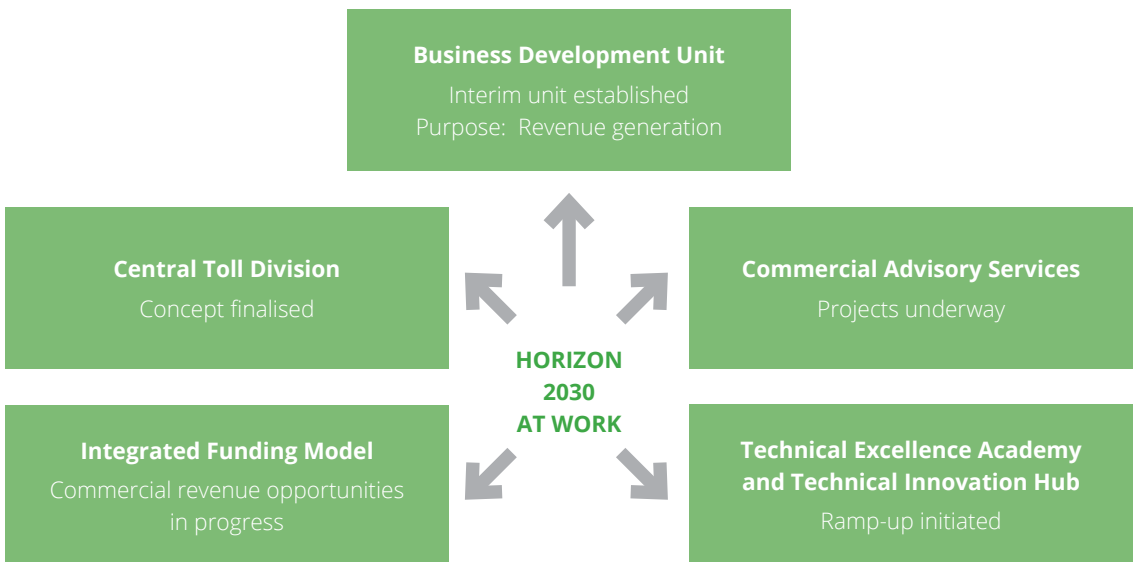
During the reporting period, the five-year Information and Communication Technology (ICT) strategy was finalised.

An interim Business Development Unit was set up to drive the generation of revenue for the agency. One of its first tasks was to revise the agreement covering the installation of telecommunications infrastructure within the road reserve of national roads in order to improve the financial benefit to SANRAL.

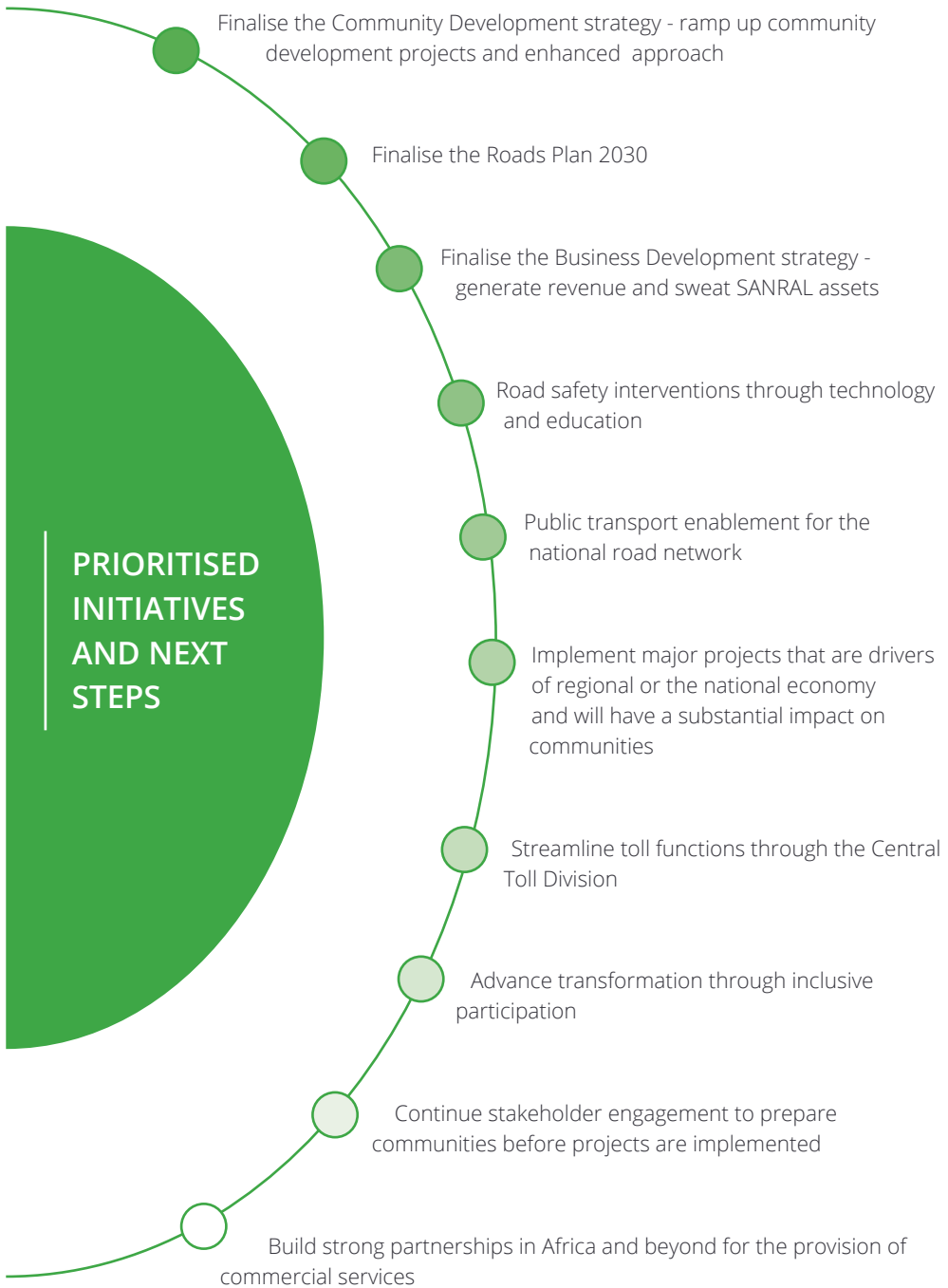
SANRAL envisages the establishment of a Central Toll Division to consolidate its toll road management and engineering expertise and utilise this more effectively. In the reporting year, the concept document for this new division was completed.

The agency also aims to accelerate the development of professional capacity for road construction in South Africa and the wider African region, and is using its Technical Excellence Academy as an instrument to achieve this. The academy offers outstanding facilities for young graduates to complete the practice requirements for professional registration. In 2018/19 its intake was boosted considerably by the inclusion of engineers from provincial transport departments and plans are in place for two Namibian engineers to enrol in July 2019.

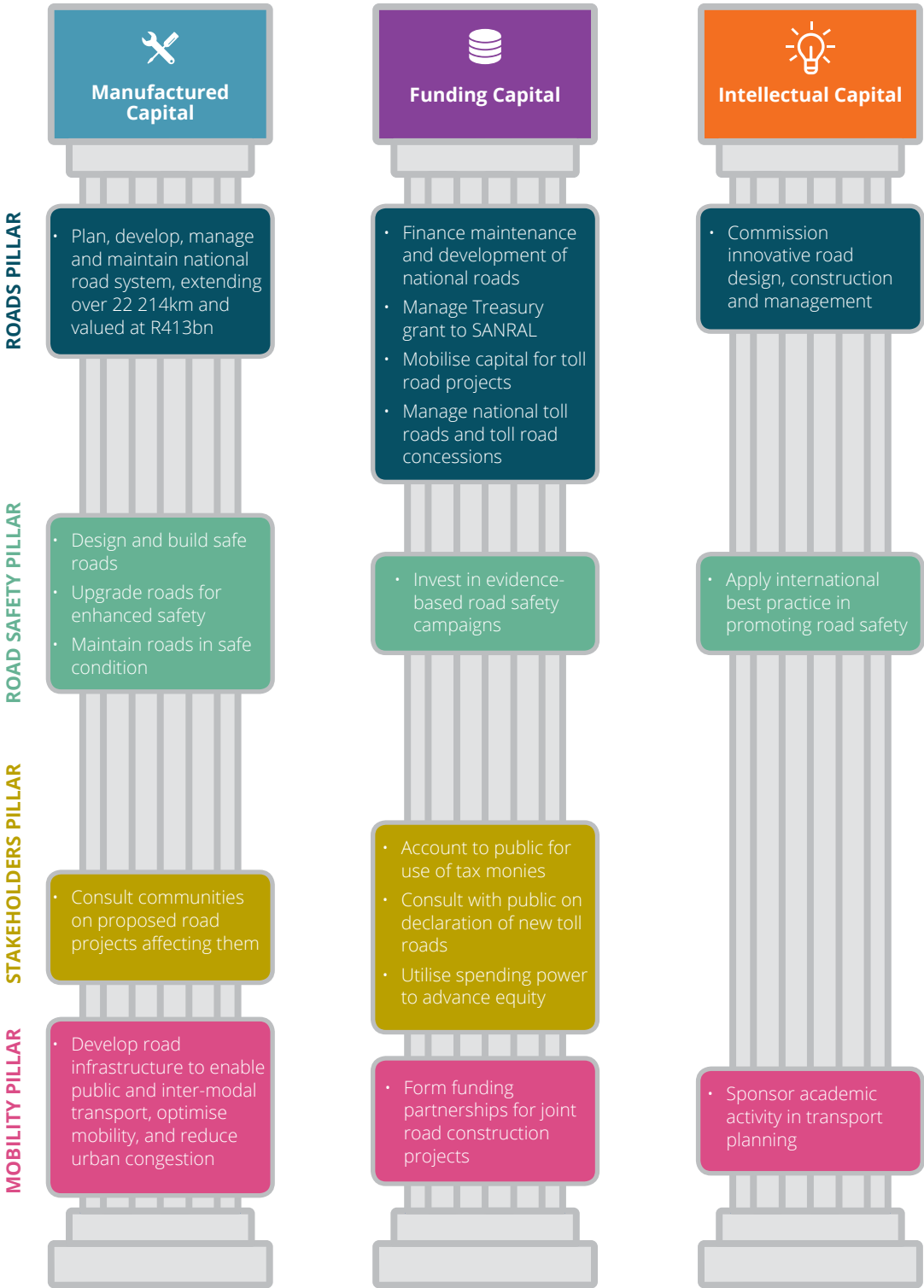
Horizon 2030 directs the agency to explore international business opportunities and this new direction is expressed through its Africa and Beyond initiative. This led to a partnership with the DBSA to pursue opportunities in Africa.

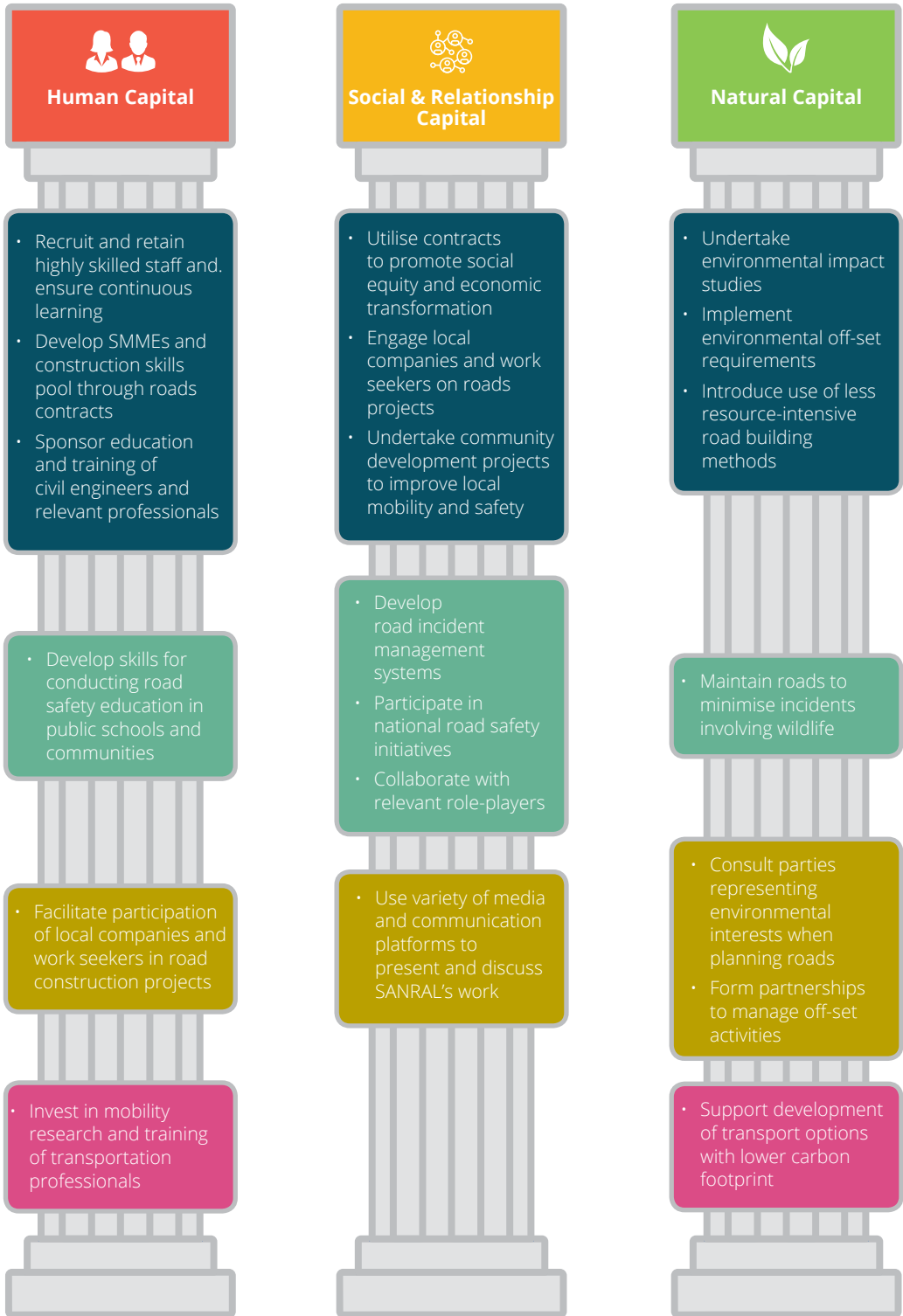


LOOKING AHEAD: Execution of Horizon 2030



INTEGRATION OF VALUE THROUGH FOUR BUSINESS PILLARS





Board of Directors (From 1 September 2018)*

Non-executive directors



THEMBA MHAMBI

Chairperson
Senior Secondary Teachers' Certificate (English, History, Guidance) BA (English, Education, History), BA (Hons) (English) MA (English, Creative Writing concentration)



ROB HASWELL

BA BA (Hons) (Geography) MSc (Geography)



CHRISTOPHER HLABISA

BTech (Civil) MDP
Pr Tech Eng MSAICE



AVRIL HALSTEAD

BCom (Hons) (Mathematics) MBA MA (Advanced Organisational Consulting) MSc (Economic Policy)



LUNGILE MADLALA

N Dip (Civil Engineering) B Tech (Civil Engineering) BSc (Applied Science) (Hons) Civil Engineering, Transportation Engineering



THAMSANQA PIET MATOSA

Executive Leadership Development Programme – Municipal Manager's Certificate

NKARENG MBOPANE

B Com (Economics)

(Board member from 1 September to 2 November 2018 only)

Executive Director



SKHUMBUZO MACOZOMA

Chief Executive Officer
BSc (Civ Eng) MSc (Civ Eng)

Company Secretary



ALICE MATHEW

BSc MBA FCIS

Executive Management



INGE MULDER

Chief Financial Officer
BCompt (Hons) CTA
CA (SA)



HEIDI A HARPER

Corporate Services Executive
B.Soc Sci MBA PGDip
Leadership Development
Cum Laude
Pr CHRP (SABPP)
IPMSP (IPM)



LOUW KANNEMEYER

Engineering Executive
BEng (Civ) MEng
(Transportation) Cum
Laude Pr Eng Pr CPM

Regional Management



DUMISANI NKABINDE

Eastern Region
BSc (Civ Eng) Pr Eng
Diploma Project Management
MBA
MSAICE



PROGRESS HLAHLA

Northern Region
BSc Civil Eng (Hons)
MSc (Civil) Adv Diploma
Mgt Pr Eng MBA
candidate



MBULELO SIMON PETERSON

Southern Region
BSc (Maths and Applied Maths)
BSc (Civ Eng) MSc
(Strategic Planning)
MBA Pr Eng MSAICE



RANDALL CABLE

Western Region
BSc (Civ Eng) MEng
(Civ Eng) Pr Eng

**The following board members' term ended on 31 August 2018:*

- Mr Roshan Morar*
- Dr Allyson Lawless*
- Mr Matete Matete*
- Ms Daphne Mashile-Nkosi*
- Ms Zibusiso Kganyago*



SECTION TWO





2

Manufactured Capital **28**

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1 Manufactured Capital

SANRAL is responsible for the development, improvement, maintenance and management of the national road network, which currently comprises 22 214km and has been described as South Africa's largest infrastructural asset with a notional value of R413bn.

The immense economic significance of the national road network can be gauged from just two figures:

- Road freight constitutes about three-quarters of South Africa's total freight.
- National roads carry more than 70% of all road freight.

The national road network is not a static system. Its length alters as provincial roads are occasionally incorporated and as new sections of road are developed, usually to accommodate increased traffic flows and improve safety.

About 87% of roads in the system are non-toll roads, funded entirely by a grant from Treasury, and the remaining 13% comprises toll roads, about half of which are managed directly by SANRAL and half by private companies granted concessions for the construction and management of these roads.

Constant maintenance is critical to preserving the lifespan of roads and maximising the return on capital investment. Road maintenance is supported by active road management which involves regular inspection of roads, bridges and slopes. It also involves the management and servicing of road users, with activities ranging from overload control to the sophisticated management systems offered on some of the country's busiest urban freeways, where information technology assists in incident response.

NATIONAL TOLL ROADS

Managed by SANRAL

- Sections of N1 in Western Cape, Free State, Gauteng and Limpopo
- R30 near Brandfort, Free State
- Sections of N2 in Eastern Cape and KwaZulu-Natal
- N3 Marianhill (KwaZulu-Natal)
- N4 just west of Pretoria
- N17 from Gauteng to Ermelo, Mpumalanga
- Gauteng freeway system (N1, N3, N12 and R21)

Toll roads under concession

- N4 eastward from Pretoria to Maputo (concession holder is Trans African Concessions [TRAC])
- N3 between Cedara, KwaZulu-Natal and Heidelberg, Gauteng (concession holder is N3 Toll Concession (NF) Pty Ltd [N3TC])
- N1 between Pretoria and Bela Bela and N4 westward from Pretoria to Botswana border, Skilpadshok (concession holder is Bakwena Platinum Corridor Concessionaire [Bakwena])

1.1 Overview of road development and maintenance

Expenditure on road development, improvement, strengthening and maintenance declined in 2018/19 for the second consecutive year. The total amount spent, R12 680m, was 19% lower than the previous year. 51% was allocated to capital projects while the balance secured routine and periodic maintenance.

National Road Network = 22 214km

Non-toll roads = 87%
Built and maintained by annual grant from Treasury

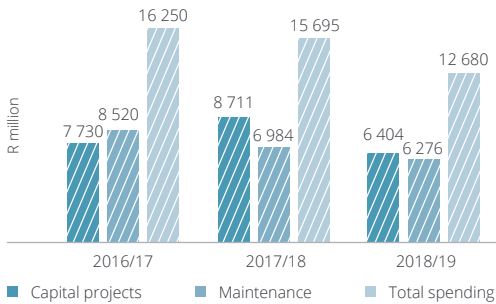
Toll roads = 13%

7% managed by SANRAL
6% managed under concession

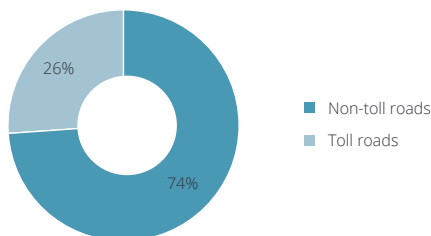
The majority of capital projects involve multi-year contracts and these proceeded mainly as scheduled, with some noteworthy delays which are detailed later in this section. Significant new construction projects were initiated during 2018/19.

Spending on routine road maintenance was consistent with recent years, and the decrease in total maintenance spending mainly affected periodic road maintenance. As in previous years, about three-quarters of total road expenditure related to the non-toll road portfolio.

Trend in spending on road projects and maintenance



Share of capital and maintenance spending by type of road



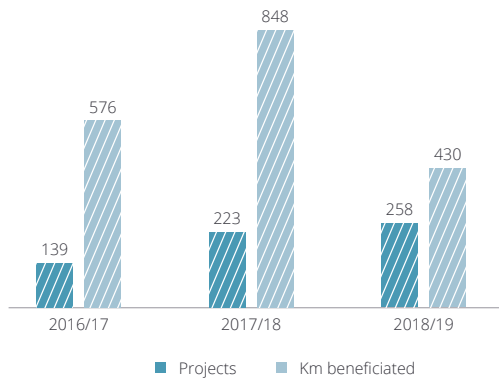
Types of road projects	Frequency	Cost
CAPITAL PROJECTS		
Strengthening: Increases structural capacity of pavement through recycling of existing layers or addition of new granular layers or structural asphalt layers	Every 20 - 25 years	R2m - R3m a kilometre
Improvement: Improves roads with unacceptable quality of service. Examples: addition of passing lanes, addition of paved shoulders, improved intersections. Is often combined with rehabilitation of pavement	Every 20 - 25 years	R12m – R18m a kilometre
New facilities: Improve capacity to accommodate traffic and expands road network. Examples: greenfields roads, upgrades from single to dual carriageway, new bridges, replacement of intersections with interchanges	Every 20 - 25 years	R20m - R40m a kilometre
ROAD MAINTENANCE		
Routine maintenance: Cleaning drains and culverts, cutting vegetation, repainting road markings, repairing guard rails and signs, patching and sealing cracks	Ongoing	R0.1m a kilometre a year
Periodic maintenance: Scheduled waterproofing of roads by application of surface seals and thin functional asphalt layers	8 - 12 years	R2m - R3m a kilometre

1.2 Road strengthening, improvement and development

In 2018/19, on non-toll roads and toll roads directly under its management, SANRAL undertook 258 projects to build new roads and strengthen and improve existing roads. While the number of projects exceeded the previous year’s figure, there was a downturn in both project spending and the length of road benefited.

The construction of new roads predominated in the toll road network, but it comprised only 29% of projects undertaken in the non-toll portfolio.

Projects in process and length of road benefited



Capital projects and length of road benefited 2018/19

Type of capital project	Non-toll roads		Toll roads	
	Projects	Km benefited	Projects	Km benefited
Strengthening and improvement	160	255	12	5.5
New facilities	64	136	22	33.7
Total	224	391	34	39.2

1.2.1 Major projects initiated during 2018/19

Contracts were awarded for several major projects during the year, including:

- The strengthening of the R511 between Brits and Beestekraal in North West. This R172m contract was awarded to NZK Footprint Engineering. The commencement date was January 2019 and completion is scheduled for July 2020.
- The construction of the cable-stayed bridge across the Msikaba River on the green fields section of the N2 Wild Coast road in the Eastern Cape. This challenging 36-month engineering project – the 580-m bridge will be the second longest main span bridge in Africa – was awarded to the Moto Engil/Concor Joint Venture. Valued at R1.9bn, the project is scheduled to be completed in January 2022.
- The design review and supervision contract for an upgrade of the N11 from the Newcastle industrial area through to Madadeni, east of Ladysmith in KwaZulu-Natal. The upgrade will improve road alignment, making it more direct, and will double the capacity of the road to a dual carriageway of freeway standard. The estimated construction cost is R531m and the consultant is BVI Consulting Engineers Western Cape.
- Construction of pedestrian facilities on the N2 between Umlaas Canal and Wandsbeck Road in eThekweni, KwaZulu-Natal. The project seeks to eliminate hazardous use of the road shoulder by large numbers of pedestrians and provide safer crossing facilities. It is valued at R29.7m and was awarded to GNS Civils.
- The location of and prospecting for new sources of road building materials located within 50km of national roads in KwaZulu-Natal. The contract, valued at R22.6m, has been awarded to FDKL Engineering Consultants.



1.2.2 Major construction and rehabilitation projects in progress 2018/19

Section of road	Percent complete	Value of work done 2018/19	Scope of work	Main contractor
N7 at Malmesbury, Western Cape	99%	R149m	Upgrading to dual carriageway Large interchange linking town to N7	Power/ Stefanutti Stocks
N7 at Leliefontein, Western Cape	75%	R295m	Upgrading to dual carriageway freeway	Triamic
N7 at Atlantis South, Western Cape	80%	R311m	Upgrading to dual carriageway freeway	Triamic
N7 at Hopefield, Western Cape	80%	R179m	Construction of dual carriageway and new interchange with three bridges and a large agricultural underpass	Triamic
N7 at Trawal, Western Cape	99%	R54m	Widening of bridge over Olifants River	Stefanutti Stocks
N1 at De Doorns, Western Cape	64%	R43m	Provision of pedestrian facilities	Ruwavcon
N2 at Caledon, Western Cape	50%*	R166m	Road improvement	Group 5
N2 at George, Western Cape	99%	R21m	Construction of pedestrian bridge	Civils 2000
N2 at George, Western Cape	30%*	R49m	Construction of new bridge over Gwaing River	KPMM
N14 between Kathu and Olifantshoek, Northern Cape	70%	R39m	Improvement of three intersections	KPMM
R67 from Whittlesea to Queenstown, Eastern Cape	95%	R202m	Provision of safety features such as pedestrian walkways and crossings, guardrails, fencing, improved intersections	Concor
R72 from Port Alfred to Fish River, Eastern Cape	85%	R110m	Widening of road, asphalt overlay in Port Alfred and reconstruction of two bridges	Concor
R72 from Birah River to Openshaw, Eastern Cape	75%	R270m	Widening of road, reconstruction of two bridges and community development project	Triamic
R61 from Misty Mount to Mafini, Eastern Cape	75%	R 190m	Improvement of intersections Construction of eight agricultural under/overpasses, two bridges and two pedestrian bridges	Triamic
N2 from Grahamstown to Fish River, Eastern Cape	90%	R178m	Widening of road and resealing of main road in Grahamstown	WBHO Construction

R573 from Siyabuswa to Marble Hall, Limpopo	56%*	R103m	Addition of shoulders Rehabilitation New roundabout at N11 junction	KPMM-CBE JV
R505 from Wolmaransstad to N14, North West	95%	R273m	Partial reconstruction	Power Construction
N4 from Pampoennek to R512, North West	40%*	R163m	New dual carriageway Extra climbing lanes Partial clover leaf interchange	Aveng-Lubocon JV
N11 from Hendrina to Hendrina Power Station, Mpumalanga	87%	R170m	Provision of paved shoulders Strengthening of existing road	Power Construction
N3 Hammarsdale Interchange, KwaZulu-Natal	87% *	R100m	Upgrading of diamond interchange to partial clover leaf free-flow interchange, including new bridge and six on/off ramps	Stefanutti Stocks Civils KZN
N5 at Senekal, Free State	74%*	R42m	Construction of a traffic control centre	Ruwacon
N6 between Rouxville and Smithfield, Free State	61%*	R120m	Rehabilitation and upgrading	WBHO Construction
N2 Mtentu Bridge, Eastern Cape	7%*	R224m	Reinforced concrete viaduct bridge with total length of 1 132m. Main span is 260m long and 223m high	Aveng Strabag JV
R61 from Baziya to Mthatha Airport, Eastern Cape	80%*	R8m	Widening of road and reconstruction of two major bridges	Basil Read. Contractor is in business rescue which may affect future of contract

* Indicates a time delay on project with probable cost increase



1.2.3 Major projects completed during 2018/19

Section of road	Percent complete	Value of work done 2018/19	Scope of work	Main contractor
R31 entering Kimberley in Northern Cape, at intersections with N12, N8 and R357	100%	R115m	Conversion of three major intersections to traffic circles	Taupele Construction
N7 at the Olifants River, Western Cape	100%	R161m	Construction of 96-m bridge comprising 11 spans and a large central arch	Stefanutti Stocks/Aurecon
N12 bridges outside Hopetown, Northern Cape	100%	R105m	Refurbishment of two 12-span bridges over the Orange River	H&I
R34 near Schweizer-Reneke, North West	100%	R122m	Widening of road and addition of shoulders. Improved alignment and drainage	Edwin Construction
N2/M41 Mount Edgecombe Interchange, KwaZulu-Natal	100%	R61m	Upgrading of signal- controlled interchange to a four-level free-flow system	CMC di Ravenna SA

Significant construction delays were experienced on a number of projects.

In several instances, progress was set back by cash flow difficulties experienced by contractors, including some long-established construction companies. The affected projects were:

- The improvement of the R573 from Siyabuswa to Marble Hall in Limpopo.
- The N2 upgrade at Caledon, Western Cape.
- The construction of a new bridge over the Gwaing River at George, Western Cape.

The upgrade of the R61 from Baziya to Mthatha in the Eastern Cape was interrupted when contractor Basil Read went into business rescue in June 2018. The appointed business rescue practitioner was unable to finance completion of the project by Basil Read and the process of appointing a replacement contractor was at an advanced stage at the end of the financial year.

The number of projects delayed by financial difficulties of contractors was larger than usual in 2018/19.

Two projects were delayed due to modifications in the scope of work:

- On the N6 between Rouxville and Smithfield in the Free State poorer than expected ground conditions caused time and cost over-runs.
- Modifications were made to the foundation design of the traffic control centre being built on the N5 near Senekal, Free State.
- Generally slow progress, sometimes compounded by work stoppages and protests, also caused project delays.
- Work on the N2/M41 Mount Edgecombe Interchange near Durban progressed slower than scheduled.
- There were work stoppages at the Hammarsdale Interchange on N3 which exacerbated other delays.
- The contractor abandoned work on the Mtentu River Bridge – part of the N2 Wild Coast Project – when community unrest disrupted an already-delayed project. SANRAL instituted court action aimed at securing resumption of work by the contractor.

CASE STUDY

A bridge to the economic mainstream



Well-designed road infrastructure can contribute to the spatial transformation of South Africa, affording historically marginalised areas access to the social and economic mainstream and serving as a catalyst for growth.

The Mt Edgecombe Interchange, at the intersection of the N2 and M41 north of Durban, is an excellent example of how new and expanded road infrastructure can unlock economic value and create opportunity.

Opened during Transport Month 2018, this SANRAL project was hailed as an engineering masterpiece. Its potential to support development is equally impressive.

The immediate value of the four-level interchange to the eThekweni metro was quite obvious, as it eased severe traffic congestion caused by population growth and new residential developments in the Umhlanga and La Lucia Ridge areas.

Its wider importance lies in the fact that the M41 links coastal development in the north of Durban to areas near Verulam, Tongaat and kwaGingindlovu. Important economic activity in the fields of agriculture, agriprocessing and tourism depends on the quality of the M41 and its linkages to the primary freeway network.

Equally significant is the convenient connection of these areas to King Shaka International Airport and the adjacent Dube Cargo Terminal with its facilities for exporting fresh produce.

The relocation of Durban's main airport to the north of the city has elevated the importance of the N2 in respect of the tourism, leisure, hospitality and commercial sectors.

Through its successful delivery on the Mt Edgecombe project SANRAL has demonstrated that quality roads, with safe access points and an interface with ports and markets, can make a critical contribution to social integration, economic growth and balanced development.

1.2.3 Major projects on toll roads managed by SANRAL 2018/19

Section of road	Percent complete	Value of work done 2018/19	Scope of work	Main contractor
N1 at Polokwane, Limpopo	65%*	R50m	Upgrading of Polokwane ring road to a dual carriage freeway	Basil Read
N1 at Musina, Limpopo	60%*	R26m	Construction of new ring road to facilitate flow of cross-border traffic	Basil Read
N1 at Erasmusrand, Gauteng	50%	R15m	Construction of new pedestrian bridge to replace a damaged bridge	Teichman/ Ndungane
N1 from Ventersburg to Holfontein, Free State	95%	R89m	Upgrading of a single carriage road to a dual carriage freeway	Aveng Grinaker-LTA
N1 from Holfontein Interchange to Kroonstad, Free State	98%*	R96m	Upgrading of a single carriage road to a dual carriage freeway	Hillary Construction
N1 at Kroonstad, Free State	95%	R83m	Upgrading of traffic control centre including a new monitoring office	Raubex
N2 from Mtunzini Toll Plaza to junction with R102 near Empangeni, KwaZulu-Natal	95%	R355m	Upgrading of a single carriage road to a dual carriage freeway	Concor
N1 from Winburg Interchange to Winburg Station, Free State	100%	R439m	Upgrading of a single carriage road to a dual carriage freeway	WBHO

* Indicates a time delay on project with probable cost increase



Significant delays were experienced on three toll road projects:

- The completion of the Polokwane and Musina ring road projects were delayed due to Basil Read experiencing cash flow problems and applying in June 2018 for voluntary business rescue.
- There was slow progress on the N1 upgrade between Holfontein Interchange and Kroonstad and penalties were imposed in May 2018 at a rate of R30 000 a day.

1.2.4 Toll roads under concession

The quality and adequacy of roads that are being managed under concession are

monitored similarly to roads directly under SANRAL’s management. Concessionaires periodically initiate capital projects to strengthen and improve the roads for which they are responsible. TRAC and N3TC awarded six new construction contracts to the value of R1 257m during the course of 2018/19.

The total value of construction work done in 2018/19 on projects initiated in previous years on toll roads under concession was R1 017m. Six projects were completed during the year, while the remainder were ongoing as at March 2019.

New construction and rehabilitation contracts on concessioned toll roads in 2018/19

Project	Start and end date	Value of contract	Scope of work	Main contractor
TRAC				
N4 Schoemanskloof (Machadodorp Crossroads to R36 intersection), Mpumalanga	July 2018 to May 2019	R86m	Rehabilitation of carriageway: milling and replacement	Tau Pele Construction
N4 Montrose to Schagen, Mpumalanga	January 2019 to May 2020	R115m	Rehabilitation of carriageway: milling and replacement	Tau Pele Construction
N4 Karino Interchange near Nelspruit, Mpumalanga	February 2019 to February 2021	R350m	Upgrading of intersection to split level interchange	Raubex Construction
N3TC				
N3 from Cedara to Mooi River, KwaZulu-Natal	November 2018 to June 2020	R413m	Rehabilitation and overlay	Roadmac Surfacing
N3 Van Reenen’s Pass, KwaZulu-Natal	March 2018 to December 2018	R286m	Rehabilitation and overlay	Roadmac Surfacing
N3 Estcourt area, KwaZulu-Natal	Apr 2018 - Nov 2018	R7m	Special maintenance: drainage works	US Alan

Ongoing construction and rehabilitation projects on concessioned toll roads in 2018/19

Section of road	Percent complete	Value of work done 2018/19	Scope of work	Main contractor
TRAC				
N4 from Bronkhorstspuit to Bossemanskraal, Gauteng	95%	R130m	Rehabilitation of carriageway: milling and replacing	Roadmac Surfacing
N4 from Belfast to Machadodorp, Mpumalanga	2%	R13m	Upgrading: lane additions	WBHO/ Motheo JV
N3TC				
N3 from Cedara to Mooi River, KwaZulu-Natal	15%	R38m	Rehabilitation and overlay from Cedara to Mooi River	Roadmac Surfacing
N3 at Van Reenen's Pass, KwaZulu-Natal	15%	R44m	Rehabilitation and overlay on Van Reenen's Pass	Roadmac Surfacing
Bakwena				
N4 from Garankuwa to R512 near Brits, North West	20%	R217m	Construction of a new carriageway	Raubex Construction
N4 from Swartruggens to Zeerust, North West	95%	R120m	Rehabilitation	G4 Civils



CASE STUDY

Roads draw neighbours closer



Road transport rules in Southern Africa: more than 85% of commercial transportation flows along the roads of the region. SANRAL's network is a vital part of this and the agency is committed to its role in strengthening regional integration.

SANRAL is a founding member of the Association of Southern African National Roads Agencies – ASANRA – which facilitates the sharing of information and knowledge, and has prioritised the improvement of road safety standards across the Southern African Development Community (SADC).

SANRAL's roads themselves are arguably its most valuable contribution to the drive for integration. They enable countless individuals and companies to trade and travel and build cross-border relationships.

The national road network provides linkages to Botswana, Lesotho, Namibia, Mozambique, eSwatini and Zimbabwe.

One of SANRAL's concessionaires, TRAC, operates and maintains the N4 freeway from

Emalahleni in Mpumalanga to Maputo in Mozambique. This high-quality road benefits the agricultural and mining sectors and has contributed to the growth of tourism on both sides of the border.

Similarly, the N4 is the most important transport link between Gauteng and Botswana while the N1 is the gateway to Zimbabwe and the rest of the African continent. Significant upgrades have been undertaken in recent years to accommodate the strong growth in cross-border traffic, including the ring road by-passing Musina near the Zimbabwe border and the building of a new bridge over the Notwane River on the border with Botswana.

Horizon 2030 recognises the importance of regional integration to the economic growth of individual countries and the key contribution of the road network to the strengthening of integration. The aim is to ensure the national road network keeps pace with the regional agenda set by political, business and social role players.

Completed construction and rehabilitation projects on toll roads under concession

Section of road	Percent complete	Value of work done 2018/19	Scope of work	Main contractor
TRAC				
N4 from Malagen Hotel to Montrose Waterfall junction, Mpumalanga	100%	R90m	Upgrading: additional lane and reconstruction of road	Raubex Construction
N4 from Highveld Steel Interchange to OR Tambo Interchange, Mpumalanga	100%	R110m	Upgrading: additional lanes and reconstruction of existing road	Raubex Construction
N3TC				
N3 from Vaal River to Malanskraal, KwaZulu-Natal	100%	R93m	Rehabilitation and resealing	Roadmac Surfacing
N3 from Estcourt to Frere, KwaZulu-Natal	100%	R7m	Special maintenance and drainage works	US Alan
BAKWENA				
N4 between R512 and the Buffelspoort Interchange, North West	100%	R100m	Base layer repairs and asphalt overlay	Roadmac
N4 at R511 Interchange, North West	100%	R55m	Provision of west-facing ramps	Raubex Construction



1.3 Road network management and maintenance

Maintenance of the national road system is underpinned by constant surveillance of the network by means of automated systems and human observation. This data facilitates the rational allocation of the maintenance budget

and enables SANRAL to meet internationally recognised standards for pavement quality.

As indicated in the graphic, a very high percentage of the national road network complies with international benchmarks.

Percent of travel on SANRAL roads meeting international standards in 2018/19

ROAD ROUGHNESS: Under 4.2m/km

Ensures a smooth ride and limits wear and tear

96.4%



RUT DEPTH: Less than 20mm

Safeguards against accumulation of water and risk of aquaplaning

99.5%



MACRO-TEXTURE: Over 0.4mm

Ensures friction for safer wet weather travel at speeds exceeding 60km/h

99.1%



In 2018/19, the pavement condition of about 60% of national roads was in good to very good condition and about 36% in fair condition. Just over 4% was rated as poor to very poor.

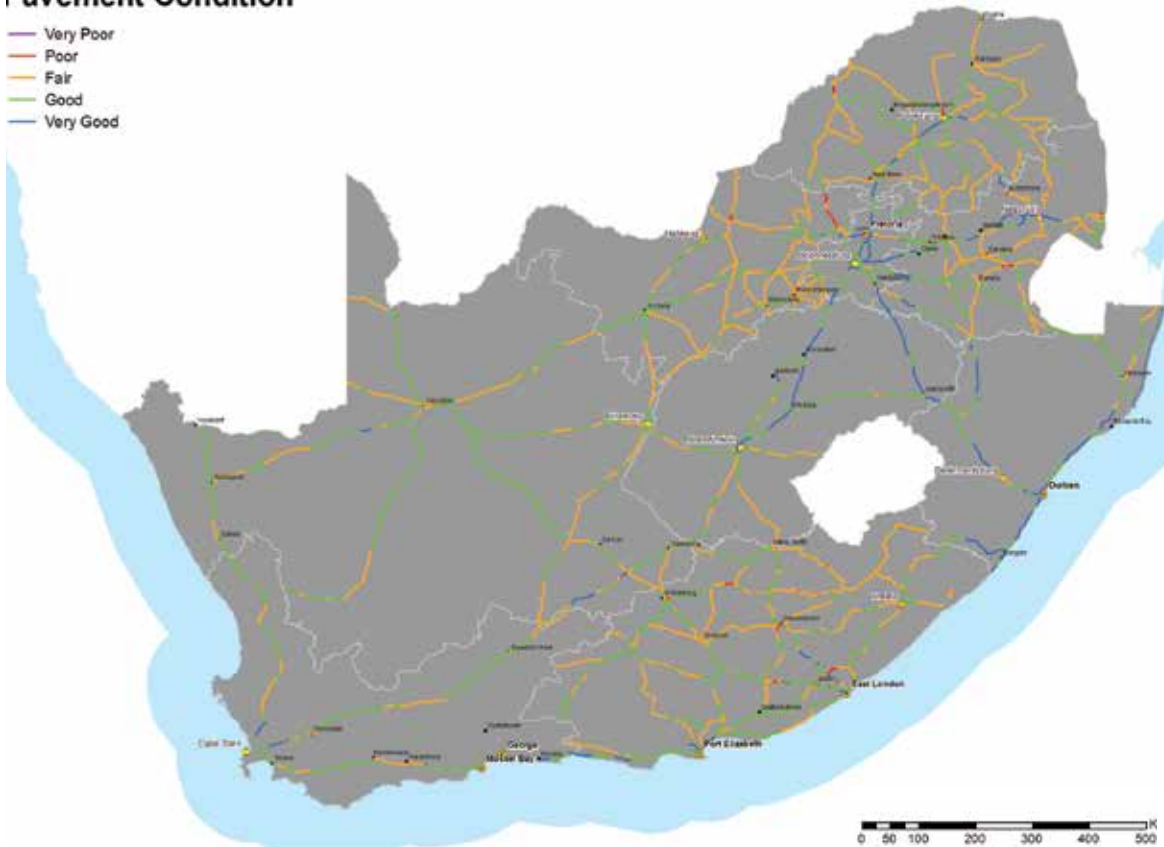
There have been small fluctuations in pavement condition over the last three years. Compared to 2016/17, the pavement condition in 2018/19

shows a slight downward drift, with marginally lower percentages in the good and very good categories, and a small increase in fair ratings. However the differences are so small that they could be normal fluctuations and do not necessarily indicate deterioration.

Pavement condition of national roads 2018/19

Pavement Condition

- Very Poor
- Poor
- Fair
- Good
- Very Good



Trend in pavement condition of national roads



	2016/17	2017/18	2018/19
Very good	14.74%	15.71%	14.71%
Good	46.12	47.81	44.90
Fair	35.03	32.69	35.80
Poor	3.59	3.34	4.00
Very poor	0.08	0.09	0.10
No data	0.43	0.37	0.49

1.3.1 Bridge management

In 2018/19 the national road system included 9 912 bridges and culverts large enough to require inspection every five to six years by inspectors accredited by the Committee of Transport Officials (COTO) Structures Subcommittee in order to establish their condition. The above figure includes 3 803 bridges and major culverts on routes managed by concession holders.

The majority of bridges and culverts were inspected in the period 2015 to 2017. Wherever road upgrades include new bridges and culverts, inspectors ensure that these structures meet the specified flood capacity standards.

Overall, 93% of travel on national roads in 2018/19 involved bridges considered to be in good condition. This figure has remained virtually constant for several years.



Bridge condition exposure measurements

Percentage of travel over or under bridges in good condition*	2016/17	2017/18	2018/19
	94%	93%	93%

*Bridges scoring 70% or more on a standard index are deemed to be in good condition

1.3.2 Slope management

Proactive management of unstable slopes abutting roads is an essential aspect of road management. In 2018/19 there were no serious slope-related incidents along the national road network.

Slope assessments were undertaken in the Southern and Western Regions and the results are reflected below.

Condition of slopes in Southern and Western Regions 2018/19

Region	No of slopes assessed	Stable	Minor problems	Major problems
Southern	3 842	33%	51%	16%
Western	945	79%	19%	2%

In the Western Region 16 slopes were identified for more detailed investigation and stability analysis to determine if any remedial or stabilisation works are required. An anchor monitoring contract was completed in this region in January 2019 and found that all anchors tested at 14 sites performed within specification.

In the Southern Region 16 sites were initially identified for more detailed investigation and 15 for possible survey monitoring.

Despite the overall reduction in maintenance spending, the value of RRM performed varied only slightly from the previous two years.

The share of RRM funding allocated to regions is based somewhat on their share of the road network but also on the condition of roads in the region. Severe weather events or the incorporation of poorly maintained provincial roads into a region would increase the allocation to the affected region.

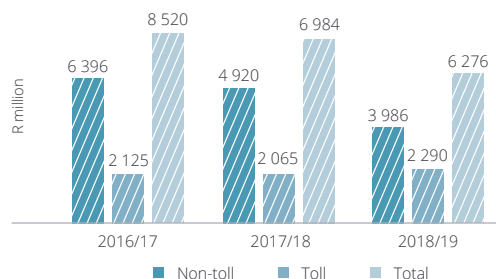
RRM offers inexperienced SMMEs a point of entry into the sector because capital and equipment requirements are modest, as are most of the skills needed.

1.3.3 Road maintenance

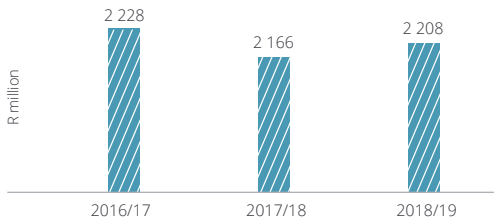
Routine road maintenance (RRM) is an unremitting task involving activities such as cleaning drains and culverts, vegetation control, line marking, guard rail repair, road sign repair and road patching. Periodic maintenance occurs at intervals of eight to 12 years on a given stretch of road, and includes the application of surface seals and light asphalt overlays.

Expenditure on routine and periodic maintenance of the national road system decreased 0.1%, from R6 984m in 2017/18 to R6 276m in the current reporting year. The reduction was entirely related to non-toll roads: investment in maintenance of toll roads actually rose by 10%.

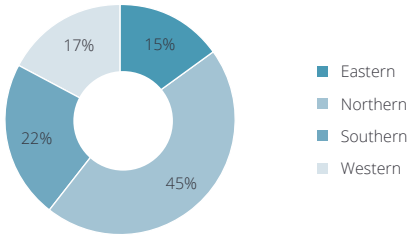
Trend in total road maintenance spending



Trend in value of routine road maintenance work



Regional share of 2018/19 RRM expenditure



In respect of toll roads under concession, the responsible companies collectively spent about R145m on RRM.

- TRAC's expenditure was nearly R57m, distributed across 11 SMME contracts.
- N3TC spent R50m on RRM. It had 26 contracts, 94% of which were held by SMMEs.
- Bakwena allocated all its routine road maintenance contracts to SMMEs and spent a total of R38m.



1.3.4 Urban freeway management

Information and communication technology have become an integral part of the management systems of busy freeways in Cape Town, Gauteng and the N3 between Durban and Pietermaritzburg.

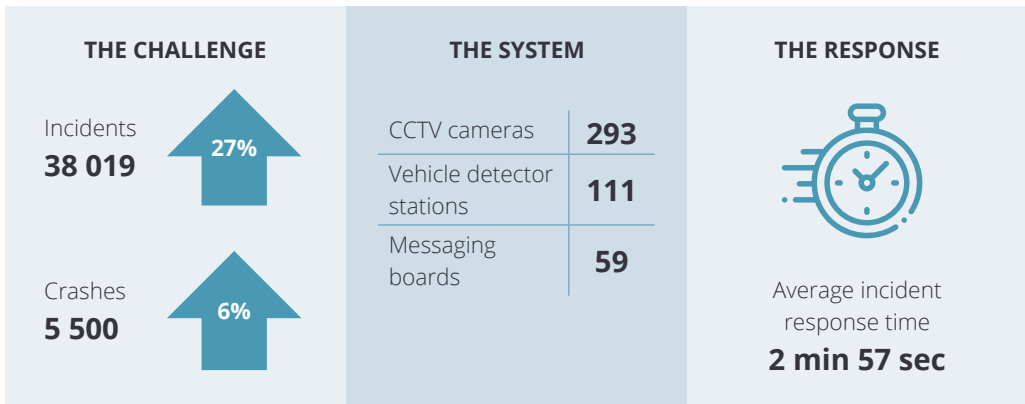
Networks of CCTV cameras and vehicle detector stations, with a 24-hour traffic management centre at their heart, create the conditions for rapid emergency responses to all kinds of incidents, saving lives where collisions occur, and saving congestion and commuter time in almost all instances. The ability to communicate about traffic conditions from the control centres

to the public, via electronic messaging boards on the freeways, social media platforms and radio stations, assists road users to avoid areas of congestion and plan their routes.

In all three areas, the freeway management system has enhanced the safety of road users by detecting and verifying incidents promptly, alerting emergency services more speedily and providing real-time warnings to road users.

Freeway management systems also facilitate sophisticated analysis of traffic and incident data, enabling management teams to identify high risk areas and plan accordingly.

Gauteng Freeway Management System 2018/19



Note: arrows denote year-on-year increase/decrease in number of incidents and crashes

The Gauteng FMS has the largest network of cameras, vehicle detector stations and messaging boards. The number of incidents is substantially greater than in the other urban areas and the ratio of crashes to other incidents is particularly high.

Most incidents are detected via CCTV monitoring (although there is significant reporting from on-road services (ORS) patrol vehicles and callers to the 0800 number) and the number of operators at the traffic management centre was increased by 12 to reduce the number of cameras each operator observes.

Other improvements to the system were:

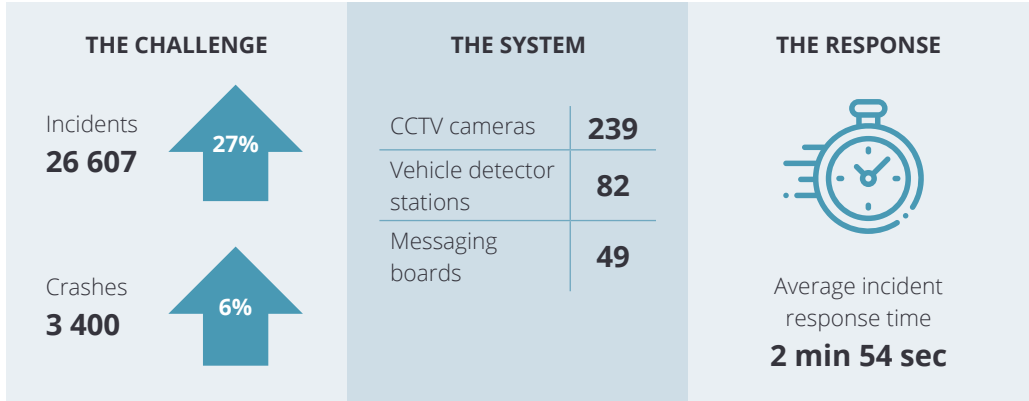
- Installation of 13 static cameras on the

busiest section, between Buccleuch and Proefplaas on the N1.

- Introduction of hand-held radios for back-up communication between the traffic management centre and patrollers on the freeway.

The Gauteng FMS contributes to task teams set up to improve safety and security on the N1/N12 and R21/R24 in the vicinity of the OR Tambo Airport. The primary objective is to undertake intelligence gathering and ensure a rapid law enforcement response to any stationary vehicle or pedestrian activity on the freeway. This is supported by a dedicated 24/7 joint operations centre coordinated by relevant metro departments and located in the Gauteng traffic management centre.

Cape Town Freeway Management System 2018/19



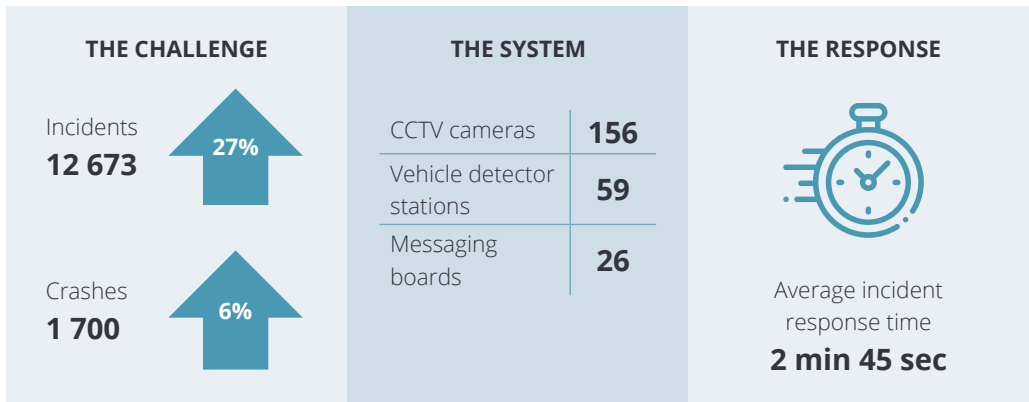
Note: arrows denote year-on-year increase/decrease in number of incidents and crashes

Like Gauteng, the Cape Town FMS encountered a year-on-year increase in both incidents and collisions. It continued to deploy the mobile 360° CCTV system on an experimental basis and made several technological enhancements including:

- Extending the fibre-optic link to the N7 system.

- Development of a data warehouse.
- Introduction of Tableau data visualisation software. This presents complex data gathered by the devices along the freeway in a manner that is immediately understandable to operational staff and enables them to make well-informed decisions swiftly.

KwaZulu-Natal N3 Freeway Management System 2018/19



Note: arrows denote year-on-year increase/decrease in number of incidents and crashes

There was also an increase in incidents and crashes on the N3 highway between Durban and Pietermaritzburg. In the face of this

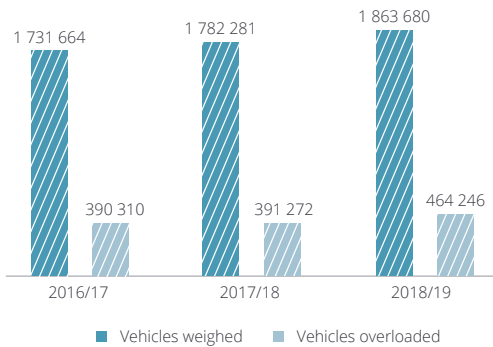
increased demand for emergency services, the FMS was able to maintain an excellent response time.

1.3.5 Combatting vehicle overloading



Overloading of heavy vehicles is a major problem on South African roads and takes a toll in terms of damage to roads and risks to road safety. SANRAL has set up weighbridges on national routes across the country and works with local law enforcement authorities to impose penalties for overloading.

In 2018/19 approximately 7.2m vehicles were screened using weigh-in-motion devices at weighbridges. A total of 1.86m vehicles that were possibly overloaded were directed for weighing on the static scale and 25% of these were found to be overloaded. About 7% of drivers of overloaded vehicles were charged.

Vehicles weighed at SANRAL weighbridges and number overloaded



Penalties for overloading 2018/19

	Fines imposed R32.5m	Fines paid R8.3m
	Drivers charged 34 540	Drivers arrested 986

Overloading on concessioned toll roads

At Bakwena weighbridges fines to the value of R7m were imposed during the year and fines totalling R2.4m were collected. At TRAC weighbridges fines to the value of R8.7m were imposed and an amount of R672 000 in fines was collected. Two traffic control centres on the N3 concession route reported imposing fines to the value of R5.1m and collecting R1.9m during the year.

Numbers of vehicles weighed and overloaded

	TRAC	N3 traffic centres	Bakwena
Total number of vehicles weighed	851 215	252 222	362 577
Overloaded but within grace limit	197 018	57 097	92 724
Overloaded	8 740	5 568	7 018

1.3.6 Vehicle safety inspections

SANRAL has six vehicle inspection facilities at major weighbridges which tested 9 115 vehicles in 2018/19. Of these, 49% failed to meet road safety standards. Traffic police on site either issued fines to the drivers or removed the vehicles from the road. Fines to the value of R5m were imposed.

1.3.7 Traffic monitoring

Traffic monitoring assists SANRAL to understand traffic volumes and changes in traffic patterns over time. This data is essential in planning the development and improvement of roads. Traffic counts have been performed on 91% of the SANRAL road network within the last three years.

During the 2018/19, there were 945 long-term traffic monitoring stations in operation and 952 short-term traffic monitoring counts were conducted.



1.4 Transformation of construction sector

The agency's Transformation Policy, launched in 2017 and formally approved by the Board in May 2018, commits to using procurement processes to transform the construction industry and to maximise the participation of black contractors, professionals and suppliers in its commissioned projects beyond the statutory minimum.

Among the commitments set out in the Transformation Policy are:

- The breaking down of monopolies in supply chains for construction materials, equipment, technologies and systems, in order to facilitate participation by black individuals and companies.
- Creating structural development programmes and partnerships within the industry in order to promote the rapid development and growth of black entities.

1.4.1 Implementing the policy

A few clauses of the policy require Cabinet approval but implementation of other aspects gained momentum in 2018/19. These included the establishment of strategic partnerships to enable small contractors – owned mainly by women and black entrepreneurs – to surmount barriers to participation in the industry. Read more about this on page 51.

Contractors are able to leverage these partnerships through an online help desk that connects them to the SANRAL Transformation Unit which will direct them to the relevant partner. The agreement with Bell Equipment has already enabled a black contractor, Boitshoko, to purchase equipment worth R40m for use on a SANRAL project.

SANRAL also initiated a process of restructuring its work packages to create more project opportunities for smaller contractors. The agency is creating a sliding scale model which will assist small enterprises to develop and progress from sub-contracting to tendering for more complex projects.

The agency has decided in principle to increase the number of community development projects it undertakes in small towns and villages adjacent to its road network. These projects enable SANRAL to train, develop, mentor and nurture new black contractors in rural towns and villages. They have the potential to provide an entry point into the mainstream construction sector.

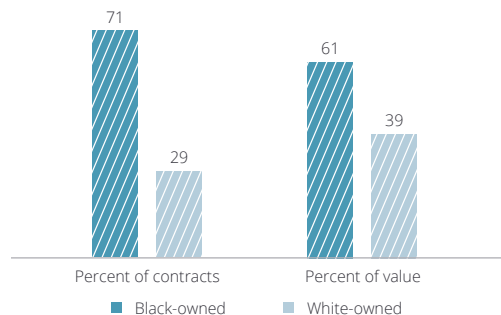
1.4.2 Equity of contracting companies

In 2018/19, contracts to the value of R5 206m were awarded to black-owned companies while white-owned entities secured projects valued at R3 322m. This represented a strengthening of participation by black contractors in the construction and maintenance of national roads, as the proportion of contracts awarded to them increased to 71% (from 64% the previous year) and the share of value to 61% (from 53% in 2017/18).

The presence of black women among emerging construction contractors is particularly encouraging: no less than 25% of total contract value was secured by companies owned by black women.

However, the figures show that black contractors still tend to cluster around tenders that demand a lower level of capital, equipment and professional expertise – for example, they have a much higher share of maintenance work than capital projects.

Share of contracts and value by company ownership 2018/19



CASE STUDY

Creating conditions for competitive black contractors



It takes more than preferential access to tenders for black-owned businesses to break into the construction industry on a meaningful scale. In recognition of this, SANRAL has begun to drive in the first pilings for the support structure that will help new entrants to the industry compete for major contracts.

In its strategic vision, Horizon 2030, SANRAL positions itself as a progressive roads management agency capable of delivering a national road network that benefits all South Africans.

This vision is backed by a far-reaching Transformation Policy which commits SANRAL to maximising the participation of black contractors and enterprises owned by women, young people and people with disabilities in the construction industry.

A primary objective is to break down monopolies in supply chains for construction materials, equipment and technologies so that these no longer represent a barrier to the participation of black entrepreneurs.

Another commitment is to create structural development programmes and partnerships within the industry in order to promote the rapid growth of black entities. The technical

requirements of many construction projects present obstacles to new contractors that, for historical reasons, have not acquired the experience required for large-scale projects.

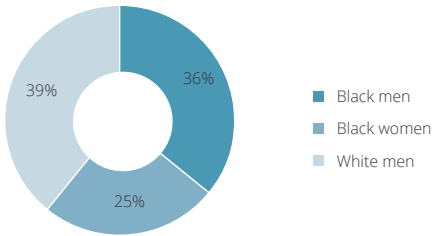
In 2018/19 SANRAL entered into agreements with top tier companies involved in the manufacture and provision of earthmoving and construction equipment for them to provide access to equipment for emerging contractors who are unable to purchase such expensive machinery.

The partners in these initial agreements are sector leaders Barloworld, the Wirtgen Group and Bell Equipment.

A fourth agreement, with the National African Federation for the Building Industry (NAFBI) focuses on offering small contractors quality mentorship and coaching to enable them to bid successfully for tenders and manage contracts effectively.

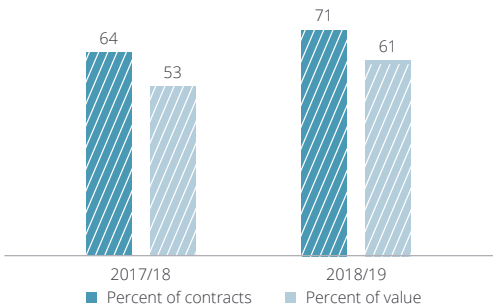
These partnerships are just a start: the agency will continue to mobilise collaboration within the construction and engineering sector to promote fair competition and ensure black-owned contractors have options for financing their businesses, securing materials at good prices and leasing essential equipment.

Details of share of contract value by company ownership 2018/19



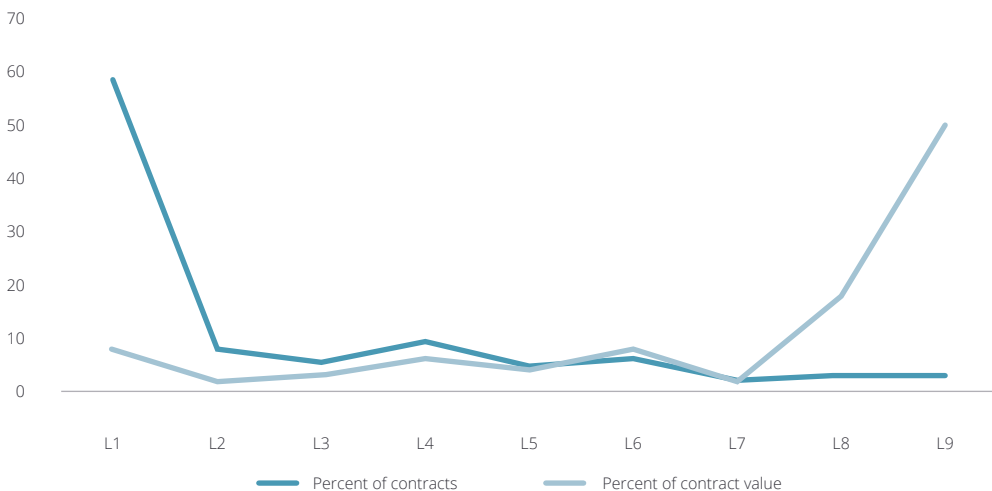
Note: The categories comprising companies owned by black and white youth and white women each held less than 1% of the total

Trend in contracting of black-owned companies



An analysis of contractors according to the level of their Construction Industry Development

Distribution of contractors and contract value by CIBD ranking



Note: L1 indicates level 1 CIBD grading, L2 is level 2 and so on.

Board (CIBD) accreditation indicates that a large number of companies with low CIBD grading share a pool of contracts with relatively small collective value, while a small number of contractors scoring at the top end of the scale, CIBD levels 8 and 9, are able to contend for much more substantial projects. This is illustrated in the line graph below.

The Transformation Policy – with its development of facilities for access to capital and equipment, its reconfiguration of contract packages, and its emphasis on skills development and mentorship – aims to bridge these two ends of the scale. This is what is implied when SANRAL pledges to move beyond participation of black contractors to a restructured sector.

Record number of construction work packages

Some 85 work packages will be awarded to local Targeted Enterprises (TE) during the rehabilitation of the R75 dual carriageway between Port Elizabeth and Despatch - possibly the highest number on a SANRAL project in the Southern Region.

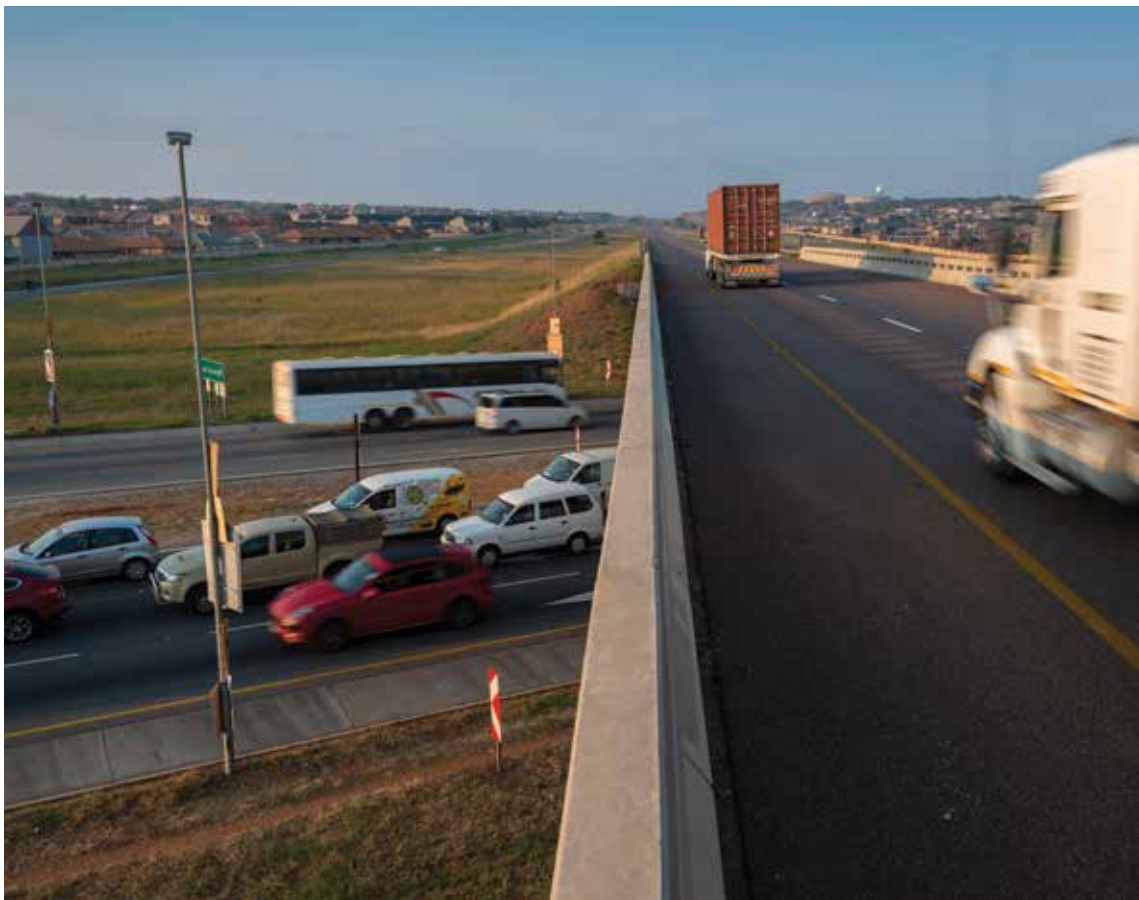
The nature of the work packages is such that all TEs will have the opportunity to upgrade their CIDB grading.

- Aim of the project: The project involves, inter alia, the rehabilitation of pavement layers; geometric improvements at six intersections; additional bus stops; installing anti-climb fencing and guardrails; signalised crossings; upgrading the street lighting; and constructing concrete walkways.

- Cost of the project: +/- R380m
- Progress: the project is currently in construction phase. As at 30 April 2019, the total expenditure was at 75% and total completion of work at 80%.
- Number of SMMEs: it is envisaged that a total of some 85 work packages will be awarded to local TEs. Value earned is about R91m.

Targeted Enterprises employed to date (excl. street lighting contract):

	CIDB Grade 1	CIDB Grade 2	CIDB Grade 3	CIDB Grade 4	CIDB Grade 5	Total
Number	44	10	7	6	2	69
Percent	28.02%	17.00%	25.08%	22.80%	7.10%	100%
Amount	R25 488 665.43	R15 458 23.64	R22 807 49.52	R20 744 598.27	R6 455 353.91	R90 954 890.78



Opportunities for SMMEs

The drive by SANRAL to transform the construction industry not only means new opportunities for SMMEs – and then mostly black- and women-owned – but also creates the opportunity to upgrade their respective CIDB grading.

For the project to upgrade the R573 Moloto Road the number of TEs with work packages presently stands at 55.

From the Gauteng/Mpumalanga border to Mpumalanga/ Limpopo border

The current project phase is the upgrading of the three intersections to roundabouts and

one intersection to a butterfly interaction. The project is located in Nkangala District Municipality.

The aim of the project is to increase traffic capacity and improve the safety levels. This will mean upgrading the road to a four-lane dual carriageway road divided, and to upgrade the intersections with roundabouts/butterfly intersections. Bus bays and formal pedestrian crossings will also be provided.

Total cost is R106m with TEs earning R23m of that amount.

Targeted Enterprises employed to date (incl. street lighting contract):

	CIDB Grade 1	CIDB Grade 2	CIDB Grade 3	CIDB Grade 4	CIDB Grade 5	CIDB Grade 6
Number	28	4	5	1	5	3
Percent	39%	4%	30%	1%	8%	18%
Amount	R9 189 922.96	R871 143.00	R6 978 254.66	R266 533.45	R9 925 274	R4 149 848

From the Limpopo/Mpumalanga border to Marble Hall

The current phase commences at Siyabuswa and ends at the junction of the N11 and R33 in Marble Hall, and the objective is to upgrade the road to address safety issues and improve

traffic and structural strength capacity.

The estimated final contract value will be R214 419 452.60. As at 31 March 2019, the total expenditure is at 63.4% and total completion of work at 56.0%.

Earnings by TEs

	Male	Female	Total
Number	8	2	10
Percent	64%	36%	100%
Amount	R14 492 216.00	R871 143.00	R23 380 976





2 Funding Capital

As a state-owned company incorporated under the Companies Act and a national public entity in terms of the PFMA, SANRAL's financial management must meet the requirements of both statutes. Details of the agency's finances and governance appear in Volume 2 of this report. The following summary serves to indicate how SANRAL's management of funding capital complements other aspects of its value creation.

SANRAL has two distinct areas of business, the operation of toll roads and the operation of non-toll roads, which are funded in different ways.

- An annual grant from the national fiscus, under Budget Vote 35, funds the development, upgrading, repair and maintenance of national roads that are not subject to tolling. These comprise 87% of the national road network.
- Toll levies and borrowings on commercial markets have been the main sources of finance for the development, upgrading, repair, maintenance and operation of national toll roads managed directly by SANRAL. These constitute some 7% of the national road network. However, due to the under-collection of e-tolls on the GFIP, government grants have become a significant supplementary source of funding for the toll portfolio.

In addition to this, there are toll roads – comprising the remaining 6% of the national road network – for which 30-year concessions have been granted to private companies. These companies, TRAC, N3TC and Bakwena, have concluded public-private partnerships with SANRAL for the construction, maintenance and operation of the relevant routes.

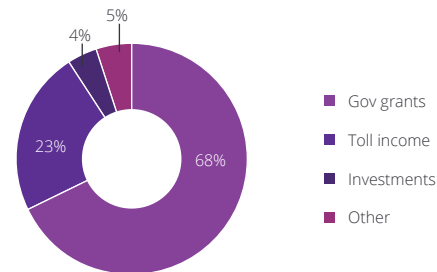
Under these arrangements, the concession holders are responsible for raising capital for road construction, servicing this debt and funding all upgrades, rehabilitation and maintenance as well as operational costs.

Toll revenue on these routes accrues to the concession holders. At the end of the concession period the roads are to be handed back to SANRAL and must comply with specified standards at the time of transfer.

Annual income

SANRAL recorded total revenue of R16 661m in 2018/19. Overall, across the non-toll and toll portfolios, government grants constitute the largest source of revenue for SANRAL, followed by toll fees collected from road users.

Main sources of SANRAL revenue 2018/19



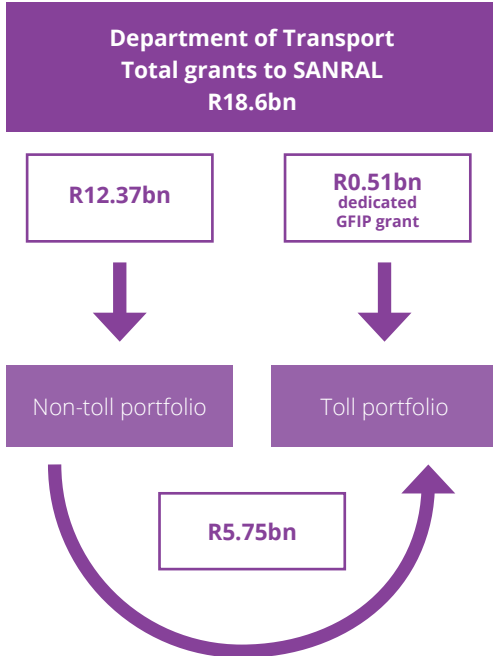
The annual government grant for the non-toll portfolio amounted to R12.4bn.

For the second consecutive year, the authorities permitted SANRAL to transfer part of this grant (R5 750m, VAT inclusive) to the toll portfolio to off-set the substantial under-recovery of toll fees on the GFIP. Government continued to make a special allocation for GFIP, amounting to R505m inclusive of VAT in 2018/19.

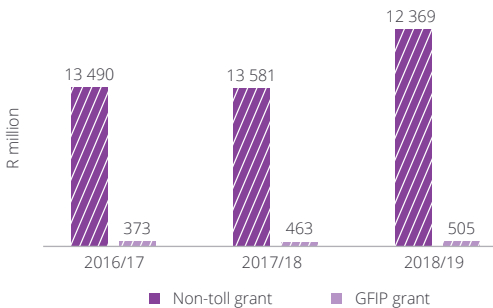
A portion of the non-toll government grant is capitalised and deferred for future spending on multi-year road development projects. In 2018/19, this amount was R5 745m. Conversely, a portion of amounts capitalised in previous years becomes available for capital projects each year and in 2018/19 this amount totalled R1 921m.

Revenue from toll collections decreased by 18%. The tariff adjustment on all toll roads, which is guided by the Consumer Price Index, was 5.58% for the year.

Distribution of 2018/19 government grants by portfolio



Trend in government grants to SANRAL



Grant amount transferred from non-toll to toll portfolio
2017/18 – R1 900m / 2018/19 – R5 750m
 (VAT inclusive)

Trend in revenue from toll collection on routes managed by SANRAL



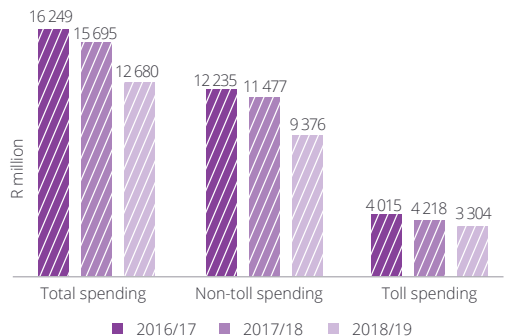
Annual expenditure

The effective reduction of the non-toll grant as a result of the transfer of a large portion of the grant to the toll portfolio had a marked effect on patterns of spending on the development and maintenance of the road network.

Overall spending on capital projects and road maintenance decreased by 19% in 2018/19 from the previous year, and by a total of 22% over a two-year period. Non-toll spending saw a modest 6% year-on-year decline in 2017/18 with a larger drop (18%) in the current reporting period. This impacted especially on maintenance contracts for non-toll roads.

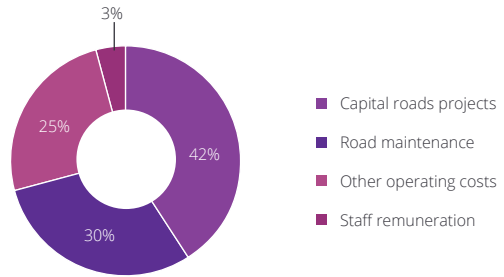
Spending on toll roads increased by 5% year-on-year in 2017/18, but decreased by 22% in the current reporting period. Maintenance spending for toll roads remained constant while capital spending declined.

Trend in spending on road construction, rehabilitation and maintenance

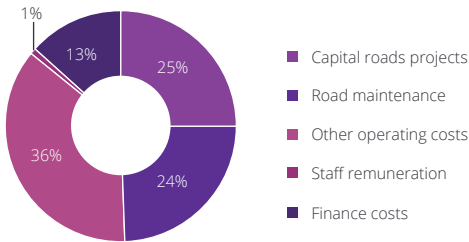


The main categories of expenditure in the non-toll and toll portfolios present contrasting profiles. While road construction and maintenance represent nearly two-thirds of non-toll expenditure, these activities account for about one-third of spending in the toll portfolio. Three out of every 10 Rands in the toll portfolio are committed to servicing debt raised to develop toll roads.

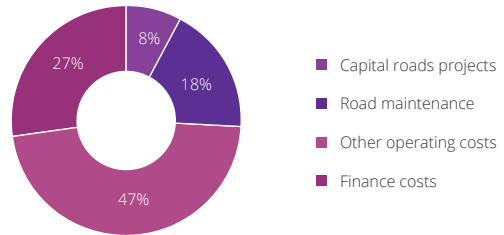
Main categories of expenditure 2018/19: non-toll portfolio



Main categories of expenditure 2018/19



Main categories of expenditure 2018/19: toll portfolio



Profit/loss before taxation

As an entity, SANRAL recorded a profit of R2.4bn in 2018/19. Due largely to the transfer of R5 750m from the non-toll to the toll portfolio, the latter showed a profit for the year, while the non-toll portfolio recorded a deficit of R96m.

Trend in profit/loss before taxation

Year	Non-toll operations	Toll operations	Total
2016/17	-R380m	-R4 582m	-R4 962m
2017/18	+R1 104m	-R1 521m	-R418m
2018/19	-R96m	+R2 517m	+R2 421m



Toll roads under concession

Toll road concessions are a form of public-private partnership in which concessionaires undertake the responsibility of raising finance for developing specific roads and managing the construction and maintenance of these roads. In return they have the right to realise revenue from these public assets in the form of toll levies.

Details of the national toll roads under concession and the companies granted 30-year concessions can be found in the section on Manufactured Capital.

All three companies – Bakwena, N3TC and TRAC – are non-listed entities purpose-built for toll road development and management. They all include among their shareholders the Public Investment Company (PIC), which manages investments for the Government Employees Pension Fund and the Unemployment Insurance Fund.

Revenue from toll collection for the three concessionaires totalled R5 001m in 2018/19.

This figure represented an increase of 6.5% on toll revenue for the previous year. The CPI-linked increase in toll tariffs (5.58%) accounted for part of this increase, while overall growth in traffic also played a part.

The companies’ total investment in road construction, rehabilitation and maintenance declined markedly from R1 667m in 2017/18 to R1 117m in 2018/19.

Initial capital for the construction of toll roads under concession was raised by the respective concessionaires by shareholder contributions and borrowings on capital markets. Debt servicing continues to be a major cost for all concessionaires, totalling some R1 358m in 2018/19.

While all routes have an electronic payment option for tolls, conventional toll plazas are universally available. The combined cost of operating these roads – including personnel costs, office costs and overheads – was in the region of R754m in 2018/19.

TOLL ROUTES UNDER CONCESSION

Income from tolls

R5 001m

Spending on roads*

R1 117m

Spending to service loans

R1 358m

Spending to operate roads

R754m

*Refers to construction, rehabilitation and maintenance

Strategic Objective7: Pursue adequate Government funding to sustainably operate and maintain the national road network. In addition, explore, develop and implement a diversified funding strategy and exploit opportunities for the use of private finance and own revenue

CASE STUDY

Diversified funding way to go

SMART+ SUMS: FINANCING ROAD INFRASTRUCTURE



One of SANRAL's challenges is to balance the need for good quality roads with the public's ability to pay. To address this, the roads agency is promoting an integrated funding model that includes public tax-based funding from the Treasury, toll revenue, own revenue and private capital for public roads while constantly seeking new funding streams. (Please see page 18 and 19 for more on this.)

This diversified strategy takes into account the prevailing funding policies of National Treasury and SANRAL's shareholder, the Department of Transport. These work within the constraints of competing socio-economic priorities and limited funding from the fiscus. The reality is that the need for good quality roads has to be balanced against demands for higher spending on pressing matters like education, health, housing and job creation.

This means that funding through the public

purse remains the main source for the financing of the national road network - but that has to be supplemented from the private sector and the roads agency's own revenue.

Private finance is government policy and it is important when it comes to infrastructure development. It comes in the form of state tolls and public-private partnerships, and both have broadened the funding envelope and helped SANRAL achieve more than were it to solely rely on the non-toll fiscal allocations.

Possibilities for own revenue generation do exist as SANRAL has a diversified revenue base and extraction of embedded value is now possible. During the reporting period it started to explore opportunities in the area of advisory services, training and development programmes, exploiting its land portfolio, wayleaves, outdoor advertising and property development and management.



3 Intellectual Capital

The intellectual value that vests in SANRAL is directly related to the breadth of experience its professional engineers accumulate while managing contracts for the planning, development, maintenance and operation of a major road network. The pool of knowledge within the institution is enriched by the sheer number of projects SANRAL commissions, the variety of these projects, and the innovative solutions that leading contractors employ.

The agency can also claim considerable expertise in the operation of toll roads and freeway management systems.

Through collaborations with universities and research institutes SANRAL contributes to knowledge generation in fields as diverse as transportation planning, road materials development, and environmental conservation.

3.1 Geotechnical solutions

Managing the risk of sinkhole occurrence in karst dolomite terrain is one of the challenges faced by developers of transport infrastructure (and other structures). In a natural process of erosion over the course of millions of years, dolomite rock has been dissolved by a combination of water and carbon dioxide to form underground cavities and caves. A sinkhole occurs when surface layers collapse into a cavity, leaving an open hole, which may vary in depth from a few centimetres to many metres.

SANRAL's engineering geologist has developed expertise in detecting and managing sinkhole risk and is frequently consulted.



During 2018/19 SANRAL's engineering geologist:

- Participated in the dolomite risk management forum of the Dr Kenneth Kaunda District Municipality and assisted the Department of Public Works to revive its working group on dolomite.
- Continued the development of algorithms that had proved effective in demarcating dolerite materials in respect of the Ermelo Ring Road and N2 Wild Coast projects.
- Assisted Gautrans, through shallow ground-based geophysics, to predict the existence of a dolomite receptacle on the R55 in Laudium and to manage the associated risk – which was confirmed by a subsequent collapse in the area.
- Used a combination of satellite imagery, regional airborne geophysical maps and field geology maps to assist TRAC to identify alternative materials sources for works near

Machadodorp, Mpumalanga.

3.2 Innovative road design

In the interests of road safety, the widening of the bridge over the Olifants River on the N7 near Clanwilliam was non-negotiable. However, the width of the original structure could not be increased and the only workable solution was the construction of a second bridge running parallel to the existing structure.

SANRAL awarded the contract for this project to Aurecon and Stefanutti Stocks Coastal. The result was a 166-m bridge that rested partly on an arch measuring 93m in length. The Concrete Society of Southern Africa recognised the “unique design features and construction techniques” embodied in the project by naming it the winner of a 2019 Fulton Award. They commended the innovative use of the ancient structural form of the arch.



3.3 Engineering expertise

The mountainous terrain of the Eastern Cape has tested the engineering expertise of companies undertaking the construction of the N2 Wild Coast road, which will eventually join Buffalo City and Port Edward. Before work on the greenfields section of the highway (between Port St Johns and Port Edward) had even started, contractors were struggling with the challenges of upgrading of the old N2 and the R61 between Mthatha and Port St Johns. The steepness of the inclines and the instability of the ground made the realignment of the road – that is, the redesign and re-engineering of curves and slopes – especially difficult. For example:

- On the 17km stretch of the N2 between Dutywa and Mthatha, road realignment called for deep cuttings and high fills. Cuttings went through layers of soft mud and sandstone as well as decomposed dolerite and this called for design adaptation and extra safety

measures. The road had to be shifted away from the cut face and drop zones added for safety reasons.

- The R61 between Mthatha and Port St Johns traverses very hilly terrain and lies on the watershed. Any improvement to road alignment called for extensive road works. In 12 locations the fill embankment extended right to the bottom of the valley, sometimes to a depth of 50m. Design proposals for stabilisation went through many drafts before it was finally decided to construct eight engineered fills and four mechanically stabilised earth walls. The engineered fills utilised geosynthetic reinforcement and enhanced sub-surface and surface drainage. The mechanically stabilised walls involved the careful vertical placement of reinforced concrete panels, supported behind the wall by horizontal strips. These extraordinarily complex earth structures were carefully monitored to establish their efficacy.





3.4 Integrated laboratory complex

In a unique research and training collaboration, SANRAL, the University of Pretoria (UP) and the Council for Scientific and Industrial Research (CSIR) are jointly developing an integrated laboratory facility situated partly at UP and partly at the CSIR. This facility will comprise a training laboratory, the national road materials reference laboratory, a concrete research laboratory (on the UP campus), and upgraded bitumen and asphalt research laboratories at

the CSIR. At UP, the laboratory is part of the Engineering 4.0 initiative under construction at Hillcrest campus and due to be completed in 2020. Operational procedures are being developed in parallel with the physical facility so that researchers, trainers and technicians can get to work as soon as the facilities are ready. The advance training of technicians will utilise virtual reality to simulate their future work environment.

3.5 Automated Electronic Toll Payment

The interoperable system of electronic toll payment, which enables motorists to use a single electronic tag at conventional toll plazas across the country, has been running at scale for the last two years.

The efficiency of the system – one of the most extensive electronic systems in operation anywhere – holds benefits for road users and toll road operators alike. At peak traffic periods, an automated lane can deal with about 1 000 vehicles an hour, compared to 250 in a lane with manual payment. If electronic payment

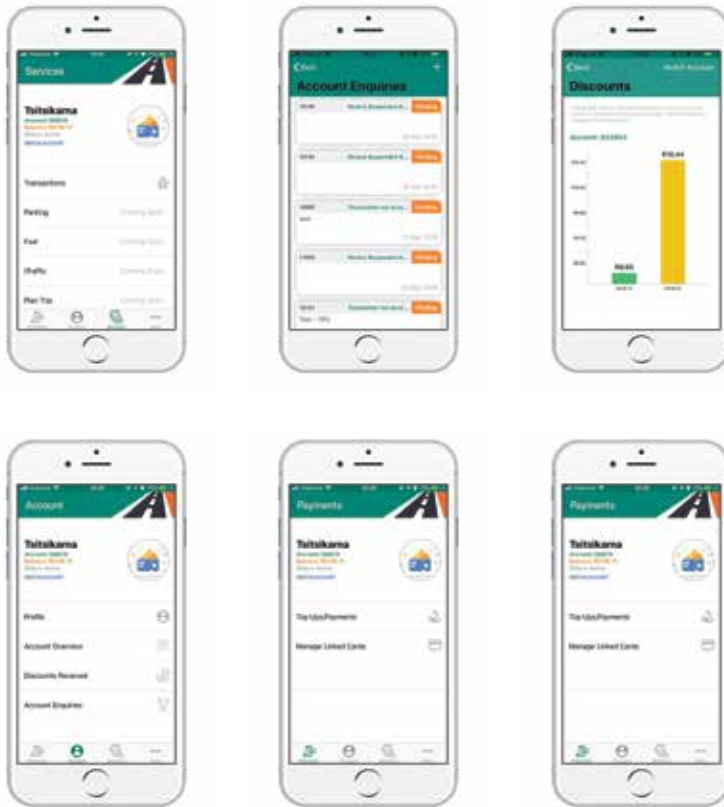
were to be widely adopted more compact toll plazas could be designed, with fewer lanes and fewer kiosks for cashiers.

However, 2018/19 saw little growth in the number of electronic toll transactions compared to the previous year and electronic transactions actually represented a smaller share of total transactions at conventional toll plazas than a year earlier.

Consumers seldom adopt innovation spontaneously and sustained marketing may be needed to persuade road users of the benefits.

	Total traffic	Electronic transactions	Electronic transactions as % of total	Revenue from electronic payments
2017/18	256 007 192	48 306 484	18.9%	R2 038m
2018/19	260 993 629	48 379 961	18.5%	R2 191m





The SANRAL app – which allows electronic toll customers to view their transaction record and top up their credit on the go – became available to the public in beta version in August 2018. By October the full version was available in both Android and iOS stores.

By March 2019, there had been more than 20 000 downloads of the app, 9 184 people had logged in, and 2 501 had linked their credit cards to the app. Transactions totalling R12m had been made via the app.

While account management is the primary function of the app, it also facilitates the logging of inquiries and allows users to make suggestions on customer service or product improvement.

3.6 Technical Innovation Hub

The Technical Innovation Hub (TIH), located in the Western Region, provides an environment for graduates in the fields of electrical,

electronic, mechatronic and computer engineering, to explore the application of technology to engineering problems. This innovative work forms part of their practical professional training.

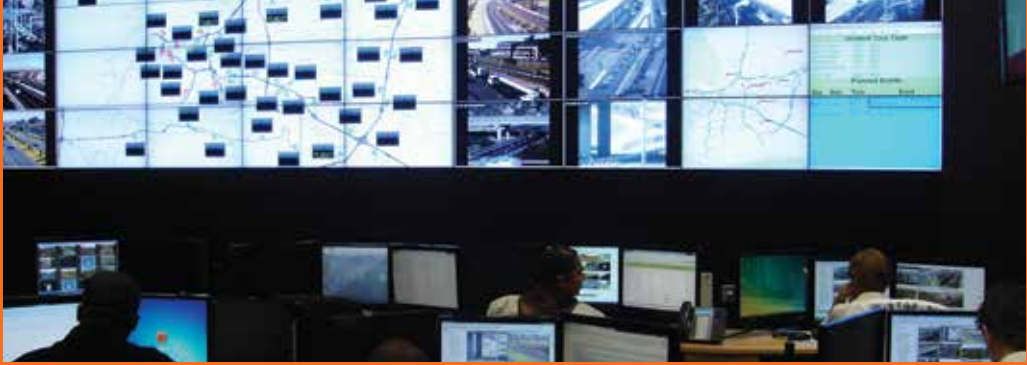
In 2018/19, there were five students at the hub and work progressed on the following pilot projects and feasibility studies:

- Testing the use of drones to perform geotechnical inspection of the stability of cuts at Sir Lowry's Pass.
- Investigation of the benefits of solar road studs on a stretch of the N1.
- Experimental use of a robotic flagger in conditions hazardous to human flaggers.
- Evaluating the use of camera technology to understand patterns of pedestrian movement.

Strategic Objective 6: Utilise technology, research and innovation to advance the provision, operation and management of the national road system (meet road user needs)

CASE STUDY

Technology makes roads safer



Road users can rightfully expect to travel on safe surfaces and in safe circumstances. One of the ways in which this is achieved is by utilising technology, research and innovation.

This is the case on the national roads managed by SANRAL with only some of the many examples shared below from the reporting period.

Wanton destruction of electrical installations at some intersections along the N2 in KwaZulu-Natal was rampant - until SANRAL installed intelligent monitoring systems. Millions of rands worth of transformers, electrical distribution boxes and street light poles were destroyed or stolen.

The sabotage of electrical equipment is to get hold of copper cabling which is then sold to scrap metal dealers.

The agency is committed to the safety of motorists and pedestrians, but this vandalism endangered its approach - particularly at night.

Counter-measures include the placing of sensors in transformers and electrical distribution boxes to pick up any unusual vibration. A signal is then sent to the Traffic Management Centre (TMC) which will dispatch security personnel to apprehend the thieves.

This was initially done at the Umgeni Road and Umdloti interchanges.

Vandal-proof light poles replaced those cut down by cable thieves. Here closed-circuit television cameras will assist the TMC to act against any potential theft.

A different kind of safety approach was evident on the N1 between Johannesburg and Pretoria. Earlier this year the vehicle in which a mother and daughter travelled broke down in the middle lane, with fast-moving traffic making this terrifying situation even worse.

They were rapidly saved because SANRAL could detect the incident immediately and send out a rescue vehicle.

The Gauteng Freeway Improvement Project includes on-road services such as tow trucks and medics on motorbikes for exactly this kind emergency. The system attends to some 750 incidents every month - from fatal crashes, broken down trucks and the kind of problem that mother and daughter encountered.

Godfrey Makhubela was the SANRAL flatbed driver who pitched up in his reflective clothing. He was sent out by the agency's central operations centre at Samrand. He directed the traffic away from the stranded vehicle, placed beacons all around it, then moved the car off the road to the nearest e-toll gantry where there is a wide concrete section to park on. The freeway was again flowing freely.





4 Social and Relationship Capital

4.1 Introduction

As a state-owned enterprise, SANRAL's corporate ethic is strongly influenced by government policy and strategy. This is reflected particularly in the manner the agency seeks to build and consolidate its social and relationship capital.

SANRAL leverages road construction and maintenance contracts to help address South Africa's most pressing social and economic challenges: widespread poverty that is compounded by and rooted in historic patterns of inequality, high unemployment especially in rural areas and among young people and women, and skills deficits among the most disadvantaged sections of society.

In addition, SANRAL strives to contribute to a democratic culture by following consultative practices in the development of roads. The agency seeks to ensure that the members of the public appreciate how it fulfils its mandate and to balance the various interests that are affected by the processes of road construction.

This section of the report provides details of performance in several areas that contribute to the above, namely:

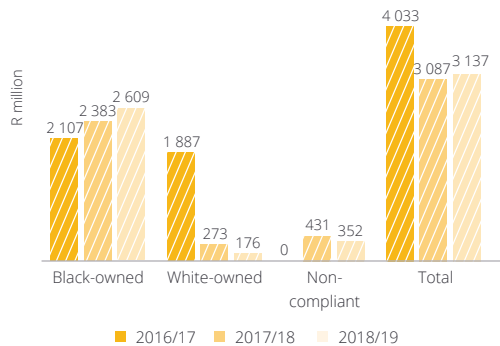
- SMME development, work opportunities and skills training generated by our road construction, rehabilitation and maintenance projects.
- Community development projects undertaken to improve road safety and mobility in selected residential areas close to the national road network. These, too, have an economic impact.
- Road safety initiatives pursued in collaboration with a wide range of stakeholders.
- Various communication and stakeholder initiatives undertaken to facilitate many aspects of the agency's work, to account for its use of public funds, and to improve understanding of SANRAL's mandate.

4.2 Empowerment, job creation and skills building

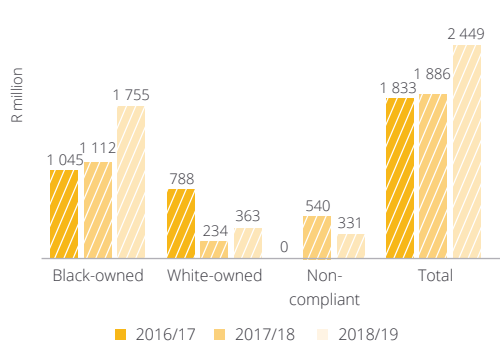
In the face of the slowdown in activity on SANRAL's construction projects in the past year, total value of work undertaken by SMMEs in 2018/19 increased modestly year-on-year (1.6%), while the number of contracts grew significantly - by nearly 30%.

The drive for empowerment of black-owned SMMEs was sustained in the current reporting year, with 72% of contracts and 83% of the value of work accruing to black-owned SMMEs. The relevant figures for 2017/18 were 59% and 77% respectively.

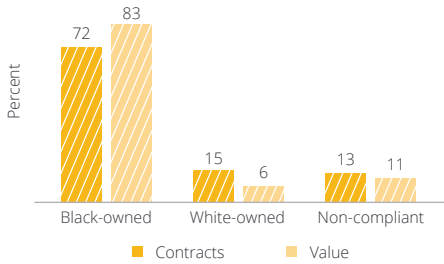
Trend in total value of SMME contracts awarded



Trend in number of SMME contracts awarded



Percentage share of 2018/19 SMME contracts and value of work

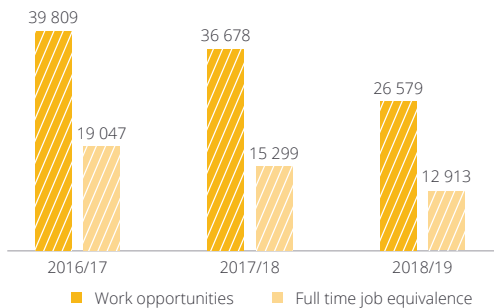


There was a decrease in the number of work opportunities afforded through SANRAL contracts in 2018/19. About 10 000 fewer work opportunities were available than in the previous year – a decrease of 27%. However, work opportunities created in 2018/19 were, on average, of longer duration.

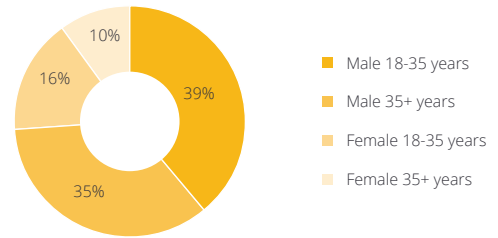
As a consequence of the drop in work opportunities, there was also a major decrease in training offered to workers employed on SANRAL contracts.

This situation is attributable to delays in the awarding of tenders for planned construction projects.

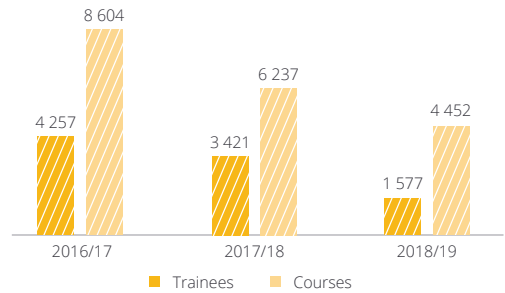
Trend in work opportunities created



Composition of workers employed on 2018/19 contracts



Trend in training provided through contracts



Concessionaires building small business and creating jobs: 2018/19

	TRAC	N3TC	Bakwena
Value of work by SMMEs	R23.7m	R174.8m	R52.5m
Jobs created	583	1 345	1 006



4.3 Community development projects

SANRAL’s community development projects seek to counter the sentiment that rural towns and villages are being bypassed by progress: there are major improvements to nearby national roads while local roads are in a poor state. SANRAL improves an aspect of local road infrastructure in selected localities and thereby creates opportunities for local SMMEs and residents to work on these projects.

Increasingly, community development projects are being positioned as the first stepping stone in a process of development and transformation within the construction sector.

Typically these projects involve the building of pedestrian walkways, surfacing of gravel roads, improving drainage, and upgrading layby facilities for taxis and buses. These improvements are suited to labour-intensive construction methods and generate a relatively large number of temporary work opportunities.

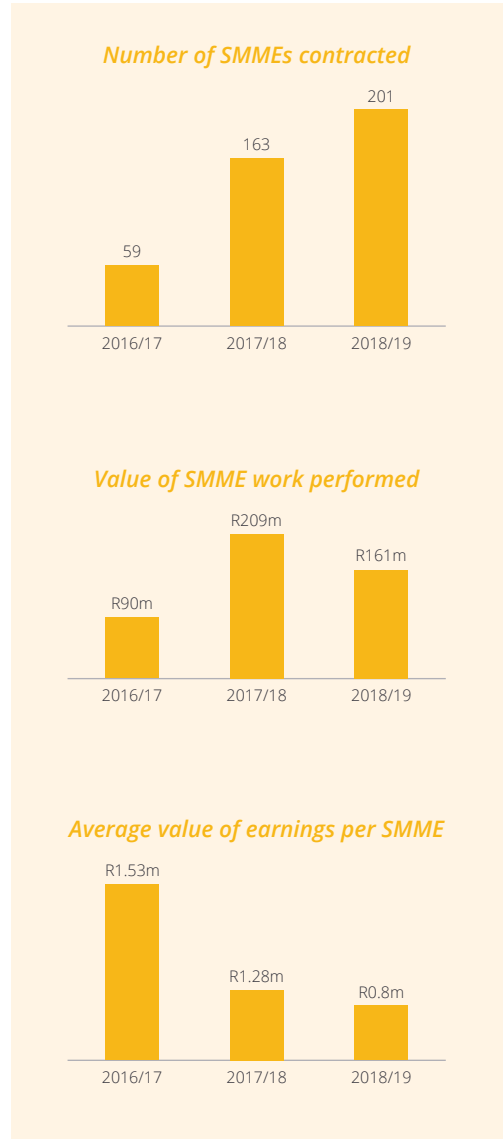
In 2018/19 total expenditure on community development amounted to approximately R221m, a decrease of 40% on the amount of R367m spent in 2017/18. Seventeen (17) projects were in construction during the year, this includes new projects and projects that commenced in prior years, eight (8) of these projects were completed during the year.

Although the number of SMMEs participating in these projects increased by 21% to 201 entities in 2018/19 and the training of workers expanded, the economic benefits to local companies and residents were reduced. The total value of work performed by SMMEs declined by 23%, the number of work opportunities by 12%, and the total earnings of workers on projects by 35%.

All SMMEs contracted under the community development initiative were black-owned.

The 1 537 work opportunities created were equivalent to 1 024 full-time jobs.

Benefits to SMMEs



Strategic Objective 5: Ensure relevance and grow the footprint and impact of SANRAL by

5.1 Positively impacting on communities where we work

5.2 Build co-operative relationships with other road authorities and departments for effective delivery

5.3 Develop the capability and capacity of other roads authorities

5.4 Enhance job creation.



CASE STUDY

Rural development is in our DNA

The urban-rural divide is a neglected aspect of inclusive growth, but for SANRAL peri-urban and rural development are natural areas of activity as road construction and maintenance takes us across the periphery of cities to quiet towns and remote villages.

In the Western Cape, for example, the upgrading of a critical section of the N7 freeway has had a positive impact on local communities beyond the initial construction activity.

Near Malmesbury SANRAL undertook intense rehabilitation of the existing road and improved the layout of the freeway's ramps to enhance traffic movement in and around the town. The project has made its mark on the economy of an area which has high unemployment, although it is just 65km north of Cape Town.

Since construction started in 2015, the project has generated more than 500 work opportunities for residents. This has been accompanied by training and supplier development programmes. For residents of small villages, such as Wesbank, access to jobs meant inclusion in the regional economy.

"Many of our local residents are now able to put food on the table for their families," says the project liaison officer Lilian Leukes. "Others have used it as a launchpad to improve their skills and expand career opportunities."

The multi-year project affected local traffic patterns and movement of pedestrians. But close liaison between contractors and communities resolved initial challenges that arose. Residents have shown patience and cooperation during the construction period.

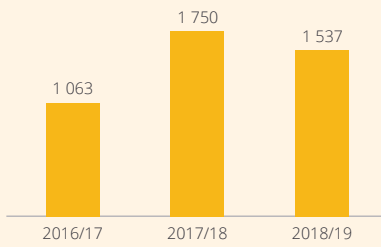
The project has also contributed to closer working relationships between SANRAL, provincial and local road authorities and private sector contractors. This is a legacy of empowerment that will remain long after construction has been completed.

"This project demonstrates the value that road infrastructure can add to local and regional economic growth in an important part of our country," says Steph Bredenhann, SANRAL project manager.

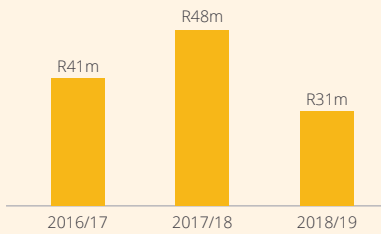


Job creation and poverty alleviation

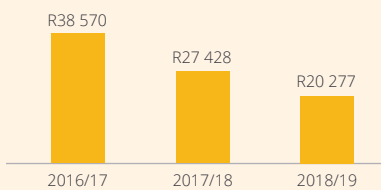
Number of work opportunities



Total earnings of workers

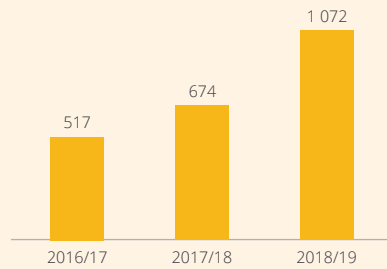


Average earning per work opportunity

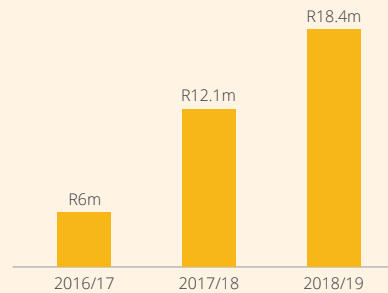


Skills development

Number of workers trained



Spending on training of workers



4.4 Road safety programme

Road safety is inseparable from SANRAL's statutory mandate of developing and managing national roads. The improvement and good maintenance of roads invariably contribute to road safety. But SANRAL has elected to go the extra mile in promoting road safety in a country with one of the highest road death rates. This is reflected in the identification of road safety as one of the agency's four business pillars in its long-term strategy, Horizon 2030.

Engineering for road safety

Engineering plays an important role in road safety and all SANRAL road development and upgrading projects take account of safety to a greater or lesser extent. Effective interventions may be extremely simple – such as quality control of paint used for road markings, adequate lighting, the erection of roadside fences, or the creation of pedestrian sidewalks – or they may involve intricate design to achieve optimal traffic flows and reduce opportunities for collisions.

The short list below highlights the safety features of just a few recent projects:

- The construction of a dual carriageway and new intersection on the R71 in Limpopo at the turning to Moria, headquarters of the Zion Christian Church and the venue for massive religious gatherings and special festivals.
- Improvements to four intersections on the N12 near the dense residential areas of Jouberton and Alabama in Klerksdorp, North West.
- Completion of the magnificent Mount Edgecombe Interchange on the N2 north of Durban, where directional ramps reduce the need for traffic lights, not only relieving congestion but also ensuring safer free flow of traffic.
- Upgrading of the N2, between the Mtunzini toll plaza and Empangeni T-junction, where several fatal crashes have occurred. Transformation into a dual carriage highway will accommodate increasing traffic volumes more safely.
- The major overhaul of the infamous Moloto Road through traffic calming features, closing of illegal access routes, proper fencing and new pedestrian walkways.



Strategic Objective 2: Provide and manage a safe national road network (primary avenues of mobility) to enable and contribute to economic growth and social development

CASE STUDY

A tale of chicanes and roundabouts



Kathu may be far away and in the middle of nowhere, but when the good people of this Northern Cape town decided the N14 going to Olifantshoek was a bit too much, SANRAL listened . . . agreed . . . and did something about it.

The problem started when development came to Kathu, now known as the iron ore capital of the Northern Cape. Development meant residential and industrial expansion – more jobs, more people and more traffic.

Roads in the area had not been built for this kind of growth and road safety suffered.

For example, truck drivers and other motorists travelling to Kathu from Olifantshoek had to come to a complete standstill at the T-junction with the R325 before turning left to Kathu or right to Postmasburg. Most drivers do not exactly expect to stop on a highway and there

were occasions when drivers were caught by surprise and just went straight ahead, ending up in the veld.

SANRAL set about improving road safety in the area with a combination of chicanes, roundabouts and sidewalks.

Chicanes are S-curves deliberately incorporated into a road to slow down traffic. Here they were particularly aimed at slowing down heavy trucks approaching the intersections.

Special attention was given to pedestrian safety by incorporating sidewalks for safer access.

Roundabouts were also installed, again to slow down traffic and regulate its flow.

These are simple tried-and-tested methods. Nothing flashy or ground-breaking. But they have made a world of difference in Kathu.

Contributing to road safety policies

The Roads Policy for South Africa sets benchmarks on all matters relating to road regulation, road infrastructure, road safety, road funding and non-motorised transport. SANRAL has played a significant role in updating the road safety component of the roads policy by integrating aspects relating to engineering, education and enforcement.

In 2018/19 a particular focus for the agency was contributing to guidelines for Public Transport and Non-Motorised Transport to address accessibility, mobility and safety of all road users, including pedestrians and cyclists. For the majority of people in rural areas, walking is the only available option, even for transporting goods, yet their needs have been largely overlooked.

The guidelines will contribute to addressing hazards that pre-date our democratic era, including poor pedestrian management and spatial planning that has permitted location of “pedestrian generators” close to freeways. There are almost 9 500 schools located within five kilometres of SANRAL’s national roads.

The guidelines outline how to achieve a better balance between freeway mobility, public transport and pedestrian road use. More than 40% of fatalities on our roads involve vulnerable road users such as pedestrians, wheelchair users and cyclists, and the guidelines aim to reduce their vulnerability.

Educating on road safety

SANRAL’s road safety education programme is run in partnership with schools and focuses on equipping teachers to deliver relevant content in a way that is likely to impact on the behaviour of learners. It is based on a three-year study that SANRAL commissioned to establish “what works” when trying to persuade young people to adopt safe road-use practices.

2018/19 was a hugely productive year for the programme. A total of 88 train-the-trainer workshops were conducted at 39 sites and these were attended by 1 569 teachers from 116 schools. The well-established programme experienced a dip in 2017/18 but the more recent figures suggest it has come back stronger than ever.

Participation in SANRAL road safety education programme

	2016/17	2017/18	2018/19
Schools in road safety programme	334	116	867
Teachers attending workshops	614	207	1 569
Teachers equipped with teaching resources	2 473	853	4 891
Learners at participating schools	185 529	38 462	209 631



Mobilising effective incident response

Road incident management systems (RIMS) exist for national roads and other roads that support economic development zones and areas of strategic importance to particular provinces. They serve to coordinate the efforts of law enforcement, emergency and medical services in responding to incidents. The objective is to detect incidents early, respond rapidly and utilise resources efficiently in order to save lives and minimise traffic disruption.

SANRAL has been mandated by the Minister of Transport as the RIMS implementing authority. This role includes the planning and establishment of systems, training, project management, and monitoring and evaluation.

A national RIMS policy and national operating procedures ensure standardisation across various RIMS and encourage best practice.

SANRAL supports RIMS in various provinces by advocating for their development to stakeholders at management level and collaborating to provide training for staff members. An accredited RIMS training programme has been developed by SANRAL and is offered to all emergency services that respond to road incidents.

Concession holders' road safety initiatives

TRAC, N3TC and Bakwena make a contribution to road safety on the national toll routes that they manage. (See table on page 80 and 81.) In various ways, they address the challenges of creating safer roads, modifying the behaviour of road users, and responding effectively to road incidents, including crashes.



Road safety on toll routes under concession

	TRAC	N3TC	Bakwena
<p>Safer roads</p> 	<p>Reduction of speed limit on N4 at Schoemanskloof; new limit painted boldly on asphalt</p>	<p>Measures to address hazardous locations</p> <p>Improved signage and road markings</p> <p>Rapid removal of road debris and lost loads</p> <p>Additional guardrail protection of light poles, bridges, culverts</p> <p>CCTV monitoring and messaging for road users</p> <p>Preparedness for snow falls and fires</p> <p>Average speed enforcement</p>	<p>Surveys, site visits and design proposals for non-motorised transport facilities in Bapong and Majakaneng, North West</p>
<p>Safer road users</p> 	<p>Launch of youth-focused 'No Drinking and Driving' campaign at Innibos arts festival in Mbombela, Mpumalanga. Campaign utilised flashmob activities in bar areas, malls and high schools, conveying its messages through song, dance and recorded messages</p> <p>Awareness campaigns along route during Easter and December peak traffic periods</p>	<p>Road safety awareness and education projects in partnership with law enforcement agencies and emergency services, including:</p> <ul style="list-style-type: none"> • Driver wellness campaigns • Roadworthy tests • Pedestrian education • Alcohol and narcotics screening <p>Law enforcement in relation to driver vision, registration plate display, transport of dangerous goods</p>	<p>Sponsorship of Safe to School Project, including:</p> <ul style="list-style-type: none"> • Surveys among learners in Bapong, Majakaneng and Segwaelane in North West to identify issues and guide education activities • Organisation of volunteers to assist learners to cross busy intersection

Prompt and effective incident response



	TRAC	N3TC	Bakwena
	<p>Collaboration between TRACAssist, ER services and law enforcement authorities to ensure swiftest possible response to incidents during Easter and December peak travel periods</p> <p>Operation of 24-hour helpdesk that received 12 275 calls during 2018/19 and attended to 2 122 incidents and 1 140 crashes</p>	<p>Ongoing support to RIMS:</p> <ul style="list-style-type: none"> • Improved response times • Post-incident assessments • Enhanced 24-hour route patrol • Agreements with service providers to boost traffic and emergency support during peak traffic periods 	<p>Participation in RIMS in cooperation with law enforcement and emergency rescue services in 3 provinces and four districts as well as at NTC (National Technical Committee).</p> <p>Operation of 24 hour helpdesk</p>



4.5 University partnerships

SANRAL's partnerships with universities centre on a shared interest in:

- Increasing relevant research and post-graduate study in engineering and related fields.
- Enhancing undergraduate teaching in civil engineering.
- Promoting the learning and teaching of science and mathematics at school level

The SANRAL Chair in Pavement Engineering at Stellenbosch University (SU)

This Chair has a dual teaching and research function. It has played a strong role in empowering black professionals and a significant proportion of post-graduate students are drawn from other African countries. The Chair has headed up an initiative to stimulate the interest of students in asphalt engineering. This takes the form of the Annual Asphalt Briquette Competition – with a healthy cash prize – that integrates classroom and practical learning with students' competition projects.

with the aim of ensuring a strong flow of talented young people into the engineering professions.

The partnerships increase the public visibility of SANRAL, help the agency meet its own demand for engineering professionals and relevant research, and contribute to a dynamic engineering sector with world class expertise in road design, construction and management.

SANRAL has endowed three specialised chairs at universities which are described below.



The SANRAL Chair in Transport Planning at the University of Cape Town (UCT)

The Chair is also the Director of Undergraduate Studies in Civil Engineering and is driving a process of reform in the civil engineering curriculum as part of UCT's broader commitment to decolonisation. The research places a strong emphasis on the potential impact of transport planning on social equity and alleviating poverty.

In addition, the UCT SANRAL Chair is working with SANRAL to establish a computer laboratory at the university with a link to Cape Town's Freeway Management System (FMS). This will enable state-of-the-art research in the field of freeway transportation planning and engineering.

The Chair is part of an international consortium aiming to establish a Centre for Sub-Saharan Leadership in Transportation, which will probably be hosted by Kwame Nkrumah University of Science and Technology in Ghana. It will target mid-career professionals and focus both on management and advanced engineering studies.



The SANRAL Chair in Mathematics, Natural Science and Technology Education at the University of the Free State (UFS)

The Chair directs its energies at post-graduate research on the teaching of maths, science and technology and the training of teachers for these subjects. It recently achieved its extremely ambitious target of producing 25 PhD graduates in a five-year period.



4.6 Science programmes for learners, parents and teachers

SANRAL sponsors programmes offered by two universities to primary and secondary school learners in order to encourage their interest and strengthen their performance in science and mathematics. It also supports programmes to enhance the teaching of these subjects.



Science-for-the-Future

This programme is an initiative of the UFS and it has three distinct components:

- The ICT Laboratory for Science is geared to the needs of learners in grades 9 - 12 who show promise in maths and science. Over two or three years, the programme offers learners about 30 laboratory sessions at the Bloemfontein and QwaQwa campuses of the university. Content from the science curriculum is presented to them in novel ways, utilising information technology.
- Key Concepts in Science covers the grade 8 and 9 natural science curriculum and seeks

to enhance school teachers' ability to present and explain scientific principles.

- The Family Math and Family Science Programme seeks to excite interest in maths and science among younger school children and build their confidence in studying these subjects. It does so through a triangular strategy that trains and equips teachers to adopt novel teaching methods which they then use in the classroom and in special workshops with parents of learners. The design and supply of learning materials and activities is central to the strategy. The programme now operates in five provinces.



Cumulative reach of UFS science programmes 2009 - 2018

	Learners	Teachers	Student teachers	Parents of learners	Subject advisers
ICT Laboratory	3 228	-	1 717	-	-
Key concepts in Science	2 329	46	-	-	4
Family Math/ Science	104 654	2 330	3 838	38 268	168

Nelson Mandela University (NMU)

NMU runs the STEM in ACTION programme which aims to promote maths and physical science among grade 10 -12 learners in the Nelson Mandela Bay metro, improve their performance in these fields, and encourage them to take up careers in the fields of science, maths, engineering and technology. It also seeks to empower teachers to improve the quality of science and maths education.

The ICT Laboratory developed by UFS is now also offered at NMU's Missionvale campus.

The STEM in ACTION initiative catered for a total of 2 295 learners in 2018, nearly 90% of whom were black. Its activities were constrained by limited financing and renovations to the facilities in which they conduct sessions.

A feature of the NMU programme is the GATE project which aims to boost the science and maths performance of selected learners in grade 10 – 12 to the extent that they will be

eligible for science-related tertiary studies. Learners are drawn from disadvantaged areas and selected on merit. They are offered academic support sessions on the university campus as well as career guidance. About 20% of the 2018 grade 12 participants achieved a science mark of 70% or higher.

GATE programme in 2018

Grade	No of learners	No of academic support sessions
10	43	7
11	31	8
12	38	18

Concessionaires' support for education, health and social development

TRAC	N3TC	Bakwena
<p>Education</p> <p>E-learning project: enables 8 260 learners at eight schools along the N4 to access online maths and sciences classes in specially equipped classrooms</p> <p>Thanda Primary School, Hectorspruit: major upgrading of overcrowded non-fee-paying school to accommodate 880 enrolled earners and provide ablution facilities</p> <p>Penreach Asifundze Literacy and Numeracy Programme: improving numeracy and literacy through teacher training and reading camps for learners</p> <p>Bursaries:</p> <ul style="list-style-type: none"> • An MSc student and a BTech student working on EWT's reducing Roadkill Project • 45 healthcare workers undergoing practical training at SAVF Middelburg Old Age Home • Two staff members at Penreach undergoing early childhood development training • Two high school children sponsored through Innibos Meridian Educational Trust • Four final year students at University of Pretoria <p>Social development</p> <p>Sports development – R890 000.00</p> <p>TRAC supports the RCL Selati & TRAC Matsulu Cups – in partnership with RCL. Social upliftment to community sports clubs and needy schools along the N4 with sports kits. Participation in sports bring the youth pride in their teams and creates social upliftment with a poor community and as well as a sense of purpose. Canoeing, hockey, rugby, soccer, netball and cricket</p>	<p>Education</p> <p>Investment ranges from early childhood development (ECD) initiatives to primary school learner support and tertiary student bursaries</p> <p>With its partners, additional maths and science development programmes for secondary students are offered</p> <p>A number of literacy programmes, educator skills development projects and environmental education initiatives are supported</p> <p>Health</p> <p>With many communities along its route in sparsely populated areas, lack of resources and infrastructure often contribute to abject poverty. As a result, the focus is on support for community projects and feeding schemes; the creation of food gardens, small scale farming initiatives and partnering with Meals on Wheels</p> <p>Trucking and driver wellness is supported with regular wellness clinics with a range of primary healthcare services such as HIV, cholesterol and glucose screening, and basic eye tests</p> <p>During the reporting period primary healthcare services were provided to 2 290 patients of which 495 were community members</p> <p>Social development</p> <p>The flagship Touching Lives programme is focused on sustainable enterprise development and job creation through investment in initiatives aimed at achieving clear commercial and development goals to generate household incomes, stimulate community spend and promote economic growth</p> <p>Last year 90 248 people (mostly <18) benefitted with 405 full-time jobs and 604 part-time jobs created</p>	<p>Education</p> <p>Functional Schools Projects: career education for teachers and learners and life skills support for learners, teachers and parents</p> <p>Health</p> <p>Cancer screening: cancer screening, tests and education conducted by Pink Drive in Bapong and Hammanskraal, North West</p> <p>HIV/AIDS awareness: activities to educate public on prevention and treatment of HIV and combat stigma</p> <p>Visual and audial screening of learners: in support of the Integrated School Health Policy</p> <p>Social development</p> <p>First Responders Projects: first aid training for learners, teachers and community members</p> <p>Drama for Change Project: training to develop learners' ability create and perform dramas about various social issues including road safety</p> <p>Small Business Development Project: entrepreneur training and support to small business sector in Groot Marico</p>

4.6 Communication and stakeholder relations

SANRAL's ability to communicate to the public and engage purposefully with stakeholders is increasingly important to the agency attaining its business goals. The new Transformation Policy has set in motion a process of fundamental change in the industry, creating expectations among those previously excluded and affecting established interests. It is vital that SANRAL continue to engage with all concerned groupings.

In recent years South Africa has witnessed powerful responses by various interest groups to road development, which is perceived (and often misperceived) to present particular opportunities and threats. These include:

- Early opposition in the Eastern Cape to the construction of the N2 Wild Coast road because the road development was misguidedly conflated with the introduction of mining in the area. This opposition to the highway has abated as SANRAL has continued to engage with affected communities, although opposition to mining in the area continues.

- The rise of what the media call the "construction mafia" who want road contracts at all costs and do not respect the reality that black economic empowerment cannot be divorced from sound procurement practice and good governance of state-owned enterprises. Communication with stakeholders plays a critical role in efforts to contain and hopefully eliminate this dangerous dynamic.
- Continued opposition to the tolling of urban freeways in accordance with the user pays principle. SANRAL consistently explains the rationale for the policy of financing certain roads through tolling, and the trade-offs that would have to be made in terms of road quality should the policy be abandoned.

In addition to the kinds of challenges outlined above, stakeholder engagement and mass communication contribute to the agency's road safety programmes, enhance the transparency of SANRAL as a publicly funded entity, and convey useful information to the public to make road travel more convenient.



CASE STUDY

Talking and listening helps build roads



Roads change lives in complex ways. There are always benefits but these often come along with some costs – and people may view these costs in different ways. Because of this, SANRAL takes the public participation aspect of planning any new road seriously.

A case in point was the N2 Wild Coast road, part of which would pass through pristine terrain between Port St Johns and Port Edward in the Eastern Cape.

Extensive public consultation was undertaken during environmental impact assessments conducted in 2001 and 2008. The Department of Environmental Affairs approved the road in 2010 and the Minister upheld this decision in an appeal in 2011. Later, representatives of several communities launched court action in a bid to reverse these decisions. They believed the road would facilitate the mining of sand dunes in the area.

Meanwhile, work to upgrade the existing N2 and R61 began – and SANRAL continued to listen and talk to residents on new 'greenfields' section of the route.

In 2015 the agency commissioned the Human Sciences Research Council to conduct a survey in Pondoland to establish residents' attitudes to the new road. Members of more than 1 800

households were interviewed and researchers concluded the vast majority – some 98% – supported the road development. About 50% were unemployed and believed the road would stimulate tourism and create jobs. But they were worried that the beauty of their area would be harmed and that high-speed traffic would be dangerous.

SANRAL continued to consult stakeholders – provincial, district and local officials, business chambers, traditional leaders and others – and attend community meetings. The agency took local advice on matters like access roads and pedestrian facilities. When it came to land acquisition for the road, SANRAL was joined by the Department of Rural Development and Land Reform in negotiating with the owners and occupants. Project liaison committees were established in towns and villages.

Over the years, most plaintiffs abandoned the legal battle against the road. When the matter was finally considered by the North Gauteng High Court, Government's approval of the route was upheld and Judge Cynthia Pretorius described SANRAL's engagement with residents as "one of the most comprehensive participation processes undertaken in this country".



Stakeholder engagement activities

SANRAL undertakes two broad categories of stakeholder engagements: targeted meetings that are linked to specific construction projects or issues – such as implementing the new Transformation Policy – and broader engagement with the public to explain the agency's role more broadly.

The flagship programme, Taking SANRAL to the People, includes both a targeted element and outreach to the general public.

SANRAL convened a total of 39 targeted stakeholder events, including 10 within the Taking SANRAL to the People model and nine meetings with municipalities. The remaining 20 involved a range of stakeholders, such as business organisations, labour federations, and faith-based organisations.

Because roads and the road construction industry play a key role in building the country's economy, *Business Day* is a compatible media partner with events that offer access to the

business community. SANRAL joined with the newspaper to host three *Business Day* Dialogues in 2018/19, in Mthatha, Cape Town and Mbombela.

Outreach to the general public

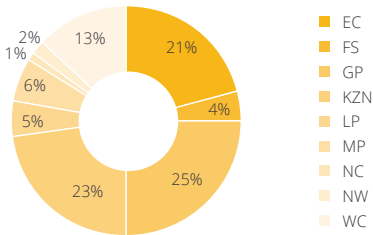
SANRAL organised a total of 112 events designed to interact with the public in all provinces. The 20th anniversary of SANRAL's establishment was marked with four cocktail events for external stakeholders and exhibitions in 25 shopping malls around the country.

Other important events were the signing of memoranda of understanding that underpin the implementation of our Transformation Policy. The official opening of the Mt Edgecombe Interchange in eThekweni was the closing activity in Transport Month and was organised in partnership with the SABC television programme, *Morning Live*.

Internal stakeholders

Every effort is made to keep staff across the agency abreast of new developments and to build positive corporate energy. A total of 47 staff events were organised during the year, including SANRAL’s 20th anniversary celebrations, observation of commemorative days, wellness days, and a screening of a short film made by the agency, *The Invitation*.

Provincial distribution of SANRAL staff and public events 2018/19



Advertising and marketing campaigns

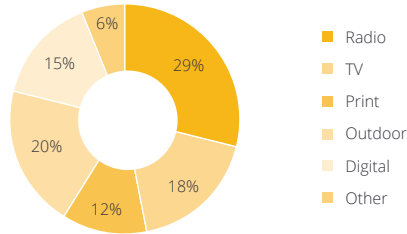
In 2018/19, SANRAL flighted nine diverse media campaigns, aimed at raising awareness of road safety, explaining the agency’s role and showing the impact of investment in national roads.

Total spending on marketing and advertising amounted to R158m, compared to R152m in 2017/18. This was spread across television,

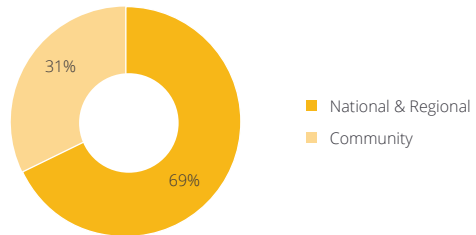
radio, print media, digital media, outdoor media and airtime voucher advertising.

As with all other contracts, in communication there is a strong emphasis on support for local business – in this instance, purchasing advertising airtime and space from community media.

Share of media spend by media type 2018/19



Ratio of national to community media advertising spend 2018/19



SANRAL
BUILDING SOUTH AFRICA THROUGH BETTER ROADS

BEYOND ROADS IS LOVE.

Why wait, get on our national road network and let us connect you with what matters to you most, family.

SANRAL.
Beyond roads.

www.sanral.co.za @sanral_za www.facebook.com/sanralza/ @sanral_za

Summary of SANRAL multimedia interventions 2018/19

Campaign	Mass media	Purpose
'Family Reunion' brand campaign	TV Radio Print Outdoor	The campaign spoke to the value of SANRAL by associating the brand with connection to loved ones and jobs, and exploring South Africa. It showcased the safety and good maintenance of SANRAL roads.
'Whoa' road safety campaign	TV Radio Print Outdoor Airtime Vouchers	Comprehending risk is fundamental to adopting safer behaviour. The campaign aimed to help people recognise their "whoa" moments (when they are exhausted or have had too much to drink) and do the safe thing (take a rest or call a cab) rather than get behind the wheel. The campaign was developed for the Easter and Festive periods.
'Do as I Do' road safety 365 campaign	TV Radio Print	The campaign aimed to encourage safe road use in adults by appealing to their desire to be good role models for their children. It emphasised that children learn more from adults' actions than their words.
'Overloading' road safety campaign	Print	This campaign highlighted the dangers of vehicle overloading and the damage this causes to roads. It targeted car, taxi and fleet drivers, as well as vehicle owners, including those in taxi and trucking industries.
'For the Love of Cars' campaign on toll roads	Print	The intention was to shift attitudes to toll roads in a positive direction by showing how toll income is spent and the value road users get on well-maintained roads.
Mandela, OR Tambo and Albertina commemorative campaigns	Print Outdoor	SANRAL is a state-owned enterprise and, as such, celebrated the courageous and principled leadership of Nelson Mandela, OR Tambo and Albertina Sisulu in their centenary years.
Women's Month campaign	Print	Women's Month represented an opportunity for SANRAL to assert its commitment to gender equality in what remains a male-dominated sector.
Youth Month campaign	Radio Print	This focused on young people who have benefited from SANRAL's internship and bursary programme and highlighted the agency's contribution to youth development.
'Coffee' Business campaign	TV Cinema Radio Print Outdoor	The 'Coffee' campaign used a product that we value and use every day to show how interconnected our lives are and how our vast system of national roads sustains this connection. It brought home the value of SANRAL's work.

Advertising and marketing achievements

In 2018 SANRAL commissioned Kantar Millward Brown to undertake a brand health survey to establish the impact of its communication campaigns. This focused on the ‘Coffee’ campaign and indicated that brand awareness had improved significantly from 44% in 2013 to 68% in 2018. (See page 96.)

Almost every measure of brand impact showed upward movement. This suggests that the negative SANRAL brand awareness from previous years is declining and recent advertising initiatives are generating positive perceptions. Brand building is an on-going journey and needs to be continuous in order to secure the reputation of the SANRAL brand.

Media relations and editorial coverage

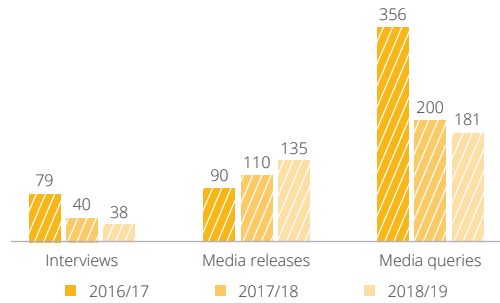
Equally valuable to campaigns is SANRAL’s engagement with editors and other journalists to ensure its voice is heard clearly in the news pages of newspapers, and the news and current affairs programmes of TV and radio. It is in the editorial space (rather than advertising space) that matters of major public interest are reported and debated.

During 2018/19, the agency featured in national, regional and community media at least 8 444 times. This is largely due to SANRAL’s willingness and ability to share information with journalists on a daily basis. During the year, a total of 135 media releases were distributed and 181 queries from journalists were answered. There has been a shift in how the agency relates to the media, with pro-active distribution of media releases gaining ground and journalist-initiated queries declining.

The total value of editorial coverage devoted to SANRAL in 2018/19 was about R313m, measured at advertising value equivalence

(AVE). This was a threefold increase on the value of coverage in the previous year. The monetary value is, however, merely a proxy measure for the level of media and public interest in the work that SANRAL does – and how it does it.

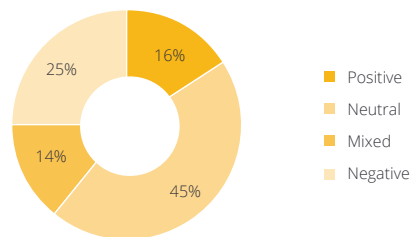
Measures of media engagement



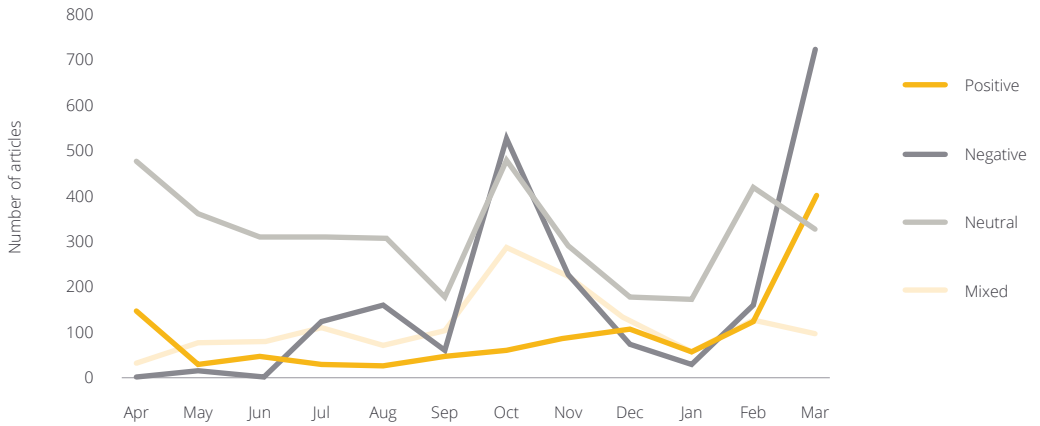
Note: media releases exclude the 140 traffic advisories issued in 2018/19

When it comes to tone and sentiment of reporting in 2018/19, across the year about 59% of reports were neutral in tone or contained mixed views on SANRAL. While 16% expressed a positive view of the agency, 25% were negative in tone. There were two major spikes in negative reporting in October and March. These related to reporting on irregular expenditure in the 2017/18 Integrated Report and differences in perspective among major state role players on action to be taken in respect of e-toll defaulters.

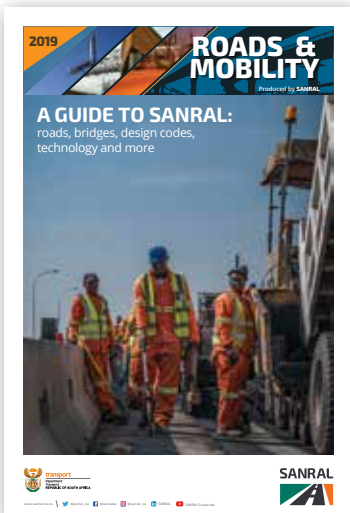
Sentiment of media coverage 2018/19



Trend in sentiment of media coverage articles on SANRAL in 2018/19



PUBLICATIONS



In-house publications

SANRAL produces a range of printed and digital publications for the general public, various stakeholders and its own staff members. Most of these are regular publications, distributed on a monthly, quarterly or annual basis.

The print format publications are distributed either as supplements inserted in community, regional and national newspapers, or made available directly to selected communities and

toll plazas through the agency's regional offices and service providers.

Numerous leaflets and electronic mailers are also produced and distributed.

Most publications are uploaded to SANRAL's corporate website (www.nra.co.za). Live traffic information, including details of road construction and deviations, is available on a second SANRAL site, www.i-TRAFFIC.co.za

Details of regular SANRAL publications in 2018/19

	Audience	Frequency	Number printed/ distributed per edition
NATIONAL PUBLICATIONS			
<i>By the Way</i> A free magazine covering all aspects of SANRAL's work	General public	Six per year	300 000 per edition
<i>People's Guide</i> Popular version of the annual integrated report	General public	Annual	2 000 000 inserted in various newspapers
<i>Investing in . . .</i> series Each edition focuses on a different pillar of delivery	General public	Two per year	1 500 000 & 2 000 000 (Road Safety Pillar)
PROVINCIAL PUBLICATIONS			
<i>Hello . . .</i> series Each edition describes work in a different province	General public within province	Nine per year	500 000 per edition
PUBLICATIONS FOR INTERNAL AND EXTERNAL STAKEHOLDERS			
<i>N-Route</i> Keeps external stakeholders informed of developments	Stakeholders in government, finance, industry	Four per year	Limited distribution
<i>Youth Month Digital</i> Highlights SANRAL's interventions for youth	Stakeholders in government, finance, industry	Annual	Limited distribution

InRoads Content of interest to staff, including lifestyle features	SANRAL employees	11 per year	About 400
On the Road Interesting engineering and environmental articles	SANRAL employees	Ad hoc	About 400
QUARTERLY PUBLICATIONS			
Booklets on Moloto Road and N2 Wild Coast road projects	Communities in affected areas	Quarterly	15 506 (Moloto) 21 722 (Wild Coast)
OCCASIONAL PUBLICATIONS			
Transformation Policy	Stakeholder	Once-off	10 000
Horizon 2030 summary	Stakeholder	Once-off	20 000
Mt Edgecombe booklet	Stakeholder	Once-off	600
Roads & Mobility	General public	Once-off	1.5 million
Roads & Mobility booklet	Stakeholder	Once-off	35 000
N2 Wild Coast Guide	Stakeholder	Once-off	250 000

Social media

There was increased interest in all SANRAL’s social media properties in 2018/19 and the agency strove to sustain this through a constant flow of fresh, relevant content. Literally thousands of items were posted during the course of the year.

Summary of SANRAL social media following and activity

	Total followers/ fans/ subscribers 31 March 2019	Annual growth in followers/ fans/ subscribers	SANRAL posts/ tweets/ uploads	Engagement
Facebook	196 510	74%	803	1 869 641
Twitter	33 116	103%	1 917	160 237
YouTube	544	41%	55	1 600 000 views
Instagram	4 301	117%	370	419 603
Linked	9 348	176%	133	19 696

CASE STUDY

Bringing home the value of roads



SANRAL operates from the premise that, if members of the public appreciate the value of high-quality roads – in terms of making their lives safer, more convenient and more pleasant – they will come to value the agency as well.

This approach has underpinned several creative communication campaigns and appears to be bearing fruit.

A brand health study conducted in 2018 by the global market research firm, Kantar Millward Brown, showed that consumers associated SANRAL with “building the South African economy” and “world-class infrastructure”.

The research was conducted partly to measure the impact of a media campaign which used the everyday luxury of coffee to show how SANRAL's roads help to meet our daily needs while linking producers to markets

The study surveyed 600 people in Johannesburg, Pretoria, Durban, Cape Town and Port Elizabeth and found that 68% of respondents recognised the SANRAL brand, compared to 44% five years earlier. However, many respondents were unaware that the national roads on which they travel are developed and maintained by SANRAL.

The emotional appeal of the ‘Coffee’ campaign improved SANRAL's brand equity, the study found. It recommended that the agency continue “demonstrating likeability and consumer centricity (which) will bring the brand closer to consumers”.

It also recommended that SANRAL should display its branding more prominently so that the public associates the agency with the roads it manages. A further recommendation was more extensive use of digital media to increase audience exposure to SANRAL messaging.





5 Natural Capital

Road construction is inherently a resource-hungry industry that disrupts the natural environment – yet roads and road transportation are central to the economy and social development of South Africa. SANRAL's approach to maintaining a balance between environmental, economic and social imperatives is to strive to reduce the environmental impacts involved in road building and to compensate for disruption of the natural environment through carefully planned off-set projects.

The government has enacted legislation that requires environmental impact assessments and the issuing of environmental authorisations for all major road development projects. SANRAL's core road building function is, therefore, directly dependent on its willingness and ability to undertake the environmental management measures stipulated by the environmental authorities.

However, on many occasions, the agency goes beyond the minimum requirements and makes a valuable contribution to securing our country's biodiversity.

Environmental laws, regulations and policies are constantly evolving as the existential threat to planet Earth becomes more evident to decision-makers. In 2018/19, there were some important developments that will impact on the industry.

The agency intends to pay increasing attention to providing leadership in the road construction sector in respect of curtailing carbon emissions and using natural resources more efficiently.

Statutory developments

In June 2018 the Minister of Environmental Affairs published the Climate Change Bill for public comment. The bill aims to deliver a nationally-driven integrated response to climate change and represents an opportunity to establish a legislative foundation for the country's climate change policies. SANRAL expressed its support for the bill and submitted comments on various aspects of it.

Government's concern about climate change and greenhouse gas emissions was also reflected in the revised Carbon Tax Bill, tabled in parliament in November. The legislation gives effect to the "polluter pays" principle and imposes a carbon tax on any person or entity that engages in activities that generate greenhouse gases above the prescribed threshold. SANRAL will review the carbon tax legislation and associated thresholds to determine their implications.

Green Transport Strategy

SANRAL contributed to the Department of Transport's Green Transport Strategy for South Africa: 2018 – 2050 (GTS) which was published during the year. The GTS focuses strongly on road transport as the mode that generates most greenhouse emissions and therefore offers the greatest opportunity for intervention. Not only does the GTS deal with energy efficiency and emission control, but also with the resilience and sustainability of transport modes in the face of climate change.

SANRAL's Environmental Policy

The Climate Change Bill, the GTS and SANRAL's long-term strategy, Horizon 2030, all informed a comprehensive review of the agency's Environmental Policy. Updating of the policy was also an opportunity to consider industry norms and standards.

The new policy provides more explicitly for efficient use of natural resources and the pursuit of alternative materials to reduce risks and build resilience, especially in relation to climate change. It emphasises monitoring of the impacts of SANRAL activities and continual improvement of environmental performance.

Landmark judgment on environmental authorisation

In March 2019 the Gauteng Division of the High Court upheld the issuing of an environmental authorisation by the Department of

Environmental Affairs for SANRAL to construct the N2 Wild Coast road and confirmed the Minister of Environmental Affairs' decision by dismissing appeals to the authorisation.

The applicants in the case argued that the decision to issue the environmental authorisation should be set aside because:

- The socio-economic impacts of tolling had not been considered.
- There had been inadequate public participation in relation to the road project.
- Alternative routes to the proposed highway were not adequately explored.

The court found in favour of the Minister of Environmental Affairs on all the above grounds, confirming that the Minister had considered all the facts before authorising the proposed highway. The court noted that the socio-economic impacts of tolling were a matter for the Minister of Transport and not within the authority of the Minister of Environmental Affairs.

The court further concurred with counsel for the respondents (the DEA, SANRAL and others) that the public participation exercise

undertaken by SANRAL for the project "must be one of the most comprehensive public participation processes undertaken in this country". On the consideration of alternative routes, the court relied on expert opinion and held that the DEA and SANRAL had considered alternative routes.

The outcome was significant for SANRAL as this was the first High Court challenge it had encountered to an environmental impact assessment and a different finding could have had serious implications for the continued construction of the N2 Wild Coast road.

Conservation in relation to major roads projects

The table on the next page summarises some important activities undertaken to conserve biodiversity and natural resources on construction projects during 2018/19.

The prolonged drought in parts of the country spurred contractors to apply more resource-efficient construction methods. While the restrictions have been relaxed in the Western Cape, conservation practices generally remain in place at the SANRAL regional office.



Intervention	Benefits
<p>Proposed P166, Mbombela, Mpumalanga</p> <p>SANRAL plans to construct a new road, running parallel to the R40 through Mbombela towards White River. The environmental impact assessment found this would affect a population of aloe simii, a critically endangered species.</p> <p>As a condition of granting permission for construction through the affected aloe habitat, the Minister of Environmental Affairs required SANRAL to undertake propagation trials on <i>Aloe simii</i>. This three-year study commenced in January 2019 under the stewardship of South African National Biodiversity Institute and Mpumalanga environmental authorities.</p>	<p>The off-set project has the potential to increase significantly the number of <i>Aloe simii</i> growing in the wild and improve its conservation status.</p> <p>The trials will increase knowledge about the propagation of the species in the wild, which is currently not well understood.</p>
<p>Construction of ring road, Musina, Limpopo</p> <p>The construction project has been interrupted but environmental monitoring of the baobab trees which were relocated continues.</p>	<p>All the baobab trees continue to survive.</p>
<p>Upgrade of Hammarsdale Interchange, KwaZulu-Natal</p> <p>SANRAL has harvested stem cuttings from naturally-growing, rare tree species found near the N2/N3 intersection. These will be used for vegetative propagation and planted at specific locations near the national road.</p>	<p>Conservation of a range of indigenous and protected plants.</p>
<p>N2 Wild Coast road project, Eastern Cape</p> <p>Controls on waste and the consumption of water have been imposed for this project. Weekly water monitoring is undertaken upstream and downstream of the Mtentu River Bridge.</p>	<p>There is evidence that the project has so far had no adverse effect on water quality. All water quality variables have been well within expected fluctuations.</p>
<p>N2 Wild Coast road project, Eastern Cape</p> <p>A plant rescue has been underway on this project for several years. This involves the identification, removal and, where possible, rescue or relocation of threatened or protected plant species. Botanical surveys, involving numerous field trips, were undertaken in the demarcated areas.</p>	<p>By March 2019, 29 300 plants had been rescued from grassland, forest and wetland ecosystems in the areas around Mtentu North and South. In addition, almost 3 000kg of grass seed was harvested to ensure seed stock is available for the rehabilitation phases of the project.</p> <p>In a second area, Msikaba South and North, 11 500 plants have been rescued.</p> <p>A comprehensive plant rescue database is being maintained which includes information on localities and traditional usage of these Pondoland plants.</p>

<p>Upgrade of Gwaing Bridge on N2 near George, Western Cape</p> <p>Permits were obtained for relocation of protected species affected by the bridge building, including 35 trees which are temporarily housed in the George Herbarium until replanting is possible.</p>	<p>This project has been temporarily suspended due to financial constraints of contractor.</p>
<p>Resurfacing of N2 between Riviersonderend and Swellendam, Western Cape</p> <p>Vegetation was relocated to just outside the development area, essentially in the same habitat.</p>	<p>The project, including plant relocation and rehabilitation of disturbed areas, was completed during the year.</p>
<p>N7 projects at Kalbaskraal, Abbotsdale and Trawal and from Malmesbury to Hopefield, Western Cape</p> <p>The projects made maximum use of water sources other than the municipal supply, including groundwater and treated effluent.</p>	<p>Although mandatory restrictions on water use were relaxed due to increased rainfall, SANRAL's contractors maintained their water conservation measures.</p>
<p>N7 between Atlantis South and Kalbaskraal</p> <p>The off-set plan entails restoration of degraded habitat to counterbalance land acquired for the road from the Kalbaskraal Nature Reserve.</p> <p>A comprehensive search and rescue of plants of conservation value was undertaken, phasing activities across the seasons and collecting bulbs, stem cuttings and seeds.</p>	<p>More than 28 000 plants were replanted into similar habits and rehabilitation of the habitat is progressive.</p> <p>There is a significant contribution to biodiversity and conservation as several species were found, including the critically endangered protea odorata.</p> <p>Maintenance and monitoring continue.</p>
<p>Special maintenance on N2 from Teleni to Ibika, Eastern Cape</p> <p>SANRAL assisted a school in Idyaba to eliminate the safety and environmental risk posed by a disused septic tank that was left open after ablution facilities were upgraded.</p> <p>Decommissioning the tank in accordance with the National Environmental Waste Management Act entailed sludge removal and transport to a waste disposal depot, earthworks and backfilling, and revegetation using indigenous plants.</p>	<p>The school environment was safer for hundreds of learners and teachers and SANRAL had demonstrated its concern for the wellbeing of a community adjoining the national road network.</p>
<p>Various projects</p>	<p>In-situ recycling of material is being implemented wherever possible on road strengthening and improvement projects. Roll-out of revised pavement design methods will be done through the South African Road Design System (SARDS).</p>

Contributing to toolkit for business

SANRAL has gained invaluable experience in the field of environmental conservation and is hoping that several of its case studies will be included in the Biodiversity Disclosure Project of the Endangered Wildlife Trust (EWT). The objective of this project is to “build the capacity

of businesses to better recognise, measure, value, and responsively manage their direct and indirect dependencies and impacts on biodiversity”. At its heart is an online toolkit that serves as a resource to business. SANRAL is in discussion with EWT about the inclusion of its case studies.

Concessionaires’ environmental initiatives

TRAC	N3TC	Bakwena
<p>TRAC undertook two significant plant search-and-rescue projects:</p> <p>Along the Belfast-Machado section of the N4, a total 1 141 plants representing 14 species were rescued</p> <p>At the Karino Interchange, 445 plants drawn from 14 species of conservation significance were rescued</p> <p>It demolished old railway houses along the N4 near Karino with permission from the South African Heritage Resource Agency (SAHRA)</p> <p>It submitted applications for closure of disused borrow pits and was awaiting responses at year end</p>	<p>N3TC planted vetiver and other grasses and applied topsoil and fertiliser to prevent erosion of slopes adjoining roads</p> <p>It applied additional erosion control measures, including gabions, earth berms and grouted stone pitching</p> <p>The company removed alien vegetation from road reserves and improved fire breaks by ploughing</p>	<p>Bakwena sponsored an eco-schools project for environmental education and development of “green” practices among learners. This involved:</p> <p>Ten schools in Hammanskraal, Gauteng, where EWT managed the project and learners recycled 30 000kg of waste</p> <p>Ten schools in Kgetleng and Ramotshere Moiloa, North West, where Wessa managed the project and schools earned R4 000 from recycling</p> <p>Bakwena also supported:</p> <p>Conservation education – training of six field guides in the Magaliesberg Biosphere</p> <p>Carnivore conservation – placement of four guard dogs to minimise conflict between carnivores and livestock farmers</p>





6 Human Capital

6.1 Introduction

SANRAL's human capital strategy is shaped by its statutory mandate and the fact that, as a state-owned enterprise, it has a responsibility to uphold cross-cutting policies of government.

In effect this means:

- Helping to drive the social transformation of the road construction sector.
- Striving for equity among its own employees.
- Ensuring high levels of professional competence and sound judgment that are non-negotiable on projects of the magnitude that SANRAL routinely manages.

There is a tension between SANRAL's need for highly experienced engineers, on the one hand, and transformation of the organisation, on the other. The agency has attempted to resolve this by:

- Growing our own talent by sponsoring the studies of promising black and female students in civil engineering and built environment disciplines, employing them and mentoring them within the SANRAL corporate culture.
- Retaining professional staff – whether recruited from elsewhere or nurtured within the agency – by creating a positive working environment with attractive conditions of employment.

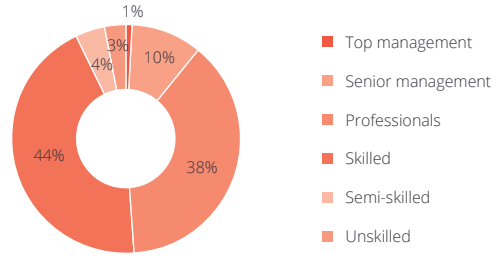
6.2 Profile of our workforce

SANRAL's staff establishment has expanded considerably in the past few years, becoming more diverse in terms of gender and racial composition.

The agency's ability to plan and manage the development and maintenance of national roads rests on the professional expertise of its managers and technical staff. Consequently, the composition of SANRAL's staff is weighted

towards senior managers, experienced professionals and middle managers who comprised 48% of the total staff complement of 423 employees in 2018/19.

Employees by occupational category



SANRAL seeks to attract and retain talent through good working conditions, skilled human resources management and growing its own talent. It does the last through a system of study grants at school and university level and its Technical Excellence Academy and Technical Innovation Hub for young engineering graduates. (See page 106 to 109.)

The agency's staff turnover rate doubled to 5.44% in the 2018/19 financial year. This was largely due to long serving employees reaching retirement age and some young engineers not being absorbed by SANRAL.

SANRAL's sound human resources management is reflected in its repeated recognition as a Top Employer by the international Top Employers Institute and its certification across 13 standards by the South African Board of People Practices.

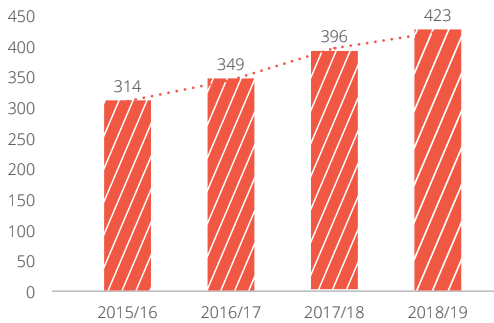
6.2.1 Growth and diversity

The staff establishment of SANRAL totalled 423 in March 2019, representing an increase of 6.8% year-on-year. While this growth was lower than the 13.5% growth recorded in the previous year it represents a sustained trend which has seen a 35% increase in the staff establishment over the course of four years.

This increase in the staff complement reflects SANRAL's concern with strengthening its capacity for policy compliance, particularly in the areas of supply chain management, procurement and finance. It was partly a response to changes in Treasury regulations and involved the establishment of a completely new department within SANRAL.

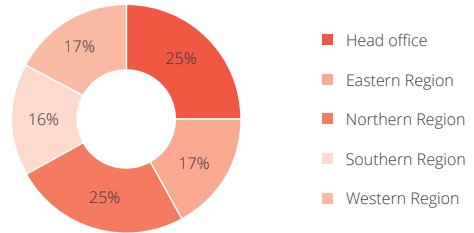
In addition, Transformation and Stakeholder Departments were created to ensure implementation of Horizon 2030 and the Transformation Policy and the Risk, Legal and Engineering Departments were expanded.

Four-year growth in SANRAL staffing



The growth in employees has been strongest at head office, yet three-quarters of SANRAL employees are still located in regional offices where the hands-on management of construction and maintenance contracts takes place.

Distribution of employees across offices



SANRAL has worked steadily to create a more diverse body of employees and 2018/19 contributed to this objective:

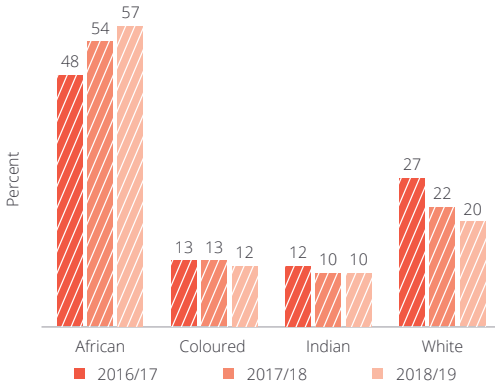
- By the end of the year, 79.3% of employees were black (compared to 78% in 2017/18), with African staff members comprising 57.7% of the total establishment (54% in 2017/18).
- Male employees continued to slightly outnumber female employees.

Women and black employees are still under-represented at senior management level, while women have also not achieved parity in the experienced professional/middle management occupational category. The situation reflects the historic lack of diversity among professionals in the engineering and road transport sectors. This is changing as more female and black candidates enter these fields as students and young engineers, but the effect has yet to percolate strongly into the senior ranks.

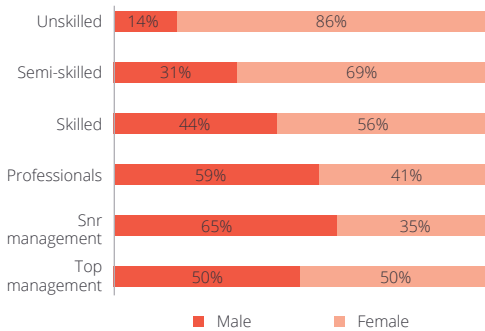


The predominance of African women in unskilled and semi-skilled jobs is marked.

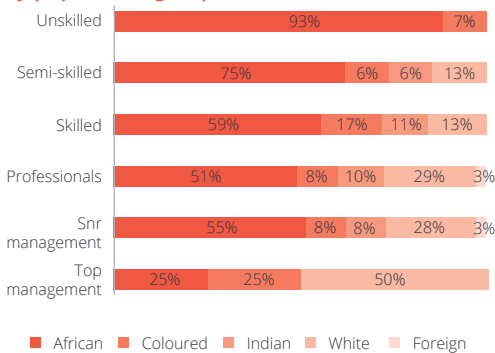
Distribution of employees by population group



Male: Female ratio in main occupational categories



Breakdown of main occupational categories by population group



6.2.2 Employee development

SANRAL encourages the development of knowledge and skills of employees at all levels throughout their careers. Avenues for personal growth range from on-the-job learning, to e-learning, participation in short courses, workshops, international knowledge and skills exchange, and study for diplomas and degrees at undergraduate and post-graduate levels.

A total of 133 SANRAL middle, senior and top managers from all offices participated in a leadership development programme during 2018/19. SANRAL invested about R2.1m in this programme.

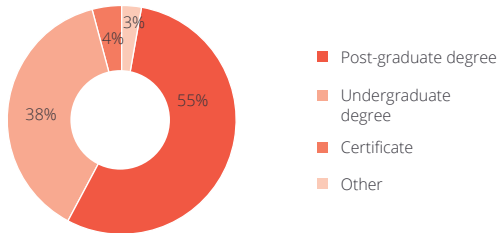
The agency also invested R2m in the training of 200 employees in fields including accounting, human resources management and engineering. Training involved short courses for skills-building, participation in international conferences and other courses contributing to mandatory continuing professional development (CPD).

	Expenditure	Participants		Percentage change
	2018/19	2017/18	2018/19	
Leadership development	R2.1m	135	133	↓ 1%
General training	R2m	106	200	↑ 89%
Internal bursaries	R3.4m	72	107	↑ 49%

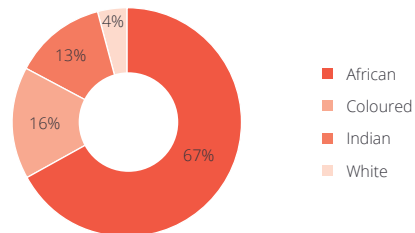
In 2018/19 SANRAL awarded bursaries for tertiary studies to the value of R3.4m to 107 employees, including 47 new applicants. More than half of bursary recipients were

engaged in post-graduate studies. African employees, both men and women, constituted a high proportion of internal bursary recipients.

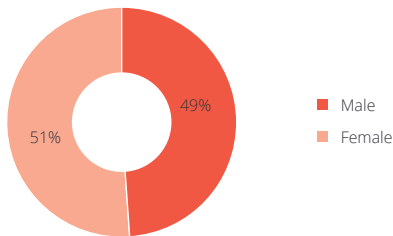
2018/19 internal bursary recipients by course of study



2017/18 internal bursary recipients by population group



2017/18 internal bursary recipients by gender



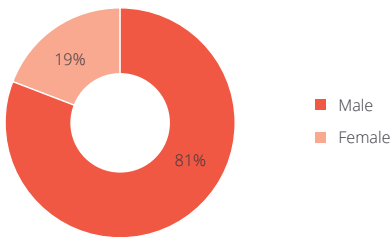
6.3 Building the engineering pipeline

The Technical Excellence Academy

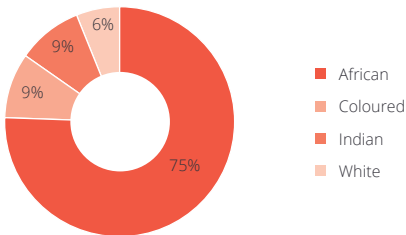
The SANRAL Technical Excellence Academy (TEA), housed in SANRAL’s Southern Region Office in Port Elizabeth, is a facility providing specialist training and mentoring to engineering graduates to enable them to fulfil the practical experience in road design required for professional registration with the Engineering Council of South Africa (ECSA). Candidates are exposed to a wide range of work and enjoy access to all the tools necessary for skills development – from specialised software to laboratory facilities. The aim is to enable young graduates to attain registration in an accelerated time frame.

In 2018/19, the TEA served 35 candidate engineers and technologists, including some who had held SANRAL and Department of Transport bursaries.

Composition of 2018/19 TEA candidates by gender



Composition of 2018/19 TEA candidates by population group



The Technical Innovation Hub

The Technical Innovation Hub (TIH), based at the SANRAL Western Region Office in Cape Town, provides practical training for five graduates in the field of electrical, electronic, mechatronic and computer engineering in 2018/19.

They experiment with a variety of advanced technologies, including the application of virtual and augmented reality in road development and management, the use of drones in surveys and three-dimensional modelling. Secondments to specialist engineering firms are negotiated to provide candidates with work exposure and training in their fields of interest.

Scholarships and external bursaries

SANRAL awards scholarships to learners in grades 10, 11 and 12 who are performing well in English, science and maths, and bursaries for tertiary study to promising young matriculants intending to study civil engineering or another degree relevant to SANRAL’s core business. The idea is not only to develop the agency’s future employees but to contribute more generally to the depth of talent in the construction industry and ensure that disadvantaged young people can access professional careers.



SANRAL's growing investment in talent

HIGH SCHOOL SCHOLARSHIPS

R3m
2016/17

R4.1m
2017/18

R6m
2018/19



TERTIARY STUDY BURSARIES

R8.5m
2016/17

R12.4m
2017/18

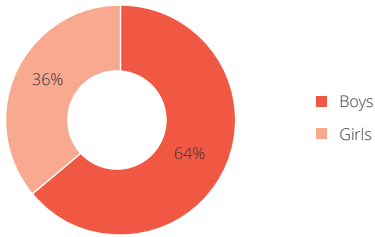
R15.5m
2018/19



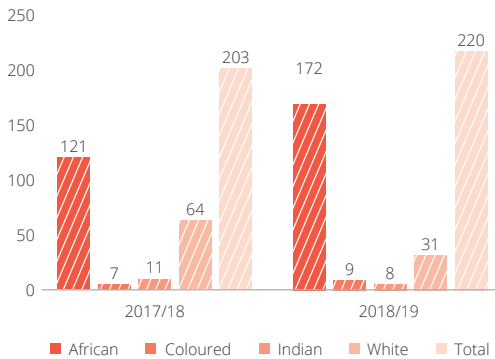
Scholarships

In 2018/19 scholarships were awarded to 220 learners drawn from 64 schools. Nearly two-thirds of the group were girls and the proportion of African learners has increased to 78%. The annual number of scholarships has varied only slightly in recent years, but the sum invested has increased considerably and amounted to R6m in 2018/19.

2018/19 scholarships by gender of recipients

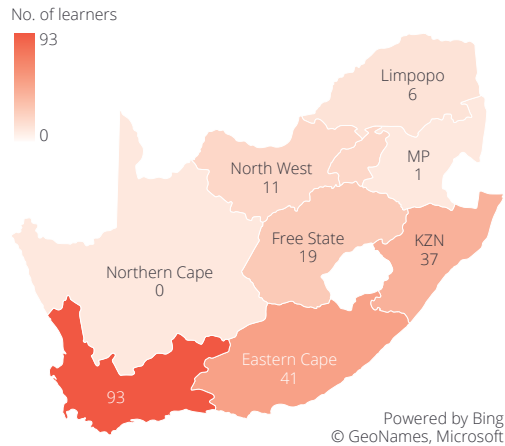


Number of scholarships awarded by population group of recipients



A pilot project was launched in KwaZulu-Natal during the year in an attempt to strengthen the contribution of the scholarship scheme to the transformation objectives envisaged in Horizon 2030. The new approach is not simply to fund the studies of talented high school learners, but to place them at schools that provide excellent tuition. Furthermore, learners are recruited from particularly disadvantaged areas. They are offered special support after placement at their new schools to bridge the academic gap and help them thrive socially and psychologically. Five bright learners from rural KwaMbonambi were selected in 2018/19 and their progress is being monitored to assess the viability of the approach.

Distribution of 2018/19 scholarship recipients by province



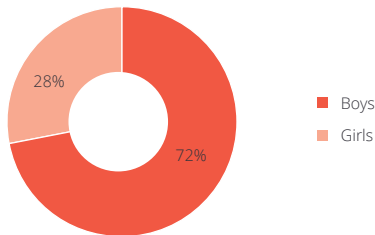
External bursaries

In 2018/19 SANRAL awarded external bursaries to 151 students attending 11 tertiary institutions and studying in the fields of engineering and general science at undergraduate and postgraduate level. The total investment was almost R15.5m.

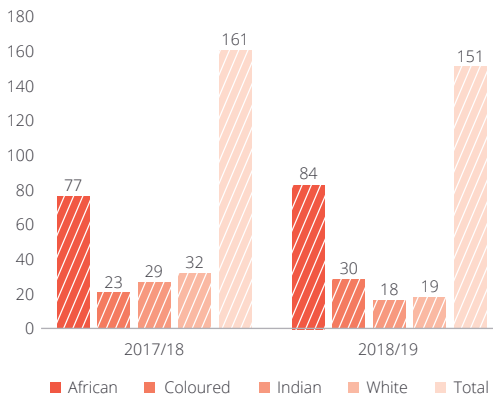
SANRAL regards this scheme as a tool to achieve an industry that closely reflects the demographic profile of the country. In 2018/19 the proportion of African recipients rose to 56% from 48% in the preceding year. The gender ratio is still far from SANRAL's target of parity. The selection process seeks to include students from different backgrounds, especially from disadvantaged and rural areas.

External bursary holders have the benefit of the company wellness programme, mentorship, and vacation work.

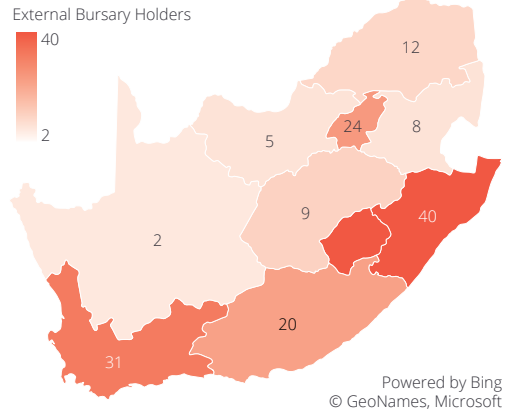
Gender ratio of external bursary recipients



Distribution of bursaries by population group



Distribution of 2018/19 bursary holders by province

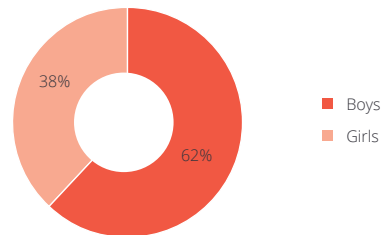


Internships

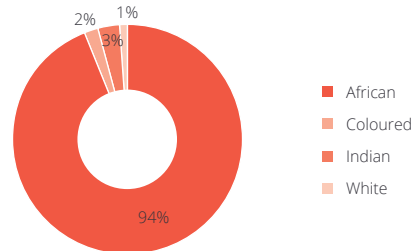
SANRAL facilitates work-integrated learning for students and graduates in various fields. These opportunities are created through contractors that are awarded SANRAL projects and in 2018/19 a total of 165 interns were placed. The composition of this group by population group speaks to a strong concern with employment equity, although gender representation is not as equitable.

Expenditure on the training of interns slightly exceeded R9.6m in 2018/19.

2018/19 interns by gender for 2018/19






2018/19 interns by population group



6.4 Employee wellness programme

SANRAL’s employee wellness programme, Ekhaya Wellness, offers a comprehensive counselling service and access to health information to SANRAL employees and members of their direct families. The counselling service deals with emotional, relationship and financial issues and is offered both by telephone (on a 24/7 basis) and in face-to-face sessions. Utilisation of the service trebled in 2018/19, largely because of the introduction of eCare, a digital service which gives employees access to health-related advice from professionals and includes an interactive mobile app. Most users of Ekhaya Wellness (82%) are employees, although family members also take advantage of the facility.

Utilisation of Ekhaya Wellness

	2017/ 18	2018/ 19
 Individual counselling	64	111
 Group interventions	28	6
 eCare digital service	0	184
Total	92	301

SANRAL supports an HIV and TB prevention and treatment programme for road maintenance workers and their families. It includes health education, HIV testing and TB screening, plus referral of workers to relevant facilities for HIV treatment.

Occupational health and safety

SANRAL complies with occupational health and safety (OHS) legislation in all respects and has trained safety officers in all its regions as well as an Occupational Health and Safety Committee that convenes quarterly. The total number of OHS Committee members is 86 as many attended courses in fire response, first aid, incident investigation and the role of OHS representatives.

SANRAL recorded six injuries on duty during the year.



6.5 Information and Communication Technology Systems

During 2018/19 the Information Technology Department finalised a five-year strategy designed to support Horizon 2030. The strategy focuses not only on the potential of ICT to make the agency more efficient – by automating processes – but also to take its work to a new level through the unprecedented data gathering, sharing and analysis capabilities that technology offers.

The investment of the agency in “mission-critical” ICT infrastructure and systems are the foundation on which this expanded plan for ICT rests. The early years of the strategy focus strongly on building this foundation, along with governance and security aspects.

Implementation of the strategy began to unfold in 2018/19, with activities in the following areas:

- The data centre upgrade: Phase 2 was virtually complete and included the development of a business continuity strategy for the centre (to deal with possible disasters) and the migration of historic back-up data to the new environment.
- The refresh of GFIP ICT systems including back office and roadside systems, the transaction clearing house and the centre for processing payment by untagged vehicle. This too was 99% finished.
- Improvement of the National Freeway Management System’s traffic management and traveller information solutions.

Governance

ICT governance is an important aspect of the overall governance of SANRAL and, while it is ultimately the responsibility of the board, it is managed very actively by the ICT Governance Committee comprising several senior managers.

ICT governance is not the simple setting and application of a set of rules. Because threats to ICT integrity are constantly evolving, governance

needs to be an ongoing activity that requires a commitment from the top of the organisation and a mentality that values continuous improvement and responsiveness to a fast-changing environment

Annual audits of ICT governance and security are performed by a contracted service provider, Business Innovation Group (BIG), and verified by the Auditor-General. As in the previous year, the overall ratings for 2018/19 were mainly good. Fewer audit findings were noted on the GFIP project due to the improvement of governance and controls.

Corporate ICT audit outcomes

	2017/18	2018/19
IT general controls	Good	Good
ICT governance	Good	Good
Information security	Satisfactory	Satisfactory
ERP (SAP Basis)	Good	Good

**Findings for 2018/19 subject to review by the Auditor-General.*

Business enablers

SANRAL ICT recognises the need to deploy technology to streamline processes and drive up productivity. This implies that users of technology will be empowered to use the capabilities of the tools provided and that ICT architecture is sufficiently agile to enable business process improvement.

The following 2018/19 projects have contributed to objective of business enablement:

- Provision of self-service solutions.
- Expansion of the video-conferencing facility.
- Installation of Wi-Fi.
- Improvement of internet capacity.

The status of these projects is indicated in the table below.

Planning, design and procurement

The capital projects below were undertaken in 2018/19. Most were completed during the financial year, while a few will reach fruition later in 2019.

Capital projects

Description	Planning	Design	Procurement
National wide area network (WAN): <ul style="list-style-type: none"> • Corporate WAN • Enterprise systems <ul style="list-style-type: none"> - Toll operations - Overload control 	Completed	Completed	2019
SAP digital transformation	Completed	Completed	2019
Active directory self-services	Completed	Completed	Completed
Wi-Fi installation	Completed	Completed	Completed
Additional video-conferencing stations	Completed	Completed	Completed
Internet capacity upgrade	Completed	Completed	Completed
Office 365	Completed	Completed	Completed
GFIP network refresh	Completed	Completed	Completed



Modernisation and growth

The ICT Department is on a continuous drive to modernise and grow its systems. In 2018/19 it engaged other departments to assess the maturity of the agency's electronic information management system. The results of this assessment will inform the design of an improved electronic document management system in 2019/20.

Another area undergoing improvement is an integrated approach to business continuity and ICT service continuity in case of a major event with serious potential to disrupt the functioning of the agency. The goal is to produce a comprehensive business continuity plan, aligned with ISO 22301, during the course of 2019/20.

KEY PROJECTS FOR 2019/20

Development of 10-Gbps WAN

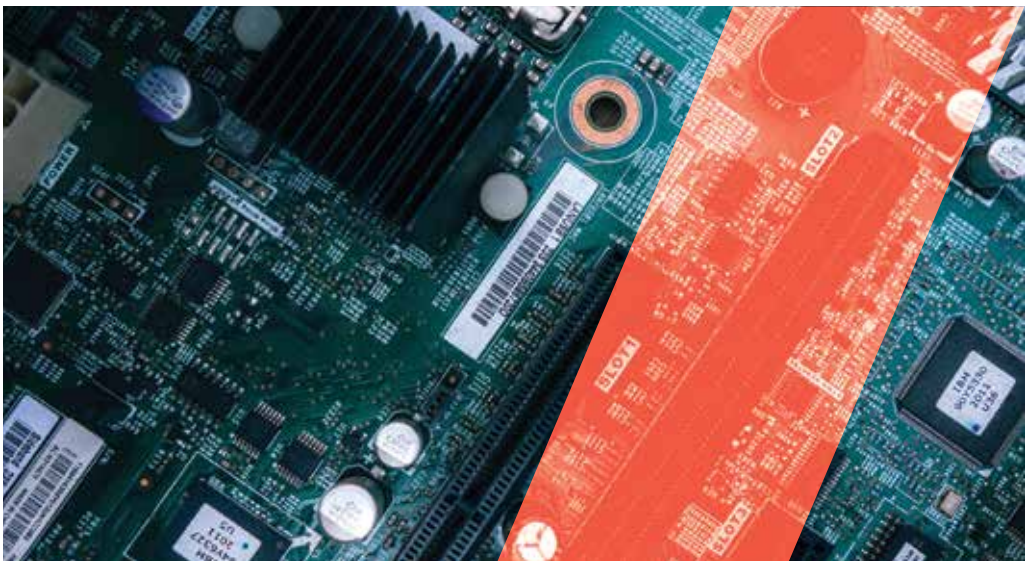
The agency will initiate a project to provide fibre infrastructure for a WAN connecting all SANRAL offices, toll plazas and traffic control centres, as well as other transport-related services. This will be achieved by repurposing telecommunications infrastructure installed by telecommunications partners who utilise SANRAL servitudes in the road reserve.

From technical and economic perspectives, the envisaged WAN will provide SANRAL with unlimited transmission capacity. As demand changes, capacity can be added extremely economically, either by simple equipment upgrades or by increasing the number of wavelengths on the fibre.

Digital transformation

The realisation of SANRAL's ICT vision is partly hampered by its fragmented infrastructure, resulting from use of legacy systems and a lack of key insights. Through a series of workshops, the ICT team established key challenges and priorities for the SANRAL Enterprise Resource Planning System (ERP) and explored the innovations in recent SAP versions. This facilitated the identification of short-term opportunities to drive its digital transformation agenda, including:

- Simplifying the existing IT landscape and introducing consistent business processes across different lines of business.
- Applying best-of-breed human capital management technology to source and cultivate talent.
- Harnessing analytics technology to obtain a holistic and real-time view of operations.



ACRONYMS AND ABBREVIATIONS	
AGSA	Auditor-General of South Africa
ALCo	Assets and Liabilities Committee
ARC	Audit and Risk Committee
ASANRA	Association of Southern African Roads Agencies
AVE	Advertising value equivalency
Bakwena	N1-N4 Bakwena Platinum Corridor Concessionaire Pty Ltd
BBBEE	Broad-based black economic empowerment
BEE	Black economic empowerment
bn	billion
CDP	Community development project
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CCTV	Closed circuit television cameras
CIDB	Construction Industry Development Board
CIPC	Companies and Intellectual Property Commission
COTO	Committee of Transport Officials
CPD	Continuing professional development
CPI	Consumer price index
CSIR	Council for Scientific and Industrial Research
DBSA	Development Bank of Southern Africa
DEA	Department of Environmental Affairs
DOT	Department of Transport
ECSA	Engineering Council of South Africa
EE	Employment Equity
EEI	Expenditure Efficiency Index
EIA	Environmental impact assessment
EME	Emerging micro-enterprise
EMP	Environmental management plan
ETC	Electronic Toll Collection Ltd
EWT	Endangered Wildlife Trust
FMS	Freeway management system
GDP	Gross domestic product
GFIP	Gauteng Freeway Improvement Project
GTS	Green Transport Strategy for South Africa: 2018 - 2050
HSRC	Human Sciences Research Council
IAS	International Accounting Standard
ICT	Information communication technology
IDP	Integrated development plan
IFRS	International Financial Reporting Standards
km	kilometres
KPI	Key performance indicator
m	million
MoU	Memorandum of understanding
N3TC	N3 Toll Concessions (RF) Proprietary Limited
NDB	New Development Bank

NMT	Non-motorised transport
NMU	Nelson Mandela University
NT	National Treasury
OCI	Overall condition index
OHS	Occupational health and safety
ORS	On-road services
PFMA	Public Finance Management Act
PIARC	World Road Association
PPE	Property, plant and equipment
PPP	Public-private partnerships
PPFA	Preferential Procurement Policy Framework Act
PSII	Public Sector Investment Index
PT	Public transport
QSE	Qualifying small enterprise
RIMS	Road incident management system
RRM	Routine Road Maintenance
RSE	Road Safety Education
SABPP	South African Board of People Practices
SADC	Southern African Development Community
SAHRA	South African Heritage Resource Agency
SANBI	South African National Biodiversity Institute
SANRAL	South African National Roads Agency SOC Limited
SARDS	South African Road Design System
SCM	Supply chain management
SETC	Social, Ethics and Transformation Committee
SIMC	Strategy Implementation Monitoring Committee
SIP	Strategic Integrated Project
SMME	Small, medium and micro-enterprise
SOC	State-owned company
SOE	State-owned enterprise
STEM	Science, technology, engineering and mathematics
STIS	Short-term incentive scheme
SU	Stellenbosch University
TE	Targeted Enterprise
TEA	Technical Excellence Academy
TIH	Technical Innovation Hub
TMC	Traffic management centre
TRAC	Trans African Concessions Pty Ltd
UCT	University of Cape Town
UFS	University of the Free State
UP	University of Pretoria
VAT	Value Added Tax
VMS	Variable message signs
WAN	Wide area network



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